

IP HIGH COURT DECISIONS

2024

**International IP Law Research Center
of IP High Court of Korea**

IP HIGH COURT DECISIONS

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FOREWORD

In today's world, where technology and innovation drive social change, intellectual property is no longer a right confined to specific industries but has become a core asset of our time. In an era in which new technologies reshape the industrial landscape and creative ideas transform the order of the market, intellectual property is both the product of innovation and the foundation for preparing for the future.

As the value of intellectual property continues to grow, an in-depth legal examination and balanced judgment on the diverse forms of intellectual property disputes and related legal issues are more urgently needed than ever.

As a specialized court responsible for intellectual property disputes in Korea, the IP High Court has made continuous efforts to administer justice in a manner responsive to the changing technological environment and industrial realities. As part of these efforts, in July 2025, the IP High Court fully revised its existing Practice Directions and newly implemented the “Rules of Practice for Civil Appellate Trial / Actions to Revoke IPTAB Decisions in the IP High Court of Korea,” corresponding to the Patent Local Rules of the United States.

The 2024 IP High Court Decisions is a collection of 13 major judgments selected from among the decisions rendered by the IP High Court in 2024 and translated into English. This publication represents part of the Court's ongoing efforts to contribute to the development of jurisprudence in the field of intellectual property by sharing its accumulated adjudicative experience and legal insights with the international community. In particular, the patent, trademark, and design-related judgments included in this volume go beyond the resolution of individual cases and illustrate the issues confronting

contemporary intellectual property law, as well as possible approaches to addressing them. I hope that this collection will serve as a useful guide for legal professionals, researchers, and practitioners in Korea and abroad who have an interest in intellectual property.

The IP High Court will continue to seek legal standards suited to the changing times and further strengthen communication with the international community. I extend my sincere gratitude to all researchers and staff members of the International Intellectual Property Law Research Center, as well as all others involved, for their dedicated efforts in bringing this collection to publication.

June 2026

HAN Kyu-hyun
Chief General of the Int'l IP Law Research Center
Chief Judge of the IP High Court of Korea

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GLOSSARY

Korean	English
청구취지	Demand for Relief
청구취지 및 항소취지 - 청구취지 - 항소취지	Demand for Relief - Plaintiff's Demand - Appellant's Demand
원출원	Original Patent Application
이 사건 심결의 경위, 관련 사건의 경과 등	Procedural History
준비서면	Brief
특허발명	Patented Invention
해결과제	Problem to be Solved
결합의 용이성	Ease of Combination
청구범위(청구항) 해석	Claim Construction
이 사건 발명	Invention at Issue
확인대상발명	Challenged Invention
기술분야	Technical Field
배경기술	Background Art (Background of the Invention)
발명의 설명(발명의 상세한 설명)	(Detailed) Description of the Invention
기술사상의 핵심(핵심적 기술사상)	Core of the Inventive Concept

IP HIGH COURT OF KOREA
TWENTY-FIFTH-FIRST DIVISION
DECISION

Case No.	2021Na1787 Injunction, etc. (Patent)
Plaintiff, Appellant and Appellee	Novartis AG Switzerland Representatives: A, B Counsels for Plaintiff Attorneys Jongseok KIM, Hyungji KIM, Yuna JIN, Sanguk HAN Assistant Counsel Attorney Minkyong JIN
Defendant, Appellee and Appellant	SK Discovery Co., Ltd.'s Successor in Litigation, SK Chemicals Co., Ltd. Representative Director C Counsel for Defendant Hwawoo Law Firm (LLC) Attorneys in Charge Donghee KANG, Seungwook KANG, Dongju KWON, Seongho LEE
District Court's Decision	Seoul Central District Court Decision 2016GaHap511134, decided August 20, 2021.
Date of Closing Argument	November 23, 2023
Decision Date	January 18, 2024

ORDER

1. The judgment of the first instance is modified as follows.
 - A. The Defendant shall pay to the Plaintiff KRW 12,146,920,526, together with interest calculated as follows: with respect to KRW 2,500,000,000, interest at the rate of 5% per annum from May 12, 2021 to August 20, 2021, and at the rate of 12% per annum from the following day until full payment; with respect to KRW 9,646,920,526, interest at the rate of 5% per annum from May 12, 2021 to January 18, 2024, and at the rate of 12% per annum from the following day until full payment.
 - B. The remainder of the Plaintiff's claims is dismissed.
2. The Defendant's application for return of provisional execution is dismissed.
3. Of the total litigation costs (including the costs of the application for restitution of provisional execution), 60% shall be borne by the Plaintiff, and the remainder by the Defendant.
4. Paragraph (1)A may be provisionally executed.

DEMAND FOR RELIEF AND FOR APPLICATION FOR RETURN OF PROVISIONAL PAYMENT

1. Plaintiff's Demand

The Defendant shall pay to the Plaintiff KRW 30,000,000,000, together with interest thereon calculated at the rate of 12% per annum from the day following service of the copy of the application to amend the claims in this action until full payment.

2. Appellant's Demand

A. Plaintiff

Of the judgment of the first instance, the portion dismissing the Plaintiff's claims corresponding to the amount for which payment is ordered below shall be reversed. The Defendant shall pay to the Plaintiff KRW 27,500,000,000, together with interest on the above amount calculated at the rate of 12% per annum from the day following service of the copy of the application to amend the claims in this action until full payment.

B. Defendant

Of the judgment of the first instance, the portion against the Defendant shall be reversed, and the Plaintiff's claims corresponding to the reversed portion shall be dismissed.

3. Demand for Return of Provisional Payment

As return of the amount paid under provisional execution, the Plaintiff shall pay to the Defendant KRW 2,546,095,890, together with interest thereon calculated at the rate of 5% per annum from September 3, 2021 until the date of service of the copy of the application for restitution of provisional execution in this action, and at the rate of 12% per annum from the following day until full payment.

OPINION

1. Background

A. Plaintiff's Registered Patents

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- 1) Original Patent Application relating to Phenyl Carbamates (hereinafter, the “Original Patent Application”)

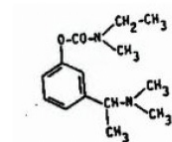
a) Filing date of application / Publication date / Priority claim: March 3, 1988 / April 21, 1998 / March 4, 1987, P3706914.4, Switzerland (CH)

b) Patent number / Registration date / Expiration date of patent term / Patentee: Patent No. 0133686 / December 23, 1997 / December 23, 2012 / Plaintiff (The Plaintiff merged with the original patentee Sandoz Limited on December 20, 1996, and the transfer of registration was recorded on February 26, 1998.)

c) Claims (as amended by the Plaintiff’s request for correction dated February 18, 2013)

[Claim 1] A process for preparing (S)-N-ethyl-3-[1(-dimethylamino)ethyl]-N-methyl-phenyl carbamate¹⁾ of formula (I) in the form of a free base or an acid addition salt, comprising the step of separating an enantiomer from the corresponding racemate and recovering the resulting compound of formula (I) in the form of a free base or an acid addition salt.

(Claims 2 and 3 were ultimately invalidated by a final decision of invalidation, and Claim 4 was deleted by the Plaintiff’s request for correction; therefore, their descriptions are omitted.)



(I)

- 2) Patent relating to a Pharmaceutical Composition for Transdermal Administration of Phenyl Carbamates (hereinafter, “the Patent at Issue,” and the patent right thereto as “the Patent Right at Issue”)

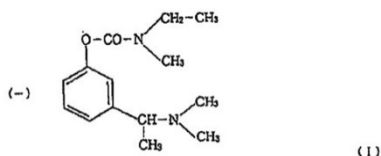
1) “(S)-N-ethyl-3-[1(-dimethylamino)ethyl]-N-methyl-phenyl carbamate” is commonly known by the generic name “rivastigmine.”

a) Filing date / Publication date of application / Priority claim / Original application date: April 30, 1996 / April 21, 1997 / March 4, 1987, P3706914.4, Germany (DE) / March 3, 1988

b) Patent number / Registration date / Expiration date of patent term / Patentee: Patent No. 0121596 / August 29, 1997 / September 11, 2014 (originally April 21, 2012, but extended by 873 days for the reasons described below) / Plaintiff (the Plaintiff merged with the original patentee Sandoz Limited on December 20, 1996, and the transfer of registration was recorded on February 26, 1998)

c) Claims

[Claim 1] A pharmaceutical composition for systemic transdermal administration, comprising (S)-N-ethyl-3-[1(-dimethylamino)ethyl]-N-methyl-phenyl carbamate²⁾ of the following general formula (I) in the form of a free base or an acid addition salt (hereinafter, “Element 1”) and a pharmaceutically acceptable carrier or diluent suitable for systemic transdermal administration (hereinafter, “Element 2”).



[Claim 2] The pharmaceutical composition according to Claim 1, wherein the compound of general formula (I) is in the form of a tartrate salt.

2) In Claim 1 of the specification of the patent invention at issue (Plaintiff's Exhibit No. 2), the name of general formula (I) is stated as “(S)-N-methyl-3-[1(-dimethylamino)ethyl]-N-methyl-phenyl carbite.” However, in light of general formula (I) and the description of the specification as a whole, it is evident that, in the underlined portion, “methyl” is a typographical error for “ethyl,” and “phenyl carbite” is a typographical error for “phenyl carbamate.” Accordingly, hereinafter, the name shall be corrected and referred to as “(S)-N-ethyl-3-[1(-dimethylamino)ethyl]-N-methyl-phenyl carbamate.”

B. The Pharmaceutical Product at Issue

Novatis Co., Ltd. (hereinafter, “Novatis”), a subsidiary of the Plaintiff and a company granted a non-exclusive license to practice the Patent at Issue, applied on September 15, 2003 to the Commissioner of the Korea Food and Drug Administration³⁾ for approval of a clinical trial plan for the import approval of the prescription drug “Exelon Patch 5 (rivastigmine),” which is a product practicing the Patent at Issue (hereinafter, “the Drug at Issue”). H obtained approval on January 14, 2004, conducted clinical trials to evaluate the safety, tolerability, etc. of the Drug at Issue, received notification around September 14, 2007 from the Commissioner of the Korea Food and Drug Administration of the results of the review of safety and efficacy and of the review of standards and test methods, and on November 20, 2007 obtained import approval for the Drug at Issue (hereinafter, “the Approval at Issue”), thereafter importing and selling the Drug at Issue.

C. Background of the Application for Extension of the Patent Term of the Patent at Issue and Related Litigation

1) Disposition of Non-Approval of the Extension Application

On April 23, 2012, the Plaintiff filed with the Commissioner of the Korean Intellectual Property Office (hereinafter, “KIPO”) an application for approval of an extension of the patent term with respect to Claim 1 of the Patent at Issue as the subject patent claim, seeking an extension period of 1,278 days, on the ground of the Approval at Issue, pursuant to Article 53 of the former Patent Act (amended by Act No. 3891 of December 31, 1986 and effective from July 1, 1987, prior to its full amendment by Act No. 4207 of January 13, 1990; hereinafter, “the 1987 Patent Act”) and Article 9-3 of the Enforcement Decree of the same Act (amended by Presidential Decree No. 12199 of July 1, 1987, prior to its full amendment by Presidential Decree

3) The Korea Food and Drug Administration (abbreviated as “KFDA”) was reorganized into the Ministry of Food and Drug Safety on March 23, 2013.

No. 13078 of August 28, 1990; hereinafter, “the Enforcement Decree of the 1987 Patent Act”) (hereinafter, “the Extension Application at Issue”).⁴⁾

After receiving the Extension Application at Issue, on October 18, 2012 the Commissioner of the KIPO sent the Plaintiff a request for correction stating, in substance, as follows: “Please submit materials (materials submitted to the Korea Food and Drug Administration) that can prove the start date and end date of the clinical trial. (omitted) In the case of an application for approval of extension of the patent term, the method of calculating the extension period is, pursuant to Article 9-2 of the former Enforcement Decree of the Patent Act, ‘the period required for approval or registration in order to practice the patented invention (excluding any period attributable to the applicant),’ which is in effect the same standard as ‘the clinical trial period and the review period for documents related to the application for approval’ under Notice No. 2005-13, which relates to the patent term extension registration application system. Please refer to this.” The Commissioner thus required that certain periods be excluded in accordance with the

4) The system for applying for approval of extension of the patent term was first introduced with the addition of paragraphs (2) and (3) to Article 53 of the 1987 Patent Act. With respect to this system, several issues were raised, including: (i) whether a patentee dissatisfied with the non-approval disposition by the Commissioner was required to go through administrative litigation, and (ii) the fact that an application for extension could only be filed three years prior to the expiration of the patent term, making it possible to apply for an extension only after a very long period had elapsed following drug approval. In order to resolve these issues, the amended Patent Act (fully amended by Act No. 4207 of January 13, 1990; hereinafter, “the 1990 Patent Act”) was revised to (i) replace the existing extension approval application system with a patent term extension registration application system (Article 90), (ii) allow a party to file an appeal trial against a decision of the KIPO (Article 167), and (iii) reflect industry demands for a prompt determination on patent term extension by setting the time limit for filing a patent term extension registration application as within three months from the date of drug approval, among other revisions.

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said Notice, and the Plaintiff, in response to the above request for correction, reduced the requested extension period to 873 days and submitted a corrected application.

On February 8, 2013, the Commissioner of the KIPO sent the Plaintiff another request for correction stating, in substance, that “the Drug at Issue does not fall under ‘a case where approval is required in order to practice the patented invention’ as set forth in Article 9-2(1)1 of the Enforcement Decree of the 1987 Patent Act.” In response, the Plaintiff submitted an opinion on February 25, 2013 disputing the unreasonableness of the Commissioner’s grounds for refusal of approval.

On April 28, 2013, the Commissioner of the KIPO, based on the 1987 Patent Act and its Enforcement Decree, as well as the “Regulations on the Operation of the Patent Term Extension System” (amended by KIPO Notice No. 2009-18 dated August 24, 2009, and repealed by KIPO Notice No. 2012-15 dated August 22, 2012; hereinafter, “the Notice at Issue”), denied approval of the Extension Application at Issue on the grounds set forth below (each ground for disposition being specified as “Disposition Ground (1) through (5) at Issue,” and collectively referred to as “the Disposition Grounds at Issue”), stating that “the requirements under Article 9-2 of the Enforcement Decree of the 1987 Patent Act have not been satisfied” (hereinafter, “the Disposition of Non-Approval at Issue”).

① Not falling under “where a long period is required for tests of activity, safety, etc. necessary for approval, etc.” under Article 53(2) of the 1987 Patent Act

- Under the Pharmaceutical Affairs Act, where a party seeks to practice a drug by changing the salt form, formulation, etc. of a drug whose active ingredient is a substance for which certain aspects of activity and safety have already been confirmed, separate drug approval must be obtained for each individual item. However, in light of the legislative purpose of patent term extension, such approval under the Pharmaceutical Affairs Act does not constitute approval under Article 53(2) of the 1987 Patent Act (because it

cannot be regarded as a case in which a long period is required for tests of safety, etc.).

- The pharmacological action, namely the efficacy, of rivastigmine, the active ingredient of the Drug at Issue, had already been confirmed through Exelon capsules.

② Not falling under “where approval is required in order to practice the patented invention” under Article 9-2(1)1 of the Enforcement Decree of the 1987 Patent Act because “initial approval” for the same active ingredient had already been obtained (Article 3(3) of the Notice at Issue)

- Under Article 3(3) of the Notice at Issue, where there are multiple approvals or registrations relating to one patent, extension registration is recognized only on the basis of the first such approval or registration.

- Since “one patent” includes both an Original Patent Application and a divisional application patent, the Original Patent Application and the Patent at Issue are included in one patent.

-Exelon capsules and the Drug at Issue have the same active ingredient; because Exelon capsules had already been approved by the Korea Food and Drug Administration, the Drug at Issue does not constitute the first approval and therefore is not a “drug for which approval must be obtained in order to practice the patented invention.”

③ In the case of import item approval, not falling within the scope of extension eligible for approval under the Enforcement Decree of the 1987 Patent Act

Because the item approval under Article 9-2(1)1 of the Enforcement Decree of the 1987 Patent Act refers to approval for domestically manufactured and sold drugs, the Approval at Issue, which is an import item approval, does not constitute “item approval” under the above provision.

④ Subject to return without processing because the extension application was filed after the patent right had lapsed (Article 2(3) of the Notice at Issue)

Under Article 2(3) of the Notice at Issue, a patent right eligible for extension must be valid as of the time of filing the extension registration application. However, the Extension Application at Issue was filed on April 23, 2012, after April 21, 2012, which was the expiration date of the term of the Patent Right at Issue; therefore, since the Patent Right at Issue had

lapsed, the application is subject to return without processing under the above provision.

⑤ Exceeding the time limit for filing an application for approval of extension under the Enforcement Decree of the 1987 Patent Act

The “Saturday deemed a public holiday” provision introduced by the 2006 amendment to the Patent Act does not apply to the Extension Application at Issue, to which the 1987 Patent Act applies. Because the Extension Application at Issue was filed on Monday, April 23, 2012, after the expiration of the three-year application period prescribed in Article 9-3(1) of the Enforcement Decree of the 1987 Patent Act, whose final day was Saturday, April 21, 2012, the application is subject to return without processing under the above provision.

2) History of the Administrative Litigation Concerning the Disposition of Non-Approval

The Plaintiff filed an administrative action against the Commissioner of the KIPO with the Seoul Administrative Court, Case No. 2013 GuHap53356, seeking reversal of the Disposition of Non-Approval at Issue. The Defendant participated in the above action as an intervenor supporting the Defendant. On September 26, 2013, the Seoul Administrative Court held as follows: “Because the 1987 Patent Act applies to the extension of the term of the Patent Right at Issue, the applicable standards for determining the legality of the Disposition of Non-Approval at Issue are the 1987 Patent Act and Articles 9-2 and 9-3 of the Enforcement Decree of the 1987 Patent Act enacted pursuant to delegation by the said Act. The main text of Article 9-2(1) of the Enforcement Decree of the 1987 Patent Act limits the inventions eligible for patent term extension, and while subparagraph 1 of the same paragraph provides only for Article 26(1) of the former Pharmaceutical Affairs Act, it does not provide for Article 34(3) of the former Pharmaceutical Affairs Act. Therefore, an invention of a drug for which import item approval, rather than manufacturing item

approval, must be obtained does not constitute an invention eligible for patent term extension; and since approval of a patent term extension based on import item approval is not permitted, the Disposition of Non-Approval at Issue on that ground is lawful.” On this basis, the court dismissed the Plaintiff’s claim.

The Plaintiff appealed to the Seoul High Court, Case No. 2013Nu48417, seeking reversal of the above judgment and reversal of the Disposition of Non-Approval at Issue. On May 16, 2014, the Seoul High Court held that, in Article 9-2(1)1 of the Enforcement Decree of the 1987 Patent Act, the portion “Article 26(1)” that limits the subject of patent term extension applications to inventions of drugs requiring manufacturing item approval is unconstitutional and void because it violates Article 11 of the Constitution by infringing the equal protection rights of inventors of drugs requiring import item approval, and is also unlawful and void because it violates Article 53(2) and (3) of the 1987 Patent Act (hereinafter, “the Delegation Provisions at Issue”). Accordingly, the court held that Article 9-2(1)1 of the Enforcement Decree of the 1987 Patent Act (hereinafter, “the Provision at Issue”) is effective only to the extent of the phrase “inventions of drugs for which item approval must be obtained pursuant to the provisions of the Pharmaceutical Affairs Act in order to practice the patented invention.” Therefore, the Patent at Issue, which is an invention requiring import item approval in order to be practiced, falls within the scope of inventions eligible for an application for approval of patent term extension; the Extension Application at Issue must be deemed to have been filed within three years prior to the expiration date of the term of the Patent Right at Issue; and the Disposition of Non-Approval at Issue was unlawful because it constituted a deviation from, or abuse of, the scope of discretion granted to the Commissioner. The Seoul High Court therefore reversed the first-instance judgment and rendered a judgment reversing the Disposition of Non-Approval at Issue.

The Commissioner of the KIPO and the Defendant filed an appeal

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to the Supreme Court as Case No. 2014Du37702, against the above judgment. On October 4, 2018, the Supreme Court dismissed the appeal for the reasons set forth below.

○ With respect to the grounds of appeal concerning the scope of eligibility for approval of patent term extension (whether Disposition Ground ③ at Issue is lawful)

In light of the legislative purpose of the Delegation Provisions at Issue, together with the contents of the Agreement on Intellectual Property Rights that entered into force after the implementation of the Delegation Provisions at Issue and the amendments to the Enforcement Decree of the Patent Act in 2000, it is reasonable to interpret that patent inventions whose terms may be extended pursuant to the Delegation Provisions at Issue include not only inventions of drugs requiring manufacturing item approval but also inventions of drugs requiring import item approval. The fact that the Provision at Issue does not provide for Article 34(1) of the Pharmaceutical Affairs Act concerning import item approval may be regarded as a legislative omission. Among the Disposition Grounds at Issue, the portion stating that import item approval does not fall within the scope of extension eligibility under the Enforcement Decree of the 1987 Patent Act was made contrary to the contents of the Delegation Provisions at Issue and is therefore unlawful.

○ With respect to the grounds of appeal concerning compliance with the filing period for the Extension Application at Issue (whether Disposition Grounds ④ and ⑤ at Issue are lawful)

Under Article 53(1) of the 1987 Patent Act and Article 9-3(1) of the Enforcement Decree of the 1987 Patent Act, the period for submitting an application for approval of patent term extension runs from the date three years prior to the expiration date of the patent term until the expiration date itself. The expiration date of the term of the patent invention at issue was April 21, 2012, which fell on a Saturday. However, Article 14(4) of the former Patent Act (amended by Act No. 7871 of March 3, 2006) provides that “where the last day of a period in patent-related procedures falls on a public holiday (including Workers’ Day under the Act on the Designation of

Workers' Day and Saturdays), the period shall expire on the following day.” Pursuant to the proviso to Article 6 of the Addenda to the former Patent Act and the proviso to Article 1 of the Addenda to the former Patent Act (amended by Act No. 11117 of December 2, 2011), the above provision also applies to the calculation of the period for filing an application for extension of the term of the patent invention at issue. Accordingly, the filing period for the Extension Application at Issue expired on Monday, April 23, 2012. Therefore, the Extension Application at Issue filed by the Plaintiff on that date must be regarded as a lawful application.

○ **With respect to the grounds of appeal concerning deviation from or abuse of discretion by the Defendant regarding the requirements for approval of extension (whether Disposition Grounds ① and ② at Issue are lawful)**

First, although it appears that a long period was required for tests of activity, safety, etc. necessary to obtain approval for the patent invention at issue, the Commissioner of the KIPO, solely on the ground that there had been a prior approval concerning the Original Patent Application involving the same active ingredient, assumed that the activity and safety of the Drug at Issue had likewise been confirmed, and issued the Disposition of Non-Approval at Issue without further examining how much time was actually required for the safety and related tests conducted by the Plaintiff. Second, Article 3(3) of the Notice at Issue, which the Commissioner relied upon as a basis for the Disposition of Non-Approval at Issue, provides that where there are multiple approvals, etc. “relating to one patent,” extension is recognized only for the first approval. However, the patent invention at issue is a use invention relating to a pharmaceutical use, whereas the Original Patent Application is a substance invention relating to a compound, and they are separate and distinct patents protecting different subject matter. Moreover, in order to practice the patent invention at issue, it was necessary to obtain the Approval at Issue. Therefore, there was no room for applying Article 3(3) of the Notice at Issue.

Third, Article 7 of the amended Enforcement Decree of the Patent Act (amended by Presidential Decree No. 24491 of April 3, 2013), which limits eligibility for patent term extension to drugs manufactured using a new active ingredient and receiving item approval for the first time, does not apply to the patent invention at issue, for which the extension application

was filed prior to its effective date of April 3, 2013.

In light of the purpose of the patent term extension system, it is reasonable to conclude that the Disposition of Non-Approval at Issue exceeded the limits of the discretion granted to the Commissioner of the KIPO.

3) Public Notice of Approval of the Extension Application

On December 18, 2018, the KIPO issued a public notice stating that it intended to approve the Plaintiff's Extension Application at Issue with an approved extension period of 873 days, as set forth below (hereinafter, "the Approval Notice at Issue").

- Date of filing of extension application: April 23, 2012
- Approved extension period: 873 days
- Patent claims subject to extension: Claim 1
- Details of approval, etc. pursuant to Article 53(2) and (3) of the Patent Act (Act No. 3891 of December 3, 1986)
 - Date of approval, etc.: November 20, 2007
 - Type of approval: Import item approval under the Pharmaceutical Affairs Act
 - Generic name (item name): Rivastigmine
 - Product name (trade name): Exelon Patch

On February 15, 2019, the Defendant filed an objection to the Approval Notice at Issue; however, on July 26, 2019, the KIPO rendered a decision maintaining the Approval Notice at Issue.

On February 15, 2019, the KIPO notified the Plaintiff that the Extension Application at Issue was approved with an extension period of 873 days, as set forth below (hereinafter, "the Disposition of Approval of Extension at Issue"), and on August 5, 2019, the contents set forth [below] were recorded in the patent register of the Patent at Issue.

1. The application for approval of extension of the term of this patent right was publicly announced in the Patent Gazette on December 19, 2018 pursuant to Article 9-3(3) of the former Enforcement Decree of the Patent Act (Presidential Decree No. 12199 of July 1, 1987). Since no objection was filed within two months from the date of the public announcement, notice of approval of this extension application is hereby given pursuant to Article 9-2 of the former Enforcement Decree of the Patent Act (Presidential Decree No. 12199 of July 1, 1987).

2. In connection with the above approval, the following matters are to be entered in the patent register of the patent subject to extension.

[Below]

- Extension application number: 10-2012-9000004
- Date of filing of extension application: April 23, 2012
- Date of approval of extension: December 18, 2018
- Patent registration number subject to extension: I
- Patent claims subject to extension: Claim 1
- Approved extension period: 873 days
- Details of approval or registration: Import item approval under the

Pharmaceutical Affairs Act

- Generic name (item name): Rivastigmine
- Product name (trade name): Exelon Patch

4) History of the Action Seeking Confirmation of Invalidity of the Disposition of Approval of Extension

The Defendant filed an administrative action against the Commissioner of the KIPO with the Seoul Administrative Court (2019GuHap78098), seeking confirmation that the Disposition of Approval of Extension at Issue was invalid (principal claim) or, in the alternative, reversal thereof (alternative claim). The Plaintiff participated in the above action as an intervenor supporting the Defendant. On February 9, 2021, the Seoul Administrative Court rendered a judgment dismissing the Defendant's claims. The Defendant appealed the above judgment to the Seoul High Court (2021Nu37252). On October 14, 2021, the Seoul High Court rendered a judgment dismissing the Defendant's appeal, and because neither the Plaintiff nor the Defendant filed a

further appeal, the judgment became final and conclusive around that time.

D. Development and Production of the Defendant's Products, etc.

1) Development, Production, and Export to Europe of the Defendant's Products

From around January 2008 through September 2010, the Defendant imported rivastigmine a total of seven times, in an aggregate amount of approximately 26.9kg. Around 2010, as generic versions of the Drug at Issue, the Defendant developed patch-form products containing rivastigmine as an active ingredient under names such as "SID710 Patch," "Rivastigmine Patch," "SK Rivastigmine Patch 4.6mg (rivastigmine)," and "Wondron Patch 10 (rivastigmine)" (collectively, "the Defendant's Products"), and conducted bioequivalence tests in Europe. Around September 29, 2011, the Defendant applied to the Portuguese medicines authority for marketing authorization for the Defendant's Products, and on September 14, 2012 obtained, from the Ministry of Food and Drug Safety in Korea, an export-only drug item approval for the Defendant's Products.

From around August 2011 through around November 2012, the Defendant imported rivastigmine a total of thirteen times, in an aggregate amount of approximately 148kg. Using the rivastigmine imported in this manner, the Defendant produced the Defendant's Products. Beginning with the shipment of some of the Defendant's Products thus produced to Germany on September 13, 2012 and November 19, 2012, the Defendant began exporting the Defendant's Products in earnest from around February 15, 2013 to European countries including Germany and Spain, and to Brazil, among others (the detailed export information is set forth in [Appendix 1]).

2) Sending of a Certified Contents Letter by the Plaintiff, etc.

On May 16, 2013, the Plaintiff sent the Defendant a certified contents letter (hereinafter, “the Certified Contents Letter at Issue”) stating, inter alia, that the Plaintiff had filed the Extension Application at Issue and had instituted an administrative action seeking reversal of the Disposition of Non-Approval. The Certified Contents Letter at Issue reached the Defendant on May 20, 2013.

○ The Plaintiff has developed rivastigmine and holds various intellectual property rights, including those listed below, which should be respected.

- Patent No. 133686 relating to rivastigmine or acid addition salts thereof (expiration date of term: December 23, 2012).

- The Patent at Issue relating to a composition for systemic transdermal administration comprising rivastigmine or acid addition salts thereof and a pharmaceutically acceptable carrier or diluent suitable for systemic transdermal administration (original expiration date of term: April 21, 2012).

However, the Plaintiff filed with the KIPO an application for approval of extension of the patent term with an extension period of 873 days. The KIPO issued a disposition of non-approval with respect to that application, and the Plaintiff filed an action seeking reversal thereof with the Seoul Administrative Court on May 3, 2013.

The Plaintiff hereby requests confirmation of your company’s position regarding the validity and effect of the Patent at Issue among the above patent rights.

○ The Plaintiff has filed with the KIPO an application for approval of extension of the patent term for the Patent at Issue relating to a transdermal administration composition containing rivastigmine. In this regard, Article 90(4) of the Patent Act provides that “where an application for registration of extension of the patent term has been filed, the term of the patent right shall be deemed to have been extended; provided, however, that this shall not apply where a decision to refuse registration of extension under Article 91 becomes final.” By analogy to the above provision, the Patent at Issue should be interpreted as having already had its term extended by virtue of the application for approval of extension, even after the expiration of the original term, and thus as remaining valid until September 10, 2014, which is 873 days after the original expiration date of April 21, 2012. Accordingly, it is the Plaintiff’s position that enforcement of rights based on the Patent at Issue is currently possible.

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On May 31, 2013, the Defendant sent the Plaintiff a certified contents letter requesting confirmation of the reasons and grounds for filing an extension application with respect to Patent No. 121596, whose term was stated to have expired on April 21, 2012, as well as the reasons why the KIPO had issued a disposition of non-approval of the said extension application.

E. History of Invalidity Trials, etc. Concerning the Original Patent Application and the Patent at Issue

1) History of the Invalidity Trial, etc. concerning the Original Patent Application

On November 15, 2012, the Defendant filed a trial for invalidation of registration with the Intellectual Property Trial and Appeal Board against the Plaintiff, as patentee, asserting that “Claims 2 through 4 of the Original Patent Application should be invalidated” (IPTAB 2012Dang2948). On February 18, 2013, the Plaintiff filed a request for correction deleting Claim 4 of the Original Patent Application. On December 20, 2013, the IPTAB rendered a trial decision to the effect that “the Plaintiff’s above request for correction is lawful and is accepted, and Claims 2 and 3 of the Original Patent Application should be invalidated because novelty or inventive step is denied.” the Plaintiff filed an action seeking reversal of the above trial decision (IP High Court 2014Heo492), but on November 7, 2014, the IP High Court rendered a judgment dismissing the Plaintiff’s claim.⁵⁾

5) The IP High Court judgment (2014Heo492) was set aside and remanded by the Supreme Court on appeal (Supreme Court 2014Hu2696). However, in the proceedings after remand (IP High Court (2017Heo6804)), the court again found that grounds for invalidation existed with respect to the Original Patent Application and dismissed the Plaintiff’s claims. That judgment became final and conclusive upon the Supreme Court’s dismissal of the appeal without full review (Supreme Court 2018Hu11629). Accordingly, Claims 2 and 3 of the Original Patent Application were ultimately invalidated.

2) History of the Invalidity Trial, etc. concerning the Patent at Issue

On March 26, 2013, the Defendant filed a trial for invalidation of registration as to Claim 1 of the Patent at Issue, asserting grounds for invalidation such as violation of the first-to-file principle and lack of inventive step (IPTAB 2013Dang723). The IPTAB determined that Claim 1 of the Patent at Issue does not violate the first-to-file principle and that its inventive step is not denied, and on December 20, 2013 dismissed the Defendant's request (hereinafter, "the IPTAB Decision"). The Defendant filed an action seeking reversal of the IPTAB Decision (IP High Court 2014Heo577), and on November 7, 2014, the IP High Court reversed the IPTAB Decision on the ground that it denied the inventive step of Claim 1 of the Patent at Issue.

The Plaintiff filed an appeal to the Supreme Court (Supreme Court 2014Hu2702), and the Supreme Court set aside the above IP High Court judgment, holding that the inventive step of Claim 1 of the Patent at Issue cannot be denied. After remand, the IP High Court handling the remanded case, on September 7, 2018, dismissed the Defendant's claim, finding that Claim 1 of the Patent at Issue does not violate the first-to-file principle and that its inventive step is not denied, and therefore that there was no illegality in the IPTAB Decision (IP High Court 2017Heo6699). The Defendant appealed the above judgment, but on January 31, 2019, the Supreme Court dismissed the appeal without full review, and the above IP High Court judgment became final and conclusive (Supreme Court 2018Hu11612).

【Factual basis】 Undisputed facts; Plaintiff's Exhibits Nos. 1 through 12, 15, 16, 29, 33, and 38 (including branch numbers where applicable; the same shall apply hereinafter); Defendant's Exhibits Nos. 1, 4, 49, 50, 71, 72, 86, and 93; the results of the fact inquiry response dated October 2, 2019 from the Seoul Customs Service to the first instance; facts that are obvious to this Court; and the overall purport of the pleadings and oral arguments.

2. Determination on the Claim for Damages Due to Patent Infringement under the Principal Claim

A. Occurrence of Liability for Damages

1) Whether the Patent Right at Issue Was Infringed

The Plaintiff asserts that (i) the Defendant's act of producing the Defendant's Products, (ii) the Defendant's act of exporting the Defendant's Products to European countries, and (iii) the Defendant's act of selling the Defendant's Products domestically constitute infringement of the Patent Right at Issue. Each assertion is examined below.

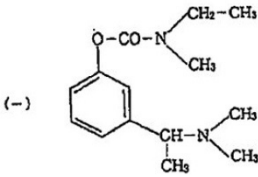
a) Act of Producing the Defendant's Products

In light of the evidence discussed above and the overall purport of the pleadings and oral arguments, it is recognized that the Defendant's Products are generic versions of the Plaintiff's product, which practices the Patent at Issue, and are transdermal dosage forms containing rivastigmine as an active ingredient, designed to allow the substance to be absorbed into the body through the skin, namely so-called patch formulations. Accordingly, as shown in the table below, the Defendant's Products include both Elements 1 and 2 of Claim 1 of the Patent at Issue,⁶⁾ and correspond to the same article as the subject matter of the approval, etc. that formed the basis for the extension registration of the patent term (i.e., rivastigmine patch formulations). Therefore, the effect of the Patent Right at Issue, whose term was extended, extends to the Defendant's Products.

Element	Claim 1	Defendant's Products
1	(S)-N-ethyl-3-[1(-dimethylamino)ethyl]-N-methyl-phenyl carbamate of the following general formula (I) in the form of a free base or an acid addition salt	Rivastigmine

6) There is no dispute between the parties on this point.

Pharmaceutical Composition for Transdermal Administration of Phenyl Carbamates Case

Element	Claim 1	Defendant's Products
		
2	A pharmaceutical composition for systemic transdermal administration comprising a pharmaceutically acceptable carrier or diluent suitable for systemic transdermal administration	Patch formulation

Accordingly, the Defendant's act of producing the Defendant's Products prior to the expiration of the extended patent term of the Patent at Issue, which expired on September 11, 2014, constitutes an act infringing the Plaintiff's Patent Right at Issue.

b) Act of Exporting the Defendant's Products

(1) Summary of the Plaintiff's Arguments

The Plaintiff argues that i) the Defendant's act of exporting the Defendant's Products to various European countries constitutes an "assignment" as set forth in Article 2(3.)(a) of the Patent Act and therefore infringes the Patent Right at Issue; or ii) at a minimum, the Defendant's export necessarily entails an act of assignment within Korea, and such domestic assignment of the Defendant's Products constitutes infringement of the Patent Right at Issue.

(2) Determination on the Plaintiff's Argument i)

For the following reasons, it is reasonable to conclude that an act of "export" does not constitute an "assignment" of an article as an act of working under Article 2(3.)(a) of the Patent Act. Accordingly, the Defendant's export of the Defendant's Products cannot be regarded as working of the Patent at Issue, and the Plaintiff's argument on this point is rejected.

① A patent right is territorial in nature, conferring an

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exclusive right to work the patented invention only within Korea. Absent an explicit statutory provision, it cannot be assumed that “export,” which transfers possession to a place outside Korea, is necessarily included within acts of working the patent.

② Unlike the Patent Act, the Trademark Act, in Article 2(1)11(b), defines “use” of a trademark as “the act of assigning or delivering goods or the packaging of goods bearing the trademark, or displaying, exporting, or importing such goods for the purpose of assignment or delivery,” thereby expressly identifying “export” as a type of use separate from “assignment.” Likewise, Article 2(7) of the Design Protection Act defines “working” as “the act of producing, using, assigning, leasing, exporting, or importing articles to which a design pertains, or offering to assign or lease such articles (including displaying them for assignment or lease; hereinafter the same),” listing “assignment” and “export” in parallel. In light of the structure of these provisions in the Trademark Act and the Design Protection Act, it cannot be interpreted that “export” is necessarily included within the concept of “assignment.”

③ The Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS) provides only a minimum set of acts regarded as infringement, namely “the making, using, offering for sale, selling, or importing” (and, with respect to designs, “producing, using, assigning, leasing, or offering for assignment or lease (including display for assignment or lease)”, and does not include “export.” Reflecting this, the Design Protection Act originally did not include “export” among acts of working; “export” was added as a mode of working only through an amendment by Act No. 10809 of June 30, 2011. This amendment was made to strengthen protection for registered designs by including “export” among acts of working, reflecting agreed matters under the Free Trade Agreement between the Republic of Korea and the European Union and its Member States. In this manner, content added to the Design Protection Act through

legislation in response to changes in the legal environment for design rights cannot be imported into the Patent Act, which lacks comparable legislative action and wording, by expanding the concept of “assignment” to include “export.”

(3) Determination on the Plaintiff’s Argument ii)

For the following reasons, the evidence submitted by the Plaintiff is insufficient to find that, in the course of exporting the Defendant’s Products prior to the expiration of the extended term of the Patent at Issue, the Defendant’s export necessarily included a domestic assignment of the Defendant’s Products, and there is no other evidence establishing this. Accordingly, the Plaintiff’s argument on this point is also rejected.

① “Assignment” under Article 2(3)(a) of the Patent Act means transferring ownership of an article to another person. A transfer of a real right in a movable becomes effective upon delivery of the movable (Civil Act, Article 188(1)); where the transferee is already in possession of the movable (Civil Act, Article 188(2)), where the parties agree that the transferor will continue to possess the movable (Civil Act, Article 189), or where a third party possesses the movable, the transferor must assign to the transferee the right to demand return from that third party (Civil Act, Article 190).

② Depending on the specific circumstances, it is not impossible that an act of “export,” which transfers possession of an article from Korea to a foreign country, may include a transfer of ownership within Korea; however, it is difficult to conclude that a domestic transfer of ownership necessarily occurs in every case. In this case, there is no evidence establishing that ownership was transferred within Korea in the Defendant’s export of the Defendant’s Products.

c) Act of Domestic Sale of the Defendant’s Products

(1) Summary of the Plaintiff’s Arguments

The Plaintiff asserts that the Defendant infringed the Patent Right at Issue by producing, prior to the expiration of the extended term of the

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Patent Right at Issue on September 11, 2014, and by assigning and offering to assign within Korea, products such as “Wondron Patch 10 (rivastigmine),” which were released domestically rather than being export-only products.

(2) Determination

In light of the following facts and circumstances recognized based on Plaintiff’s Exhibits Nos. 47, 49 through 54, Defendant’s Exhibits Nos. 81, and 83 through 85, together with the overall purport of the pleadings and oral arguments, the evidence submitted by the Plaintiff is insufficient to establish that the Defendant assigned or offered to assign the Defendant’s Products domestically prior to September 11, 2014, which was the expiration date of the extended term of the Patent at Issue, and there is no other evidence supporting such a finding. Accordingly, the Plaintiff’s above assertion cannot be accepted.

① On December 23, 2013, the Defendant applied to the Ministry of Food and Drug Safety of Korea for manufacturing and marketing approval for “Wondron Patch 15 (rivastigmine),” and on March 3, 2014 applied for manufacturing and marketing approval for “Wondron Patch 10 (rivastigmine)” and “Wondron Patch 5 (rivastigmine).” The Ministry of Food and Drug Safety granted approvals for these applications on March 10, 2014 and March 31, 2014, respectively.

② A pharmaceutical news article dated March 27, 2014 (Plaintiff’s Exhibit No. 50) noted that administrative litigation concerning the disposition of approval of extension was ongoing, and cautioned that if the Plaintiff were to prevail in the litigation, the patent term would be extended into the second half of 2014, potentially exposing pharmaceutical industry participants seeking to launch generic versions of the Plaintiff’s product domestically to patent infringement damages actions.

③ On May 28, 2014, the Plaintiff sent the Defendant a

certified contents letter stating, in substance, that because the term of the Patent Right at Issue was expected to be extended until September 11, 2014, producing or selling Wondron Patch prior to that date could constitute infringement of the Patent at Issue.

④ On June 26, 2014, the Defendant replied to the Plaintiff, stating, “We hereby inform you that we have withdrawn our intention to immediately launch Wondron Patch. Please contact the Health Insurance Review and Assessment Service, if necessary, regarding related matters.”

⑤ According to the results of a domestic pharmaceutical market survey concerning rivastigmine conducted by IQVIA Ltd., a global pharmaceutical market research and consulting firm (Plaintiff’s Exhibit No. 51), it is stated that the Defendant’s sales volume of Wondron Patch in the third quarter of 2014 was 1,620 units. However, based on this description alone, it is difficult to conclusively determine that these 1,620 units were sold prior to September 11, 2014, the expiration date of the extended term. The third-quarter sales volume of 1,620 units reflects sales from June through September 2014, and in light of the fact that this number is small compared to the fourth-quarter sales volume of 5,760 units, there remains a possibility that the 1,620 units were sold during the period from September 12 through September 30, 2014, after the expiration of the extended term.

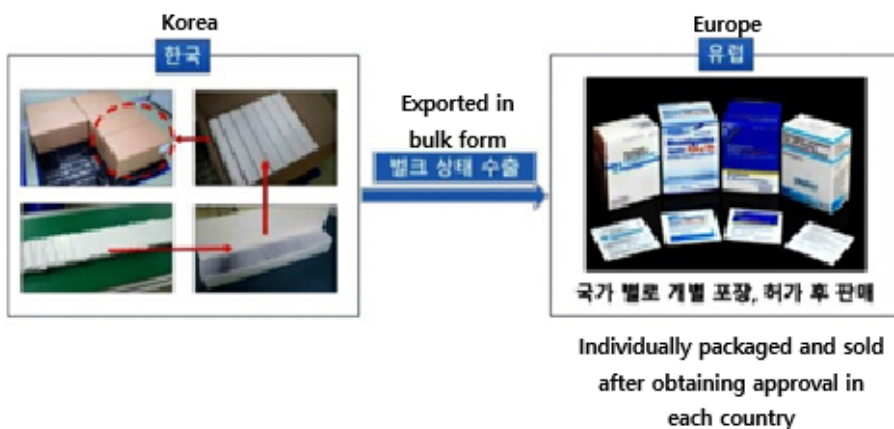
d) Determination on the Defendant’s Arguments Concerning Whether the Patent Right at Issue Was Infringed

(1) Argument that the Defendant’s Products Are Merely “Intermediate Products”

The Defendant argues that the Defendant’s Products are so-called bulk products, as shown in the video below, which are at a stage prior to the final products sold to consumers and are not individually packaged in a fixed form. According to the Defendant, pharmaceutical companies in various European countries that imported the Defendant’s Products could not sell them in Europe in that form, but instead

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individually packaged the Defendant's Products for sale in accordance with the approvals obtained in each country. On this basis, the Defendant contends that the Defendant's Products, in and of themselves, constitute merely "intermediate products" and therefore do not infringe the Patent at Issue.



However, even if the Defendant produced the Defendant's Products in bulk form rather than in the final form sold to consumers, this concerns only whether the products were packaged, and does not change the fact that the articles produced by the Defendant fully satisfy both Elements 1 and 2 of Claim 1 of the Patent at Issue. Accordingly, the Defendant's above argument cannot be accepted.

(2) Argument that the Acts Constitute Working for Research or Experimental Purposes under Article 96(1)1 of the Patent Act

The Defendant argues that its production of the Defendant's Products constitutes working of the patented invention for research or experimental purposes as provided in Article 96(1)1 of the Patent Act, and therefore falls outside the scope of the effect of the Patent Right at Issue.

However, in light of the following facts and circumstances, which can be recognized based on the facts discussed above, the evidence previously cited, and the overall purport of the pleadings and oral arguments—namely, that the Defendant had already imported a

substantial quantity of rivastigmine, the raw material for the Defendant's Products, prior to April 21, 2012, which was the original expiration date of the Patent Right at Issue; that the Defendant produced a significant quantity of the Defendant's Products using the rivastigmine thus imported; that the Defendant continued such production even after obtaining drug item approvals in European countries; and that the Defendant exported the products thus produced to Europe, it is difficult to find that the Defendant's prolonged and large-scale production of the Defendant's Products constituted working for research or experimental purposes as prescribed in Article 96(1)1 of the Patent Act, and there is no other evidence supporting such a finding. Accordingly, the Defendant's above argument cannot be accepted.

(3) Argument that the Disposition of Approval of Extension at Issue Is Invalid

The Defendant argues, on the premise that the Plaintiff's Extension Application at Issue did not satisfy the requirements for approval of extension prescribed by the Provision at Issue within the scope of delegation under the Delegation Provisions at Issue, and also failed to comply with the filing period, that the Commissioner's Disposition of Approval of Extension at Issue accepting the Plaintiff's Extension Application at Issue was unlawful and therefore invalid. On that basis, the Defendant contends that the Patent Right at Issue was extinguished on April 21, 2012, the original expiration date of its term, and thus the Defendant's production of the Defendant's Products thereafter does not infringe the Patent Right at Issue.

However, as discussed above, the Defendant filed an action with the Seoul Administrative Court seeking, inter alia, confirmation that the Disposition of Approval of Extension at Issue was invalid (Seoul Administrative Court 2019GuHap78098), received a judgment dismissing its claims, and appealed; the Seoul High Court dismissed the appeal (Seoul High Court 2021Nu37252), and the judgment became final and

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conclusive. Further, other than the matters at issue in the above judgment, there is no evidence establishing that the Disposition of Approval of Extension at Issue suffers from any serious and manifest illegality. Accordingly, the Defendant's argument on this point cannot be accepted.

(4) Argument that Retroactive Effect of the Disposition of Approval of Extension at Issue Cannot Be Recognized

The Defendant argues that Article 53 of the 1987 Patent Act merely provides that "the Commissioner may extend the term of a patent right," without any mention of retroactive effect or a deeming provision, whereas Article 90(4) of the 1990 Patent Act, in connection with the patent term extension registration application system, expressly provides for a deeming provision. In light of this, the Defendant contends that the extended period resulting from the Disposition of Approval of Extension at Issue should be deemed to arise prospectively, at least from the date of the Approval Notice at Issue.⁷⁾ Therefore, because the Patent at Issue was not validly in force during the period from April 21, 2012, the original expiration date of the term of the Patent Right at Issue, through September 11, 2014 (hereinafter, "the Period at Issue"), the Defendant's production of the Defendant's Products during that period does not constitute patent infringement.

However, the term of the Patent at Issue was originally from April 21, 1997, the date on which the application was published, until April 21, 2012, which is 15 years thereafter; and due to the Disposition of Approval of Extension at Issue, the term of the Patent Right at Issue was extended by 873 days, and must be regarded as extended until September 11, 2014. This remains the case even though the Disposition of Approval of Extension at Issue was rendered on December 18, 2018, after the extended expiration date. That is, it is reasonable to conclude that the Disposition of Approval of Extension

7) the Defendant's brief dated August 27, 2019.

at Issue has retroactive effect, rather than producing effects only prospectively from the date of the Approval Notice at Issue. The specific reasons are as follows.

① Article 53(1) of the 1987 Patent Act provides that “the term of a patent right shall be 15 years from the date of publication of the application where the application has been published, and from the date of registration of establishment of the patent right where the application has not been published.” Article 53(2) provides that “notwithstanding paragraph (1), where, in order to practice the patented invention, approval or registration must be obtained under other laws and regulations, and a long period is required for tests of activity, safety, etc. necessary for such approval or registration, the Commissioner of the KIPO may extend the term of the patent right within a period not exceeding five years.” Meanwhile, Article 9-3(1) of the Enforcement Decree of the 1987 Patent Act provides that a patentee who intends to apply for approval of extension of the patent term must submit an application for extension of the patent term to the Commissioner within three years prior to the expiration date of the patent term of the relevant patented invention.

② In order to practice inventions relating to pharmaceuticals, etc., approvals, etc. must be obtained under the Pharmaceutical Affairs Act and the like to promote public health and hygiene and to secure safety and efficacy; and patentees suffer the disadvantage of being unable to practice the patented invention in the course of obtaining such approvals, etc. Accordingly, the Patent Act established a system that extends the term of a patent right by the period during which the patentee was unable to practice the patented invention in order to obtain approvals, etc. under the Pharmaceutical Affairs Act and the like, so as to remedy such disadvantages and to protect and encourage inventions relating to pharmaceuticals, etc. (*see* Supreme Court Decisions 2017Hu844, 851, 868, and 875, dated November 29, 2017, etc.). Considering the purpose of the patent term extension system,

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together with the fact that the Enforcement Decree of the 1987 Patent Act limits the filing of an extension application to a time before the expiration of the patent term, and that the 1987 Patent Act does not limit the starting point of the extended term or the period during which it becomes effective, the extended term resulting from approval of the extension application should be deemed to take effect from the day following the original expiration date of the patent term. The fact that the approval notice or the disposition of approval was made after the expiration date does not support a conclusion that the extended term does not take effect until the date of such notice or disposition.

③ Moreover, if, as the Defendant argues, the effect of the disposition of approval of extension arises prospectively from the date of the approval notice, then in a case such as this, where the approval notice is issued a substantial period after the original expiration date, the patent right would be revived for 873 days from December 18, 2018, a time when it is clear not only that the original term has expired but also that any potentially extendable term has already elapsed. This is an interpretation that could cause substantial confusion in the rivastigmine patch market, where many generic drugs, including the Defendant's Products, are already being sold, and it is also inconsistent with the purpose of the patent term extension system. Accordingly, such an interpretation is difficult to accept.⁸⁾

(5) Argument that Provisions Limiting the Effect of a Restored Patent Right (Article 81-3 or Article 181 of the Patent Act) Should Apply by Analogy

The Defendant argues that the Patent Right at Issue was extinguished upon expiration of the original term on the original expiration date,

8) In its preparatory brief dated August 27, 2019, the Defendant did argue that the Disposition of Approval of Extension at Issue takes effect prospectively from the date of the approval notice. However, thereafter, the Defendant did not continue to assert a general prospective-effect theory, but instead limited its argument to the position that the retroactive effect of the Disposition of Approval of Extension at Issue does not extend to the Defendant.

and was restored retroactively due to the Commissioner's Disposition of Approval of Extension at Issue issued after 6 years and 8 months had elapsed. The Defendant asserts that it produced the Defendant's Products in good faith relying on the belief that the Patent Right at Issue had been extinguished upon expiration of the original term. In such circumstances, the Defendant contends that Article 81-3(4) or Article 181(2) of the Patent Act, which governs the interests of a patentee and a third party who relied on the extinguishment of a patent right, should apply by analogy, and therefore the effect of the Patent Right at Issue does not extend to the Defendant's production of the Defendant's Products during the Period at Issue.

Article 81-3 (Restoration of Patent Applications and Patent Rights by Additional Payment or Reinstatement, etc.)

① Where a person who intends to obtain registration of establishment of a patent right or a patentee fails, for justifiable reasons, to pay the patent fee within the additional payment period or to reinstate within the reinstatement period, such person may pay the patent fee or reinstate within two months from the date on which such reason ceases to exist. However, this shall not apply where one year has elapsed from the later of the expiration date of the additional payment period and the expiration date of the reinstatement period.

② A person who has paid the patent fee or reinstated pursuant to paragraph (1) shall, notwithstanding Article 81(3), be deemed not to have abandoned the patent application, and the patent right shall be deemed to have continued to exist.

③ Where a patent right for a patented invention has been extinguished due to failure to pay the patent fee within the additional payment period or failure to reinstate within the reinstatement period, the patentee may, within three months from the expiration date of the additional payment period or the reinstatement period, pay twice the patent fee prescribed in Article 79 and apply for restoration of the extinguished right. In such case, the patent right shall be deemed to have continued to exist.

④ The effect of a patent application or patent right restored pursuant to paragraph (2) or (3) shall not extend to acts by another person of working the invention of the filed patent application or the patented invention during the period from the day after the additional payment period or the

reinstatement period has elapsed until the day on which the patent fee is paid or reinstatement is made (hereinafter referred to in this Article as the “Period of Limited Effect”).

⑤ A person who, in good faith, is commercially working, or preparing to work, within Korea, an invention of a patent application or a patented invention restored pursuant to paragraph (2) or (3) during the Period of Limited Effect shall have a non-exclusive license with respect to the patent right for such invention of the patent application or such patented invention, within the scope of the invention being worked or prepared and the purpose of the business.

⑥ A person holding a non-exclusive license pursuant to paragraph (5) shall pay reasonable compensation to the patentee or exclusive licensee.

Article 181 (Limitation on the Effect of a Patent Right Restored by Retrial)

① In any of the following cases, the effect of the patent right shall not extend to goods that were imported into Korea or produced or acquired within Korea in good faith after the relevant patent cancellation decision or trial decision became final and before registration of the request for retrial:

1. Where an invalidated patent right (including a patent right whose term has been extended by registration) is restored by retrial.
2. Where, after a trial decision determining that the patent does not fall within the scope of the patent right becomes final, a trial decision contrary to the above becomes final by retrial.
3. Where a patent application or an application for registration of extension of the patent term, for which a trial decision of refusal had been rendered, results in registration of establishment of a patent right or registration of extension of the patent term by retrial.
4. Where a reversed patent right is restored by retrial.

② In any of the cases under paragraph (1), the effect of the patent right shall not extend to any of the following acts:

1. Good-faith working of the invention concerned after the relevant patent cancellation decision or trial decision became final and before registration of the request for retrial.
2. Where the patent is for an invention of a product, acts, in good faith, of producing, assigning, leasing, or importing, or offering to assign or lease, articles used exclusively for producing the product, after the relevant patent cancellation decision or trial decision became final and before registration of the request for retrial.

3. Where the patent is for an invention of a process, acts, in good faith, of producing, assigning, leasing, or importing, or offering to assign or lease, articles used exclusively for practicing the process, after the relevant patent cancellation decision or trial decision became final and before registration of the request for retrial.

However, the Defendant's above argument cannot be accepted for the following reasons.

① Where disputes cannot be resolved, or results that are manifestly contrary to social notions of justice would arise, solely through a literal or logical interpretation of positive law provisions in civil law, courts may apply the law by analogy in order to resolve disputes reasonably and reach results consistent with principles of justice, while giving effect to the legislative spirit of positive law. Analogical application of law serves to fill gaps in legislation by applying legal norms governing similar situations to matters for which no explicit legal regulation exists. For such analogical application, there must be commonalities or similarities between the unregulated matter and the regulated matter; however, this alone is insufficient. Analogical application is permissible only where, in light of the legal system as a whole and the legislative intent and purpose, such application is deemed justified (*see* Supreme Court Decision 2019Da226135, dated April 29, 2020, etc.).

② Article 81-3 of the Patent Act provides for limitations on the effect of a patent right with respect to persons who worked the patented invention during a period in which the patent right had lapsed due to non-payment of patent fees and was subsequently restored. Article 181 provides for limitations on the effect of a patent right with respect to persons who, in good faith, worked the patented invention before a request for retrial, where a patent that had been extinguished due to invalidation or the like was restored by retrial.

③ In this case, there existed an appearance that the Patent Right at Issue had been extinguished upon expiration of its

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original term; thereafter, due to the Commissioner's Disposition of Approval of Extension at Issue, the legal status was determined such that the Patent Right at Issue was validly in force during the Period at Issue. In this respect, the case bears some similarity to the situations governed by Articles 81-3 and 181 of the Patent Act, which address legal issues where there is an appearance that a patent right has ceased to exist for a certain period, but is later determined retroactively to have existed during that period, thereby raising the need to protect third parties who relied on such appearance and worked the patent.

④ However, Article 81-3(4) of the Patent Act was newly introduced in the course of the amendment of the Patent Act by Act No. 6768 of December 11, 2002, with the purpose of preventing loss of patent rights contrary to the intent of the patent applicant or patentee by providing an opportunity to remedy non-payment or underpayment of patent fees. In contrast, the patent term extension system (*see* Article 53(2) and (3) of the 1987 Patent Act; Article 89 of the 1990 Patent Act; and Article 89 of the current Patent Act) is designed to extend the term of a patent right by the period required to obtain safety testing, manufacturing approval, or the like for inventions—such as pharmaceuticals—that cannot be practically worked until such approvals or registrations are obtained. The legislative purposes of these systems are fundamentally different.

In particular, Articles 81-3(3) and (4) presuppose situations in which the patentee bears responsibility, such as where a patent right is extinguished due to failure to pay patent fees within the additional payment period or to reinstate within the reinstatement period. In this case, however, the Plaintiff, as patentee, duly filed the Extension Application at Issue, and it was merely the Commissioner who issued the unlawful Disposition of Non-Approval at Issue. It is therefore difficult to attribute any responsibility to the Plaintiff. Accordingly, Article 81-3 of the Patent Act cannot be applied by analogy to this case.

⑤ Furthermore, Article 181 of the Patent Act governs situations where a patent right that had been extinguished by a final and conclusive trial decision of invalidation or the like is restored by retrial. By contrast, this case concerns a situation in which an application for approval of extension of the patent term had been filed and the approval or non-approval thereof—that is, whether the term would be extended—had not yet been determined. The circumstances are therefore entirely different. Specifically, once a trial decision invalidating a patent becomes final and conclusive, the patent right is deemed never to have existed *ab initio* (Patent Act Article 133(3)), and the principle of *res judicata* applies, barring any further trial on the same facts and evidence (Patent Act Article 163). Moreover, retrial of a final trial decision is permitted only in exceptional circumstances where strict grounds for retrial exist, as enumerated in Article 451 of the Civil Procedure Act (Patent Act Article 178), and retrial cannot be requested once three years have elapsed from the finalization of the trial decision (Patent Act Article 180(3)). Accordingly, where there is a final and conclusive trial decision invalidating a patent, there is a strong need to protect third parties' reliance on the invalidity of the patent. By contrast, in this case, there was no final trial decision of the Intellectual Property Trial and Appeal Board followed by retrial. Rather, the case involved an unlawful disposition by the Commissioner denying extension registration, subsequent administrative litigation challenging that disposition, and a lawful disposition approving the extension rendered in accordance with the outcome of that litigation. Thus, it is difficult to conclude that third-party reliance on the Commissioner's disposition denying extension registration should be protected to the same extent as reliance on a final and conclusive trial decision.

Furthermore, Article 181 provides that the effect of a patent right does not extend to acts of good-faith working of the patented invention before registration of a request for retrial, after a trial decision has become final. Accordingly, if a person works the patented

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invention while knowing that a request for retrial has been filed, the limitation on effect does not apply. Therefore, even assuming *arguendo* that Article 181 could be applied by analogy in this case, as discussed above, the Defendant became aware—through the Certified Contents Letter at Issue sent by the Plaintiff—that administrative litigation concerning the disposition denying extension registration was pending. At least from the point at which the Defendant became aware that such administrative litigation was ongoing, the effect of the Patent Right at Issue cannot be regarded as limited.

⑥ Limitation on the effect of a patent right constitutes a restriction on the patentee's property rights, and, in principle, such a restriction must have a statutory basis. However, it is difficult to conclude that the fact that the 1987 Patent Act and the Enforcement Decree of the 1987 Patent Act do not provide, in connection with the system for approval of extension of patent term, for cases in which the effect of a patent right does not extend, constitutes a legislative gap. Moreover, considering the differences between this case and Articles 81-3 and 181 of the Patent Act as discussed above, it cannot be said that denying analogical application of Articles 81-3 and 181 to this case would result in outcomes that are manifestly contrary to social notions of justice.

(6) Argument That the Provisions on a Royalty-Free Non-Exclusive License (Article 182 or Article 103 of the Patent Act) Should Apply by Analogy

The Defendant argues that, because it produced the Defendant's Products in good faith relying on the belief that the Patent Right at Issue was extinguished upon expiration of the original term on the original expiration date, Article 182 or Article 103 of the Patent Act should apply by analogy to the Defendant's acts of working during the Period at Issue, and that the Defendant should therefore be recognized as having a royalty-free non-exclusive license.

Article 103 (Non-Exclusive License by Prior Use)

A person who, at the time a patent application is filed, without knowing the contents of the invention disclosed in the patent application, made the invention, or learned of the invention from the person who made it, and is commercially working the invention within Korea or preparing to do so, shall have a non-exclusive license with respect to the patent right for the invention disclosed in the patent application, within the scope of the invention being worked or prepared and the purpose of the business.

Article 182 (Non-Exclusive License of a Prior User with Respect to a Patent Right Restored by Retrial)

In any case falling under any of the items of Article 181(1), a person who, in good faith, is commercially working the invention within Korea or preparing to do so after the relevant patent cancellation decision or trial decision becomes final and before registration of the request for retrial shall have a non-exclusive license with respect to the patent right, within the scope of the invention being worked or prepared and the purpose of the business.

However, the Defendant's above argument cannot be accepted for the following reasons.

① As discussed above, this case is entirely different from the situations governed by any of the items of Article 181(1) of the Patent Act, which constitute the prerequisites for application of Article 182. Accordingly, the provision on non-exclusive licenses under Article 182 of the Patent Act cannot be applied by analogy.

② Article 103 of the Patent Act is intended to balance the interests of the patentee and prior users in light of the first-to-file principle, under which patent protection is granted to the first applicant rather than the first inventor. The provision seeks to prevent unforeseeable harm that could arise if a person who, in good faith, has been in possession of and working an invention that later becomes the subject of a patent were prohibited from continuing such working. In this case, however, the Defendant was not a person who had invented the invention at issue, or had been working or preparing to work the

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invention, prior to the priority date of the Patent at Issue. Rather, the Defendant worked the Patent at Issue with clear awareness of the existence and contents of the Patent at Issue. The Defendant therefore differs from the good-faith prior user whom Article 103 is designed to protect. Accordingly, it is difficult to apply Article 103 of the Patent Act by analogy to this case.

③ It is difficult to conclude that the absence of provisions governing a royalty-free statutory non-exclusive license in connection with the system for approval of extension of patent term under the 1987 Patent Act and the Enforcement Decree of the 1987 Patent Act constitutes a legislative gap. Moreover, even if analogical application of Articles 103 and 182 of the Patent Act is denied in this case in light of the differences discussed above, it cannot be said that such denial would result in outcomes that are manifestly contrary to social notions of justice.

2) Unlawfulness of Infringement of the Patent Right at Issue

a) Whether Unlawfulness Is Established

Article 94(1) of the Patent Act provides that a patentee has the exclusive right to work the patented invention as a business. Accordingly, absent special circumstances, an act by a third party that infringes another person's patent right is deemed unlawful. Therefore, the Defendant's act of infringing the Plaintiff's Patent Right at Issue by producing the Defendant's Products should, absent special circumstances, be regarded as unlawful.

b) Determination on the Defendant's Arguments Concerning Unlawfulness

(1) Summary of the Defendant's Arguments

In light of the following points, the Defendant argues that its acts of working, which were lawful at the time they were committed, cannot be deemed unlawful retroactively.

① At the time the Defendant worked the Patent at Issue,

the Patent Right at Issue had the appearance of having been extinguished, as the original term expired on April 21, 2012, a disposition of non-approval by the Commissioner was issued on April 28, 2013, and the patent register was ultimately closed on September 25, 2014. The Defendant asserts that it worked the Patent at Issue in reliance on this appearance.

② Under the principle of statutory reservation, there must be a legal basis to evaluate the Defendant's above acts as unlawful ex post facto. However, the 1987 Patent Act and the Enforcement Decree of the 1987 Patent Act provided no rules governing adjustment of interests between patentees and third parties where, as in this case, legal disputes over whether extension would be approved were prolonged and no final determination was rendered before the original expiration date. Further, Article 53 of the 1987 Patent Act contains no reference to retroactive effect of the approved extension period, making it difficult to regard it as a legal basis. The deeming provision under the 1990 Patent Act was constitutive legislation, and therefore it is appropriate that disadvantages resulting from such legislative deficiency be borne by patentees who benefit from the extension system. If third parties such as the Defendant were to bear such disadvantages, this would destabilize the legal status of interested parties and seriously undermine legal certainty.

③ If the Defendant's above acts of working are deemed unlawful, they would satisfy the elements of the criminal offense of patent infringement under Article 158(1)1 of the 1987 Patent Act. In light of the purpose of Article 13(1) of the Constitution and Article 1(1) of the Criminal Act, which embody the principle against retroactive penal punishment, such a result would not be permissible.

(2) Determination

In light of the evidence previously cited and the overall purport of the pleadings and oral arguments, and considering the following facts and circumstances, the Defendant's above arguments cannot be

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accepted.

① As discussed above, the Disposition of Approval of Extension at Issue does not take effect only prospectively from the date of the Approval Notice at Issue, but rather takes effect retroactively, with the day following the original expiration date of the patent term as the starting point. Further, it has already been confirmed by final and conclusive judgments in the action seeking confirmation of invalidity of the Disposition of Approval of Extension at Issue (Seoul Administrative Court Decision 2019Guhap78098, dated February 9, 2021.; Seoul High Court Decision 2021Nu37252, dated October 14, 2021.) that recognizing such retroactive effect does not lack a legal basis and does not violate Article 13(1) of the Constitution.

② Moreover, if, despite the retroactive effect of the disposition of approval of extension, it were held that the effect of the approved extension does not extend to the Defendant, or that the Defendant's acts of working during the extended term are not unlawful, then, due solely to the fortuitous circumstance that the timing of the approval notice or approval disposition was delayed—a circumstance for which the Plaintiff bears no responsibility—the Plaintiff would receive no protection from the extended term. This would run counter to the purpose of the patent term extension system, which is to secure a substantive term of protection by extending the patent term by the period during which the patentee could not practically exercise the patent right.

③ In addition, if the retroactive effect of the disposition of approval of extension did not extend to the Defendant, or if the Defendant's acts during the extended term were deemed not unlawful, this would effectively render meaningless the Supreme Court Decision 2014Du37702, dated October 4, 2018., which finally affirmed the reversal of the Disposition of Non-Approval at Issue.

④ The Defendant's argument that it relied on the patent

register's indication that the original term had expired is, as discussed below, a circumstance relevant to the assessment of whether the Defendant acted intentionally or negligently in connection with the infringement. It cannot, however, be regarded as a circumstance that negates the unlawfulness of patent infringement.

3) Intent or Negligence in Patent Infringement

a) Whether Intent or Negligence Is Established

Article 130 of the Patent Act provides that a person who infringes another person's patent right or exclusive license is presumed to have been negligent with respect to the infringing act. Accordingly, the Defendant is presumed to have been negligent with respect to the infringement of the Patent Right at Issue through the production of the Defendant's Products.

b) Determination on the Defendant's Arguments

(1) Argument that the Presumption of Negligence under Article 130 of the Patent Act Does Not Apply

(a) Summary of the Defendant's Argument

The Defendant argues that, for the presumption of negligence under Article 130 of the Patent Act to apply, the existence and validity of the patent right must be publicly disclosed through the patent register. In this case, due to the expiration of the original term of the Patent at Issue, the patent register for the Patent at Issue had been closed, and this state continued until the Approval Notice dated December 18, 2018, and the Disposition of Approval of Extension dated February 15, 2019, with the relevant information being entered into the patent register only on August 5, 2019. Therefore, the Defendant contends that the presumption of negligence under Article 130 of the Patent Act does not apply in this case.

(b) Determination

The purpose of Article 130 of the Patent Act is that the contents of patented inventions are publicly disclosed through patent gazettes or

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the patent register and may thus be widely known to the general public, and that it is justified to impose on business operators who work technologies as a business a duty of care to avoid infringing patent rights in the relevant technical field. Notwithstanding the above provision, in order for a person who has worked another's patented invention without authorization to be found free of negligence, such person must assert and prove circumstances justifying either a lack of knowledge of the existence of the patent right or a belief that the technology being worked did not fall within the scope of the patented invention (*see* Supreme Court Decisions 2003Da15006, dated April 27, 2006; and 2019Da222782 and 2019Da222799, dated October 17, 2019, etc.).

The fact that the existence or validity of the patent right was not publicly disclosed in the patent register is merely one circumstance that may be asserted to rebut the presumption under Article 130, and cannot be regarded as a prerequisite for the application of Article 130 itself. Accordingly, the Defendant's argument that Article 130 does not apply merely because the extension of the patent term was not recorded in the patent register cannot be accepted.

(2) Argument that the Presumption of Negligence Has Been Rebutted

(a) Summary of the Defendant's Argument

The Defendant argues that it formed a justified belief that the original term of the Patent at Issue had expired, based on the patent register entries indicating expiration of the original term and the Commissioner's disposition denying approval of the extension. Therefore, even if Article 130 applies, the Defendant contends that the presumption of negligence has been rebutted.

(b) Determination

① Acts of working prior to service of the Certified Contents Letter

In light of the following facts and circumstances, which are

recognized based on the evidence previously cited, Defendant's Exhibit No. 82, and the overall purport of the pleadings and oral arguments, and applying the legal principles discussed above, it is reasonable to conclude that, with respect to the Defendant's acts of working the Patent at Issue during the period from April 22, 2012, the day following the original expiration date, until May 20, 2013, when the Defendant received the Certified Contents Letter from the Plaintiff, the Defendant had justifiable grounds to believe that the Patent Right at Issue had been extinguished. Accordingly, the presumption of negligence under Article 130 has been rebutted, and it is reasonable to find that the Defendant lacked negligence during this period.

① The 1987 Patent Act contained no separate provisions regarding public disclosure of an application for extension of the patent term. Only upon the comprehensive amendment of the Patent Act in 1990 was Article 90(5) introduced, requiring publication of such applications in the patent gazette.

② The patent register for the Patent at Issue recorded the scheduled expiration date as April 21, 2012, which was the original expiration date. Even if the Patent at Issue was eligible for an application for approval of extension, absent such an application, the patent right would have been extinguished upon expiration of the original term.

③ Neither the patent gazette nor the patent register disclosed that the Plaintiff had filed an application for approval of extension of the patent term. Accordingly, based solely on publicly available records, it was reasonable to understand that the Patent Right at Issue expired on April 21, 2012, and entered the public domain as of April 22, 2012.

④ According to the descriptions in Plaintiff's Exhibits Nos. 34 and 55 through 57, it is recognized that, since 2002, the KIPO has operated a call center providing services such as searches of various materials related to industrial property rights and the delivery

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of necessary documents. However, it is not clear whether it would in fact have been possible for the Defendant to confirm, through use of the KIPO call center, whether an application for approval of extension of the patent term had been filed with respect to the Patent at Issue. Even if such confirmation had not been impossible, there is no basis to conclude that the average duty of care required in the relevant industry includes an obligation to make such inquiries in addition to reviewing publicly disclosed materials such as patent gazettes or the patent register.

⑤ As discussed above, the Defendant imported large quantities of rivastigmine, the raw material, even before the expiration of the original term of the Patent Right at Issue, and completed development and continued production of the generic version of the Plaintiff's product embodying the Patent at Issue. However, these facts support only an inference that the Defendant was aware of the existence and contents of the Patent at Issue prior to expiration of the original term. They do not support a conclusion that, after the original expiration date, the Defendant was aware of whether the patentee had filed an application for approval of extension of the patent term.

② Acts of working after service of the Certified Contents Letter at Issue

By contrast, based solely on the evidence submitted by the Defendant, it is difficult to find that the presumption of negligence under Article 130 of the Patent Act was rebutted with respect to the Defendant's acts of infringement committed during the period from May 21, 2013, the day following receipt of the Certified Contents Letter at Issue, through September 11, 2014, the expiration date of the extended patent term. Nor is there any other evidence supporting such a finding. The specific reasons are as follows.

① The duty of care underlying a finding of negligence may vary depending on the specific circumstances, including the facts recognized by the actor at the time of the conduct and facts that could

have been foreseen. Where a party has been expressly warned of the possibility of patent infringement, the duty of care to avoid infringing consequences must be regarded as heightened.

⑥ Through the Certified Contents Letter at Issue, the Plaintiff informed the Defendant that it had filed an application for approval of extension of the patent term with respect to the Patent at Issue, and that, as a result, the Plaintiff took the position that rights under the Patent at Issue could be exercised for the extended period even after expiration of the original term. Accordingly, it is reasonable to conclude that the Defendant had a duty to examine the possibility that the patent term would be extended pursuant to an approval of extension, as well as the possibility that the Defendant's acts of working could infringe the patent right during the extended term.

⑦ The Defendant argues that it lacked negligence because it relied on the Commissioner's disposition denying approval of the extension and concluded that the Plaintiff's application for approval of extension was unlawful. However, insofar as the Defendant was aware that the Plaintiff was asserting the illegality of the disposition of non-approval and was seeking its reversal through administrative litigation, mere reliance on the disposition of non-approval cannot be regarded as sufficient to show that the Defendant fulfilled its duty of care.

⑧ In light of the evidence previously cited and the overall purport of the pleadings and oral arguments, and considering the circumstances as a whole, it appears that the Defendant could have recognized the possibility that the disposition of non-approval based on Disposition Reason (③) might be found unlawful and reversed, and that the term of the Patent Right at Issue could accordingly be extended.

○ The main text of Article 9-2(1) of the Enforcement Decree of the 1987 Patent Act limits inventions eligible for extension of the patent term, and subparagraph (1) of the same paragraph refers only to

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Article 26(1) of the former Pharmaceutical Affairs Act, while failing to include Article 34(1) of the former Pharmaceutical Affairs Act. This omission constitutes a legislative deficiency. Accordingly, among the grounds for the Disposition Reason (㉓) in this case, the portion stating that an import product license does not fall within the scope of inventions eligible for extension under the 1987 Enforcement Decree was made in violation of the delegation under Article 53(3) of the 1987 Patent Act and is therefore unlawful.

○ When the first application for registration of extension of the patent term was filed on November 6, 1998, the Commissioner of the KIPO convened the 73rd Industrial Property Rights Policy Council and concluded that, because the relevant patent had been filed in 1988, prior to the enforcement of the 1990 Patent Act, the patent term extension approval application system under the 1987 Patent Act should apply. Thereafter, the Commissioner adopted an internal policy under which the approval application system would apply to patents filed after enforcement of the 1987 Patent Act and before enforcement of the 1990 Patent Act, while the registration application system would apply to patents filed after enforcement of the 1990 Patent Act. For purposes of implementing the registration application system in detail, the Commissioner enacted and enforced a public notice entitled “Regulations on the Operation of the Patent Term Extension System” beginning on December 22, 1995. When the first application for approval of extension was filed on July 7, 2005, the Commissioner applied the above notice by analogy to the examination of such application, and continues to apply the same notice in examinations of approval applications to this day.

○ From around 2005 through around 2011, the KIPO approved all but the non-approval disposition at issue in this case among approximately thirty applications for approval of extension relating to imported pharmaceutical products. Anticipating that the introduction of the pharmaceutical approval-patent linkage system following the conclusion of the Korea-U.S. FTA negotiations in 2008 would increase

patent disputes between multinational pharmaceutical companies and domestic pharmaceutical companies, the Commissioner published a “Patent Term Extension Information Guide for Pharmaceuticals and Agrochemicals” in order to improve R&D efficiency among domestic pharmaceutical companies and to prevent unnecessary patent disputes relating to improved new drugs or generics. Thereafter, the Commissioner has published and distributed updated versions of the guide on a biennial basis, and each guide includes information on cases in which approval of extension was granted based on import product licenses.

○ After receiving service of the Certified Contents Letter at Issue, the Defendant participated as an assisting intervenor to the Commissioner of the KIPO in Seoul Administrative Court (2013Guhap53356), and in that litigation was able to review briefs and evidence submitted by the Plaintiff and the Commissioner concerning the lawfulness of the approval of extension of the patent term.

⑤ The Commissioner of the KIPO determined that the term “a single patent” as set forth in Article 3(3) of the relevant Notice encompasses both the Original Patent Application and the divisional application patent, and that because the pharmacological action, that is, the efficacy, of the active ingredient of the drug at issue, rivastigmine, had already been verified through Exelon capsules, the approval at issue did not constitute the first approval. However, the patent invention at issue is a use invention relating to a pharmaceutical use, whereas the Original Patent Application invention concerns a compound and constitutes a substance invention, such that there is room to view them as separate and distinct patents protecting different subject matter. Moreover, there was no explicit legal basis to conclude that only the first approval of a new drug’s active ingredient qualifies as an object of term extension approval.

In the absence of any established legal interpretation governing identical or similar cases, it cannot be conclusively stated that, in the administrative litigation seeking reversal of the non-approval

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disposition at issue, the court would necessarily reach the same conclusion as the Patent Office. Accordingly, it is reasonable to conclude that the Defendant could have recognized the possibility that the non-approval disposition at issue, based on disposition grounds (i) and (ii), might be reversed and that the term of the patent at issue could be extended.

⑥ The Patent Office determined that the application for term extension in this case was unlawful on the ground that it was filed after the expiration of the original patent term on April 21, 2012. However, Article 14(4) of the former Patent Act (as amended by Act No. 7871 of March 3, 2006) provides that, in patent procedures, where the last day of a period falls on a public holiday (including Saturdays and Workers' Day under the Workers' Day Designation Act), the period shall expire on the following day. Pursuant to the proviso to Article 6 of the Addenda to the former Patent Act and the proviso to Article 1 of the Addenda to the Patent Act as amended by Act No. 11117 of December 2, 2011, this provision should also apply to the calculation of the filing period for the application for patent term extension in this case. Therefore, it is difficult to conclude that the Defendant was free from negligence in believing that disposition grounds (iv) and (v) were lawful.

⑦ Considering the foregoing circumstances as a whole, it appears that, after receiving the cease-and-desist letter in this case, the Defendant could sufficiently foresee that, if the non-approval disposition were reversed, the term of the patent at issue could be extended, and that the Defendant's production of its product could consequently result in infringement of the Plaintiff's patent. Nevertheless, the Defendant violated this duty of care by complacently trusting that no approval of term extension would be granted, or by continuing to produce the Defendant's product while accepting the risk of patent infringement in the event that such approval were granted. It is therefore reasonable to conclude that the Defendant continued acts

infringing the Plaintiff's patent at issue.

c) Sub-conclusion

Among the Defendant's acts of infringement of the patent at issue, the infringement committed during the period from April 22, 2012 to May 20, 2013 was without intent or negligence, whereas the infringement committed during the period from May 21, 2013 to September 11, 2014 is found to have been committed with negligence.

4) Occurrence of Damages Caused by Patent Infringement

a) Whether Damages Caused by Patent Infringement Occurred

(1) The Plaintiff seeks damages for patent infringement based on the provisions on estimation of damages under Articles 128(2), (4), and (5) of the Patent Act. These provisions are intended to alleviate the burden of allegation and proof regarding damages borne by patent holders, etc., in claims for damages based on tort, and are not intended to impose liability for damages on an infringer even where it is clear that no damage has occurred. Accordingly, even if a patent infringement has occurred, where it is established that no damage has been suffered by the patent holder, it is reasonable to interpret that the infringer may be exempt from liability for damages (*see* Supreme Court Decision 2003Da62910, dated July 22, 2004, etc.). However, in light of the purpose of the above provisions, the degree of proof required regarding the occurrence of damage should be deemed satisfied by showing concern or probability of damage arising from a competitive relationship or the like (*see* Supreme Court Decision 2006Da1831, dated October 12, 2006).

(2) In light of the foregoing legal principles, and considering the facts and circumstances recognized based on the evidence previously cited, as well as Plaintiff's Exhibits Nos. 27, 40, 43, and 58 through 60, together with the overall purport of the pleadings, it is sufficient to conclude that concern or probability of damage to the Plaintiff has been established as a result of the Defendant's negligent

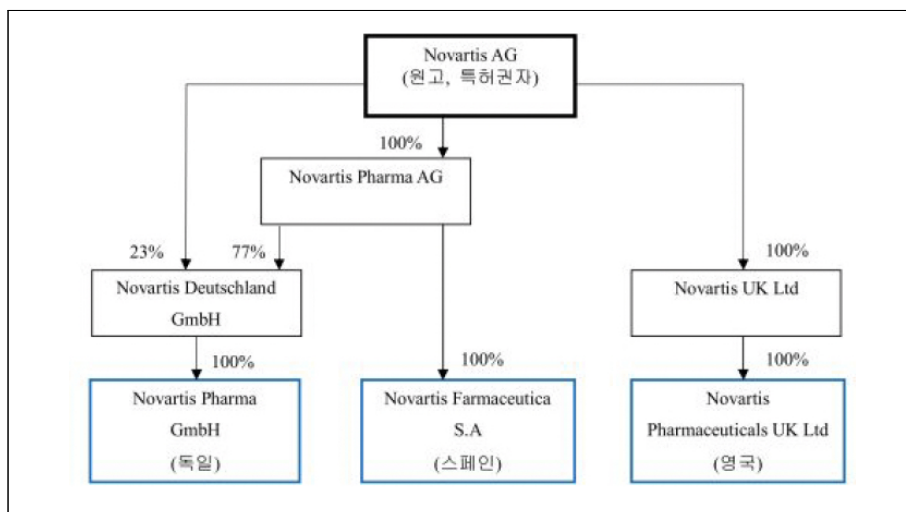
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infringement of the patent at issue as discussed above.

(a) As previously noted, the Plaintiff, the patent holder of the patent at issue, granted a non-exclusive license to Novartis, and Novartis has been selling, in Korea, the pharmaceutical product practicing the patent at issue. The Plaintiff owns 100% of Novartis's shares, and Novartis is therefore a wholly owned subsidiary of the Plaintiff.

When Novartis Pharma AG, a Swiss corporation that is another wholly owned subsidiary of the Plaintiff, manufactures patch-type pharmaceutical products containing rivastigmine, which practice the patent at issue (hereinafter, the "Plaintiff's products"), the Plaintiff, as a holding company, has these products delivered to overseas subsidiaries in various countries in which it directly or indirectly owns 100% of the shares (hereinafter, the "sales subsidiaries"), and has them sold in the relevant countries.

An overview of the governance structure of the corporate group to which the Plaintiff belongs is as follows (as of 2013 and 2014).



Pharmaceutical Composition for Transdermal Administration of Phenyl Carbamates Case

구분	역할	회사명	주주명	지분율
원고	특허소유자, 그룹 최상위 지배회사	Novartis AG		
자회사	특허제품 제조 및 각국 유통	Novartis Pharma AG	Novartis AG	100%

구분	역할	회사명	주주명	지분율
자회사	독일 지주회사	Novartis Deutschland GmbH	Novartis AG Novartis Pharma AG	23% 77%
자회사	독일 판매	Novartis Pharma GmbH	Novartis Deutschland GmbH	100%
자회사	스페인 판매	Novartis Farmaceutica S.A.	Novartis Pharma AG	100%
자회사	영국 지주회사	Novartis UK Ltd	Novartis AG	100%
자회사	영국 판매	Novartis Pharmaceuticals UK Ltd	Novartis UK Ltd	100%

Category	Role	Company Name	Shareholder	Shareholding
Plaintiff	Patent owner; ultimate parent company of the group	Novartis AG		
Subsidiary	Manufacturer and distributor of the patented product in various countries	Novartis Pharma AG	Novartis AG	100%
Subsidiary	German holding company	Novartis Deutschland GmbH	Novartis AG 23% / Novartis Pharma AG 77%	
Subsidiary	German sales company	Novartis Pharma GmbH	Novartis Deutschland GmbH	100%
Subsidiary	Spanish sales company	Novartis Farmaceutica S.A.	Novartis Pharma AG	100%
Subsidiary	UK holding company	Novartis UK Ltd	Novartis AG	100%

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Category	Role	Company Name	Shareholder	Shareholding
Subsidiary	UK sales company	Novartis Pharmaceuticals UK Ltd	Novartis UK Ltd	100%

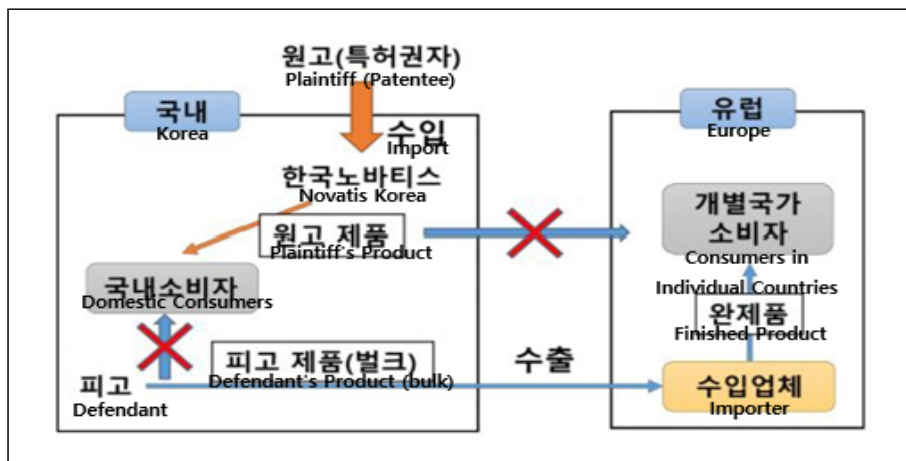
(b) As the shareholder holding 100% of the shares of the sales subsidiaries, the profits and losses of the sales subsidiaries are closely related to the Plaintiff's own profits and losses. Where the sales subsidiaries earn profits, the Plaintiff may receive dividends from them, and it appears that the Plaintiff has in fact received substantial dividends, both regularly and irregularly, in connection with the sales of the Plaintiff's products.

(c) The Defendant's products are generic versions of the Plaintiff's products, and because they are pharmaceuticals that are identical in active ingredient, strength, dosage form, indications and effects, and dosage and administration, it is clear that they are substitutes for the Plaintiff's products. Accordingly, it appears that, due to the domestic manufacture and export of the Defendant's products to Europe, the sales subsidiaries located in Europe would have experienced reduced sales of the Plaintiff's products. Further, considering the governance structure and the overview of business activities of the corporate group to which the Plaintiff belongs as discussed above, it is reasonable to find that, as a result of the loss of sales opportunities by those sales subsidiaries, the Plaintiff suffered damage in the form of lost dividend income and the like that it could otherwise have obtained. It is also reasonable to find that such damage to the Plaintiff bears a proximate causal relationship to the Defendant's domestic acts of infringement of the patent at issue.

b) Determination on the Defendant's Arguments

(1) Argument based on the Territoriality Principle of Patent Rights

(a) the Defendant argues, in substance, that the Plaintiff suffered no damages as a result of the Defendant's acts of infringement of the patent at issue, in light of the following circumstances: ① under the territoriality principle of the Patent Act, export is not included among acts of working a patent, and the Defendant exported all of the Defendant's products to various European countries; ② as shown in the figure below, the Defendant's products were manufactured domestically in the form of semi-finished bulk products, exported in their entirety to various European countries, and then sold after final packaging in accordance with each country's regulatory approvals, such that there was no possibility of re-importation or distribution in Korea, and thus the Defendant's products could not affect the sales volume of the Plaintiff's pharmaceutical product at issue sold in the domestic market and the parties were not in a competitive relationship in Korea; and ③ because the Plaintiff had no corresponding patent rights in Europe, the European market was already in a state of free competition, such that any decrease in sales of the Plaintiff's products in Europe had no connection to the sales of the Defendant's products, and even if the Defendant's products caused any damage to the Plaintiff in the European market, recognizing a proximate causal relationship between such damage and the acts of infringement of the patent at issue would run counter to the territoriality principle of patent rights.



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(b) However, the Defendant's above arguments cannot be accepted for the following reasons.

① With respect to the Defendant's argument (a), the Defendant infringed the patent at issue by manufacturing, within Korea, the Defendant's products that fully embody all constituent elements of the patented invention. Even if the Defendant's export activity itself cannot be regarded as an act of patent infringement, if damages arose to the Plaintiff as a result of exporting infringing products, such damages may still be deemed to have a proximate causal relationship with the Defendant's patent infringement.

② With respect to the Defendant's argument (b), as discussed above, the Plaintiff maintains sales subsidiaries not only in Korea but also in various foreign countries, including Germany and Spain, and has those subsidiaries sell the Plaintiff's products. H is merely one of the Plaintiff's many sales subsidiaries in Korea. Accordingly, even if the Defendant's products were unlikely to be sold in the domestic market, it cannot be denied that the distribution and sale of the Defendant's products in Europe reduced sales of the Plaintiff's products by the Plaintiff's wholly owned sales subsidiaries, thereby causing damages to the Plaintiff. Such damages may be regarded as having a proximate causal relationship with the Defendant's domestic manufacture of the Defendant's products.

③ With respect to the Defendant's argument (c), based on the contents of Plaintiff's Exhibit No. 48 and Defendant's Exhibits Nos. 80, 89, and 90, together with the overall purport of the pleadings, it is acknowledged that the European patents corresponding to the patent at issue expired and ceased to be effective between approximately July 2012 and March 2013. Accordingly, the Plaintiff could not have exclusively manufactured and sold rivastigmine patch products in Europe, and thus it is difficult to conclude that all quantities of the Defendant's products manufactured domestically and exported to Europe would necessarily have been sold by the Plaintiff

in Europe. However, this fact alone does not justify the conclusion that sales of the Defendant's products in Europe had no impact on the Plaintiff's European sales. The entry of the Defendant's products, clear competing products, into the European market can reasonably be considered to have contributed, at least to some extent, to the decline in the Plaintiff's European sales. Moreover, the Defendant's products were manufactured through patent infringement and would not have existed absent the Defendant's infringing acts. Therefore, the patent infringement and the Plaintiff's loss of European sales are in a proximate causal relationship. In other words, once a domestic act of patent infringement exists, the patent holder may recover damages that have a proximate causal relationship with the infringement, and such damages are not necessarily limited to those occurring within Korea. The principle of territoriality in patent law means that the exclusive and monopolistic effect of a patent extends only within the territory of the country where the patent is registered, but it does not mean that recoverable damages must be confined to damages occurring domestically.

(2) Argument Based on the Fact that the Plaintiff Does Not Directly Sell the Plaintiff's Products

(a) The Defendant argues that the Plaintiff sells the Plaintiff's products in Europe only through its subsidiary sales corporations and does not engage in direct sales itself, and that even if those sales corporations are wholly owned subsidiaries of the Plaintiff, they are separate legal entities from the parent company. Therefore, the Defendant contends that any decrease in the European sales of the sales corporations cannot be regarded as damage suffered by the Plaintiff.

(b) As the Defendant argues, the Plaintiff as the parent company and the subsidiary sales corporations are separate legal entities, and thus a reduction in the subsidiaries' sales volume in itself cannot automatically be deemed damage to the Plaintiff. However,

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where a parent company that is the patent holder directs the overall sales strategy for the patented products and manufactures and sells those products through wholly owned subsidiaries, the success or failure of the sales strategy executed by the subsidiaries, and the resulting profits or losses, are highly likely to ultimately accrue to the patent holder in some manner. In other words, losses suffered by the subsidiaries due to reduced sales affect the parent company in the form of reduced dividends or a decline in the value of the shares of the subsidiaries held by the parent company. Such losses to the parent company constitute not only economic losses from an economic perspective, but also losses that are sufficient to be evaluated as legal damages, particularly insofar as they involve reduced dividends. Therefore, the mere fact that the patent holder does not directly manufacture or sell the patented products does not justify the conclusion that no damage has arisen from patent infringement. Accordingly, the Defendant's argument is difficult to accept.

5) Sub-conclusion

The Defendant infringed the patent at issue through negligence by manufacturing the Defendant's products from the day following receipt of the content-certified letter, namely from May 21, 2013, until the expiration date of the extended patent term, September 11, 2014. As a result, damages were incurred by the Plaintiff, and therefore the Defendant is obligated to compensate those damages.

B. Scope of Damages

1) Summary of the Plaintiff's Claims

The Plaintiff asserts that the damages it suffered as a result of the Defendant's patent infringement should be calculated as follows. The Plaintiff primarily argues that damages should be calculated by applying the presumption of damages under Article 128(2) of the

Patent Act. If Article 128(2) is not accepted, the Plaintiff alternatively seeks application of Article 128(4) of the Patent Act, and if Article 128(4) is also not accepted, the Plaintiff further alternatively seeks application of Article 128(5) of the Patent Act. Based on these grounds, the Plaintiff seeks payment of KRW 30 billion, together with delay damages thereon, as compensation for patent infringement (explicit partial claim).

a) Calculation of Damages under Article 128(2) of the Patent Act

The infringing quantity and the profit per unit of the Plaintiff's product under Article 128(2) of the Patent Act are as set forth in the table below, and the total amount of lost profits amounts to KRW 179,341,399,124.⁹⁾

Year	Category	Germany	Spain	Total (USD)
2013	Quantity	20,566,926	4,063,924	24,630,850
	Profit per Unit	2.73(USD)	1.65(USD)	
	Lost Profits	56,140,484	6,700,782	62,841,266
2024	Quantity	31,778,189	2,602,534	34,380,723
	Profit per Unit	3.16(USD)	1.79(USD)	
	Lost Profits	100,293,808	4,648,843	104,942,651
Total	Quantity	52,345,115	6,666,458	59,011,573
	Lost Profits	156,434,293	11,349,625	167,783,917

Furthermore, as the Defendant's products entered the Spanish market, the Plaintiff was forced, regardless of its own intent, to reduce the reimbursement price of the Plaintiff's product by approximately 40%, thereby increasing the amount of damages by KRW 3,934,913,318. Accordingly, the Plaintiff's total damages under Article 128(2) of the Patent Act amount to KRW 183,276,312,442 (= KRW 179,341,399,124 + KRW 3,934,913,318).

b) Calculation of Damages under Article 128(4) of the Patent Act

If the Defendant's export sales of the infringing products from

9) Applicable exchange rates are KRW 1,095.04 per U.S. dollar for 2013, and KRW 1,053.22 per U.S. dollar for 2014.

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September 2012 through December 31, 2014, totaling KRW 37,524,969,519, are multiplied by the marginal profit ratio applicable to the Defendant's products, namely the marginal profit ratio derived from the ratio of variable costs to sales for "large enterprises" in the annual financial information for "C21: Manufacture of Medical Substances and Pharmaceuticals" in the Bank of Korea's Corporate Management Analysis data (Plaintiff's Exhibit No. 28), the resulting amount is KRW 22,407,394,388, as shown in the table below. Therefore, the damages under Article 128(4) of the Patent Act, based on the infringer's profits, are presumed to be KRW 22,407,394,388.

End Date of the Period	Defendant's Export Sales of the Infringing Products (Unit: KRW)	Marginal Profit Ratio (1 - Variable Cost Ratio)	Defendant's Profit (Unit: KRW)
2013-12-31	16,378,937,146	58.93% (= 1 - 41.07%)	9,652,107,660
2014-09-11	19,667,986,141	60.32% (= 1 - 39.68%)	11,863,729,240
2014-12-31	1,478,046,233	60.32% (= 1 - 39.68%)	891,557,488
Total	37,524,969,519		22,407,394,388

c) Calculation of Damages under Article 128(5) of the Patent Act

The amount of damages based on a reasonable royalty under Article 128(5) of the Patent Act is calculated as follows. The reasonable royalty rate for the patent at issue corresponds to at least 20% of sales. Accordingly, applying a minimum reasonable royalty rate of 20% to the Defendant's export sales of KRW 37,524,969,519 results in a total amount of KRW 7,504,993,904.

2) Determination Regarding the Claim for Calculation of Damages under Article 128(2) of the Patent Act

For the reasons set forth below, it is reasonable to conclude that the

Plaintiff's damages arising from the Defendant's infringement of the patent at issue cannot be calculated pursuant to Article 128(2) of the Patent Act.

a) Article 128(2) of the Patent Act provides that, where damages are claimed pursuant to paragraph (1) and the infringer has transferred the articles that were the subject of the infringing act, the amount obtained by multiplying the quantity of such transferred articles by the profit per unit of articles that the patentee, etc. would have been able to sell in the absence of the infringement may be deemed the amount of damages suffered by the patentee, etc. Here, the "profit per unit" means the amount obtained by deducting, from the unit selling price of the product that the patentee, etc. would have been able to sell absent the infringement, the unit cost of the product that would have been additionally incurred in order to sell the increased quantity of products (*see* Supreme Court Decision 2005Da36830, dated October 13, 2006, etc.).

b) Upon examination, in light of the contents of Plaintiff's Exhibit No. 27 and the overall tenor of the pleadings, it is acknowledged that the amounts set forth in the table below, which the Plaintiff asserts as its profit per unit, were not calculated based on the profit per unit of products that the Plaintiff itself would have been able to sell, but rather were calculated based on the profit per unit of products sold by the Plaintiff's subsidiaries, namely the German sales company and the Spanish sales company.

Year	Germany	Spain
2013	2.73(USD)	1.65(USD)
2014	3.16(USD)	1.79(USD)

c) However, as discussed above, although it is highly likely that a portion of the loss caused by decreased sales of the subsidiary sales companies may be evaluated as a loss of the Plaintiff, the parent company, it cannot be conclusively presumed that the amount of loss resulting from the subsidiaries' decreased sales is identical to the

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Plaintiff's loss. In other words, absent proof of special circumstances showing that the amount of loss caused by the subsidiaries' decreased sales is the same as the Plaintiff's loss, the profit per unit of the subsidiaries cannot be directly substituted for, and applied as, the profit per unit of the patentee when applying the presumption under Article 128(2) of the Patent Act.

d) The Plaintiff argues that, because the profits and losses of its subsidiaries are reflected in the Plaintiff's accounts through consolidated financial statements, the subsidiaries' profit per unit may be regarded as the Plaintiff's profit per unit for purposes of applying Article 128(2) of the Patent Act. However, consolidated financial statements refer to documents such as consolidated statements of financial position prepared by a controlling company where a stock company and another company (including enterprises without legal personality, such as associations) are in a certain controlling–subsidiary relationship. Such statements are prepared for management and accounting purposes, including providing more accurate information regarding the controlling company's business performance, financial condition, and investment information when it has subsidiaries. The fact that two companies are required to prepare consolidated financial statements does not mean that two separate entities with independent legal personality become one entity. Accordingly, the mere preparation of consolidated financial statements does not permit treating a decrease in a subsidiary's assets as identical to a decrease in the assets of the parent company, which is the subsidiary's shareholder. Therefore, the Plaintiff's argument on this point cannot be accepted.

e) With respect to Article 128(2) of the Patent Act, the Plaintiff only argues that the subsidiaries' profit per unit should be applied, and does not assert any specific profit per unit for the Plaintiff using a different method. Accordingly, in this case, damages cannot be calculated under Article 128(2) of the Patent Act.

f) For the foregoing reasons, because Article 128(2) of the

Patent Act cannot be applied in calculating the Plaintiff's damages arising from the Defendant's infringement, the Plaintiff's argument, premised on that provision, that additional lost profits arose due to a drug price reduction likewise cannot be accepted.

3) Determination of the Claim for Calculation of Damages under Article 128(4) of the Patent Act

a) Relevant Legal Principles

Article 128(4) of the Patent Act provides that, where damages are claimed pursuant to paragraph (1), the amount of profit obtained by a person who infringed a patent right or an exclusive license through the infringing act shall be presumed to be the amount of damages suffered by the patentee or exclusive licensee. The "profit" referred to here means the profit actually obtained by the infringer as a result of the infringing act, without any special limitation as to its content (*see* Supreme Court Decision 2006Da1831, dated October 12, 2006, etc.).

Where the infringer produces infringing products and then sells them to obtain profits, the "profit obtained by the infringer through the infringing act" may, absent special circumstances, be calculated as the contribution margin¹⁰⁾ obtained by deducting the costs additionally incurred for the manufacture and sale of the infringing products from the total sales revenue of those products. In principle, the contribution margin is calculated by first determining, based on evidence, (i) the

10) In the past, the infringer's profit has often been regarded as the "marginal profit" (*see*, e.g., IP High Court Decision 2018Na1893, dated August 29, 2019.). Since marginal profit is calculated by deducting variable costs from sales revenue, marginal profit and contribution margin coincide in most cases. However, there is a distinction in that marginal profit is calculated by deducting only direct variable costs as expenses, whereas contribution margin deducts indirect variable costs as well. In light of the fact that contribution margin serves as an indicator showing the extent to which product sales actually contribute to a company's profit, it is appropriate to calculate the infringer's profit under Article 128(4) of the Patent Act based on contribution margin. That said, in this case, whether the infringer's profit is regarded as "marginal profit" or as "contribution margin" makes no difference to the outcome.

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total sales revenue of the infringing products and (ii) the additional costs incurred for the manufacture and sale of the infringing products (variable costs), and then deducting the latter from the former. However, the mere difficulty of calculating the additional costs directly through evidence does not justify an immediate conclusion that Article 128(4) of the Patent Act cannot be applied. Where, in light of other evidence and the overall tenor of the pleadings, it is recognized that the marginal profit actually obtained by the infringer is similar to, or may exceed, the contribution margin calculated by applying a reliable industry-wide contribution margin ratio derived from statistics, the infringer's marginal profit may also be calculated by multiplying the sales revenue of the infringing products by such a statistically derived contribution margin ratio. Meanwhile, if the actual damages suffered by the patentee or exclusive licensee fall short of the presumed amount under the above provision, all or part of the presumption may be rebutted. However, the infringer bears the burden of pleading and proving the grounds for rebuttal and the extent thereof (*see, e.g., Supreme Court Decisions 2005Da75002, dated March 27, 2008., and 2021Da310873, dated April 28, 2022.*).

b) Determination

(1) Based on the facts recognized above, the evidence discussed earlier, and the overall tenor of the pleadings, it is acknowledged that the total revenue obtained by the Defendant from exporting the Defendant's products, produced between May 21, 2013 and September 11, 2014, to pharmaceutical companies in Germany, Spain, and Brazil amounts to KRW 28,278,123,866, as set forth below.

Period	Sales Revenue (KRW)
From May 21, 2013 to December 31, 2013	12,787,243,570
From January 1, 2014 to September 11, 2014	15,490,880,296
Total	28,278,123,866

(2) Taking into account the circumstances recognized from

the contents of Plaintiff's Exhibit 28 and the overall tenor of the pleadings, the marginal profit obtained by the Defendant from the sale of the Defendant's products may be calculated as follows by applying the contribution margin ratios derived from the Bank of Korea's Business Management Analysis data for "medical substances and pharmaceuticals," based on the ratio of variable costs to sales (41.07% for 2013 and 39.68% for 2014), that is, contribution margin ratios of 58.93% for 2013 (1 - 41.07%) and 60.32% for 2014 (1 - 39.68%), to the sales revenues set forth above.

Period	Sales revenue (KRW)	Margin Profit Rate	Defendant's Margin Profit
2013. 5. 21. to 2013. 12. 31.	12,787,243,570	58.93%	7,535,522,635
2014. 1. 1. to 2014. 9. 11.	15,490,880,296	60.32%	9,344,098,995
Total			16,879,621,630

(a) The Bank of Korea's "Corporate Management Analysis" materials submitted as Plaintiff's Exhibit No. 28 are statistical data compiled by the Bank of Korea pursuant to Article 86 of the Bank of Korea Act. Because they are based on analyses of corporate tax return filings from a total of 492,288 corporations, the materials have a reasonable degree of reliability in light of the compiling entity and the methodology used. In addition, the statistics for "C21: Medical substances and pharmaceuticals (large enterprises)" in those materials appear appropriate for estimating the variable costs associated with the Defendant's sales of the Defendant products, given the nature of the exported products (pharmaceuticals) and the scale of the Defendant's business.

(b) The ratio of variable costs to sales reflected in those statistics (41.07% in 2013 and 39.68% in 2014) will not perfectly match the ratio for rivastigmine patch products. However, considering that the contribution margin rate for the Plaintiff's rivastigmine patch

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products shown in Plaintiff's Exhibit No. 27 (the appraisal report by Daejoo Accounting Firm) substantially exceeds the contribution margin rate derived from the above statistics, it is highly likely that the contribution margin rate from the Defendant's sales of the Defendant products also exceeds the rate derived from the above statistics.

(c) The Defendant argues that the contribution margin rate reflected in Plaintiff's Exhibit No. 28 is overstated, relying on the following points. Under the 2013 Standard Expense Ratio Notice (NTS Notice No. 2014-14) and the 2014 Standard Expense Ratio Notice (NTS Notice No. 2015-7), the "simple expense ratio" for finished pharmaceutical manufacturing is 85.8% for both 2013 and 2014, which implies a general profit rate of 14.2% ($=1 - 85.8\%$). The Defendant also cites a "Health Industry Brief" published in April 2013 by the Korea Health Industry Development Institute, which states that the operating profit margin of listed pharmaceutical companies is only around 10%.

However, operating profit refers to the amount obtained by subtracting cost of goods sold and selling and administrative expenses from gross profit, and thus differs from the contribution margin that constitutes the "profit gained by the infringer" under Article 128(4) of the Patent Act. Accordingly, the fact that the operating profit margin in the Defendant's cited statistics is around 10% does not undermine the credibility of the statistics in Plaintiff's Exhibit No. 28 regarding the ratio of variable costs to sales. Indeed, even under the Bank of Korea data submitted by the Plaintiff (Plaintiff's Exhibit No. 28), the operating profit margin for large enterprises in "medical substances and pharmaceuticals" is only about 8%, which further supports the conclusion that the contribution margin rate derived from Plaintiff's Exhibit No. 28 is not overstated.

(d) Above all, if the contribution margin rate derived from Plaintiff's Exhibit No. 28 were higher than the actual contribution margin rate associated with the Defendant's sales of the

Defendant products, the Defendant could easily rebut Plaintiff's Exhibit No. 28 figures by submitting its own cost data for the Defendant products. Yet, even in response to the court's request for clarification,¹¹⁾ the Defendant did not submit such data. Considering this and the overall course of the pleadings, it is difficult to conclude that the contribution margin rate derived from Plaintiff's Exhibit No. 28 is excessive compared to the Defendant's actual contribution margin rate.

(3) Therefore, absent special circumstances, it is reasonable to find that the Plaintiff's damages presumed under Article 128(4) of the Patent Act correspond to the Defendant's contribution margin from sales of the infringing products, namely KRW 16,879,621,630.

c) Determination on the Defendant's Arguments

(1) Argument that the Presumption is Rebutted due to the Absence of Proximate Causation

The Defendant argues that, because the European counterpart patents corresponding to the Plaintiff's patent in this case had already expired and lapsed, anyone was free to sell rivastigmine patch products in Europe, and therefore proximate causation between the Defendant's export of the accused products to Europe and the Plaintiff's damages should be denied.

However, in light of the overall purport of the pleadings and the contents of Exhibits 46 and 47 submitted by the Plaintiff, even though the corresponding European patents for the patent in this case had expired, it is recognized that in 2013 and 2014 the only companies that actually manufactured and supplied rivastigmine patch products in major European markets such as Germany and Spain were the Plaintiff and Acino. The supply quantities of the Plaintiff and Acino, and the Plaintiff's market shares calculated on that basis, are as shown in the table below.¹²⁾

11) See the hearing transcript dated June 10, 2020.

12) Plaintiff's supply volume / (Plaintiff's supply volume + L's supply volume)

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Country / Manufacturer		2013	2014
Germany	Acino	775,126	2,674,592
	Plaintiff	10,956,933	8,142,383
Plaintiff's market share		93%	75%
Spain	Acino	-	135,750
	Plaintiff	25,757,713	21,682,615
Plaintiff's market share		100%	99%

In light of the above, it appears probable that the Plaintiff's sales quantities, based on its market shares, would be reduced as a result of the Defendant's infringing products being supplied to the European market in substantial quantities. Such reduction should be regarded not as a result of free competition caused by the expiration of patent terms in Europe, but rather as damage arising from the Defendant's domestic patent infringement, namely damage that would not have occurred absent the Defendant's domestic infringing acts. Accordingly, it cannot be said that proximate causation between the Defendant's infringing acts and the Plaintiff's damages is entirely denied (*see* Supreme Court Decision 2006Da1831, dated October 12, 2006).

However, a portion of the quantities of the Defendant's infringing products supplied to the European market, corresponding to Acino's market share, may be viewed as encroaching upon Acino's market share rather than the Plaintiff's market share. In other words, the portion of the profits obtained by the Defendant from the sale of infringing products corresponding to Acino's market share (7% of German sales in 2013, 25% of German sales in 2014, and 1% of Spanish sales in 2014) should be deemed to rebut the presumption of damages under Article 128(4) of the Patent Act.

Based on the evidence discussed above, it is recognized that German sales amounted to KRW 11,516,408,611 in 2013, KRW 14,352,478,468 in 2014, and Spanish sales amounted to KRW 1,138,134,396 in 2014. Accordingly, the contribution profit corresponding to 7% of German sales in 2013 is KRW 475,063,371 (=KRW 11,516,408,611 × 7% ×

58.93%, with amounts less than one won disregarded; the same applies hereinafter), the contribution profit corresponding to 25% of German sales in 2014 is KRW 2,164,353,753 ($=\text{KRW } 14,352,478,468 \times 25\% \times 60.32\%$), and the contribution profit corresponding to 1% of Spanish sales in 2014 is KRW 6,865,226 ($=\text{KRW } 1,138,134,396 \times 1\% \times 60.32\%$).

Therefore, the scope in which the presumption of damages under Article 128(4) of the Patent Act is rebutted amounts in total to KRW 2,646,282,350 ($=\text{KRW } 475,063,371 + \text{KRW } 2,164,353,753 + \text{KRW } 6,865,226$). The Defendant's argument that the presumption of damages is rebutted due to the absence of proximate causation is well-founded only within the above-recognized scope.

(2) Argument that the Presumption should be Rebutted based on the Contribution Rate

The Defendant argues as follows. ① The patent at issue is a pharmaceutical use invention that provides transdermal administration of rivastigmine, a substance already disclosed through the original parent patent, which is a compound patent. The specification of the patent at issue merely discloses the use of rivastigmine for transdermal administration and does not disclose any concrete method for actually manufacturing a dementia patch. The specific and substantive technologies required to obtain approval as a dementia patch—such as efficacy, safety, stability, and the related technologies concerning excipients, formulation, dosage form, and manufacturing process—are all technologies developed by the Defendant. Therefore, the contribution of the patent at issue to the Defendant's product is limited to providing an idea. ② In addition, based on its experience in developing “Trast,” the world's first arthritis treatment patch, the Defendant developed its product using a manufacturing method differentiated from the Plaintiff's product, and in 2012 obtained certification from the European Medicines Agency for Good Manufacturing Practice and quality control standards, which it has

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maintained to date. Considering that the sales of the Defendant's product are attributable to the Defendant's production technology, capital strength, creditworthiness, sales capability, advertising, brand power, and reputation, the Defendant contends that its entire profit should not be recognized as the Plaintiff's lost profit.

Based on the evidence presented above, including Defendant's Exhibit No. 78, and the overall purport of the pleadings, it is acknowledged that the patent at issue is a pharmaceutical use invention that provides a mode of administration, namely transdermal administration, for rivastigmine (*see* Supreme Court Decision 2014Hu2702, dated August 29, 2017.). However, when the following facts and circumstances are taken into account—based on the evidence cited above, including Plaintiff's Exhibits Nos. 13, 14, 44, and 50, and the overall purport of the pleadings—the Defendant's argument ① cannot be accepted.

Specifically, after the Plaintiff identified through the original parent patent that the novel substance rivastigmine had excellent preventive and therapeutic effects for Alzheimer's-type dementia, various oral dosage forms, including the "Exelon capsule" developed by the Plaintiff, as well as Aricept, Reminyl, Ebixa tablets, and Ebixa solution, were approved by the Korean Food and Drug Administration and released to the market between approximately 1997 and 2003. All of these products were oral medications that patients had to take directly. In contrast, the Plaintiff's product, which is an embodiment of the patent at issue, is the world's first patch-type treatment for Alzheimer's-type dementia. Dementia patients, particularly those with Alzheimer's-type dementia, often have difficulty taking medication at the correct time and in the correct dosage due to cognitive decline and refusal to take oral medication. Patch-type formulations addressed these issues in a groundbreaking manner and therefore drew significant attention in the market. In light of these circumstances, the technical value of the patent at issue cannot be regarded as insignificant merely because it is a pharmaceutical use invention, and thus the Defendant's argument ① is rejected.

Further, considering the following circumstances recognized based on the evidence presented and the overall purport of the pleadings, the Defendant's argument ② is also rejected. The profit derived from the Defendant's product appears to have been significantly influenced by the fact that the Defendant's product is a generic of the Plaintiff's product, which is an embodiment of the patent at issue disclosing transdermal administration of rivastigmine, and that the Defendant's product has the same active ingredient, content, and dosage form as the Plaintiff's product. Moreover, the evidence submitted by the Defendant is insufficient to establish that the Defendant's production technology, capital strength, or other asserted factors made a substantial contribution to the sales of the Defendant's product, and there is no other evidence to support such a conclusion.

(3) Argument that the Scale of the Plaintiff's Lost Profit does not Reach the Defendant's Profit

The Defendant argues that because the Plaintiff did not itself practice the patent at issue but merely allowed licensees to practice it, the profit obtained by the Plaintiff through the patent was not affected by the Defendant's infringing acts, and therefore the scale of the Plaintiff's lost profit is smaller than the profit gained by the Defendant through the infringement.

However, as discussed above, this case does not involve a situation in which the Plaintiff merely practiced the patented invention through ordinary licensees. Rather, the Plaintiff practiced the patented invention through sales companies that were its wholly owned subsidiaries and shared in the profits generated by those sales companies. When these circumstances are taken into account, it cannot be concluded that the Defendant's infringing acts had no impact on the Plaintiff's profits. In addition, apart from the portion of the presumption rebutted based on the denial of proximate causation discussed earlier with reference to market share, there is no evidence to establish that the actual damage suffered by the Plaintiff falls short of the profit gained by the

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Defendant. Accordingly, the Defendant's above argument cannot be accepted.

d) Sub-conclusion

Accordingly, the amount of damages suffered by the Plaintiff that is presumed under Article 128(4) of the Patent Act corresponds to KRW 14,233,339,280. This figure is calculated by deducting the portion for which the presumption of damages has been rebutted, namely KRW 2,646,282,350, from the contribution margin of KRW 16,879,621,630 that the Defendant obtained through the sale of the infringing products (KRW 16,879,621,630 – KRW 2,646,282,350).

4) Determination on the Claim for Calculation of Damages under Article 128(5) of the Patent Act

Since the damages are calculated pursuant to Article 128(4) of the Patent Act, the court does not proceed to further examine the Plaintiff's alternative claim for calculation of damages under Article 128(5) of the Patent Act.

5) Determination on the Argument concerning Contributory Negligence

a) Defendant's Argument

The Defendant argues that, even if liability for damages is recognized, comparative negligence should be applied on the grounds that the Plaintiff was at fault for filing the application for approval of extension of the patent term after the expiration of the original patent term, and in light of the principle of equity.

b) Relevant Law

Where the victim is also at fault with respect to the occurrence or aggravation of damage resulting from a tort, such fault must naturally be taken into account in determining the scope of the tortfeasor's liability for damages. In weighing the relative degrees of fault of the

parties, all circumstances related to the tort must be sufficiently considered in light of the purpose of the system of equitable allocation of damages. Even though the determination of facts relating to comparative negligence and the allocation of fault ratios falls within the exclusive authority of the court of fact, such determination must not be manifestly unreasonable in light of the principle of equity (*see* Supreme Court Decision 2007Da76733, dated March 11, 2010., etc.). These legal principles apply equally when calculating damages for patent infringement pursuant to Article 128 of the Patent Act (*see* Supreme Court Decision 2013Da21666, dated July 25, 2013.).

Under the Civil Act, the system of comparative negligence is intended to reflect, in the calculation of damages, the creditor's lack of due care required under the principle of good faith, based on considerations of equity. Accordingly, even simple negligence may constitute grounds for comparative negligence if, under social norms or the principle of good faith, such negligence contributed to the occurrence or expansion of the damage (*see* Supreme Court Decision 98Da35389, dated June 13, 2000., etc.).

c) Determination

In light of the evidence submitted above and the overall purport of the pleadings, the following facts and circumstances are acknowledged. During the period at issue in this case, there existed determinations by specialized institutions with professional expertise in the patent system, namely the KIPO (through the disposition denying approval in this case) and the Seoul Administrative Court (2013GuHap53356), regarding whether the patent at issue was valid. It appears that the Defendant relied on those determinations. Even if it were to be said that the Defendant was negligent in failing to anticipate that the portion of Article 9-2(1)(i) of the Enforcement Decree of the 1987 Patent Act that limited the subject of patent term extension applications to pharmaceutical inventions requiring manufacturing approval under Article 26(1) would later be found to violate Article 11

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of the Constitution, it would not be consistent with the principle of equity to place the entire burden of responsibility arising from the unconstitutionality and invalidity of that Enforcement Decree solely on the Defendant. In addition, although the Plaintiff's filing of the application for approval of extension of the patent term after the expiration of the original patent term was ultimately determined by the Supreme Court not to be unlawful, Article 2(3) of the relevant Notice allows room for interpretation that a patent eligible for term extension must be valid at the time the application for extension registration is filed. In this case, the application for extension was filed on April 23, 2012, after the expiration of the patent's original term on April 21, 2012, at a time when the patent had already lost its effect. This circumstance appears to have been one of the factors that formed the Defendant's reliance on the illegality of the denial disposition and the invalidity of the extension application. When these circumstances are considered as a whole, and in light of the purpose of the comparative negligence system, which aims at the equitable allocation of damages, it is appropriate to reduce the amount of damages recognized above by 20 percent.

6) Sub-conclusion

Taking all of the foregoing into account, the Defendant is obligated to pay the Plaintiff KRW 11,386,671,424 (calculated as 80 percent of KRW 14,233,339,280) as compensation for damages resulting from the infringement of the patent at issue, together with delay damages thereon.

C. Determination on the Defense of Abuse of Rights

The Defendant argues that the patent at issue would clearly be rendered invalid because a person having ordinary skill in the relevant technical field could have easily made the invention, prior to the priority date, based on each of the prior art inventions (Defendant's

Exhibits No. 2 and 3) or a combination thereof. On this basis, the Defendant contends that the Plaintiff's claims based on the patent constitute an abuse of rights and therefore should not be permitted.¹³⁾

However, in the invalidation trial filed by the Defendant before the Intellectual Property Trial and Appeal Board asserting the existence of grounds for invalidation based on lack of inventive step, the Board rendered the decision at issue rejecting the Defendant's arguments. That decision was ultimately upheld as lawful in its conclusion by the Supreme Court through Decisions 2014Hu2702 and 2018Hu11612, and thus became final and binding, as noted above. Moreover, based solely on the evidence submitted by the Defendant, it is difficult to conclude that there exist grounds for invalidation of the patent due to lack of inventive step, and there is no other evidence sufficient to support such a finding. Accordingly, the Defendant's defense of abuse of rights cannot be accepted.

3. Determination on the Primary Claim: Damages for Drug Price Reductions

A. Plaintiff's Arguments

Around 2013, after six companies including KERN PHARMA, S.L. obtained marketing authorizations for generic versions of the pharmaceutical product at issue (the "generic products") and launched them on the Spanish market, the Spanish Ministry of Health determined the laboratory selling price (LSP) of those generic products at approximately 60% of the price of the original product at issue. As

13) Reference is made to the Defendant's preparatory briefs dated May 11, 2016 and May 16, 2016. After the decision dismissing the Defendant's invalidation trial became final and binding by virtue of the Supreme Court's judgment rendered on January 31, 2019 (Supreme Court 2018Hu11612), the Defendant did not advance any further arguments on this issue. However, since the Defendant cannot be deemed to have explicitly withdrawn its prior defense of abuse of rights, the Court will address this issue briefly.

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a result, beginning in June 2013, the Plaintiff had no choice but to reduce the price of the product at issue by approximately 40%. Due to this price reduction, the Plaintiff's sales revenue for the product at issue decreased by KRW 21,233,539,593 during the period from July 2013 through August 2014 (that is, up to the month immediately preceding the month in which the expiration date of the patent term at issue, September 11, 2014, fell). The Plaintiff asserts that it suffered the foregoing loss as a result of the Defendant's tortious conduct, namely, producing and exporting the Defendant's product in infringement of the Plaintiff's patent. Accordingly, the Plaintiff contends that the Defendant is obligated to compensate the Plaintiff for the above damages.

B. Factual Basis

Based on the contents of Plaintiff's Exhibit No. 30 and a comprehensive consideration of the overall purport of the pleadings, the following facts may be recognized. First, the Plaintiff has directly sold the pharmaceutical product at issue in Spain since 2008, and has also allowed a co-marketing partner to sell a product marketed under the name PROMETAX®, which contains the same active ingredient as the product at issue. Second, the sales prices of the product at issue as of May 2013 were as follows: EUR 73.20 for a 4.6 mg/24h package containing 30 patches; EUR 146.40 for a 4.6 mg/24h package containing 60 patches; and EUR 146.40 for a 9.5 mg/24h package containing 60 patches. Third, around 2013, six companies—namely KERN PHARMA, S.L. (hereinafter, “KERN”), LABORATORIO STADA, S.L. (hereinafter, “STADA”), TEVA PHARMA, S.L. (hereinafter, “TEVA”), APOTEX ESPANA, S.L. (hereinafter, “APOTEX”), TECNIMEDE ESPANA PHARMACEUTICAL INDUSTRY, S.A. (hereinafter, “TECNIMEDE”), and RATIOPHARM SEPANA, S.A. (hereinafter, “RATIOPHARMA”)—obtained marketing authorization from the Spanish medicines regulatory authority for

generic versions of the pharmaceutical product at issue and subsequently launched those generic products on the Spanish market. Fourth, the Spanish Ministry of Health determined that the sales prices of those generic products would be set at approximately 60% of the price level of the original product at issue.¹⁴⁾ Fifth, under Spanish pharmaceutical law, pharmacists are required, regardless of the physician's prescription, to dispense the lowest-priced medicine within the relevant homogeneous group or equivalent group. Sixth, around June 2013, the Plaintiff reduced the price of the pharmaceutical product at issue. Finally, on July 16, 2014, the Spanish Ministry of Health began applying a "reference pricing system" to rivastigmine pharmaceutical products within the National Health System (NHS) of Spain. As a result, starting from July 16, 2014, the sales price of the pharmaceutical product at issue was mandatorily reduced.¹⁵⁾

C. Determination

Illegality as an element required for the establishment of a tort does not have to be determined solely by viewing all related conduct as a single, indivisible whole. Rather, each act that is alleged to be unlawful must be assessed individually and relatively, taking into account its specific context and legal significance. Furthermore, in order to impose liability for damages arising from a tort, there must exist a proximate causal relationship between the unlawful act and the damage suffered by the injured party. Whether such proximate causation exists must be determined through a comprehensive assessment that considers not only the general likelihood that the result would occur, but also the purpose of the statutes or other norms of

14) LSPs for the generic versions of KERN, STADA, TEVA, TECNIMEDE, APOTEX and RATIOPHARM: EUR 43.92 for 30 patches of 4.6 mg/24 h; EUR 87.84 each for 60 patches of 4.6 mg/24 h and 60 patches of 9.5 mg/24 h.

15) EUR 21.27 for 30 patches of 4.6 mg/24 h; EUR 42.53 for 60 patches of 4.6 mg/24 h; EUR 87.84 for 60 patches of 9.5 mg/24 h.

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conduct that impose a duty of care, the legal interests those norms are intended to protect, the manner and characteristics of the harmful conduct, the nature of the infringed interests, and the scope and degree of the damage sustained (Supreme Court Decision 2018Da221676, dated November 26, 2020). When the following circumstances are examined in their entirety, it is difficult to conclude that the damages arising from the price reduction of the pharmaceutical product at issue and PROMETAX® in the Spanish market were caused by the Defendant's infringement of the patent at issue, and there is no other evidence sufficient to support such a conclusion.

① The fact that companies such as KERN and STADA obtained marketing authorization for generic products from the Spanish Ministry of Health and subsequently launched those products on the Spanish market was not attributable to the existence or infringement of the patent at issue. Rather, it resulted from the expiration of the term of the Plaintiff's patent rights for the pharmaceutical product at issue in European countries, including Spain. Once the corresponding European patent rights expired, any company was legally permitted to seek approval for and market generic versions of the product in those jurisdictions. ② The reason the Plaintiff had been able to maintain the sales price of the pharmaceutical product at issue prior to that time was merely the economic benefit derived from its exclusive and monopolistic position as a patent holder in Spain. Accordingly, following the expiration of the patent term, the entry of generic products into the market, as well as the accompanying decline in product prices and sales volume, appears to be an inevitable and natural consequence of the loss of that exclusive patent protection in Spain, rather than the result of any specific unlawful conduct by the Defendant. ③ The determination that the sales prices of generic products would be set at approximately 60% of the price of the pharmaceutical product at issue was made by the Spanish Ministry of Health as part of its regulatory and pricing policy. This pricing decision cannot be attributed to the Defendant's act of manufacturing

its product, nor can it be regarded as a consequence of the Defendant's patent infringement. Moreover, the Defendant did not itself obtain marketing authorization for, nor directly sell, its product in Spain. Taking all of these factors into account, there is insufficient basis to find that the reduction in the prices of the pharmaceutical product at issue and PROMETAX® in the Spanish market constitutes damage caused by the Defendant's infringement of the patent at issue. There is also no other evidence in the record that would support a finding of proximate causation between the Defendant's alleged patent infringement and the claimed price-reduction damages.

D. Sub-conclusion

The Plaintiff's claim in this part cannot be accepted, and there is no need to further examine the remaining arguments.

4. Determination on the Alternative Claim: Restitution of Unjust Enrichment¹⁶⁾

A. Whether an Obligation to Return Unjust Enrichment Has Arisen

1) Determination

From around August 2011 until May 20, 2013, before the Plaintiff's cease-and-desist letter in this case was served, the Defendant produced the Defendant's products and practiced the patent at issue without authorization from the Plaintiff, the patentee of the patent at issue, as stated above. Accordingly, the Defendant obtained profits from such unauthorized practice without legal grounds, and it is acknowledged that the Plaintiff suffered losses as a result. Therefore, the Defendant

16) In the alternative, the Plaintiff asserts a claim for restitution of unjust enrichment under Article 741 of the Civil Act with respect to the Defendant's unauthorized working of the patented invention during the period prior to service of the content-certified notice.

is obligated to return those profits to the Plaintiff as unjust enrichment.

2) Determination of the Defendant's Arguments

a) First Argument

The Defendant argues that, during the period at issue in this case, the patent right at issue had already expired upon the lapse of its term, such that the patent had entered the public domain and was freely available for use by anyone. On this basis, the Defendant contends that the profits it obtained were derived from the practice of publicly known technology, and therefore cannot be regarded as benefits obtained without legal grounds.

However, when the facts and circumstances recognized above are considered together with the overall purport of the pleadings, and in light of the following circumstances, it is difficult to conclude that the Defendant's practice of the patent at issue constituted the practice of publicly known technology. Moreover, there is no material from which it may be found that the Defendant had a legitimate legal basis for retaining the profits it obtained. Accordingly, the Defendant's above argument cannot be accepted.

① First, with respect to the Defendant's unauthorized practice of the patent at issue during the period from approximately August 2011 until April 21, 2012, which was prior to the original expiration date of the patent term, there is no dispute between the parties that the patent right at issue was valid and in force during that period. As discussed above, there is likewise no basis for concluding that grounds existed for invalidation of the patent registration on the ground that the inventive step was lacking. Accordingly, during that period, the right to practice the patent at issue as a business was exclusively vested in the Plaintiff, as the patentee (Patent Act, Article 94, main text). In cases of so-called infringement-based unjust enrichment, where restitution is sought on the ground that the Defendant obtained profits by infringing another person's property rights, the burden of proof lies

with the party against whom restitution is sought to establish that it has a legitimate legal basis for retaining the profits (*see* Supreme Court Decision 2017Da37324, dated January 24, 2018.). In this case, the Defendant merely asserts that the patent right at issue constituted publicly known technology, and has neither alleged nor proven that it was granted an exclusive license or a non-exclusive license with respect to the patent right at issue.

② The patent right at issue must be deemed to have remained valid and in force during the period at issue in this case by virtue of the extension approval disposition in this case. If so, it is reasonable to conclude that, during the period at issue, the right to practice the patent at issue belonged exclusively and exclusively to the Plaintiff, as the patentee of the patent right at issue. Accordingly, it is difficult to regard the patent at issue as publicly known technology that anyone could freely practice during the period at issue.

③ As discussed above, it cannot be said that retroactive effect should be denied with respect to the extension approval disposition in this case, nor can the extension approval disposition, which carries such retroactive effect, be deemed unlawful and void.

b) Second Argument

The Defendant further argues that the profits it obtained by practicing the patent at issue should be analogized to the profits obtained by a possessor who uses land, and that, because the Defendant practiced the patent at issue in reliance on the belief that the patent right had expired, the Defendant qualifies as a good-faith beneficiary under Article 201(1) of the Civil Act and is therefore entitled to collect the fruits. On this basis, the Defendant contends that the profits it obtained do not constitute unjust enrichment.

However, Article 201(1) of the Civil Act provides that a good-faith “possessor” is entitled to acquire the fruits of the possessed object. “Possession” of a thing refers to an objective relationship in which, according to common social understanding, the thing is regarded as

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being under the de facto control of a person (*see* Supreme Court Decision 2013Da2559, dated rendered March 29, 2018.). Under Article 2(1) of the Patent Act, an “invention” means the creation of an advanced technical idea utilizing the laws of nature, and under Article 2(3)(a), in the case of an invention of a product, “working” of the invention means acts such as producing, using, assigning, leasing, or importing the product, or offering to assign or lease the product (including exhibition for the purpose of assignment or lease).

In light of these provisions, it is difficult to conceptualize possession with respect to an invention, which is merely an abstract technical idea. Even in the case of a product invention, what may be subject to possession is only the tangible product resulting from the working of the invention, not the invention itself.

Applying the foregoing legal principles to the facts and circumstances recognized above, the Defendant merely produced the Defendant’s products, which embody all the constituent elements of claim 1 of the patent at issue. This alone does not support a conclusion that the Defendant “possessed” the patent at issue. What the Defendant possessed was only the Defendant’s products, not the patent right or the invention itself.

Accordingly, the Defendant cannot be regarded as a good-faith possessor under Article 201(1) of the Civil Act, and the Defendant’s above argument cannot be accepted.

B. Scope of Restitution of Unjust Enrichment

1) Whether the Loss Amount May Be Calculated under Article 128(4) of the Patent Act

The Plaintiff asserts that the amount the Defendant must return as unjust enrichment should be calculated as KRW 22,407,394,388 pursuant to Article 128(4) of the Patent Act.

However, Article 128(4) of the Patent Act is a special provision intended to ease the patent holder’s burden of proof regarding the

amount of damages when exercising a claim for damages under Article 128(1) of the Patent Act. A claim for damages based on a tort and a claim for restitution of unjust enrichment are distinct legal institutions with different purposes, requirements, and effects. More specifically, a tort-based claim for damages presupposes an unlawful act committed with intent or negligence, allows for comparative negligence, and is subject to a short statute of limitations, whereas a claim for restitution of unjust enrichment does not require intent or negligence, does not allow for comparative negligence, and differs in the scope of restitution depending on whether the beneficiary acted in good faith or bad faith. Accordingly, it is reasonable to conclude that the provision of Article 128(4) of the Patent Act, which governs the calculation of damages in tort-based claims, cannot be arbitrarily applied by analogy to a claim for restitution of unjust enrichment under Article 741 of the Civil Act.

As discussed above, since Article 128(4) of the Patent Act cannot be applied to this part of the Plaintiff's claim, it is difficult to regard the amount calculated by multiplying the Defendant's export sales of the Defendant's products in Europe by the marginal profit rate of the Plaintiff's products as constituting the Plaintiff's loss resulting from the Defendant's unauthorized working of the patent. Moreover, the evidence submitted by the Plaintiff is insufficient to establish that the Defendant obtained benefits in the amount alleged by the Plaintiff through its unauthorized working of the patent at issue, or that the Plaintiff suffered corresponding losses as a result. There is no other evidence to support such a finding.

Accordingly, the Plaintiff's above assertion cannot be accepted.

2) Relevant Legal Principles

In cases of restitution of unjust enrichment, the scope of the benefit to be returned by the beneficiary is limited to the extent of the loss suffered by the party who incurred the loss. The loss suffered by the

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latter refers to the amount of profit that, according to ordinary social notions, the party could normally have been expected to obtain from the relevant property (*see* Supreme Court Decision (*en banc*) 2011Da76402, dated July 16, 2014.).

A person who works a patented invention without the patent holder's authorization is, absent special circumstances, deemed to have obtained a benefit equivalent to a reasonable royalty without legal grounds, thereby causing the patent holder to suffer loss in the same amount. Accordingly, the patent holder may seek restitution, as unjust enrichment, of an objectively reasonable amount that the infringer would have paid as consideration had permission to work the patent been obtained. In determining the amount of unjust enrichment, the court may calculate it by comprehensively taking into account various circumstances revealed in the course of the proceedings (*see* Supreme Court Decision 2014Da82385, dated July 14, 2016., concerning copyright).

3) Specific Determination

Based on the facts recognized above, it is acknowledged that the Defendant generated revenue of KRW 7,602,491,025 by exporting the Defendant's products manufactured from around August 2011 through May 20, 2013 to pharmaceutical companies in Germany, Spain, and Brazil. Considering the evidence previously cited, the statements in Defendant's Exhibits Nos. 74 through 76 and 96, and the overall purport of the pleadings, and taking into account the following facts and circumstances in their entirety, it is reasonable to determine that the royalty rate applicable to the patent at issue is 10% of the sales revenue of the products produced by the Defendant through exploitation of the patent. Accordingly, the amount unjustly gained by the Defendant by working the patent without the authorization of the Plaintiff, the patentee, is reasonably assessed at KRW 760,249,102 (=KRW 7,602,491,025 × 10%). Therefore, the Defendant is obligated to return to the Plaintiff, as unjust enrichment, an amount equivalent to

the foregoing sum.

① The patent at issue discloses a pharmaceutical use involving the transdermal administration of rivastigmine. The Plaintiff's product embodying the patent achieved substantial commercial success in the global pharmaceutical market for Alzheimer's disease. This commercial success appears to be largely attributable to the fact that, whereas conventional oral formulations posed difficulties in administration due to the characteristics of dementia patients, the patch formulation disclosed by the patent effectively addressed those difficulties.

② During the period in which the Defendant's unauthorized exploitation occurred, it is difficult to identify alternative technologies comparable to the patent at issue that remained in existence and could serve as substitutes.

③ According to statistics compiled by the Korea Institute of Science and Technology Information regarding 1,820 technology transaction cases conducted domestically between 2005 and 2018, where transactions were structured using a running royalty based on sales revenue by industry (Defendant's Exhibit No. 75), the average running royalty rate for the manufacture of medical substances and pharmaceuticals is stated as 3.1%. However, considering that it is rare in the pharmaceutical industry for a holder of an original drug patent, such as the Plaintiff, to grant a license to a third party during the patent term, the figures in this statistical data are difficult to apply directly to the present case. Generally, generic drugs possess strong price competitiveness compared to original drugs, in part because they incur little to no cost for clinical procedures and related processes. For this reason, an original drug manufacturer and seller is typically reluctant to allow entry of generic products that would function as substitute competitors while patent-based exclusivity remains in effect. Taking into account these circumstances unfavorable to the patent holder, together with additional favorable effects enjoyed by generic drug manufacturers and sellers, such as the market-preemption

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advantages of being the first generic entrant compared to other generic competitors, it appears that, if a license were granted during the patent term, the royalty rate would be set at a level exceeding 10% of sales revenue.

④ In this case, although the Defendant's revenue is not itself directly attributable to an act of patent exploitation, it is generally accepted practice, when determining royalties related to the manufacture of patented products, to use the sales revenue generated from those products as the reference basis. Even if the act of sale itself does not constitute an act of patent exploitation, it is not impossible to determine the royalty for the manufacturing activity by reference to subsequent sales revenue. Moreover, in calculating the amount of unjust enrichment, it is permissible to comprehensively consider the various circumstances revealed during the course of the proceedings. In light of these considerations, the amount of unjust enrichment resulting from the unauthorized manufacture of the Defendant's products is calculated by applying a 10% royalty rate to the Defendant's sales revenue.

5. Conclusion

The Defendant is obligated to pay the Plaintiff a total amount of KRW 12,146,920,526 (comprising KRW 11,386,671,424 in damages for patent infringement and KRW 760,249,102 in unjust enrichment), together with delay damages. With respect to the amount of KRW 2,500,000,000 recognized in the judgment of the first instance, delay damages shall accrue, as requested by the Plaintiff, at the rate of 5% per annum as prescribed by the Civil Act from May 12, 2021, the day following service of the amended complaint, until August 20, 2021, the date of the first-instance judgment, and thereafter at the rate of 12% per annum as prescribed by the Act on Special Cases Concerning Expedition, etc. of Legal Proceedings until full payment. With respect

to the additional amount of KRW 9,646,920,526 recognized in the appellate proceedings, delay damages shall accrue at the rate of 5% per annum as prescribed by the Civil Act from May 12, 2021, the day following service of the amended complaint, until January 18, 2024, the date of this judgment, during which period the Defendant's dispute as to the existence and scope of the obligation is deemed reasonable, and thereafter at the rate of 12% per annum as prescribed by the Act on Special Cases Concerning Expedition, etc. of Legal Proceedings until full payment.

Accordingly, the Plaintiff's claims in this action are upheld to the extent recognized above, and the remainder of the claims is dismissed. As the judgment of the first instance differs in part from this conclusion and is therefore unjust, the Plaintiff's appeal is partially granted, and the judgment of the first instance is modified as set forth above. The Defendant's application for restitution of provisional execution is without merit and is therefore dismissed. The judgment is rendered as ordered.

Presiding Judge	Youngwoo LIM
Judge	Sungyop WOO
Judge	Kisu KIM

**IP HIGH COURT OF KOREA
TWENTY FOURTH-FIRST DIVISION
DECISION**

Case No.	2022Na1487 Return of Unjust Enrichment, etc.
Plaintiff, Appellant	A Counsel for Plaintiff/Appellant, Law Firm Justice Attorney in Charge Youngjun JI, Jiwoon LEE
Defendant, Appellee	1. Uiryeong-gun Representative Governor B Counsel for Defendant/Appellee, Law Firm KIM CHANG LEE Attorney in Charge Hyelin LEE 2. C 3. D Addresses of Defendants 2 and 3 Counsels for Defendants 2 and 3 Law Firm Kumgang Attorney in Charge Gyujeong KO, Jeonghwan AHN, Wontae KIM, Sujin LEE, Seunggyu HONG, Siwool PARK Subagent Lawyer Jeongbeom KIM
District Court's Decision	Busan District Court Decision, 2020GaHap42565, decided June 8, 2022
Date of Closing Argument	September 6, 2023
Decision Date	October 18, 2023

ORDER

1. All Plaintiff's appeals against the Defendant are dismissed.
2. All Plaintiff's claims against the Defendant added in this court are dismissed.
3. Costs incurred after the filing of the appeal shall be borne by the Plaintiff.

DEMAND FOR RELIEF

1. Plaintiff's Demand for Relief

- A.** To the Plaintiff, the Defendant, Uiryeong-gun, shall pay KRW 300,000,000 and interest thereon at the rate of 12% per annum, calculated from the day following the delivery of a copy of the complaint of this case until the date of full payment. The Defendants C and D shall jointly pay KRW 200,000,000 and interest thereon at the rate of 12% per annum, calculated from the day following the delivery of a copy of the complaint until the date of full payment. (The Plaintiff has selectively added a Claim against Defendants C and D based on the unlawful acts of directors under the Commercial Act in the court.)¹⁾
- B.** The Defendant, Uiryeong-gun, shall indicate the name, profile, and the creation date of the Plaintiff, the copyright owner, within 30 days from the date of delivery of the judgment, in regard to the golf course listed in Appendix 1, using the method listed in Appendix 2 (The Claim was added in this court).²⁾

1) 3rd Protocol of Hearing dated September 6, 2023

2) The Plaintiff, at the first trial, filed a claim with the Defendant Uiryeong-gun for an injunction against the use of the patent at issue and for the destruction

2. Appellant's Demand for Relief

The decision of the first trial shall be overruled as per “1-A” above.

OPINION

1. Basic Facts

A. The Plaintiff's Patented Invention at Issue

1) Title of invention: One-Shot On-Green Golf Course

2) Filing date of application / Date of registration / Registration number: October 9, 2002 / July 1, 2005 / No. 10-0500605

3) Patentee: The Plaintiff (E and F had registered the patent for the patented invention on the case on July 1, 2005, and completed the registration of transfer of rights to the Plaintiff on July 21, 2005)

4) Claims

[Claim 1] Fairways built while using the natural terrain as it is with a predetermined width and length; multiple putting greens installed on fairways, made of artificial turf with a series of hole cups prepared on one side, and designed to have distances between the greens that are facing each other enough to reach the green in one stroke of short, mid, and long shot; and teeing grounds installed on one side of the greens. (Hereinafter “Element 1”) Specifically, the

of the golf courses listed in Appendix 1. However, upon reaching the appellate court, the Plaintiff withdrew this claim and added a claim for indicating the copyright holder, as described in Appendix 2, regarding the aforementioned golf course. In addition, the Plaintiff sought KRW 200,000,000 from the Defendant Company E, jointly with Defendants C and D, but withdrew on September 20, 2023.

aforementioned artificial turf includes multiple rubber mat teeing grounds (20) installed on one side of each green (10). (Hereinafter “Element 2”), and a series of teeing grounds (20) are installed while being connected to each green (10) and used as approach areas for striking balls to make the balls reach the green (10) when it falls between the greens. (Hereinafter “Element 3”) The aforementioned greens (10) are installed on the fairways built while using the natural terrain as it is, with a predetermined width and length, installed with distances that allow balls to reach the green in one stroke of short, mid, and long shots. (Hereinafter “Element 4”) Furthermore, additional approach areas made of artificial turf are placed on the zones where balls fall enabling players to hit approach shots for balls fallen between the aforementioned greens (10), multiple teeing grounds (20) are positioned on one side of the aforementioned greens (10) in the location that allows players to reach the next green in one shot based on their driving distance, and multiple teeing grounds (20) are sloped to avoid interference. (Hereinafter “Element 5”) These are the characteristics of the One-Shot On-Green Golf Course. (Hereinafter “Invention 1 at Issue”)

【Claims 2 to 5】 : Deleted

5) Main Content and Drawings of the Invention

As set forth in Appendix 3.

B. Background to the Designation of the Site at Issue as a Regional Special Zone

1) In June 2003, the Plaintiff proposed to the Defendant, Uiryeong-gun, a project (hereinafter “the project at issue”) to develop approximately 148,761m² (approx. 45,000 pyeong) of river site (hereinafter “the site at issue”) in location G, Uiryeong-eup, Uiryeong-gun, Gyeongnam Province, into an eco-friendly golf course. During this process, the Plaintiff explained that if the site was

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designated as a special economic zone for specialized regional development (hereinafter “regional special zone”) under the “Act on Special Cases Concerning the Regulation of Special Economic Zones for Specialized Regional Development,” administrative regulatory issues related to the project would be easily resolved. The Plaintiff also proposed that if designated as a specialization project operator, the Plaintiff would bear all costs associated with preparing for the regional special zone designation.

2) When the Defendant, Uiryeong-gun, accepted the Plaintiff’s proposal and began preparations for the designation of the regional special zone, concerns arose regarding potential favoritism due to the selection of the Plaintiff as the sole specialization project operator. Therefore, the Defendant, Uiryeong-gun, requested that the Plaintiff proceed with the project jointly with a local Arahan Construction company (formerly known as Taeil Gemenral Construction, hereinafter “Arahan Construction” regardless of the change in corporate name) as co-specialization project operators.

3) The Plaintiff accepted the request and signed an agreement (hereinafter “the joint specialization project operator agreement at issue”) with Arahan Construction on October 20, 2004, and proceeded with Arahan Construction on October 20, 2004, and proceeded with the project as co-specialization project operators.

Agreement (Defendant A’s Exhibit 2-1)

2. Even if the regional special zone designation is not approved, the Plaintiff shall not claim any losses from Arahan Construction regarding the amount previously invested in the application for regional special zone designation.
3. The Plaintiff and Arahan Construction shall jointly prepare all documents related to the application for regional special zone designation.
4. When attracting investment after the regional special zone designation approval, Arahan Construction’s participation with its name for the regional

special zone designation will become ineffective. Arahan Construction shall not oppose the business promotion and can participate under the same conditions as general investors.

5. All matters related to the regional special zone designation shall be mutually agreed upon, and the Plaintiff shall not use the corporation personally without a valid reason to protect Arahan Construction from being harmed.

4) **On October 27, 2004**, the Defendant, Uiryeong-gun, received documents prepared by the Plaintiff for the designation of the regional special zone (application for designation, business plan, land suitability assessment, etc.) from the Plaintiff and entered into an agreement for performance preparation for the regional special zone designation (hereinafter “**the performance agreement at issue**”) with the Plaintiff and Arahan Construction.

**Agreement for Performance Preparation for the Regional Special Zone
Designation (Defendant’s Exhibit 2-2)**

Article 1 (Effect of the agreement, etc.)

The agreement shall take effect only if the application for the regional special zone designation by the Defendant, Uiryeong-gun, receives approval from the Minister of Finance and Economy, and the site is designated as the regional special zone. If not, the agreement will become ineffective.

Article 2 (Agreement)

① The Defendant, Uiryeong-gun, and “the Plaintiff and Arahan Construction” shall make their best efforts for their regional special zone application to the Ministry of Finance and Economy in good faith to obtain the designation under the provisions of Article 9 of the Regional Special Zone Act.

② In case of the regional special zone designation as per Section 1, the Defendant, Uiryeong-gun, and “the Plaintiff and Arahan Construction” shall promptly sign and notarize an investment agreement containing the following matters in accordance with the regional special zone application:

1. Scope of the project, total project cost, project duration, etc.

2. Performance guarantee deposit and payment method, deposit and withdrawal timing, etc.

3. Effectiveness and termination of the agreement.

4. Usage fees and payment methods for existing turf and management equipment earlier prepared by the Defendant, Uiryeong-gun.

5. Methods for returning a portion of the profits from the regional special zone project to the local community.

6. Smooth compensation for losses to existing users of the river related to river occupancy.

7. Other matters necessary to conclude an agreement between the Defendant, Uiryeong-gun, and “the Plaintiff and Arahan Construction.”

Article 3 (Measures)

① If the Plaintiff and Arahan Construction fail to faithfully perform the agreement pursuant to Article 2, the Defendant, Uiryeong-gun, may cancel the designation of the regional special zone, determined and notified following the Article 6, Section 2 of the Regional Special Zone Act. Provided, however, that this shall not apply if the reason for the failure to perform is due to unavoidable circumstances such as natural disasters, as recognized by the Defendant, Uiryeong-gun.

② The Plaintiff and Arahan Construction may not raise any objection to the measure stipulated in Section 1.

5) On November 11, 2004, the Defendant, Uiryeong-gun, applied to the Minister of Finance and Economy to designate “the Plaintiff and E” as specialization project operators and to designate a 375,682m² area in Uiryeong-eup, Uiryeong-gun, Gyeongnam Province, including the site at issue, as a regional special zone for “eco-friendly golf course construction and associated supplementary projects.” However, the Ministry of Construction and Transportation, a related ministry, raised concerns on May 30, 2005, to the Minister of Finance and Economy regarding the designation of the Plaintiff and an individual business E, as specialization project operators, saying “it is not desirable to provide the river site, national public property, for the profit-making business of an individual.”

6) On June 10, 2005, Uiryeong-gun entered into an additional agreement with the Plaintiff and Arahan Construction to amend the regional special zone plan (hereinafter “the Additional Amendment Agreement at Issue”), and applied to the Minister of Finance and Economy to designate the site as a regional special zone.

Additional Amendment of the Special Economic Zone for Specialized Regional Development Plan (Plaintiff's Exhibit 1-7)

○ Specialization Project Operator

Following comprehensive opinions from the Ministry of Construction and Transportation, the specialization project operator is changed to the Uiryeong-gun governor so that the Uiryeong-gun governor can directly undertake the golf course construction and management.

○ Project Cost

The total project cost will be reduced from the originally planned KRW 19.01 billion to KRW 15.71 billion.

○ Plans for Public Golf Course Construction and Management:

Plan 1: Establish a joint public-private corporation to construct and manage the golf course and associated facilities.

Plan 2: Establish a local government-directly operated enterprise to directly implement and manage the golf course construction project within the river site.

- A clubhouse and parking lot will be constructed by the specialization project operator and then leased to Uiryeong-gun

- Local restaurants, spas (Korean dry sauna and other sauna), weekend farms, etc., will be invested in and operated by private businesses under separate laws (pursued independently from the specialized project).

[Omitted]

○ Measures

Consultation with the original specialization project operators, “Arahan Construction, and Plaintiff,” regarding the revised plan above.

- 특화사업자 변경, 클럽하우스 등 부대시설 임차권 - 향후 친환경간이골프시스템 특허등록시 특허권 사용권 등 단, 위 2안으로 결정시 클럽하우스 및 주차장 등 부대시설은 당초 특허사업자가 설치 후 의령군에 임대토록 하고, 임대비용 또는 사업참여 범위 등은 사업의 추진 정도에 따라 필요시 의령군과 상호 협의하여 조정키로 한다. 건설교통부 하천계획과-932(2005.05.30)등	
국문	영문
- 특화사업자 변경, 클럽하우스 등 부대시설 임차 권 - 향후 친환경간이골프시스템 특허등록시 특허권 사용 권 등 단, 위 2안으로 결정시 클럽하우스 및 주차장 등 부대시설은 당초 특허사업자가 설치 후 의령군에 임대토록 하고, 임대비용 또는 사업참여 범위 등은 사업의 추진 정도에 따라 필요시 의령군과 상호 협의하여 조정키로 한다.	- Change of specialization project operators, and rents of associated facilities such as a clubhouse - Usage of patent rights in the future, once the simplified eco-friendly golf course's patent is registered However, in case the Plan 2 is adopted, associated facilities such as a clubhouse and parking lot shall be constructed by the original specialization project operators and leased to Uiryeong-gun. If needed, the cost of rent or project participation scope will be adjusted through mutual discussion with Uiryeong-gun based on the project process.

Also, on June 10, 2005, the Plaintiff received an agreement below (hereinafter “the agreement at issue”) from H, the then governor of Uiryeong-gun.

Agreement (Defendant A's Exhibit 2-3)

의령군에서 지역경제 활성화 지역특구법에 의해
2004. 11. 12. 특구신청을 함에 있어 특화사업자인 천
환경자연간이골프연구원 김동윤과 2004. 10. 27. 특구
지점 대비 이행합의서 제1조(합의의 효력등)에 의한
의령천환경골프레저 특구지점 신청 및 2005. 6. 10.
추가 변경에 의한 재점경제부에서 의령천환경골프레저
특구지점 후에 김동윤과 골프장 운영권을 협약할 것을
약정합니다.

2005. 6. 10.

의령군 군수 한우영

C. Design and Establishment of the Golf Course

1) The Plaintiff commissioned Negoltech Co., Ltd. to handle the golf course permit documentation on June 30, 2003, and Haedong Engineering Co., Ltd. to conduct a preliminary environmental impact assessment on September 1, 2003. Subsequently, Negoltech Co., Ltd. subcontracted the basic design work for the golf course facility determination to Neogreen Co., Ltd. (represented by I)

2) Around June 2004, the Plaintiff completed a simplified golf course with 9 green holes and 9 tee boxes on the site of this case and operated until October 2, 2004. However, on December 8, 2004, it was demolished due to violations of the Sports Facilities Act, and the site was restored as the grass mat development zone. Afterward, the Plaintiff was re-entrusted by O·P town in Uiryeong-gun to install and operate a golf course and established the “Uiryeong Eco-Friendly Golf Course (hereinafter “the first golf course”)” on the site and operated until October 31, 2006.

3) Meanwhile, the Minister of Finance and Economy designated

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375,682m², including the site, located in Uiryeong-eup, Uiryeong-gun, Gyeongnam Province, as a regional special zone on June 28, 2005, and announced on July 5, 2005, that the Uiryeong-gun governor would be the specialization project operator and “directly implement and manage³⁾ the golf course construction project within the river site via establishment of a local government-directly operated enterprise.”

4) The Defendant, Uiryeong-gun concluded a basic plan and detailed design service contract for an eco-friendly golf course with Hansung Development Corporation Co., Ltd. on March 13, 2006, and a golf course construction contract with Haedong Jogyeong Co., Ltd. on June 20, 2007. Subsequently, around June 12, 2008, “Uiryeong-gun Eco-Friendly Golf Course” (the golf course listed in Appendix 1, hereinafter “the golf course at issue”) was constructed on 238,838m² area, including the site of this case, and has been operating ever since.

3) Plan 2 of the Additional Amendment Agreement

D. Memorandum of Understanding at Issue

1) On August 10, 2007, the Defendant Uiryeong-gun signed an memorandum of understanding (MOU) with the Defendant C, the CEO of Arahan Construction, and Defendant D, the CEO's wife, regarding the "Uiryeong-gun golf course clubhouse and associated facilities construction project," (hereinafter "the MOU at issue") which stipulated that C and D would construct clubhouse and other associated facilities necessary for the operation of the golf course and then lease those facilities to Uiryeong-gun for 30 years.

2) The Defendant C constructed "Uiryeong Clubhouse" on the location J in Uiryeong-eup, Uiryeong-gun, Gyeongnam Province, and two other parcels of land, which had been purchased in the name of D, the Defendant, before the area at issue was designated as a regional special zone.⁴⁾ On May 1, 2008, the Defendant Uiryeong-gun established "Uiryeong-gun Eco-Friendly Golf Course Management Office," a local government-directly operated enterprise, and has been leasing and using the aforementioned clubhouse from the Defendant C.

E. Relevant Prior Decisions

1) On August 26, 2008, the Plaintiff filed a lawsuit against the Defendant Uiryeong-gun in the Busan District Court, seeking damages based on torts (violation of the principle of protection of trust under the General Act on Public Administration and unfair termination of contract negotiations under civil law), and alternatively, unjust enrichment (Busan District Court Decision, 2008HapGa15837). On February 23, 2012, the Busan District Court dismissed the Plaintiff's

4) On August 22, 2008, the ownership preservation registration was made in the name of Defendant D, and on the same day, the ownership transfer registration was made in the name of KB Real Estate Trust based on a trust agreement. On October 19, 2017, ownership transfer registration was made in the name of Defendant D based on the devolvement of the trust property, and on the same day, ownership transfer registration was made in the name of Defendant Uiryeong-gun based on a sale.

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primary Claim and partially affirmed the secondary Claim.

2) In the second trial, which proceeded with appeals from both parties, on July 10, 2014, the Busan High Court partially affirmed the secondary Claim for unjust enrichment after slightly increasing the amount, while dismissing the primary Claim for damages based on torts and another secondary Claim for office management cost return (Busan High Court, 2012Na3128). The judgment became final on December 1, 2014, after the appeal was dismissed (hereinafter the “prior judgment”).

3) In the prior judgment, the court determined that the Defendant, Uiryeong-gun, utilized the results of services invested by the Plaintiff to designate the site as a regional special zone and construct the golf course. Consequently, the court ruled that the Defendant had an obligation to return the unjust enrichment equivalent to the costs incurred by the Plaintiff. Specifically, the court found that the results of services (feasibility study, current status investigation and measuring, site suitability investigation, preliminary environmental impact assessment, land suitability assessment, cultural heritage indicator survey, soil and water resource investigation, preliminary disaster impact assessment, traffic impact assessment, permits and detailed design) prepared by the Plaintiff to be designated as a regional special zone for the golf course construction and the grass laid on the site while operating a simplified golf course were received by the Defendant, Uiryeong-gun, without legal basis, resulting in unjust enrichment. Therefore, the court ordered the Defendant to return the value of the service results, KRW 602,610,899, and the value of the grass, KRW 277,662,900.

4) The Plaintiff filed a request against the Defendant Uiryeong-gun, for a trial to confirm the scope of a patent right, claiming that the golf course at issue falls within the scope of the rights of the patent invention at issue. The Intellectual Property Trial and Appeal Board

reviewed this under case number 2021Dang948 and, on December 15, 2021, dismissed the Plaintiff's request, stating "the invention specified by the Plaintiff for the right confirmation is not identical to the golf course at issue, making it difficult to consider that the Defendant, Uiryeong-gun, has practiced the invention." The decision was finalized.

【Factual basis】 Undisputed facts, Plaintiff's Exhibit 1-5, 1-7, 1-8, 1-43, 1-56, Plaintiff's Exhibit 6-1, 6-2, Plaintiff's Exhibit 17 (including Exhibits with branching numbers, hereinafter the same shall apply), Defendant A's Exhibit 1, 3, and 5, Defendant A's Exhibit 2-2, and 2-3, and the purport of each and the overall arguments in Defendant B's Exhibit 2.

2. Discussion on Claim Against Defendant Uiryeong-gun

A. Claim of Compensation for Damages Based on Non-performance of Obligations

1) Summary of the Plaintiff's Arguments

The Defendant, Uiryeong-gun, had an obligation to reach a "mutual agreement" with the Plaintiff regarding the operation of the golf course, etc., pursuant to the aforementioned additional amendment agreement and the agreement at issue. The Plaintiff argues that "mutual agreement" means either granting the golf course operation rights or the rights to operate the clubhouse or parking lot.⁵⁾ However, Uiryeong-gun failed to fulfill this obligation of mutual agreement, and therefore the Plaintiff seeks KRW 300,000,000 as compensation for damages arising from non-performance of obligations and delay damages (The below Article B and a selective Claim).

5) 2nd Protocol of Hearing dated July 5, 2023.

2) Discussion

Based on the evidence submitted by the Plaintiff, it is difficult to recognize that the Defendant, Uiryeong-gun, had an obligation to “reach an agreement on granting the golf course operation rights or the rights to operate the clubhouse or parking lot to the Plaintiff.” There is no further evidence to support such an argument. [Even according to the content of Plaintiff’s Exhibit 1-7 (the additional amendment agreement), the amendment agreement only stipulates that either a joint-venture corporation (Plan 1) or a local government-directly operated enterprise established by Uiryeong-gun (Plan 2) will have the operation rights of the golf course. Both parties only agreed that, if Plan 2 were chosen, the Plaintiff and Arahan Construction would install the clubhouse and parking lot and other associated facilities and lease them to the Defendant, allowing them to participate in the operation of the golf course in a supporting role. And the Defendant Uiryeong-gun declared that it would cooperate with this in the future. Furthermore, as evidenced by portions of Plaintiff’s Exhibit 1-31 and 1-43, the agreement (Exhibit 2-3) bears only the personal signature of “H” and lacks the official seal of the Defendant Uiryeong-gun. While the Performance Agreement (Defendant’s Exhibit 2-2) and the Additional Amendment Agreement (Plaintiff’s Exhibit 1-7) were reviewed and drafted by K, the working-level official from the Planning and Audit Office of Uiryeong-gun, which led the project, the agreement at issue was drafted directly by H and delivered to the Plaintiff without any review from the Planning and Audit Office or working-level officials. Therefore, it is difficult to view the agreement as having been drafted with the intent of representing Uiryeong-gun, and even if it were drafted with such intent, it cannot be assumed that the effect of the agreement would naturally extend to Uiryeong-gun]. Therefore, the Plaintiff’s Claim of compensation for damages based on non-performance of obligations against the Defendant Uiryeong-gun is dismissed as unfounded.

B. Claim of Compensation for Damages Based on Patent Infringement

1) Summary of the Plaintiff's Arguments

The golf course constructed by the Defendant, Uiryeong-gun, is identical to or equivalent to the elements of the Plaintiff's Claim 1. Therefore, the act of constructing and operating the golf course is an infringement of the Plaintiff's patent related to Claim 1. Accordingly, the Defendant, Uiryeong-gun, is liable to pay the Plaintiff a portion of the damages pursuant to Article 128(1) of the Patent Act.⁶⁾

2) Discussion

a) Claim Construction (meaning of “using the natural terrain as it is”)

In principle, the protection of a patented invention is determined by the matters stated in the claims, and the description of the invention or the drawings cannot be used to limit or expand the protection. However, the matters stated in the claims can only be accurately understood in terms of their technical meaning by referring to the description of the invention and the drawings. Therefore, the interpretation of the matters stated in the claims must be conducted objectively and reasonably based on the ordinary meaning of the language used in the claims and with consideration of the invention description and drawings to grasp the technical significance intended to be expressed by the claim language (refer to Supreme Court Decision 2014Hu2788, rendered on May 14, 2015).

In light of the following facts and circumstances recognized based on the evidence previously presented and the overall purport of the arguments, it is reasonable to interpret the phrase “using the natural terrain as it is” as stated in the Claim 1 as referring to an element that

6) On May 30, 2023, the Plaintiff withdrew the claim for damages calculation pursuant to Article 128(8) of the Patent Act through Application for Alteration of Causes and Demands of Claims.

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“utilizes the terrain in its unchanged form, without any human intervention, to prevent deforestation and water pollution.”

① The specification of the patented invention states, in relation to the technical field of the invention, that the invention is One-Shot On-Green Golf Course “that has fairways built while using the natural terrain as it is, multiple putting greens installed on the fairway and designed to have distances between the greens, and teeing grounds installed on one side of the greens and allows people to enjoy golf conveniently by using the natural terrain as it is, while also preventing deforestation and water pollution caused by pesticide spraying” (Paragraph [0002]).

② In particular, the specification presents the following problems in the existing technology. Deforestation and water pollution caused by the large amount of pesticides sprayed to protect the grass growing on the fairway and greens of golf courses and substantial cost and time required to change the structure of each hole (Paragraph [0005]).

③ The patented invention at issue aims to solve these problems by “simply installing multiple greens on various types of natural terrain, such as farmland or unused land” (Paragraph [0006]). To achieve this purpose, the primary element of the invention is building fairways while using the natural terrain as it is with a predetermined width and length (Paragraph [0008]).

④ The dictionary meaning of “natural” is “in a state without human intervention,” and the dictionary meaning of “as it is” is “in its original or unchanged form.”

b) Comparison and Differences of Elements

(1) Comparison of Elements

A comparison between the elements of Claim 1 and the golf course is as follows.

Element	Claim 1	The Golf Course (Defendant A's Exhibit 4 Page 15-23)
1	Fairways built while using the natural terrain as it is with a predetermined width and length; multiple putting greens installed on fairways, made of artificial turf with a series of hole cups prepared on one side, and designed to have distances between the greens that are facing each other enough to reach the green in one stroke of short, mid, and long shot; and teeing grounds installed on one side of the greens.	Fairways formed on the river site near the Namgang River, constructed to have a predetermined width and length through earthworks, green construction, installation of greens, tees and bunkers installation, drainage works, sprinkler installation, pump and valve installation, pipe connections, sod laying, and strip sod works, all performed pursuant to the registration standards for a public golf course business under the Installation and Utilization of Sports Facilities Act; Multiple putting greens installed on fairways, made of artificial turf with a series of hole cups prepared on one side, with each hole individually separated so that the play proceeds sequentially, independently installed without interfering nearby greens, and positioned so that a reaching the green in one stroke is possible; A teeing ground is included in accordance with the tee shot distance toward the green.
2	The aforementioned artificial turf includes multiple rubber mat teeing grounds (20) installed on one side of each green (10)	Artificial turf includes multiple rubber-material mats and teeing grounds made of artificial turf or natural weeds (20A) installed on the opposite side of multiple greens.
3	And a series of teeing grounds	The teeing grounds (20A) and

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Element	Claim 1	The Golf Course (Defendant A's Exhibit 4 Page 15-23)
	(20) are installed while being connected to each green (10) and used as approach areas for striking balls to make the balls reach the green (10) when it falls between the greens.	the greens (10A) are installed on opposite sides within the fairway, and turf or natural weeds are used as approach areas for striking balls to make the balls reach the green (10A) when it falls between the greens (10A).
4	The aforementioned greens (10) are installed on the fairways built while using the natural terrain as it is with a predetermined width and length, installed with distances that allow balls to reach the green in one stroke of short, mid, and long shot	Multiple greens (10A) are installed on fairways formed on the river site near the Namgang River, constructed to have a predetermined width and length through earthworks, green construction, installation of greens, tees and bunkers installation, drainage works, sprinkler installation, pump and valve installation, pipe connections, sod laying, and strip sod works, all performed pursuant to the registration standards for a public golf course business under the Installation and Utilization of Sports Facilities Act. And they are installed on the fairway with distances that allow balls to reach the green in one stroke of short, mid, and long shot after selectively adopting one of champion tees, regular tees, senior tees, and ladies tees.

(2) Commonalities and Differences

(a) Element 1

Element 1 of Claim 1 involves “fairways built while using the

natural terrain as it is, with a predetermined width and length.” The corresponding configuration of the golf course at issue is fairways formed with a constant width and length through earthworks, green construction, installation of greens, tees and bunkers installation, drainage works, sprinkler installation, pump and valve installation, pipe connections, sod laying, and strip sod works, in accordance with the general public golf course business registration standards under the Installation and Utilization of Sports Facilities Act.

However, since the figures of the fairways in the golf course at issue are detailed in laws and regulations,⁷⁾ they are different from “using the natural terrain as is” in element 1 of Claim 1 at issue (hereinafter “Difference 1”).

(b) Element 2

Element 2 of Claim 1 is “artificial turf including multiple rubber mat teeing grounds (20) installed on one side of each green (10).” In the golf course at issue, some of the rubber mat-shaped teeing grounds are installed on the “opposite side of the green” on the fairway, and are therefore considered to be installed on “one side” of the green, the same as element 2. Therefore, the two elements are identical.

(c) Element 3

Element 3 of Claim 1 is, “a series of teeing grounds (20) are installed while being connected to each green (10) and used as approach areas for striking balls to make the balls reach the green (20) when it falls between the greens.” However, as examined in element 2, the teeing grounds in the golf course are installed on the opposite side of the green on the fairway, and do not appear to be connected to each green, even when referring to the materials submitted by the Plaintiff.⁸⁾ Furthermore, even according to the Plaintiff’s claims, it is

7) This includes earthworks of 170,997 m², green construction of 1,969 m², tee and bunkers of 977 m², drainage works of 725 m², 92 sprinklers, pumps (15 HP), 51 valves, 1750 pipe connections, sod laying of 92,230 m², and strip sod works of 26,590 m².

8) Bottom of page 27 and the photograph on page 28 of the Appellate Brief

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difficult to consider that the teeing grounds are used as an approach area in the golf course, but rather grass or weeds are used.⁹⁾ Therefore, the golf course at issue does not have the same element as element 3 and is thus different from the Claim 1 (hereinafter “Difference 2”).

(d) Element 4

Element 4 of Claim 1 is “the greens (10) installed on the fairways built while using the natural terrain as it is, with a predetermined width and length, installed with distances that allow balls to reach the green in one stroke of short, mid, and long shots.” The greens of the golf course are installed in multiple numbers on the fairway, and one of the champion tees, regular tees, senior tees, and ladies tees is selectively adopted, and each is installed on the fairway so as to have distances that are enough to reach the green in one stroke of short, mid, and long shots. And both elements have the aforementioned tees – champion tees, regular tees, senior tees, and ladies tees – installed on the fairway to enable reaching the green with a shot distance suitable for each player. However, as discussed in Difference 1, there is a difference between the two, as Element 4 of Claim 1 “uses the natural terrain as is,” while the golf course at issue does not (Same as Difference 1).

(e) Element 5

Element 5 of Claim 1 is “additional approach areas made of artificial turf, placed on the zones where balls fall, enabling players to hit approach shots for balls fallen between the aforementioned greens (10), multiple teeing grounds (20) positioned on one side of the aforementioned greens (10) in the location that allows players to reach the next green in one shot based on their driving distance, and multiple teeing grounds (20) sloped to avoid interference.” This golf course appears to also have hazards and OB tees, including artificial

dated August 5, 2022.

9) Element 3 on page 28 of the Appellate Brief dated August 5, 2022.

turf, that allow approach shots to balls fallen between the greens. Therefore, the hazards and OB tees are similar to Element 5 in that they are made of artificial turf and allow approach shots to balls fallen between the greens.

However, while the “multiple teeing grounds” of Claim have a slope to avoid mutual interference, champion tees, regular tees, senior tees, and ladies tees of this golf course do not include such a slope¹⁰⁾ (hereinafter “Difference 3”).

c) Discussion on Literal Infringement

In order for a product manufactured by the opposing party in a patent infringement lawsuit or a method by the opposing party (hereinafter “infringing product, etc.”) to infringe the patent rights of a patented invention, each element described in the patent claims and the organic connection between those elements as a whole must be included in the infringing product, etc. (Refer to Supreme Court Decision 2010Da65818, rendered on September 29, 2011, etc.).

As previously discussed, the golf course at issue, owned by the Defendant, Uiryeong-gun, differs from Elements 1, 3, 4, and 5 of Claim 1, and therefore, does not literally infringe Claim 1 at issue.

d) Discussion on Equivalent Infringement

(1) Relevant Law

Even if an infringing product, etc., contains a modified portion of the elements stated in the claims of a patented invention, if the problem-solving principle is identical to that of the patented invention, the functional effect is substantially identical to that of the patented

10) The Plaintiff argues, based on the photograph shown at the bottom of page 7 of the Brief, dated August 28, 2023, that the multiple teeing grounds of the golf course at issue are configured to have a slope. However, it is difficult to confirm from that photograph that the multiple teeing grounds are installed with a slope, and even when referring to the photograph on page 30 of the Appellate Brief dated August 5, 2022, it is difficult to conclude that the multiple teeing grounds of the golf course have a slope.

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invention, and the modification would be easily conceived by anyone with ordinary skill in the technical field to which the invention pertains, then, unless there are special circumstances, the infringing product, etc., should be deemed equivalent to the elements stated in the claims of the patented invention and still infringe the patent rights of the patented invention (refer to Supreme Court Decision 2018Da267252, rendered on January 31, 2019, etc.).

When determining whether an infringing product or other invention shares the same problem-solving principles as the patented invention, rather than simply extracting a portion of the elements described in the claims, the description of the invention in the specification and publicly known arts at the time of patent application should be considered and compared to prior arts. And then, the core of the inventive concept underlying the patented invention's unique solution should be substantively explored and determined. The substantive value of a patented invention, as protected by the Patent Act, lies in its contribution to technological advancement by resolving a technical problem previously unsolved in prior art. Therefore, when determining whether a modified element of the challenged invention needs to be confirmed, it is equivalent to the corresponding element of the patented invention; the patented invention's unique problem-solving principles should also be considered. Furthermore, when determining the problem-solving principles of a patented invention, not only the description of the invention but also publicly known arts at the time of patent application should be considered, so that the patented invention's substantial value can be objectively assessed based on its contribution to technological advancement in relation to the entire prior art, and get appropriate protection. Therefore, the decision on how broad or narrow the patented invention's problem-solving principles are should be made based on the extent to which the patented invention has contributed to technological advancement, considering the prior art. (refer to Supreme Court Decision 2017Hu424, rendered on January 31, 2019, etc.).

Whether the functional effects are substantially the same should be determined based on whether the product or the method of the opposing party in the patent infringement lawsuit also addresses the technical problem solved by the patented invention, as opposed to the prior art. Therefore, if the core of the inventive step – the basis of the patented invention’s unique solution, which is identified by considering the detailed description of the invention and publicly known arts at the time of patent application – is also implemented in the infringing product, etc., the functional effects are considered substantially the same. However, if the core of the inventive step was already known or was expected to be widely known at the time of patent application, this core of the inventive step cannot be considered unique to the patented invention, nor can it be said that the patented invention solves a technical problem not solved by the prior art. In such cases, the implementation of the patented invention’s core of the inventive step in the infringing product, etc., does not mean that both have substantially identical functional effects. Rather, the individual functions or roles of the elements at issue must be compared to determine whether or not equivalence is present (refer to Supreme Court Decision 2018Da267252, rendered on January 31, 2019, etc.).

(2) Discussion

The patented invention at issue relates to the One-Shot On-Green Golf Course. It aims to address problems with existing technologies, such as the need for approximately 300,000 pyeong of land for the golf course, the 3-4 years required for turf maturation and facility installation, and the excessive initial investment required (Paragraph [0004], [0005]). Also, the invention makes the game easier and more convenient by simply installing multiple greens on various natural terrains, preventing forest destruction and water pollution caused by golf course construction, and constructing a golf course in an eco-friendly manner by maximizing the use of the surrounding terrain (Paragraph [0006]).

In order to utilize the natural terrain as a golf course, a certain area

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of natural terrain is designated as fairways, and the distance between greens is adjusted to be approximately the same as each player's average driving distance. Furthermore, greens made of artificial grass are installed on the fairway (Paragraph [0027], [0028]), the average driving distance of Koreans is set as the distance between greens, and the micro-distances that vary depending on each player's characteristics on the greens adjusted to a certain distance are controlled by multiple teeing grounds installed at regular intervals on one side of each green. This allows each player's tee shot location to vary, resulting in different driving distances and distances between the greens (Paragraph [0029]). Furthermore, a series of teeing grounds can be installed while connected to each green, portable and movable during play, or used as approach areas (Paragraph [0012] to [0014]), allowing players to easily enjoy the game by simply installing multiple greens in various locations. Therefore, the patented invention at issue is determined to have the effect of preventing forest destruction or water pollution caused by golf course construction while maximizing the use of surrounding terrain via eco-friendly installation, and the greens can be moved to create the golf course with a variety of formations (Paragraph [0045]).

In light of the descriptions in the specification as set out above, the core of the inventive step embodied in the problem-solving principle of Invention 1 at Issue relating to the One-Shot On-Green Golf Course lies in "using the natural terrain as it is, while designating a fairway having a predetermined width and length, installing greens made of artificial turf on the fairway and adjusting the distances between the greens, and providing teeing grounds which, depending on the user's tee-shot distance, are connected in an integrated manner to the greens or are movable and can also be used as an approach area."

However, as already examined above, the golf course at issue is not one that uses the natural terrain as it is without modification, and it is also difficult to recognize that it includes teeing grounds that are connected in an integrated manner in correspondence with the greens

and can be used as an approach area. Accordingly, the golf course at issue of Defendant Uiryeong-gun cannot be regarded as sharing the same problem-solving principle as Invention 1 at Issue. As a result, it is also difficult to expect that the golf course at issue will exhibit the effects of Invention 1 at Issue, namely the effect of allowing a golf course having various driving distances to be installed while preventing forest destruction and water pollution, and the effect of enabling the course to be varied into golf courses having various configurations.

Therefore, the golf course at issue of Defendant Uiryeong-gun cannot be deemed to infringe Claim 1 at Issue under the doctrine of equivalents.

e) Summary of Discussion

The golf course at issue of Defendant Uiryeong-gun differs from Invention 1 at Issue in its elements, does not literally infringe Claim 1 at Issue, and does not fall within the scope of equivalents, and therefore cannot be regarded as falling within the scope of protection of Claim 1 at Issue. Accordingly, the Plaintiff's claim, which is premised on the assertion that the golf course at issue infringes the Plaintiff's patent right relating to the patented invention at issue, is without merit and must be dismissed without further examination.

C. Claim for Damages based on Unfair Competition by Misappropriation of Outcomes

1) Summary of the Plaintiff's Arguments

The Plaintiff argues that Defendant Uiryeong-gun misappropriated the following outcomes, which the Plaintiff created by investing considerable costs and efforts, and has thereby obtained profits, and that Defendant Uiryeong-gun is therefore liable to compensate the Plaintiff for damages based on Article 2(1)(xiii) of the Unfair Competition Prevention and Trade Secret Protection Act (the "Unfair

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Competition Prevention Act”). The Plaintiff further alleges that the amount of damages corresponds to the amount of cost savings as compared to the project cost for other eco-friendly golf course development projects.¹¹⁾

The Plaintiff’s alleged “outcomes” are as follows:

① The name “eco-friendly golf course” is, according to the Plaintiff, a name created for the first time in Korea by the Plaintiff through considerable costs and efforts.¹²⁾

② Since the golf course at issue was created by copying, as it is, the first golf course (golf practice range) which the Plaintiff created by investing considerable costs and efforts, the golf course at issue itself – that is, the golf course or the course layout – also constitutes an outcome.¹³⁾

③ The “overall image” that the golf course at issue currently presents is likewise the result of the Plaintiff’s considerable costs and efforts.¹⁴⁾

④ In addition, the designation of the area as a regional special zone¹⁵⁾ and the service deliverables, such as the documents which the Plaintiff prepared and drafted for the designation of the regional special zone¹⁶⁾, also constitute outcomes.

2) Relevant Law

Article 2(1)(xiii) of the Unfair Competition Prevention Act does not

11) Application for Alteration of Causes and Demands of Claims dated May 30, 2023, p. 6.

12) Application for Alteration of Causes and Demands of Claims dated May 30, 2023, p. 5; 2nd Protocol of Hearing dated July 5, 2023.

13) 2nd Protocol of Hearing dated July 5, 2023.

14) Application for Alteration of Causes and Demands of Claims dated May 30, 2023, p. 5; 2nd Protocol of Hearing dated July 5, 2023.

15) Brief dated April 20, 2023, pp. 10–11.

16) Brief dated August 28, 2023, pp. 21–22.

limit the types of “outcomes, etc.” protected thereby, and thus encompasses not only tangible property but also intangible property, and may also include new forms of results that have been difficult to protect under traditional intellectual property laws. In determining whether certain “outcomes, etc.” fall within the scope of protection, the court must comprehensively consider factors such as the reputation or economic value acquired by such results, the customer-attracting power embodied in the results, and the share and competitiveness of such results in the relevant business field. Whether such outcomes, etc. have been “created by considerable investment or efforts” must be determined specifically and individually in light of the type and extent of investment or efforts made by the right holder, by reference to the practices and actual circumstances in the industrial field to which the outcomes, etc. belong. In addition, it must be possible to evaluate that the economic interests infringed by the unauthorized use of such outcomes, etc. do not fall within the so-called public domain that anyone may freely use. Furthermore, for an act to constitute “using, in a manner contrary to fair commercial practices or the principle of fair competition, for one’s own business, without authorization, the outcomes, etc. of another person” under subparagraph (xiii), it is necessary to comprehensively consider whether there is a competitive relationship between the right holder and the infringer, or whether there is a likelihood that they may be placed in a competitive relationship in the near future; what the content of fair commercial practices or the principle of fair competition is in the business field that includes the alleged outcomes, etc., and whether such content is fair; whether the outcomes, etc. could be replaced in the market by the infringer’s goods or services; and to what extent the outcomes, etc. are known to consumers or traders, as well as the likelihood of confusion among consumers or traders (Supreme Court Decision 2016Da276467, dated March 26, 2020; Supreme Court Decision 2017Da217847, dated July 9, 2020).

3) Discussion

First, the term “eco-friendly golf course” is merely a name that briefly describes a golf course created by utilizing the natural environment, and based on the evidence submitted by the Plaintiff, it is insufficient to find that the Plaintiff created such name for the first time in Korea by investing considerable efforts and costs, and there is no other evidence to acknowledge this. On the contrary, from the respective descriptions in Exhibits Eul-ga Nos. 10 and 12 through 14 and the overall purport of the arguments, the following facts can be found:

(a) as can be seen from the Yonhap News article dated August 6, 1998, the term “eco-friendly” had already been used since the 1990s;

(b) as can be confirmed from the paper entitled “A Study on the Eco-Friendly Development of Golf Courses in Korea” by Kim Kwang-du published in the Journal of the Korean Turfgrass Society in 1998 and the doctoral dissertation in science entitled “An Ecological Assessment Study for the Creation of Environment-Friendly Golf Courses” by Kim Kwang-du in December 2002, research on constructing golf courses by using eco-friendly approaches was already actively underway before the Plaintiff delivered documents relating to eco-friendly golf course development to Defendant Uiryeong-gun, and it appears that the word “eco-friendly” or words related thereto were naturally used together with “golf course”; and

(c) the name “eco-friendly golf course” itself had already been in use around 2004 to 2005. Therefore, the name “eco-friendly golf course” cannot be regarded as an outcome protected under Article 2(1)(xiii) of the Unfair Competition Prevention Act, which the Plaintiff created by investing considerable costs or efforts.

Next, based solely on the evidence submitted by the Plaintiff, it is insufficient to find that the golf course at issue was created by

copying the first golf course as it is, or that even after Defendant Uiryeong-gun completed the golf course at issue, the Plaintiff continued to maintain, repair and manage the golf course at issue so as to build up its current image, and there is no other evidence to acknowledge this. Rather, the Plaintiff has simply brought this action while asserting that Defendant Uiryeong-gun excluded the Plaintiff and unilaterally constructed and has been operating the golf course at issue to generate profits.

Furthermore, the designation as a regional special zone is a kind of beneficial administrative act in which the competent administrative authority examines whether the statutory requirements for designation have been satisfied and then makes a decision based on such laws and regulations. Even if a particular individual's efforts or costs were involved in the process of preparing an application for designation as a regional special zone, or even if substantial economic benefits could be obtained as a result of such designation, the administrative act itself cannot be regarded as an outcome protected as an individual's outcome under the Unfair Competition Prevention Act. In addition, the "documents, etc." required for designation as a regional special zone are nothing more than materials submitted to the administrative authority for the purpose of designation of the regional special zone. They are not, in and of themselves, independent results having economic value that constitute a new type of outcome that has been difficult to protect under the conventional intellectual property laws. The fact that considerable costs and efforts were expended in the course of preparing such documents does not lead to a different conclusion. (Moreover, as already examined above, in the prior lawsuit filed by the Plaintiff against Defendant Uiryeong-gun, the Plaintiff was awarded unjust enrichment corresponding to the expenses incurred in preparing the documents, etc. for the application for designation as a regional special zone). Accordingly, since the existence of outcomes cannot be recognized, the Plaintiff's claim for damages on this ground is without merit and must be dismissed without further discussion.

D. Claim for Damages Based on Unfair Competition by Misappropriation of Ideas

1) Summary of the Plaintiff's Arguments

The Plaintiff argues that the Plaintiff implemented the patent at issue and thereby “planned and proposed a project to create an eco-friendly golf course by utilizing the natural terrain as it is,”¹⁷⁾ and that the Plaintiff also created, for the first time in Korea, the name “eco-friendly golf course.”¹⁸⁾ The Plaintiff contends that both the above-mentioned project proposal and name constitute ideas with economic value protected under the Unfair Competition Prevention Act. As Defendant Uiryeong-gun allegedly misappropriated the Plaintiff's ideas and obtained profits, the Plaintiff argues that Defendant Uiryeong-gun is liable to compensate the Plaintiff for damages under Article 2(1)(x) of the Unfair Competition Prevention Act, and that the amount of damages corresponds to the profits obtained by Defendants C and D under the business cooperation agreement dated August 10, 2007, entered into between Defendant Uiryeong-gun and Defendants C and D.¹⁹⁾

17) Brief dated April 20, 2023, p. 10. The Plaintiff's assertion, as stated on p. 6 of the Application for Alteration of Causes and Demands of Claims dated May 30, 2023, that “the documents delivered to Defendant Uiryeong-gun on October 27, 2004 for the designation of the regional special zone are the outcome of a project plan for an eco-friendly golf course applying the patented invention at issue, and constitute information containing the Plaintiff's ‘idea’ having economic value under the Unfair Competition Prevention Act,” should be understood as meaning that it is not the documents themselves, but rather the project plan or proposal contained in those documents, that the Plaintiff claims to be the “idea” as defined in Article 2(1)(x) of the Unfair Competition Prevention Act.

18) Application for Alteration of Causes and Demands of Claims dated May 30, 2023, p. 4.

19) Application for Alteration of Causes and Demands of Claims dated May 30, 2023, p. 5.

2) Relevant Law

The main text of Article 2(1)(x) of the Unfair Competition Prevention Act provides that “an act of using, in a manner contrary to fair commercial practices or the principle of fair competition, for one’s own business, or providing to a third party for such use, information containing another person’s technical or business ideas that has economic value, which was provided in the course of business negotiations or during a trade process such as a business proposal, bidding or public contest, in violation of the purpose for which the information was provided” constitutes an act of unfair competition. This subparagraph was newly established by the amendment of the Unfair Competition Prevention Act by Act No. 15580, promulgated on April 17, 2018 and effective as of July 18, 2018, for the purpose of regulating the act of using, without fair compensation, ideas having economic value that were obtained in the course of business negotiations or during a trade process.

Whether certain information constitutes “information containing another person’s technical or business ideas that has economic value” (idea information) must be determined specifically and individually, taking into account whether the holder of the idea information could obtain a competitive advantage over competitors by using the information, or whether the acquisition or development of the information would require considerable costs or efforts, among other things. However, ideas that the recipient already knew at the time of receipt, or ideas widely known in the industry, are excluded from the scope of protection under subparagraph (x) (Article 2(1)(x)). For an act to fall under “using, in violation of the purpose for which the idea information was provided, in a manner contrary to fair commercial practices or the principle of fair competition” under subparagraph (x), it is necessary to comprehensively consider the specific content and nature of the business negotiations or trade process, the motive and circumstances of the provision of the idea information, the purpose to

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be achieved by such provision of the idea information, and whether proper consideration was paid for the provision of the idea information, among other things, and to evaluate whether the use of the idea information is contrary to the relationship of trust formed during the business negotiations or trade process with the provider of the idea information (Supreme Court Decision 2020Da220607, dated July 23, 2020).

3) Discussion

First, as already examined above, the name “eco-friendly golf course” itself merely briefly describes a golf course created by utilizing the natural environment as it is, and thus it is difficult to regard the name itself as independent idea information having economic value, and there is no evidence to the contrary.

Next, we examine the part of the Plaintiff’s assertion that the Plaintiff planned and proposed a project to create an eco-friendly golf course by utilizing the natural terrain as it is by implementing the patent at issue. It is possible that a plan or project proposal to create an eco-friendly golf course by utilizing the patent at issue may constitute an idea having economic value. It is also true, as already examined above, that on October 27, 2004, the Plaintiff delivered to Defendant Uiryeong-gun documents such as an application for designation as a regional special zone, a business plan and a land suitability assessment, which had been prepared and drafted by the Plaintiff for the designation as a regional special zone. However, in view of the basic facts of this case, the respective descriptions in Exhibits Eul-ga Nos. 9 through 15, and the overall purport of the pleadings, the following facts and circumstances can be found:

However, in view of the basic facts of this case, the respective descriptions in Exhibits Eul-ga Nos. 9 through 15, and the overall purport of the pleadings, the following facts and circumstances can be found: However, in view of the basic facts of this case, the respective

descriptions in Exhibits Eul-ga Nos. 9 through 15, and the overall purport of the pleadings, the following facts and circumstances can be found:

① Between approximately September 3, 2000 and around October 27, 2004, when the Plaintiff delivered the documents for designation as a regional special zone to Defendant Uiryeong-gun, numerous newspaper articles were posted on Internet portal sites such as Naver and Daum and in newspapers such as the Dong-A Ilbo and Kukmin Ilbo, which contained content such as “constructing an eco-friendly ecological golf course by 2002” or “golf courses should be constructed in an eco-friendly manner that maximizes the natural environment and terrain.”

② As mentioned above, a paper entitled “A Study on the Eco-Friendly Development of Golf Courses in Korea” was published in 1998, and another paper entitled “An Ecological Assessment Study for the Creation of Environment-Friendly Golf Courses” was published in December 2002. In light of this, it appears that research on constructing golf courses using eco-friendly processes had already been actively conducted.

Therefore, as it is difficult to recognize unfair competition based on the misappropriation of an idea, the Plaintiff’s claim for damages on this ground is without merit and must be dismissed without further discussion.

E. Discussion on the Additional Claim for Indication of Copyright Owner, etc.

1) Summary of the Plaintiff’s Arguments

The Plaintiff argues that Defendant Uiryeong-gun is obligated, under Article 12(2) of the Copyright Act, to indicate the Plaintiff’s name, etc. at the Golf Course at Issue as set forth in Appendix 2, on the following grounds.

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① The Plaintiff planned the first golf course and entrusted Negoltech Co., Ltd. with the work of preparing documents, etc. related to permits for the Eco-Friendly Golf Course, and built the first golf course (driving range) on the land at issue around November 30, 2005 based on the design services conducted by Negoltech Co., Ltd.²⁰⁾ Therefore, the first golf course should be deemed akin to a work made for hire of the Plaintiff.²¹⁾ Defendant Uiryeong-gun entrusted Hansung Development Corporation Co., Ltd. with detailed design services for the Golf Course at Issue, and Hansung Development Corporation Co., Ltd. performed its work by using drawings provided by the Plaintiff and the first golf course. Accordingly, the Golf Course at Issue is a reconstruction, expansion, or other modification of the first golf course, or a derivative work based on the first golf course.²²⁾

② The Plaintiff further argues that even if the first golf course is not akin to a work made for hire of the Plaintiff, it is a joint work authored by the Plaintiff, Negoltech Co., Ltd., and I, and that as the joint authors designated the Plaintiff as the person to exercise moral rights on their behalf, the Plaintiff may exercise moral rights in relation to the Golf Course at Issue, which is a reconstruction, expansion, or other modification of the first golf course or a derivative work based thereon.

2) Discussion

a) The Plaintiff's arguments presuppose that the first golf course and the Golf Course at Issue are substantially similar in order to characterize the Golf Course at Issue as a reconstruction, expansion, or other modification of the first golf course, or as a derivative work

20) Application for Alteration of Causes and Demands of Claims dated October 11, 2022, pp. 7–8; Brief dated April 20, 2023, pp. 3 and 7; Application for Alteration of Causes and Demands of Claims dated May 30, 2023, p. 11.

21) Application for Alteration of Causes and Demands of Claims dated May 30, 2023, p. 13.

22) Application for Alteration of Causes and Demands of Claims dated May 30, 2023, p. 19.

made based on the first golf course.²³⁾ However, based solely on the evidence submitted by the Plaintiff, it is insufficient to acknowledge such similarity, and there is no other evidence to support such finding. Accordingly, the Plaintiff's claim on this point is without merit and is dismissed without further discussion, without the need to further examine whether the first golf course is akin to a work made for hire or whether the Plaintiff is one of the joint authors and has succeeded to the right to have the author's name, etc. indicated from the other joint authors.

b) Moreover, for the following reasons, the first golf course cannot be deemed akin to a work made for hire.

As a rule, the provisions on works made for hire do not apply to contracts such as contracts for work for the creation of a work. However, in exceptional cases where the ordering party is entirely responsible for the planning of the program, invests the funds, and merely borrows the manpower of the developer by entrusting development to the developer, and the developer who accepted such entrustment develops the program solely for the ordering party and delivers it to the ordering party, and the program is ultimately published in the name of the ordering party, the ordering party may be deemed to be the author by treating the work as akin to a work made for hire (Supreme Court Decision 98Da60590, dated November 10, 2000; Supreme Court Decision 2011Da69725, dated May 9, 2013, etc.). This is interpreted to mean that if the ordering party completely leads the conception, planning, and functional design of the program and invests the funds, and the developer simply uses its manpower to develop and deliver the program as requested by the ordering party, then the ordering party should be deemed the author of the program by applying Article 7 of the Copyright Act *mutatis mutandis*.

In order for the first golf course to be deemed akin to a work made for hire, at a minimum, the Plaintiff must have completely led the

23) Brief dated July 4, 2023, p. 2.

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conception, planning, and design of the first golf course, and Negoltech Co., Ltd. and Neogreen Co., Ltd. (represented by I) must have merely provided practical manpower to complete the first golf course in accordance with the Plaintiff's instructions. However, although the fact that Defendant Uiryeong-gun provided Hansung Development Corporation Co., Ltd. with design drawings obtained from the Plaintiff can be recognized based on the evidence discussed above, in light of the following circumstances as found from Exhibits 11 through 13 of Plaintiff's Exhibit 1 and the overall purport of the pleadings, it can only be found that the Plaintiff entrusted Negoltech Co., Ltd. with design services, and it is insufficient to find that the Plaintiff completely led the design of the Golf Course at Issue and the golf course layout. There is no other evidence to support such conclusion.

① The Plaintiff claimed that it personally prepared the design drawings for the first golf course, but merely alleges that the supporting materials were lost in an accident and has not submitted any materials to prove this allegation. Moreover, there is no evidence to show that the Plaintiff had prior experience in golf course design work or had worked in a related field.

② The scope of services ordered by the Plaintiff to Negoltech Co., Ltd. on June 30, 2003 included "preparation of the layout for golf course development and layout design of the clubhouse," and the scope of services subcontracted by Negoltech Co., Ltd. to Neogreen Co., Ltd. (represented by I) on August 1, 2004 included "computerization of the basic materials provided Negoltech Co., Ltd. (business plan, land maps, etc.), preparation of layouts corresponding to the basic plan, and basic design for determining facilities."

③ The Plaintiff merely asserts that it was deeply involved in having Neogreen Co., Ltd.'s I perform the tasks by personally securing a residence and paying monthly rent, but has submitted no

evidence supporting such assertion.²⁴⁾ Furthermore, no identity can be recognized between the drawing that the Plaintiff claims to have personally hand-drawn and the drawing subsequently completed by N after further work.

3. Discussion on the Claims Against Defendants C and D

A. Summary of the Plaintiff's Arguments

1) Conduct of Defendants C and D

While Defendant Uiryeong-gun, in applying for the designation of the subject site as a regional special zone, initially intended to designate the Plaintiff as the sole specialized project operator, it formally involved Arahan Construction as a joint specialized project operator under the Joint Specialized Project Operator Agreement due to concerns over allegations of preferential treatment. However, although the Additional Amendment Agreement contemplated that the original specialized project operator was to generate revenue by installing ancillary facilities, such as a clubhouse, and leasing them to Defendant Uiryeong-gun, Defendants C and D entered into the Business Cooperation Agreement with Defendant Uiryeong-gun, constructed Uiryeong Clubhouse and leased it to Defendant Uiryeong-gun while excluding Plaintiff, thereby earning substantial rental income for more than ten years.

2) Primary Claim

a) Tort Liability of Directors under the Commercial Act

Although Arahan Construction agreed not to intervene in the project after the Joint Specialized Project Operator Agreement, it nonetheless entered into the Business Cooperation Agreement with Defendant Uiryeong-gun. At the time, Defendant C served as the representative

²⁴⁾ 3rd Protocol of Hearing dated September 6, 2023.

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director of Arahan Construction, and Defendant D served as the director of Arahan Construction, and therefore bore the liability for damages prescribed under Article 401 of the Commercial Act. Accordingly, Defendants C and D are jointly obligated to pay the Plaintiff KRW 200,000,000 as partial payment of the damages claimed, together with delay damages thereon.

b) Liability for Damages under the Unfair Competition Prevention Act

In the alternative, the Defendants bear liability for damages prescribed under Article 2(1)(xiii) of the Unfair Competition Prevention Act for the following reasons. Accordingly, Defendants C and D are jointly obligated to pay the Plaintiff KRW 200,000,000 as partial payment of the damages claimed, together with delay damages thereon.

① In the event Defendant Uiryeong-gun is designated as the specialized project operator, the Plaintiff, pursuant to the Additional Amendment Agreement dated June 10, 2005, would be able to obtain “an opportunity or status to participate” in the golf course operation together with Arahan Construction, and such opportunity or status constitutes a result achieved through the Plaintiff’s considerable investment and efforts.²⁵⁾ By installing the clubhouse and generating profits while excluding the Plaintiff, Defendants C and D have misappropriated such opportunity or status belonging to the Plaintiff.

② Furthermore, the “clubhouse site layout plan under the name of Architect L,” which Defendants C and D used in the construction of Uiryeong Clubhouse, constitutes the Plaintiff’s result, as it was prepared upon request through substantial costs and efforts borne by the Plaintiff.²⁶⁾

3) Preliminary Claim

25) Plaintiff’s Brief No. 2 dated August 28, 2023, p. 10.

26) Plaintiff’s Brief No. 2 dated August 28, 2023, p. 11.

The aforementioned conduct of Defendants C and D constitutes a third party's interference with the Plaintiff's claim (the Plaintiff's right as the original specialized project operator under the Additional Amendment Agreement) against Defendant Uiryeong-gun, thereby giving rise to liability to jointly compensate the Plaintiff for the damages incurred. Defendants C and D are jointly obligated to pay the Plaintiff KRW 200,000,000, as a partial amount of damages claimed, together with delay damages thereon.

B. Discussion

1) Whether Tort Liability under the Commercial Act Arises

The liability for damages of a director of a stock company to a third party, as prescribed in Article 401(1) of the Commercial Act, requires that the director has failed to perform his or her duties in bad faith or by gross negligence. Therefore, merely failing to satisfy a company obligation arising from ordinary business transactions does not constitute a failure to perform duties in bad faith or by gross negligence. However, where the director's conduct constitutes a violation of the duty of loyalty or the duty of care as a prudent manager in the course of performing his or her duties and such conduct is unlawful, it shall fall within a case of failing to perform duties with intent or gross negligence (Supreme Court Decision 2000Da47316, dated March 29, 2002, et al.).

Based on the facts found above and the evidence submitted by the Plaintiff, it is insufficient to deem that Defendants C and D failed to perform their duties in bad faith or by gross negligence, and there is no other evidence supporting such a finding. Therefore, the Plaintiff's claim seeking to impose liability for damages as a director under the Commercial Act against the said Defendants is without merit and therefore requires no further consideration.

2) Whether Liability for Damages Arising from Unfair

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Competition Exists

The term “outcomes, etc.” under Article 2(1)(xiii) of the Unfair Competition Prevention Act includes both tangible and intangible assets, and therefore, an “opportunity” may also fall within its scope. However, based solely on the evidence submitted by the Plaintiff, it is insufficient to find that the Plaintiff expended considerable cost, effort, and time to obtain the “opportunity to participate in the golf course operation in an auxiliary capacity” pursuant to the Additional Amendment Agreement, nor is there other evidence supporting such a finding.

Meanwhile, the work product obtained by paying the contract price under a contract for work constitutes merely the result of the performance of such contract, and absent special circumstances, it cannot be regarded as an outcome protected under the Unfair Competition Prevention Act. As previously examined, the scope of the work commissioned by the Plaintiff to Negoltech Co., Ltd. on June 30, 2003, included the “clubhouse site layout plan”. Therefore, the “clubhouse site layout plan” constitutes nothing more than the work product for which the Plaintiff paid the contract price. Based solely on the evidence submitted by the Plaintiff, it is insufficient to find that such a plan as an outcome is protected under the Unfair Competition Prevention Act, nor is there other evidence supporting such a finding. Even assuming that the layout plan constitutes the Plaintiff’s outcome, the evidence submitted by the Plaintiff is insufficient to find that S is identical to the “clubhouse site layout plan under the name of Architect U,” nor is there other evidence supporting such a finding. Therefore, the Plaintiff’s argument on this point is groundless in every respect.

Therefore, the Plaintiff’s claim premised on Defendants C and D having committed an act of unfair competition under Article 2(1)(xiii) of the Unfair Competition Prevention Act is without merit, and accordingly requires no further examination.

3) Discussion on Liability for Damages Arising from Third-party Interference with a Claim

Although interference with a claim by a third party may constitute a tort, such interference does not necessarily and invariably amount to a tort; rather, whether it constitutes a tort must be specifically examined depending on the nature of the interference. In competitive contractual relationships between independent economic actors, merely entering into a contract with the debtor, with knowledge of the contents of the contract between the debtor and the creditor, and that such contract is inconsistent therewith, is insufficient to find bad faith or negligence, and unlawfulness on the part of the third party. Bad faith or negligence, and unlawfulness of the third party can be recognized only where special circumstances exist, such as the third party having actively colluded with the debtor, or having used means contrary to social norms—such as deceit or coercion—or having entered into the contract with the debtor with the intent to harm the creditor (Supreme Court Decision 99Da38699, dated May 8, 2001; Supreme Court Decision 2011Da91876, rendered March 14, 2013, et al.).

Based solely on the facts recognized above and the evidence submitted by the Plaintiff, it is difficult to find that the series of acts undertaken by Defendants C and D—from entering into the Business Cooperation Agreement with Defendant Uiryeong-gun to leasing the clubhouse of the golf course—were carried out through active collusion with Defendant Uiryeong-gun for the purpose of unjustly infringing upon the Plaintiff's right as the original specialized project operator against Defendant Uiryeong-gun, or that the means or purpose of such conduct were contrary to social norms to a degree that renders them unlawful. Nor is there evidence sufficient to find that the Plaintiff's asserted right as the original specialized project operator was infringed by Defendants C and D through unlawful means contrary to public order.

Therefore, the Plaintiff's claim premised on the acts of Defendants C and D constituting a tort based on third-party interference with a

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claim is likewise without merit and requires no further examination.

4. Conclusion

All of the Plaintiff's claims against the Defendants are without merit, and the judgment of the court of first instance, which reached the same conclusion, is upheld. Accordingly, the Plaintiff's appeal against the Defendants and the claims additionally asserted by the Plaintiff before this Court are all dismissed, as stated in the Order of this Judgement.

Presiding Judge	Sook Yeon LEE
Judge	Taeksoo JUNG
Judge	Jiyoung YI

[Appendix 1]

List

The “Uiryeong-gun Eco-friendly Golf Course,” located on 238,838m² of land, including approximately 148,761m² (approx. 45,000 pyeong) of river site (river site around Mancheon, Town P) in H, Uiryeong-gun, Gyeongnam Province.

[Appendix 2]

Copyright Holder’s Sign

The phrase in the size of 50 cm x 50 cm, engraved on the front lower part of the “Eco-friendly Golf Course” memorial stone in H, Uiryeong-gun, Gyeongnam Province states: “The eco-friendly golf club was created by A (Director of the Eco-friendly Natural Simplified Golf Research Institute, Chairman of International Finance High School) on November 30, 2005.”



국문	영문
친환경골프클럽	Eco-friendly Golf Course

[Appendix 3]

Key Drawings and Description of the Patent at Issue

A. Technical field of the invention and relevant prior art

[0002] The present invention relates to a “One-Shot On-Green Golf Course” and more specifically, [0002] to a system comprising a fairway that utilizes natural terrain as it exists; a plurality of greens installed on the fairway at predetermined intervals; and teeing grounds installed on one side of the greens. This system allows users to enjoy golf conveniently while making use of natural topographical features as they are, and further prevents deforestation and water pollution caused by pesticide spraying.

[0003] Generally, in a golf course, one hole refers to the section from the teeing ground, the game begins with a tee shot, to the green where the hole cup is located. Various hazards—such as roughs, hazards, and bunkers—are arranged within such a hole. These individually configured holes are composed in units of 9, 18, or 36 holes, and players proceed through each hole, attempting to put the golf ball into the hole cup within the prescribed number of strokes allocated to each respective hole. Golf becomes more engaging as players proceed through holes that vary in configuration.

[0004] However, in order to construct such a golf course, approximately 300,000 pyeong (99 hectares) of fairway area is required, and the period necessary for the maturation of turf planted on the fairway and the installation of facilities takes approximately three to four years. This necessitates substantial initial investment, and the installation of such a golf course is accompanied by various constraints, thereby making its popularization difficult.

[0005] In particular, such golf courses require spraying large amounts of pesticides to protect the turf planted on fairways and greens, resulting in deforestation and water pollution; customizing the configuration of greens to individual needs is not feasible; and significant cost and time are required to modify the layout of roughs, hazards, slopes, and other course features arranged within the fairway.

B. Technical problem to be solved by the invention

[0006] The objective of the present invention, which is designed to address the aforementioned problems, is to enable golf to be enjoyed easily and conveniently by simply installing a plurality of greens on various natural terrains, such as unused farmland, riverbeds, sandy beaches, lakes, or reservoirs. The invention also aims to prevent deforestation and water pollution caused by constructing traditional golf courses, while enabling the installation of an eco-friendly golf course that maximizes the use of surrounding natural topographical features.

[0007] Additionally, the present invention intends to provide a “One-Shot On-Green Golf Course” that stimulates interest in golf by allowing the greens to be arranged in dimensions and configurations suitable for each user, and enables repetitive practice on a course that matches the user’s needs in order to improve shot accuracy.

C. Construction and operation of the invention

[0008] The “One-Shot On-Green Golf Course,” according to the present invention, devised to accomplish the aforementioned objectives, comprises a fairway formed with a predetermined width and length while utilizing the natural terrain as it exists,

[0009] a plurality of greens installed on the fairway, each formed of artificial turf and having a hole cup integrally formed on one side thereof, the greens being spaced apart so that on-green shots by short, middle, and long shots are possible and being arranged to face each other; and

[0010] a teeing ground installed on one side of the green.

[0011] Hereinafter, embodiments of the present invention will be described in detail with reference to the accompanying drawings. A brief explanation of the drawings is as follows: Figure 1 is a schematic diagram illustrating one embodiment of a golf course according to the present invention; Figure 2 is a schematic diagram illustrating a green and a teeing ground installed on one side thereof; and Figure 3 is a flowchart illustrating the golf system of the present invention.

[0012] Referring first to Figures 1 to 3, a plurality of teeing grounds (20), formed as mat-shaped structures made of rubber material, are installed on

one side of the plurality of greens (10) formed of artificial turf.

[0013] The teeing ground (20) may be integrally connected and installed corresponding to each of the greens (10), or may be installed so as to be movable between the greens (10) spaced apart from one another, allowing the player to carry and move it during the game.

[0014] The teeing ground (20) may also be used as an approach area (not shown) for hitting a golf ball that has fallen between the greens in order to place the ball onto the green (20) with an on-green shot.

[0015] In addition, the greens (10) are installed in plurality on the fairway (30), which is formed with a predetermined width and length while utilizing the natural terrain as it is.

[0016] Further, the greens (10) are each installed on the fairway at distances that allow the ball to reach the green in one shot for short, mid, and long shots, respectively, and may be variously arranged so as to provide appropriate positions and distances according to the user's preference and shot distance during a swing.

[0017] The greens (10) may be standardized and positioned on the fairway (30) according to the average shot distances of drivers or irons based on general golf scoring standards.

[0018] Additionally, in order to enable approach shots to golf balls that have fallen between the greens (10), an approach area (not shown) made of artificial turf is further provided at the drop zone. As shown in Figures 1 and 2, the teeing grounds (20) installed on the greens (10) are provided in plurality on one side of each green and are positioned at distances from which, according to the user's shot distance, the user can reach the next green (10) in one shot, and are configured with a predetermined slope so as to prevent mutual interference.

0019] The present invention, configured as above, is described as follows.

[0020] The fairway (30) of the present invention may be installed by utilizing natural terrains, such as unused paddies or fields, rivers, reservoirs, or lakes, allowing installation while preserving nature to the maximum extent.

[0021] In addition, by arranging the greens (10) using rivers, lakes, or reservoirs, the game can be conducted in an environmentally friendly

environment.

[0022] Further, the green (10), formed of artificial turf, is placed at predetermined positions of the natural-terrain fairway (30), making pesticide spraying unnecessary for turf protection, thereby preventing environmental pollution. The green (10), when placed on the natural terrain, is fixed in position using pins or other fixing members.

[0023] In the case of a sandy beach, the entire sandy area serves as the fairway, and a plurality of greens (10) formed of artificial turf may be placed at predetermined positions on the fairway so that golf practice and games may be conducted.

[0024] Furthermore, when utilizing a lake or reservoir, a structure may be installed at a predetermined position on the water surface, and one green (10) may be placed thereon. Based on that green (10), a plurality of greens (10) may be arranged along the edge of the lake or reservoir, such that the game may be conducted by traveling back and forth between the water-surface green (10) and the edge greens.

[0025] As described above, it becomes possible to install a golf course by utilizing natural terrains, such as unused farmland or river areas, sandy beaches, or lakes, which provide relatively large spaces, and a golf course having diverse configurations may be constructed through a simple structure that permits the greens (10) to be relocated.

[0026] A golf course according to the present invention will now be described in detail by way of an embodiment.

[0027] Referring again to Figures 1 and 2, when unused natural terrain, sandy beaches, or lakes are used as a golf course, a predetermined area of the natural terrain is designated as the fairway (30).

[0028] Subsequently, the greens (10), formed of artificial turf, are each installed on the fairway (30) at distances substantially corresponding to the average shot distances achieved by a player using a driver or iron.

[0029] In this case, for Korean players, the average shot distance is approximately 230-280 meters for a driver, 200 meters for a long iron, and 150 meters for a short iron. These distances are set as the distances between the greens (10) for shots using each club, while minute differences resulting from individual player characteristics are adjusted by the plurality of teeing grounds (20) spaced apart at predetermined intervals on one side of each green (10). Consequently, the tee shot position of each player differs, thereby providing different shot distances and intervals between the greens (10).

[0030] More specifically, the distance between greens (1) and (2) corresponds to the average long-shot distance; the distance between (2) and (3) corresponds to the average short-shot distance; the distance between (3) and (4) corresponds to the average middle-shot distance; the distance between (4) and (5) corresponds to the average long-shot distance; the distance between (5) and (6) corresponds to the average middle-shot distance; and the distance between (6) and (1) corresponds to the average short-shot distance, with a plurality of greens being formed on the upper side of the fairway. In such a configuration, when proceeding sequentially around the fairway, a six-hole game is played.

[0031] In this case, the plurality of teeing grounds (20) located on one side of each green (10) may be selectively used according to the player's shot distance so that the player may perform a tee shot at an appropriate position, and the teeing grounds (20) may be fixed or movable.

[0032] With the configuration described above, the game may be played by performing tee shots from green (1) toward (5), then from (5) toward (2), from (2) toward (4), from (4) toward (3), from (3) toward (6), and from (6) toward (1).

[0033] By varying the sequence of progression among the respective greens positioned on the fairway as described above, a variety of courses may be applied, thereby increasing the enjoyment of the game.

[0034] The distance from the teeing ground of the first green, where the game begins, to the second green (long shot) corresponds to approximately 250 meters, which is the distance for a long shot, and the distance from the teeing ground located on one side of the second green to the third green corresponds to approximately 150 meters, which is the short-shot distance, and the distance from the teeing ground of the third green to the fourth green corresponds to approximately 200 meters, which is the middle-shot distance.

[0035] Subsequently, play proceeds by hitting shots from each teeing ground so that the ball reaches each green in one shot, and, when compared to a standard golf course, this corresponds to a par-3 hole and is played in the same manner as a par-3 course.

[0036] In addition, the distances between each of the greens may be diversely modified by utilizing the natural terrain according to the user's shot distance or preference, such as short-middle-long - long-short-middle - middle-long-short - middle-middle-long.

[0037] Further, by freely arranging the greens (10) on the natural topographical features according to the preference of the player, the interest in the game is increased, and the simple structure enabling the relocation of the greens (10) makes it possible to configure courses of various layouts.

[0038] Furthermore, when, for example, six greens (10) are installed as shown in Figure 1, each green is positioned at a distance from which the player can reach the green in one shot using a driver, long iron, or short iron, so that the player can accurately recognize the strength and form of his or her shot.

[0039] In addition, as illustrated in Figure 3, play proceeds by first designating a fairway on natural terrain and then positioning each green at a distance from which, using each club, the player can reach the next green in one shot. After a shot is made from a first green toward a second green, if it becomes difficult to reach the next green in one shot due to external factors or the player's physical condition, a teeing ground (20) and an approach area may be provided at the point where the ball has fallen, and play then proceeds in the same manner as on a standard par-3 hole by putting the ball into the hole cup with a putter.

[0040] In this case, although, in general, the ball can reach each green (10) in a single shot, if the golf ball cannot reach the green, teeing grounds (20) may be installed on each green so that play can proceed, or play may proceed by travelling among the greens using only a single teeing ground (20).

[0041] Furthermore, when the terrain is flat at the point where the golf ball falls, the teeing ground (20) may not be used, and in such a case, the natural terrain serves the function of hazards or roughs.

[0042] Additionally, the teeing grounds installed on one side of the green are provided in plurality according to the user's shot distance so that, regardless of the user's shot distance, substantially the same drop point may be obtained.

[0043] Through the configuration described above, golf games may be played utilizing various terrains, regardless of differences in geographical conditions.

[0044] Meanwhile, the final one of the plurality of greens (10') is installed so as to face the first green (10), thereby enabling the game to be played in a round-trip manner or from both directions for each hole, which allows for various strategies and visual enjoyment during the golf game.

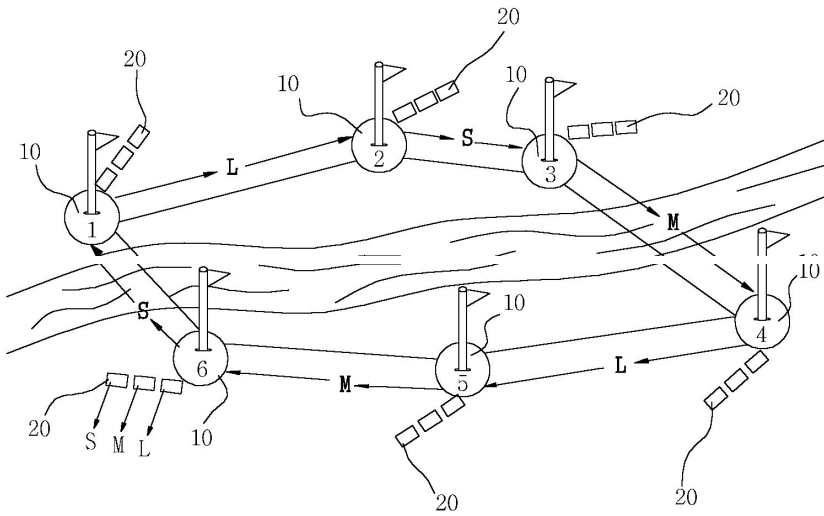
D. Effects of the invention

[0045] As described above, the present invention allows golf to be easily and conveniently enjoyed by simply installing a plurality of greens in various locations, such as unused farmland or river areas, sandy beaches, lakes, or reservoirs.

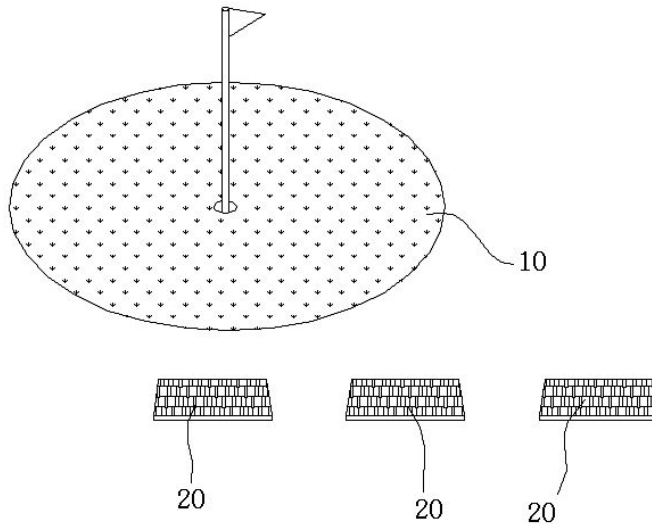
[0046] Furthermore, it is possible to install an environmentally friendly mini golf course that maximizes the utilization of surrounding topographical features while preventing deforestation and water pollution caused by the construction of conventional golf courses, and the ability to relocate the greens allows the course to be reconfigured into various forms.

[0047] Although the present invention has been illustrated and described with reference to particular embodiments, it will be understood by those skilled in the art that various modifications and changes may be made without departing from the spirit and scope of the invention as defined in the following claims.

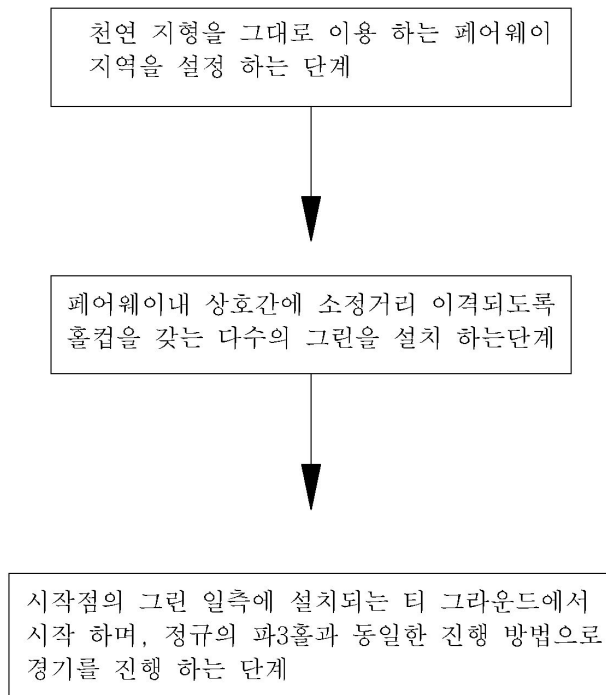
[Figure 1]



[Figure 2]



[Figure 3]



국문	영문
천연 지형을 그대로 이용하는 페어웨이 지역을 설정하는 단계	Defining a fairway area utilizing the natural terrain as it exists
페어웨이 내 상호간에 소정거리 이격되도록 홀컵을 갖는 다수의 그린을 설치하는 단계	Installing a plurality of greens, each having a hole cup, spaced apart from one another by a predetermined distance within the fairway
시작점의 그린 일측에 설치되는 티그라운드에서 시작하며, 정규의 파3홀과 동일한 진행 방법으로 경기를 진행하는 단계	Starting the game from a teeing ground installed on one side of the starting green, and proceeding with the game in the same manner as a standard par-3 hole

**IP HIGH COURT OF KOREA
FOURTH DIVISION
DECISION**

Case No.	2022Heo4741 Rejection (Patent)
Plaintiff	1. The Trustees of Columbia University in the City of New York United States Representative A 2. Fundacio Hospital Universitari Vall d’Hebron-Institut de Recerca Spain Representative A Counsel for Plaintiffs AJU Kim Chang & Lee Patent Attorney Yeonhee KIM
Defendant	Commissioner of the Korean Intellectual Property Office (the “KIPO”) KIPO Litigator Yeri LEE
Date of Closing Argument	December 7, 2023
Decision Date	January 10, 2024

ORDER

1. The Plaintiffs’ claims are all dismissed.
2. Costs shall be borne by the Plaintiffs.

DEMAND FOR RELIEF

The IPTAB Decision 2021Won3311, dated June 30, 2022, shall be reversed.

OPINION

1. Background

A. The Plaintiffs' Patent Application at Issue (Plaintiffs' Exhibit 1)¹⁾

1) Title of Invention: Deoxynucleotide Therapy for Diseases Caused by an Unbalanced Nucleotide Pool, Including Mitochondrial DNA Depletion Syndrome

2) International Filing Date / Priority date / Date of submission of Korean translation / Application No.: June 17, 2016 / June 17, 2015 / January 16, 2018 / No. 7001496

3) Claims (as finally amended on October 14, 2021)

[Claim 1] : A composition for use in a method of treating thymidine kinase 2 (TK2)²⁾ deficiency syndrome in a human subject, the composition comprising a therapeutically effective

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- 1) As a general matter, the claims, descriptions of the invention, etc., of the Plaintiffs' patent application at issue as well as the cited prior inventions are set forth as stated in the respective specifications, without regard to minor typographical or spacing errors. For foreign-language references, the Korean translations submitted by the Plaintiffs serve as the primary basis; however, certain expressions have been restated where necessary to more accurately reflect the original text. In addition, the transliteration of the terms "nucleotide" and "nucleoside" appearing in the record has been standardized for consistency.
- 2) As used herein, *Tk2* (italicized according to gene nomenclature) refers to the Tk2 gene, whereas TK2 (set in upright type, i.e., not italicized, according to protein nomenclature) refers to the thymidine kinase 2 enzyme produced through transcription and translation of the *Tk2* gene.

amount of a mixture of deoxycytidine (dC) and deoxythymidine (dT) (hereinafter “Claim 1 of the invention at issue,” and the remaining claims shall be referred to in the same manner).

【Remaining claims】 : Omitted

4) Overview of the Invention

[1] Technical field

[0006] The present invention relates generally to human genetic diseases and, more particularly to diseases caused by an unbalanced nucleotide pool, including mitochondrial DNA depletion syndrome. More specifically, the invention relates to a pharmaceutical regimen for diseases characterized by thymidine kinase 2 (TK2) deficiency. The pharmaceutical regimen comprises administration of at least one deoxynucleoside, or a mixture thereof. For the treatment of TK2 deficiency, the regimen involves the administration of deoxythymidine (dT), deoxycytidine (dC), or a mixture thereof. Administration of one or more deoxynucleosides is also applicable to other disorders with an unbalanced nucleoside pool, particularly those observed in mitochondrial DNA depletion syndrome.

[2] Background Art

[0007] Mitochondrial diseases are clinically heterogeneous disorders caused by defects in the mitochondrial respiratory chain (RC) and oxidative phosphorylation, the biochemical pathway by which energy stored in electrons is converted into adenosine triphosphate (ATP). The respiratory chain comprises four multi-subunit enzymes (Complexes I-IV) that transfer electrons to generate a proton gradient across the inner mitochondrial membrane, and the flow of protons through Complex V drives ATP synthesis (DiMauro and Schon 2003; DiMauro and Hirano 2005). Coenzyme Q10 (CoQ10) is an essential electron carrier that transfers electrons from Complexes I and II to Complex III. The respiratory chain is unique among eukaryotic cells, such as mammalian cells in that it is governed by two genomes: mitochondrial DNA (mtDNA) and nuclear DNA (nDNA). As a result, mutations in either genome may give rise to mitochondrial disease. Most mitochondrial diseases affect multiple organ systems and are frequently fatal in childhood or early adulthood. To date, effective treatments for mitochondrial diseases have not been established. For example,

administration of CoQ10 and its analogs has served only as supportive therapy, intended to improve respiratory-chain activity and detoxify reactive oxygen species (ROS), which are toxic byproducts of dysfunctional respiratory-chain enzymes.

[0008] A subgroup of mitochondrial diseases, known as mitochondrial DNA depletion syndrome (MDS), is a frequent cause of certain pediatric encephalomyopathies molecularly characterized by a reduction in mitochondrial DNA (mtDNA) copy number in affected tissues and insufficient synthesis of mitochondrial RC complexes (Hirano et al. 2001). Mutations in several nuclear genes have been identified as causes of infantile MDS, including *TK2*, *DGUOK*, *POLG*, *POLG2*, *SCLA25A4*, *MPV17*, *RRM2B*, *SUCLA2*, *SUCLG1*, *TYMP*, *OPA1*, and *C10orf2* (*PEO1*) (Bourdon et al. 2007; Copeland 2008; Elpeleg et al. 2005; Mandel et al. 2001; Naviaux and Nguyen 2004; Ostergaard et al. 2007; Saada et al. 2003; Sarzi et al. 2007; Spinazzola et al. 2006). In addition, mutations in these nuclear genes can cause multiple mtDNA deletions with or without depletion (Béhin et al. 2012; Garone et al. 2012; Longley et al. 2006; Nishino et al. 1999; Paradas et al. 2012; Ronchi et al. 2012; Spelbrink et al. 2001; Tynismaa et al. 2009; Tynismaa et al. 2012; Van Goethem et al. 2001).

[0009] One such gene is *Tk2*, which encodes thymidine kinase (TK2), a mitochondrial enzyme required for phosphorylation of pyrimidine nucleosides (thymidine and deoxycytidine) to produce deoxythymidine monophosphate (dTMP) and deoxycytidine monophosphate (dCMP) (Saada et al. 2001). Mutations in *Tk2* impair the mitochondrial nucleoside/nucleotide salvage pathway, which is required for the synthesis of deoxynucleoside triphosphates (dNTPs), the building blocks of mtDNA replication and repair.

[0014] Treatment for TK2 deficiency, like most forms of MDS and other mitochondrial disorders, has been limited to supportive care. Administration of deoxythymidine monophosphate (dTMP) and deoxycytidine monophosphate (dCMP) has been reported to improve the phenotype in both a TK2 knock-in³ mutant mouse and human patients with TK2 deficiency (U.S. Provisional Patent Application No. 15/082,207, incorporated herein by reference in its entirety), but a need remains for effective therapeutic interventions for TK2 deficiency.

3) The terms transliterated as “neok-in” in the specification of the Plaintiffs’ patent application at issue and as “nok-in” in the prior art are two Korean phonetic renderings of the same English term, “knock-in.”

[3] Description of the Invention

[0016] In certain embodiments, the present invention relates to a method of treating a disease or disorder characterized by an unbalanced nucleotide pool, the method comprising administering to a subject in need thereof a therapeutically effective amount of a composition comprising one or more deoxynucleosides.

[0018] In preferred embodiments, the disorder is mitochondrial DNA depletion syndrome (MDS). In more preferred embodiments, MDS includes a myopathic form characterized by mutations in *TK2*; an encephalomyopathic form characterized by mutations in *SUCLA2*; a neurogastrointestinal encephalopathy form characterized by mutations in *TYMP*; and a hepatocerebral form characterized by mutations in *DGUOK*, *POLG*, and *MPV17*. In the most preferred embodiments, the disorder is thymidine kinase 2 deficiency, characterized by mutation(s) in the *TK2* gene.

[0020] In preferred embodiments, the deoxynucleoside is deoxythymidine (dT) or deoxycytidine (dC), or a mixture thereof. Deoxyadenosine (dA) and deoxyguanosine (dG) may also be used, either alone or in combination, in the methods of the present invention. Accordingly, a single deoxynucleoside (i.e., dT, dC, dA, or dG) or mixtures of two or more of the four deoxynucleosides may be used in the methods of the present invention.

[0021] Preferred dosages of the deoxynucleoside(s) are about 100 to about 1,000 mg/kg/day, more preferably from about 300 to about 800 mg/kg/day, and most preferably from about 250 to about 600 mg/kg/day. Where the composition comprises a single deoxynucleoside, the dosage refers to the amount of that deoxynucleoside. Where the composition comprises more than one deoxynucleoside, the dosage may refer either to the amount of each deoxynucleoside in the composition, or the total amount of deoxynucleosides administered.

[4] Brief Description of the Drawings

[0025] For purposes of illustration, certain embodiments of the present invention are depicted in the drawings. However, the present invention is not limited to the precise arrangements and instrumentalities shown.

Figure 1 depicts growth curves of wild-type (*TK2*^{+/+} and *TK2*^{+/-}) mice and *TK2*^{-/-} mice treated from postnatal day 4 with deoxycytidine (dC) and deoxythymidine (dT) at doses of 260mg/kg/day or 520mg/kg/day. Each symbol represents the mean body weight at the indicated time point. The

number of animals (N) in each group is indicated in the figure.

[Figure 1]

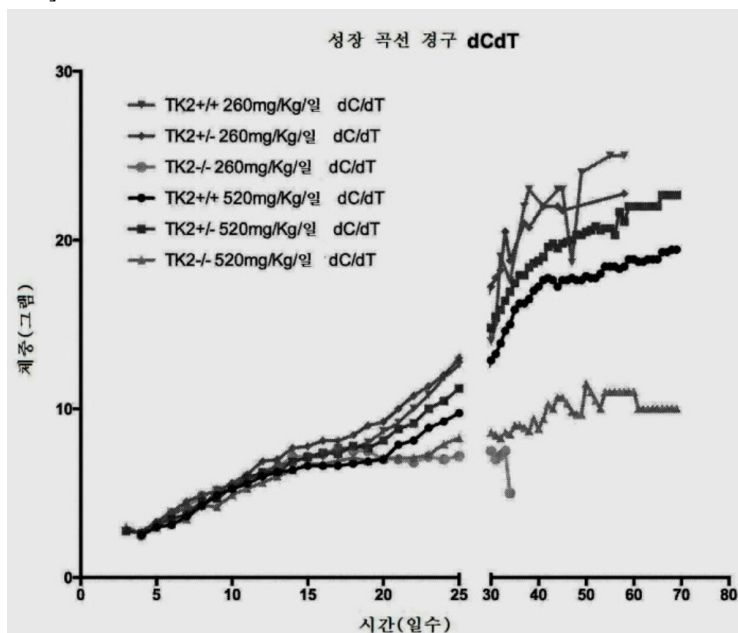
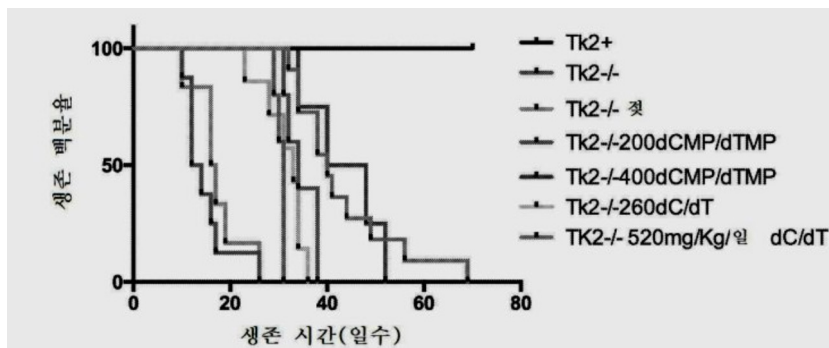


Figure 2 shows the survival curves of wild-type ($TK2^{+/+}$) mice and $TK2^{-/-}$ mice under the indicated following treatments. Beginning at postnatal day 4, survival of the $TK2^{-/-}$ mice in the milk control group was compared with that of $TK2^{-/-}$ mice treated with dCMP+dTMP at 200mg/kg/day ($p = 0.0013$), with $TK2^{-/-}$ mice treated with dC+dT at 260mg/kg/day ($p = 0.0006$), and with $TK2^{-/-}$ mice treated with dC+dT at 520 mg/kg/day ($p < 0.0001$). Survival was also compared between $TK2^{-/-}$ mice treated with 260mg/kg/day dC=dT and $TK2^{-/-}$ mice treated with 520mg/kg/day dCdT ($p = 0.0009$). The number of animals (N) in each group is indicated in the figure. P values were determined using the Mantel-Cox test. (Remaining text omitted)

[Figure 2]



[5] Detailed Description of the Invention

[0026] The present invention is based on the surprising discovery that mitochondrial DNA depletion syndrome, including TK2 deficiency, can be treated with deoxynucleosides. As shown by the results described herein, administration of deoxynucleosides markedly improved the phenotype in both a mouse model of TK2 deficiency and human patients with TK2 deficiency.

[0040] Administration of deoxynucleotides for the treatment of mitochondrial DNA depletion syndrome

[0041] Mitochondrial DNA (mtDNA) depletion syndrome (MDS) encompasses a group of severe autosomal disorders characterized by a reduced mtDNA copy number in affected tissues. Most nuclear genes implicated in MDS participate in mtDNA replication processes or encode proteins involved in deoxyribonucleoside triphosphate (dNTP) metabolism.

[0042] One form of MDS is thymidine kinase deficiency, also referred to as TK2 deficiency. TK2, encoded by the nuclear TK2 gene, is a mitochondrial matrix protein that phosphorylates the pyrimidine nucleosides thymidine and deoxycytidine to generate deoxythymidine monophosphate (dTMP) and deoxycytidine monophosphate (dCMP), which are subsequently converted into deoxynucleoside triphosphates (dNTPs) required for mitochondrial DNA synthesis. As discussed in the Background Art section, autosomal recessive mutations in TK2 result in severe neuromuscular weakness, characterized by profound depletion of mitochondrial DNA (mtDNA) in infants and children, and by progressive external ophthalmoplegia associated with multiple mtDNA deletions in adults. Many affected individuals are unable to ambulate, and some require mechanical ventilation and enteral feeding. Involvement of the central nervous system is variable and may include

seizures, encephalopathy, cognitive impairment, and hearing loss. Fewer than approximately 7% of affected individuals survive beyond 42 years of age.

[0043] Based on clinical and molecular genetic findings in diagnosed patients, three clinical presentations have been identified: (i) infant-onset (≤ 1 year) myopathy, characterized by the onset of weakness within the first year of life, severe mtDNA depletion, and early mortality; (ii) childhood-onset (>1 to 11 years) myopathy, likewise associated with severe mtDNA depletion; and (iii) late-onset (≥ 12 years) myopathy in adolescents or adults, characterized by chronic progressive external ophthalmoplegia, mild weakness at onset, and a slow progression to loss of ambulation and/or respiratory failure, and often associated with multiple mtDNA deletions, reduced mtDNA copy number, or both. [See generally Garone *et al.* (2016), in preparation].

[0044] Attempts to study TK2 deficiency and potential therapeutic approaches using fibroblasts cultured from patients were unsuccessful, because proliferating cells did not exhibit mtDNA depletion. By contrast, a homozygous TK2 H126N knock-in mutant (TK2^{-/-}) mouse model exhibits a phenotype closely resembling human infantile encephalomyopathy caused by TK2 mutations, with disease onset at around postnatal day 10, manifested by reduced ambulation, unstable gait, coarse tremor, and growth retardation, followed by rapid progression to early death at 14–16 days of age, accompanied by severe mtDNA depletion (Akman *et al.* 2008; Dorado *et al.* 2011).

[0045] Studies presented herein using the TK2 knock-in mouse demonstrate that long-term oral administration of dC/dT delayed the onset of clinical symptoms of TK2 deficiency and extended lifespan by approximately two- to three-fold (Embodiment 2).

[0047] Thus, experiments presented herein using a mouse model of TK2 deficiency demonstrate that administration of deoxynucleosides is effective and well tolerated in the treatment of the disease. In addition, as described in embodiment 5, administration of dT and dC markedly improved symptoms of TK2 deficiency in patients.

[0048] Accordingly, the present invention includes administration of at least one deoxynucleoside to a patient in need thereof. In one embodiment, the present invention includes administration of at least one deoxypyrimidine. In further embodiments, the deoxypyrimidine is selected from dC, dT, and mixtures thereof. In another embodiment, the present invention includes administration of at least one deoxypurine. In further embodiments, the

deoxypurine is selected from dA, dG, and mixtures thereof.

[0049] Patients who may benefit from the administration of deoxynucleosides include those diagnosed with TK2 deficiency. In such patients, at least one deoxypyrimidine, dC or dT, or a mixture thereof, may be administered.

[0058] Pharmaceutical compositions, methods of administration, and dosing

[0059] The present invention includes the administration of deoxynucleosides, and more specifically, one or more deoxynucleosides.

[0085] Embodiment 1—Materials and methods

[0086] Mouse model of TK2 deficiency

[0087] A homozygous TK2 H126N knock-in mutant ($TK2^{-/-}$) mouse that exhibits a phenotype closely resembling human infantile encephalomyopathy has been reported (Akman *et al.* 2008). Between postnatal days 10 and 13, $TK2^{-/-}$ mice develop a rapidly progressive and fatal encephalomyopathy characterized by reduced ambulation, unstable gait, coarse tremor, growth retardation, and death at 14–16 days of age. Molecular and biochemical analyses have shown that disease onset is associated with loss of enzymatic activity and subsequent dNTP pool imbalance, accompanied by decreased dTTP levels in the brain and decreased levels of both dTTP and dCTP in the liver. These abnormalities ultimately result in mtDNA depletion and defects in respiratory-chain enzymes containing mtDNA-encoded subunits, most prominently in the brain and spinal cord.

[0090] Treatment administration and experimental design

[0091] $TK2$ H126N knock-in ($TK2^{-/-}$) mice were administered deoxycytidine (dC) and deoxythymidine (dT) daily by oral gavage, mixed in 50 μ L of Esbilac milk formula using a Pet-Ag device. From postnatal day 4 through postnatal day 29, two dose levels were employed: 260 mg/kg/day and 520 mg/kg/day, with age-matched wild-type control mice ($TK2^{+/+}$). At postnatal day 21, mice were weaned, and treatment was continued by administering dC and dT in drinking water at equimolar concentrations of 1.6 mM and 3.2 mM, respectively. Body weight was recorded, and animals were monitored closely for comparison with untreated $TK2$ mutant mice and wild-type controls.

[0092] Phenotypic evaluation

[0093] Body weight was assessed daily, as prior studies had shown that failure to gain weight represents the earliest clinical sign of disease (Akman *et al.* 2008).

[0094] To assess the safety and efficacy of dT/dC, survival time, age at

disease onset, symptom type and severity, incidence of adverse effects, and rates of treatment discontinuation due to adverse outcomes were compared between treated and untreated TK2 mice. General behavior, survival time, and body weight were evaluated daily beginning at postnatal day 4.

[0108] Embodiment 2—Administration of dC/dT to TK2^{-/-} mice delayed clinical onset of TK2 deficiency and increased survival

[0109] TK2^{-/-} mice were administered deoxynucleosides (dC/dT) at doses of 260 and 520 mg/kg/day. These doses correspond to molar equivalents of 400 mg/kg/day and 800 mg/kg/day of dCMP+dTMP, respectively.

[0110] Mice treated with oral dC+dT (at doses of 260 mg/kg/day or 520 mg/kg/day beginning on postnatal day 4) appeared phenotypically normal until postnatal day 21 (Figure 1). After postnatal day 21, mutant mice treated at 260 mg/kg/day (TK2^{-/-}260 mg/kg/day dC/dT) ceased gaining weight and developed mild head tremor and weakness, with progression to death at a mean age of 31 ± 4.3 days (Figure 2).

[0111] Mutant mice treated with dC+dT at 520 mg/kg/day (TK2^{-/-}520mg/kg/daydC/dT) continued to gain weight for one additional week, but subsequently deteriorated in a manner similar to that observed in the 260 mg/kg/day treatment group and died at a mean age of 43 ± 10 days after birth. These outcomes are comparable to those observed in TK2^{-/-} mice treated with oral dCMP/dTMP at doses of 200 mg/kg/day or 400 mg/kg/day. Wild-type mice treated with dC/dT at 260 mg/kg/day or 520 mg/kg/day survived to at least 60 days after birth, and no adverse effects were observed.

[0112] As shown, the lifespan of treated TK2^{-/-} mice increased substantially. Untreated TK2^{-/-} mice showed a mean lifespan of 13 days, whereas treated mice survived to mean ages of 31 days and 40 days at doses of 260 mg/kg/day and 520 mg/kg/day doses, respectively (Figure 2). Notably, one treated mouse survived to 56 days after birth, representing the longest survival reported for the TK2 knock-in model.

[0113] Embodiment 3—Oral dC/dT improved molecular abnormalities in the brain and liver

[0114] Measurement of dNTPs in mitochondrial extracts showed that treatment with dC/dT at either 260 mg/kg/day or 520 mg/kg/day did not fully correct the mitochondrial dNTP pool imbalance in TK2^{-/-} mice at postnatal day 13. In tissues in which the dCTP deficiency in the brain was fully restored, variable effects were observed, whereas dTTP levels were corrected in the liver. By contrast, dTTP deficiency in the brain and dCTP

deficiency in the liver remained severe despite deoxynucleoside supplementation (Figure 3).

[0114] Embodiment 4—Oral dC/dT improved biochemical abnormalities in the brain

[0117] Respiratory-chain enzyme (RCE) activity and protein levels were fully restored in the brains of TK2^{-/-} mice treated with dC/dT at 260 mg/kg/day at postnatal day 13 (Figure 6). RCE activity was also recovered at postnatal day 29 with only a slight reduction in Complex I activity observed in the TK2^{-/-} mice treated with dC/dT at 520 mg/kg/day (Figure 6). At postnatal day 29, brain RCE protein levels were partially restored and were higher in the 520 mg/kg/day treatment group than in the 260 mg/kg/day group (Figure 7). This difference in protein levels was consistent with corresponding differences in mtDNA depletion in the brains of treated mutant mice at postnatal day 29 and may account for the longer survival observed at the higher dose.

[0118] Embodiment 5—Administration of dC/dT was effective in patients with TK2 deficiency

[0119] The symptoms, dosages, and clinical outcomes of patients with TK2 deficiency who received deoxynucleoside therapy under the supervision and control of the inventors are summarized below.

[0120] Patient 1

[0121] Born in the United States in February 2011, the patient developed symptoms of hypotonia and head lag at 12 months of age and never achieved independent ambulation. He exhibited respiratory muscle weakness and began mechanical ventilation at 19 months of age, which has continued on a 24-hour-per-day basis. He has also required enteral feeding via a feeding tube since 19 months of age.

[0122] The patient previously received dCMP and dTMP at a dose of 100 mg/kg/day, which was subsequently increased to 200mg/kg/day. During this therapy, the patient demonstrated improved motor function, including the ability to grasp small objects, and his body weight increased from 10.4kg to 19.5kg.

[0123] In October 2015, the patient initiated treatment with dC and dT at a dose of 260 mg/kg/day, which was subsequently increased to 340mg/kg/day. After approximately two months, he demonstrated improved motor control of the hands and head, was able to stand for five minutes with assistance, began to cough, and showed a reduction in heart rate (from 140–170 bpm during the day to 100–120 bpm).

[0124] On March 23, 2016, the dose of dC and dT was increased to 400mg/kg/day. Six weeks thereafter, the patient showed further functional improvement: he could sit in a chair for about 5 hours/day; stand in a “stander” for approximately 1.5 hours; nearly grasp a small stuffed animal; press buttons on a computer; undo his diaper and wet the genital area to signal the need for a diaper change; and keep his knees bent for several seconds.

[0125] The only adverse effect observed during treatment was diarrhea.

[0126] Patient 2

[0127] The patient was born in Spain in 1987. Symptoms began at three years of age and included proximal muscle weakness. He subsequently lost ambulation at 13 days of age and required continuous mechanical ventilation on a 24-hour-per-day basis. The patient previously received dAMP and dCMP at a dose of 200mg/kg/day and showed periods of weight gain and weight loss while on ventilatory support for about 22-24 hours per day.

[0128] The patient has received deoxynucleoside therapy since June 2015 at a dose of 400mg/kg/day of dC and dT. During the treatment, he showed improved muscle strength; his weight and ventilation stabilized; and he enjoys a better quality of life.

[0129] The only adverse effects observed were diarrhea and hair loss.

[0130] Patient 3

[0131] The patient was born in Spain in 1985. Symptoms began at six weeks of age and included facial, proximal, and axial muscle weakness. Beginning in June 2015, the patient initiated and has continued treatment with dT and dC at a dose of 200 mg/kg/day. During treatment, the patient demonstrated improvements in the six-minute walk test, the timed up-and-go test, and the ability to ascend and descend four steps.

[0132] The only adverse effect observed was diarrhea.

[0133] Patient 4

[0134] The patient was born in Spain in February 2009. Symptoms first appeared at six months of age and were characterized by failure to thrive. In July 2015, he initiated treatment with dC and dT at a dose of 230mg/kg/day. By January 2016, he showed clinical improvement, including improved oral intake.

[0135] No adverse effects were observed.

[0136] Patient 5

[0137] The patient was born in Spain in 1957. Symptoms of orthopnea and diaphragmatic weakness began at 50 years of age. The patient uses BiPAP

at night. In November 2015, the patient initiated treatment with dC and dT at a dose of 200 mg/kg/day.

[0138] No adverse effects were observed.

[0139] Patient 6

[0140] The patient was born in Spain in October 2011. Symptoms, including hypotonia and generalized weakness, began at 15 months of age. The patient lost independent ambulation at 22 months of age and developed respiratory muscle weakness. Mechanical ventilation was initiated at 16 months of age, and the patient currently uses BiPAP for about 12 hours/day. The patient previously received dCMP and dAMP at a dose of 100 mg/kg/day, which was subsequently increased to 400mg/kg/day. During this treatment, muscle strength improved as measured by the Egen Klassification scale (from 28/30 to 13/30), and body weight increased from 9.8kg to 12.3kg.

[0141] The patient initiated deoxynucleoside therapy with dC and dT at 400mg/kg/day in April 2015. By October 2015, the patient demonstrated further improvement, with the Egen Classification score improving from 13/30 to 11/30, and body weight increasing from 12.3kg to 16.5kg.

[0142] No adverse effects were observed.

[0143] Patient 7

[0144] The patient was born in Spain in November 2012. Symptoms, including weakness and hypotonia, began at 17 months of age. The patient lost independent ambulation at 22 months of age and initiated mechanical ventilation at 29 months of age. The patient previously received dCMP and dAMP at 100mg/kg/day, which was subsequently increased to 400mg/kg/day. During this treatment, muscle strength improved as measured by the Egen Classification scale (from 30/30 to 24/30), and body weight increased from 11kg to 15.7kg.

[0145] In April 2015, the patient began deoxynucleoside therapy with dT and dC at 400 mg/kg/day. By November 2015, the Egen Classification score changed from 24/30 to 19/30, and body weight increased from 17kg to 15.7kg.

[0146] No adverse effects were observed.

[0147] Patient 8

[0148] The patient was born in Chile in September 1989. Symptoms began at 11 months of age and included frequent falls and progressive gait impairment. The patient lost the ability to walk independently at about age 4. She previously received nucleotide therapy and showed improved mobility, including unassisted walking, increased standing tolerance, the ability to

climb stairs, participation in exercise classes, and performance of activities of daily living.

[0149] In February 2016, the patient was transitioned to deoxynucleoside therapy with dC and dT at 260mg/kg/day, and in May 2016, the dose was increased to 400 mg/kg/day, with continued clinical improvement.

[0150] No adverse effects were observed.

[0151] Patient 9

[0152] The patient was born in Guatemala in September 1989. In August 2015, the patient initiated treatment with dC and dT at 130mg/kg/day, which was increased to 260mg/kg/day in February 2016. The patient reported improved energy during treatment.

[0153] No adverse effects were observed.

B. Prior Art (Defendant's Exhibit 1)

A paper entitled "Deoxypyrimidine monophosphate bypass therapy for thymidine kinase 2 deficiency," published in *EMBO Molecular Medicine*, Vol. 6, No. 8, pp. 1016-1027, issued June 26, 2014, disclosed the following principal findings.

[Abstract] Autosomal recessive mutations in the thymidine kinase 2 gene (TK2) cause mitochondrial DNA depletion, multiple deletions, or both due to loss of TK2 enzyme activity and ensuing unbalanced deoxynucleotide triphosphate (dNTP) pools. To bypass TK2 deficiency, we administered deoxycytidine and deoxythymidine monophosphates (dCMP+dTMP) to the Tk2 H126N (TK2^(-/-)) knock-in mouse model from postnatal day 4, when mutant mice are phenotypically normal, but biochemically affected. Assessment of 13-day-old TK2^(-/-) mice treated with dCMP+dTMP 200mg/kg/day each (TK2^(-/-)200dCMP/dTMP) demonstrated that in mutant animals, the compounds raise dTTP concentrations, increase levels of mtDNA, ameliorate defects of mitochondrial respiratory chain enzymes, and significantly prolong their lifespan (34 days with treatment versus 13 days untreated). A second trial of dCMP+dTMP each at 400mg/kg/day showed even greater phenotypic and biochemical improvements. In conclusion, dCMP/dTMP supplementation is the first effective pharmacologic treatment

for Tk2 deficiency.

[Introduction] Encoded by the nuclear DNA gene *TK2*, thymidine kinase 2 (TK2) is a mitochondrial matrix protein that phosphorylates thymidine and deoxycytidine pyrimidine nucleosides to generate deoxythymidine monophosphate (dTTP) and deoxycytidine monophosphate (dCTP), which, in turn, are converted to deoxynucleotide triphosphates (dNTPs) required for mitochondrial DNA (mtDNA) synthesis. Autosomal recessive TK2 mutations cause severe mtDNA depletion and devastating neuromuscular diseases in infants and children, as well as mtDNA multiple deletions and progressive external ophthalmoplegia in adults (Saada *et al*, 2001; Tyynismaa *et al*, 2012).

To elucidate the molecular pathogenesis of *TK2* deficiency, we generated a homozygous *TK2* H126N knock-in mutant ($TK2^{-/-}$) mouse that manifests a phenotype strikingly similar to the human infantile encephalomyopathy (Akman *et al*, 2008). Between postnatal day 10 and 13, $TK2^{-/-}$ mice rapidly develop fatal encephalomyopathy beginning with decreased ambulation, unstable gait, coarse tremor, and growth retardation that rapidly progress to early death at age 14–16 days (Dorado *et al*, 2011). A similar phenotype was observed in the *TK2* knockout mouse (Zhou *et al*, 2008).

In the $TK2^{-/-}$ mice, loss of TK2 activity caused dNTP pool imbalances with low dTTP levels in brain and decreased dTTP and dCTP in liver, which, in turn, produce mtDNA depletion and defects of mitochondrial respiratory chain (RC) complexes I, III, IV, and V containing mtDNA-encoded subunits, most prominently in the brain and spinal cord (Dorado *et al*, 2011).

Based on the understanding of the pathogenesis of Tk2 deficiency, we have assessed a rationale therapeutic strategy to bypass the enzymatic defect with oral dCTP and dTTP supplementation.

[p. 1016, last paragraph–p. 1017, left column, second paragraph]

Oral treatment with dCTP+dTTP 200mg/kg/day each in milk ($TK2^{-/-}$ 200dCTP/dTTP) beginning at postnatal day 4 delayed disease onset to 20–25 days (Supplementary Video S1), when the mutant mice developed a mild tremor and stopped gaining weight. In the fourth week, they manifested weakness and reduced movements. In contrast, $TK2^{-/-}$ mice treated from day 4 with dCTP+dTTP 400mg/kg/day each in milk ($TK2^{-/-}$ 400dCTP/dTTP) appeared normal until day 21, when weight gain decelerated and mild head

tremor developed (Fig. 1A). Untreated $TK2^{-/-}$ mice had a mean lifespan of 13.2 ± 2.5 days (mean $\pm$ SD), whereas $TK2^{-/-200dCMP/dTMP}$ survived to 34.6 ± 3.2 days ($P = 0.0028$; $n = 7$; Gehan-Breslow-Wilcoxon test) while $TK2^{-/-400dCMP/dTMP}$ lived to 44.3 ± 9.1 days ($P = 0.0071$; $n = 7$; Gehan-Breslow-Wilcoxon test) (Fig. 1B). The cause of death was not evident in postmortem histological studies of major organs in 29-day-old $TK2^{-/-200dCMP/dTMP}$ mice. No adverse side effects, including malignancies, were observed in the treated homozygous, and heterozygous wild types ($TK2^{+}$) and mutants except mild deceleration of weight gain in $TK2^{+400dCMP/dTMP}$ (Supplementary Table S1).

Open-field assessment of motor function in 29-day-old $TK2^{-/-200dCMP/dTMP}$, $TK2^{-/-400dCMP/dTMP}$, and wild-type $TK2$ mice showed no differences in the distance traveled, horizontal and vertical movements, or resting time (Fig 1C-E). Relative to 29-day-old $TK2^{+}$ mice, age-matched $TK2^{-/-200dCMP/dTMP}$ and $TK2^{-/-400dCMP/dTMP}$ animals showed decreases in gross muscle mass and muscle fiber diameter that were independent of the treatment dose but paralleled to body weight (Supplementary Fig. S1). Histology showed no signs of myopathy or mitochondrial abnormalities (Supplementary Fig. S1A-D). Biochemical studies demonstrated normal mitochondrial RC activities and protein levels (Supplementary Fig. S1D-F).

[p. 1021, left column, second paragraph, lines 1-10] Deoxynucleotide⁴⁾ metabolism

To understand the metabolism of dCMP/dTMP after oral gavage administration, we measured levels of dCMP/dTMP and their metabolites in muscle and liver tissues and in plasma after 30 min of oral gavage. In $TK2^{-/-200dCMP/dTMP}$ mice, deoxynucleoside⁵⁾ monophosphates were not detectable. Levels of deoxyuridine and deoxythymidine were markedly increased at age 13 days, but subsequently lower in 29-day-old mice (Fig. 6A-C). Thymidine phosphorylase (TP) degrades deoxyuridine and deoxythymidine, respectively, to uracil and thymine plus deoxyribose 1-phosphate (Brown & Bicknell, 1998; Hirano *et al*, 2004).

4) In the Statements in Defendant's Exhibit 1, the term "deoxynucleotide" is translated as "deosinucleotide"; however, this shall be corrected to "deoxynucleotide."

5) In the Statements in Defendant's Exhibit 1, the term is recoded as "deoxynucleotide, but the original term is translated as deosinucleoside.

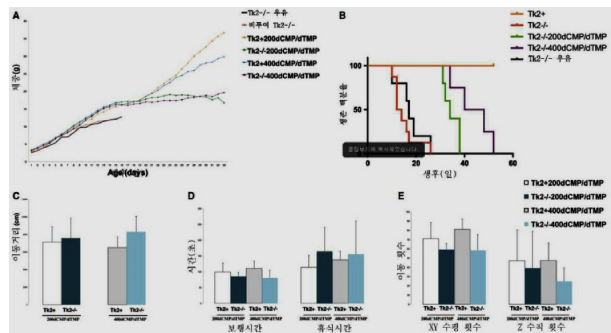


Figure 1. dCMP/dTMP efficacy on clinical phenotype

A, B Significant dose-related effects of the dCMP/dTMP on body weight (A) and survival (B) of mutant mice (n = 7 for each group) ($TK2^{-/-}$ versus $TK2^{-/-}$ 200dCMP/dTMP, P < 0.005; $TK2^{-/-}$ versus $TK2^{-/-}$ 400dCMP/dTMP, P < 0.005; Gehan-Breslow-Wilcoxon test).

C-E Open-field test in 29-day-old treated mice showing no difference in average distance traveled (C), ambulatory and resting times (D), and horizontal (XY axes) and vertical (Z-axis) movements (E) over 10 min in 29-day-old mutant and control mice treated with 200mg/kg/day or 400mg/kg/day of dCMP/dTMP (n = 5) (Data expressed as mean $\pm$ SD. Statistical analysis were performed on $TK2^{-/-}$ 200dCMP/dTMP versus $TK2^{-/-}$ 400dCMP/dTMP and $TK2^{-/-}$ 400dCMP/dTMP versus $TK2^{-/-}$ 400dCMP/dTMP).

[p. 1021, last paragraph-p. 1024, second paragraph] We tested dCMP and dTMP supplementation in our $TK2$ knock-in mouse model to bypass the $TK2$ defect. Deoxypyrimidine nucleoside monophosphate supplementation delayed the disease onset, reduced the severity of phenotypic manifestations, and prolonged the survival of the mutant mice in a dose-related manner. No adverse side effects, including malignancies, were observed. Oral dTMP/dCMP crossed biological barriers including the blood-brain barrier (BBB) because treatment increased dTTP in brain and liver in 13-day-old $TK2^{-/-}$ mice and augmented levels of mtDNA restoring the mitochondrial RC activities and protein defects in brain, heart, muscle, liver, and kidney of 13- and 29-day-old mutant mice. Treatment-related marked improvements of mtDNA levels and biochemical defects in muscle, which is the most affected tissue in $TK2$ mutant patients, suggest that dCMP/dTMP might be more efficacious in patients with myopathy due to $TK2$ deficiency than in $TK2^{-/-}$ mice with severe CNS involvement.

Analyses of plasma and tissue levels of dCMP/dTMP and their metabolites revealed increases in deoxythymidine (dT) and deoxyuridine (dU), but not dCMP or dTMP 30 min after oral gavage treatment. Based on these findings, we hypothesize that dCMP/dTMP can be effective either by rapid and transient bypassing of the enzyme defect and/or by increasing the dT and thymine (T) substrates as documented by measurements of dT/T levels in plasma and tissue and by dNTP pool analysis in 13-day-old mice. In contrast, dCMP is catabolized by deoxycytidine deaminase, the enzyme responsible for dCMP conversion to deoxyuridine monophosphate (dUMP) (Heinemann & Plunkett, 1989; Jansen *et al*, 2011). The dUMP may be converted to dTMP via thymidylate synthase and may contribute to the observed increases in dTTP levels (Fig. 7). Because nucleosides are intrinsically unstable, catabolized in vascular and tissue compartments, and ineffectively phosphorylated by mutant TK2, we postulate that treatment with dT and dC may be less effective than dTMP and dCMP in *TK2* mutant mice.

We previously demonstrated that TK2 (mitochondrial) activity is constant in the second week of life, whereas cytosolic Tk1 activity decreases significantly between postnatal day 8 and 13 (Dorado *et al*, 2011). The downregulation of Tk1 activity unmasks TK2 deficiency in *TK2*^{-/-} mice and coincides with the onset of mtDNA depletion causing inexorable organ failure leading to death. In the present work, we demonstrated that oral dCMP and dTMP delayed the reduction in Tk1 activity. Thus, in addition to providing substrates for dNTP synthesis, dCMP/dTMP supplementation in *TK2*^{-/-} mice appears to enhance compensatory Tk1 activity. Nucleotides generated by de novo synthesis can enter into mitochondria through carriers that have been previously demonstrated indirectly in the case of dTMP or directly by PNC1 in the case of dTTP (Ferraro *et al*, 2006; Franzolin *et al*, 2012). Once in mitochondria, dTMP and dTTP can be incorporated into replicating mtDNA as demonstrated directly through in vitro modulation of Tk1 activity and PNC1 carrier in cells exposed to radiolabeled thymidine (Franzolin *et al*, 2012) and indirectly by our in vivo results. The reduced efficacy of dCMP/dTMP after age 29 days may be due to decreased Tk1 activity.

Therefore, the translation shall be corrected to deoxynucleoside.

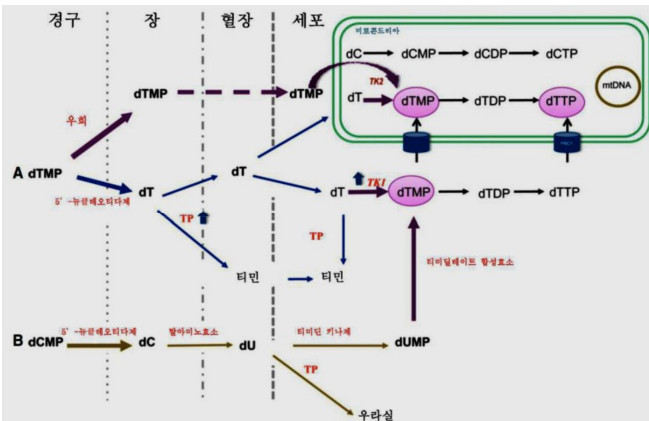


Figure 7. Deoxypyrimidine monophosphate pathways.

Graphical summary of the pathways modulated by oral gavage dCMP/dTMP treatment.

A. dTMP metabolism. dTMP treatment may enter as monophosphate into the mitochondria bypassing the TK2 enzymatic defect as demonstrated by the increased level of dTTP in postnatal day 13 mutant mouse tissues. However, dTMP is also rapidly degraded by 5'-nucleotidase in the small intestine to the nucleoside (dT), which may be processed via three different pathways: (i) phosphorylated by residual TK2 activity to eventually produce dTTP within mitochondria; (ii) converted to dTMP by cytosolic Tk1; or (iii) catabolized by thymidine phosphorylase (TP). The combination of reduced Tk1 activity in brain and increased thymidine phosphorylase (TP) activity in small intestine after postnatal day 13 may account for the reduced efficacy of the treatment in rescuing the dNTP pool balance after age 13 days.

B. dCMP metabolism. dCMP/dTMP treatment did not increase dCTP levels in mitochondria of $Tk2^{-/-}$ mice suggesting that dCMP administered orally does not enter into mitochondria. Instead, dCMP degraded to nucleoside (dC) may be a source of dTMP as shown in the figure or may be catabolized to uracil by cytosolic TP.

Oral dCMP/dTMP failed to improve dCTP and dTTP levels in brain cytoplasm and mitochondria of 29-day-old mutants that manifested a head tremor, growth plateau, and subsequently died. The head tremor is likely due to cerebellar dysfunction as we noted a severe complex I protein defect in this tissue. The inability of dCMP/dTMP to prevent CNS manifestations is likely attributable to the development of the blood-brain barrier in $Tk2^{-/-}$ mice after age 13 days. Therefore, intrathecal treatment may be required in

the $Tk2^{-/-}$ mice and TK2 patients with encephalopathy (Galbiati *et al*, 2006; Gotz *et al*, 2008).

There are several additional factors that contribute to the incomplete efficacy of dCMP/dTMP therapy in the TK2-deficient mice. First, orally administered dTMP is catabolized by the dramatically increased thymidine phosphorylase activity in the small intestine of 29-day-old mice. Second, supplemental dTMP and dCMP failed to fully correct intra-mitochondrial levels of dTTP and dCTP, indicating that mitochondrial membranes impede dNTP entry; this hypothesis is supported by the low intra-mitochondrial dCTP/dTTP levels with normal cytosolic concentrations of dCTP and dTTP in liver of 29-day-old treated mice. Third, the doses of dTMP/dCMP may have been insufficient, as we have observed dose-related efficacy. Addressing these therapeutic obstacles (e.g. inhibiting TP activity) may lead to enhance effectiveness of dCMP/dTMP treatment in $Tk2^{-/-}$ mice.

In conclusion, deoxypyrimidine supplementation for TK2 deficiency is the first effective and safe *in vivo* treatment option that may be readily translated to patient affected by TK2 mutations. Furthermore, this approach is potentially applicable to individuals with other mitochondrial disorders due to nucleotide pools unbalance.

[p. 1026, first paragraph-p. 1026, third paragraph] Problem

Mitochondrial DNA depletion syndrome (MDS) is a frequent cause of severe childhood encephalomyopathy characterized molecularly by reduction of mtDNA copy number in tissues and insufficient synthesis of mitochondrial respiratory chain complexes. Mutations in TK2, encoding mitochondrial thymidine kinase 2, frequently cause mtDNA depletion syndrome presenting as fatal myopathy, spinal muscular atrophy (SMA-like) disease, or encephalomyopathy in early childhood. In addition, TK2 deficiency has been found to cause adult-onset myopathy with progressive external ophthalmoplegia and multiple deletions of mtDNA. We generated and characterized thymidine kinase 2 H126N knock-in mouse model that recapitulates the human infantile encephalomyopathy and further demonstrated that the pathogenesis of the disorder is due to loss of TK2 enzyme activity and unbalanced deoxynucleotide triphosphate (dNTP) pools with lack of deoxythymidine and deoxycytidine triphosphates.

Results: We have demonstrated that ‘molecular bypass therapy’ with orally administered deoxythymidine monophosphate and deoxycytidine

monophosphate produces dramatic clinical, molecular, biochemical, and histological improvements in our TK2 knock-in mouse model.

Impact: Our results reveal, for the first time, in vivo efficacy and safety of a molecular therapy that improves downstream metabolic defects in TK2 deficiency. The treatment is potentially translatable to human use; therefore, our work may impact the treatment of patients with this rare devastating disorder. Furthermore, our approach can be extended to other mitochondrial disorders with unbalanced nucleotide pools.

C. Procedural History

1) On August 18, 2021, a patent examiner of the KIPO issued a Notice of Grounds for Rejection to the Plaintiffs, stating that “Claim 1 of the invention at issue lacks an inventive step, as it could be readily derived by a person having ordinary skills in the art (hereinafter “a skilled person”) from the Cited Invention¹⁶).”

2) On October 14, 2021, the Plaintiffs submitted an amendment to the specification of the patent application at issue, together with a written opinion. However, on October 27, 2021, the patent examiner of the KIPO issued a decision rejecting the patent application, stating that “the grounds for rejection previously notified on August 18, 2021, remain unresolved.”

3) The Plaintiffs, dissatisfied therewith, filed a trial challenging that decision (Case No. 2021Won3311) before the IPTAB on December 27, 2021, seeking reversal of the rejection. On June 30, 2022, the IPTAB issued the decision at Issue, dismissing the Plaintiffs’ trial request on the grounds that “Claim 1 of the invention at issue lacks an inventive step, as it can be easily derived from the cited invention⁷), and that where a patent application includes multiple

6) This is the same as the prior art in the present litigation.

7) This is the same as the prior art in the present litigation.

claims, the application must be rejected in its entirety if any one claim is subject to a ground for rejection.”

【Factual basis】 Undisputed facts, the statements in Plaintiff’s Exhibits 1 to 4, Defendant’s Exhibit 1, and the purport of the overall argument.

2. Summary of Parties’ Arguments

A. Plaintiffs

For the reasons set forth below, Claim 1 of the invention at issue does not lack an inventive step based on the prior art.

1) The active ingredients disclosed in the prior art, dCMP/dTMP, are chemically distinct compounds with different molecular structures from the dC/dT cited in Claim 1 of the invention at issue, and the prior art is directed to a therapeutic approach that bypasses TK2, whereas the invention at issue expressly relies on the functional activity of TK2, indicating a fundamental difference. Furthermore, the prior art is directed to treatment in animal models, whereas Claim 1 of the invention is directed to treatment of human patients. Therefore, a skilled person cannot easily derive Claim 1 of the invention at issue from the prior art.

2) The prior art characterizes dC/dT as inferior to dCMP/dTMP, and further reflects that dC/dT differs from dCMP/dTMP in both mechanism of action and therapeutic application. Therefore, a skilled person would not have been able to reasonably predict the effects achieved by Claim 1 of the invention at issue based on the prior art.

B. Defendant

For the reasons set forth below, Claim 1 of the invention at issue lacks an inventive step in view of the prior art.

1) The prior art and the patent application at issue relate to

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pharmaceutical-

use inventions directed to the treatment of TK2 deficiency, and thus pertain to the same technical field and pursue the same objective.

2) The prior art teaches that dC/dT are less effective than dCMP/dTMP, and further discloses, including in Figure 7, a metabolic pathway in which dCMP is converted via dC to generate dTMP within mitochondria. Therefore, a skilled person would have been able to easily derive Claim 1 from the prior art.

3) The prior art expressly discloses that the concentration of dCMT/dTMP does not increase in the tissues and plasma of mice administered dCMT/dTMP, whereas the concentrations of their degradation products, dU and dT, increase significantly. Thus, a skilled person would readily recognize that the effective substances are not the administered dCMT/dTMP themselves, but rather their degradation products, namely nucleosides (such as dT).

4) When compared with the dCMP/dTMP disclosed in the prior art, the dC/dT recited in Claim 1 cannot be regarded as exhibiting a significantly superior therapeutic effect in the treatment of TK2 deficiency.

3. Legality of the Decision at Issue

A. Relevant Law

In determining whether an invention lacks an inventive step, it is necessary to first ascertain, based on the evidence and other materials of record, the scope and content of the prior art, the differences between the invention at issue and the prior art, and the level of ordinary skill in the art, and then to examine whether a skilled person, in light of that skill at the time of filing, would have been able to easily arrive at the invention at issue from the prior art despite those differences. In conducting this analysis, the assessment of inventive

step must not be based on hindsight reconstruction, that is, it must not proceed from the impermissible premise that the skilled person already possessed knowledge of the technology disclosed in the specification of the invention under review (*see* Supreme Court Decision No. 2007Hu3660, dated November 12, 2009; Supreme Court Decision No. 2014Hu2184, dated November 25, 2016, etc.).

B. Comparison Between Claim 1 of the Invention at Issue and the Prior Art

1) Correspondence of Elements

Element	Claim 1 of the Invention at Issue	Prior Art (Plaintiffs' Exhibit 5, Defendant's Exhibit 1)
1	A composition for use in a method of treating thymidine kinase 2 (TK2) deficiency in a human subject in need of treatment	- In conclusion, dCMP/dTMP supplementation is the first effective pharmacological treatment for TK2 deficiency (Abstract)
2	A composition comprising in a therapeutically effective amount, a mixture of deoxycytidine (dC) and deoxythymidine (dT)	- To bypass TK2 deficiency, dCMP/dTMP was administered to the Tk2 knock-in mouse model from postnatal day 4, at doses of 200mg/kg/day and 400mg/kg/day, respectively (Abstract)

2) Commonalities and Differences

a) Element 1

Element 1 of Claim 1 of the invention at issue and the corresponding disclosure in the prior art are identical in that both are directed to therapeutic use for the treatment of TK2 deficiency, and there is no dispute between the parties on this point.⁸⁾

8) Reference is made to the first hearing transcript held on December 7, 2023.

However, the Plaintiffs contned that the prior art is directed to a study of TK2 deficiency conducted using animal models, whereas Claim 1 lsimits the treatment target to TK2 deficiency in humans, and that this distinction constitutes a difference between the two inventions. Experiments using animal models, such as mice, are inherently conducted to predict therapeutic effects in humans, and the Plaintiffs themselves acknowledge that the prior art is not a research paper aimed at developing a treatment for mice per se. Furthermore, the prior art expressly states that “deoxypyrimidine supplementation for TK2 deficiency⁹⁾ is the first effective and safe in vivo therapeutic option that can be easily applied to patients affected by TK2 mutations (p. 1024, left column, second paragraph)” and that “The results suggesting significant improvement in mtDNA levels and biochemical defects in the most affected tissue, muscle, in patients with *TK2* mutations, indicate that dCMP/dTMP may be more effective in patients with myopathy caused by TK2 deficiency than in *TK2*^{-/-} mice with severe CNS involvement (p. 1021, first paragraph).” Considering these disclosures, the application of the prior art to human patients is not merely speculative but is expressly contemplated.

Therefore, the mere use of animal models in the prior art to evaluate the pharmacological effects of a treatment for TK2 deficiency does not establish a difference in the treatment target, nor does it support the conclusion that therapeutic use in humans was undisclosed. The Plaintiffs’ argument on this point is therefore unavailing.

b) Element 2

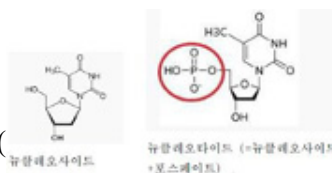
Element 2 of Claim 1 recites dC/dT as the components of the pharmaceutical composition, whereas the corresponding disclosure in the prior art employs dCMP/dTMP, which constitutes a difference between the claim and the prior art (hereinafter the “Difference”).

9) In light of the purport of the prior art, it appears to be a typographical error for “deoxypyrimidine monophosphate.”

C. Analysis on Difference

Based on the evidence previously presented, the disclosures in Defendant's Exhibits 2 through 10, 18, and 19, and the overall purport of the arguments, the following facts and circumstances are established, and it is determined that Difference can be easily overcome by a skilled person from the prior art.

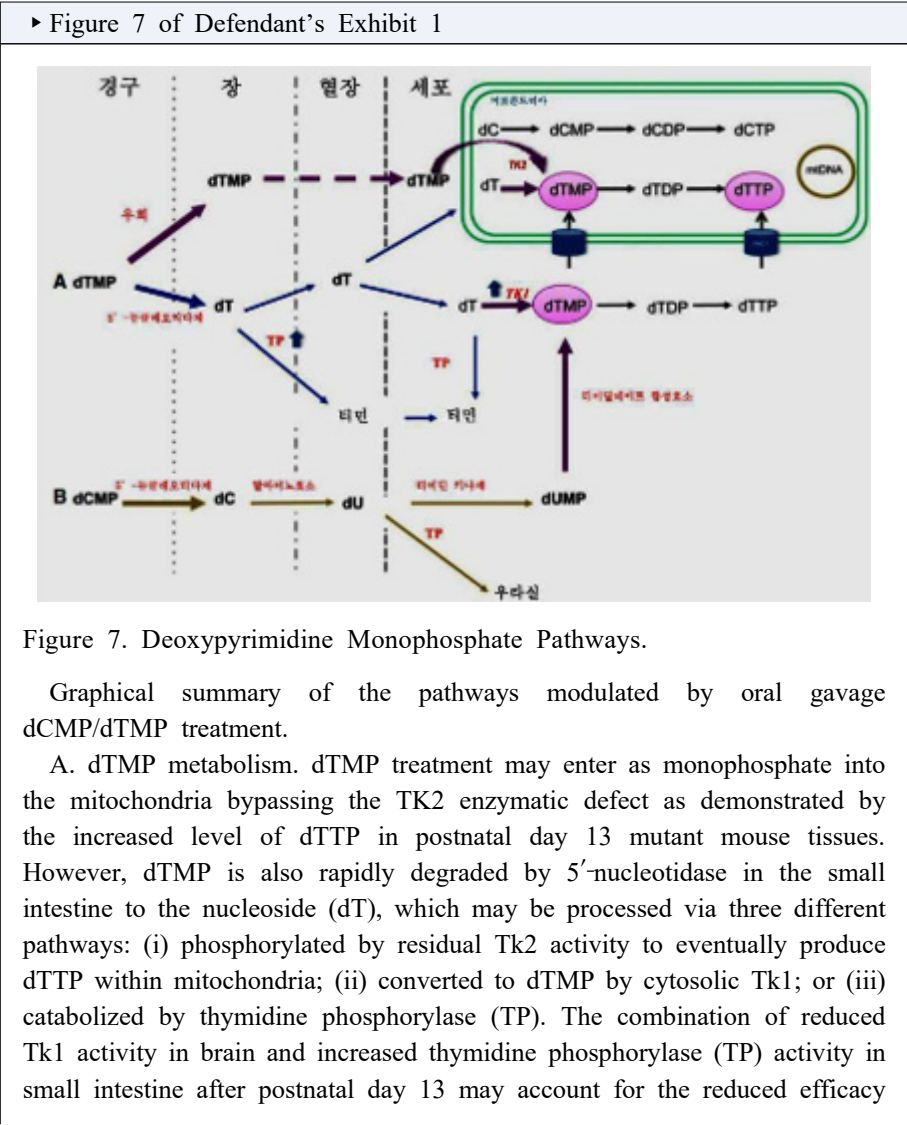
1) ① dCMP/dTMP and dC/dT differ only in the presence or absence of a phosphate group, and their underlying chemical structures



are otherwise substantially similar (②

Furthermore, reversible phosphorylation/dephosphorylation constitute fundamental physiological reactions occurring in vivo across tissues, and dCMP/dTMP and dC/dT are interconverted through these processes in the regulation of cellular biochemical activity. It was common technical knowledge as of the priority date of the patent application at issue that these two classes of compounds are biochemically closely related. ③ Figure 7 of the prior art discloses metabolic pathways by which administered dCMP/dTMP are processed, resulting in delivery of dTMP to mitochondria in *Tk2* mutant mice (H126N). Specifically, the figure depicts a pathway in which dTMP directly enters mitochondria; a pathway in which dT, generated through intestinal metabolism following oral administration, is subsequently converted back to dTMP through one of the three processes below. ④ The three pathways are as follows: (i) dT generated in the intestine is transported into mitochondria and converted back to dTMP by TK2, (ii) dT is converted back to dTMP by cytosolic TK1 and then transported into mitochondria, and (iii) dCMP is broken down into dC in the intestine, which is then converted to dTMP in the cytoplasm and transported into mitochondria.

Considering the foregoing facts and circumstances, it is determined that a skilled person upon reviewing the prior art would have readily predicted that administering dC/dT in vivo would ultimately supplement dTMP in the mitochondrial matrix through multiple metabolic pathways, thereby producing therapeutic effects in the treatment of TK2 deficiency.



of the treatment in rescuing the dNTP pool balance after age 13 days.

B. dCMP metabolism. dCMP/dTMP treatment did not increase dCTP levels in mitochondria of $Tk2^{-/-}$ mice suggesting that dCMP administered orally does not enter into mitochondria. Instead, dCMP degraded to nucleoside (dC) may be a source of dTMP as shown in the figure or may be catabolized to uracil by cytosolic TP.

2) ① The prior art states that “the present inventors assume that administration of dT and dC in $Tk2$ mutant mice may be less effective than dTMP and dCMP (p. 1023, left column, second paragraph, lines 14–17).” This disclosure nevertheless reflects that dC/dT do exhibit a therapeutic effect in the treatment of TK2 deficiency, and that such effect is expressly evaluated in comparison with the therapeutic effect of dCMP/dTMP. ② The prior art also further discloses that “the TK2 activity in muscles and brains of administered $Tk2^{+}$ mice and non-administered $Tk2^{+}$ mice was normal, whereas it was reduced in $Tk2^{-/-}$ mice (p. 1021, left column, third paragraph).” It also states that “nucleosides... are phosphorylated ineffectively by mutant $Tk2$, so the present inventors assume that administration of dT and dC in $Tk2$ mutant mice may be less effective than dTMP and dCMP.” These disclosures indicate that even in the presence of a mutation in the $Tk2$ gene, TK2 retains residual enzymatic activity in vivo, albeit at a reduced level compared to wild-type TK2. ③ Moreover, as reflected in Defendant’s Exhibits 6 and 7, which were publicly disclosed prior to the filing of the patent application at issue, patients carrying $Tk2$ gene mutations retain partial TK2 activity, and that the level of such activity is greater than that observed in the $Tk2$ (H126N) mutant mouse model in the prior art.

► Defendant’s Exhibit 6 (p. 1, right column, line 6 – p. 2, left column, line 4)

To date, no cases have been reported in which humans completely lack functional TK2 protein, suggesting that some residual TK2 activity may be required for human survival. The clinical phenotype of affected patients

correlates with the severity of TK2 deficiency, with partial reductions in TK2 activity (14-45% of normal) leading to myopathy, whereas smore evere reductions (less than 10% of normal) result in encephalomyopathy [9, 10, 17].

► Defendant's Exhibit 7 (p. 2436, left column, second paragraph – right column, first paragraph)

To better characterize the pathogenesis of TK2 mutations, we generated a *TK2* H126N knock-in mutant mouse. This mutation, which is analogous to the human H121N mutation, has been identified in the homozygous state in a child with congenital-onset myopathy who died at 4 years of age (10, 31), as well as in compound heterozygous siblings harboring the T113M *TK2* mutation, who developed rapidly progressive myopathy beginning at 12-16 months of age (32). Skeletal muscle from these patients exhibited low TK2 activity (37-45% of control levels), mitochondrial DNA depletion (6-37% of control levels), the presence of COX-negative fibers, and reduced activities of mitochondrial respiratory chain complexes I, III, and IV containing mitochondrially encoded subunits, indicating significant mitochondrial pathology in this tissue.

Compared with patients harboring the H121N *TK2* mutation, *TK2*^{-/-} mice exhibited a more severe reduction in TK2 activity across all tissues examined, corresponding to 1.7-12% of the activity observed in wild-type littermates.

Considering all of the foregoing specification disclosures and general technical knowledge in the art, a skilled person would understand that even *Tk2* gene mutant mice do not completely lack TK2 activity but instead retain relatively low residual levels thereof, and that this residual activity is sufficient to permit phosphorylation of dC/dT. Therefore, a skilled person would readily predict that administration of the substrate dC/dT to patients with TK2 deficiency would produce a therapeutic effect.

3) ① As for the mechanism of action of orally administered dCMP/dTMP, as previously described (*see* Figure 7 of the prior art), two pathways have been proposed: one in which dCMP/dTMP directly

enter the mitochondria to exert their effect, and another in which dCMP/dTMP are rapidly degraded to dC/dT in the small intestine and are subsequently converted back to dCMP/dTMP via residual TK2 activity before exerting their effect. ② The enzyme 5'-nucleotidase, which degrades nucleotides into nucleosides and phosphate, is widely distributed across various tissues and performs multiple functions, including intercellular communication, nucleic acid repair, the purine salvage pathway for nucleotide synthesis, signal transduction, and membrane transport, as reflected in the statements set forth in Exhibit 19. ③ The prior art discloses that “when dCMP/dTMP were orally administered to a TK2-deficient mouse model, deoxynucleoside monophosphates (i.e., deoxynucleotides) were not detected in muscle, liver, or plasma after 30 minutes, whereas, in 13-day-old mice, levels of dC and dU increased (p. 1021, left column, lines 1-7),” and also discloses that “analysis of plasma and tissue levels of dCMP/dTMP and their metabolites in TK2-deficient mouse models showed that, 30 minutes after oral gavage, deoxyuridine (dU) and deoxythymidine (dT) increased, whereas dTMP or dCMP did not (p. 1023, left column, lines 1-4).” In light of these disclosures, orally administered dCMP/dTMP appear to be converted into dC/dT in vivo.

► Defendant’s Exhibit 19

Nucleotidases are hydrolase enzymes that catalyze the hydrolysis of nucleotides into nucleosides and phosphate. (omitted) 5'-nucleotidases are involved in a wide range of functions, including intercellular communication, nucleic acid repair, the purine salvage pathway for nucleotide synthesis, signal transduction, and membrane transport.

► Defendant’s Exhibit 1

[p. 1021, left column, second paragraph, lines 1-7] Deoxynucleotide metabolism

To understand the metabolism of dCMP/dTMP following oral gavage administration, the levels of dCMP/dTMP and their metabolites in muscle and liver tissues, as well as in plasma, were measured 30 minutes after administration. In TK2-/-200 dCMP/dTMP mice, deoxynucleoside monophosphates were not detected. In 13-day-old mice, the levels of

deoxyuridine and deoxythymidine were markedly increased, whereas these levels decreased in 29-day-old mice thereafter (Figure 6A–C).

[p. 1023, left column, second paragraph, lines 1–4]

Analysis of plasma and tissue levels of dCMP/dTMP and their metabolites showed that 30 minutes after oral gavage administration, deoxythymidine (dT) and deoxyuridine (dU) were increased, whereas dCMP or dTMP were not increased.

Taken together, a skilled person, upon reviewing the prior art, would readily predict that a substantial portion of dCMP/dTMP administered in vivo is converted into dC/dT by 5'-nucleotidase in the small intestine and other relevant tissues. Accordingly, even when dCMP/dTMP are administered for the treatment of TK2 deficiency, it would be understood that the pharmacological effect is mediated by the dC/dT formed in vivo.

4) With respect to this, the Plaintiffs argue that, in view of the prior art disclosure stating that “since nucleosides are inherently unstable, are catabolized in the vascular and tissue compartments, and are phosphorylated ineffectively by the mutant TK2 enzyme, it is assumed that treatment using dT and dC may be less effective than dTMP and dCMP in TK2 mutant mice” (p. 1023, left column, lines 14–17), the prior art teaches away from the use of dC/dT. However, merely predicting that “the treatment may be less effective” does not imply that the treatment would be entirely ineffective. Rather, as discussed above and as shown in the prior art, when dCMP/dTMP is administered to mice, they are rapidly degraded and are present in plasma in the form of nucleosides. In light of these considerations, it is difficult to conclude that the cited prior art disclosure constitutes a teaching away from the therapeutic effect of dC/dT in the treatment of TK2 deficiency.

D. Significance of the Effect

1) The pharmacological effect of Claim 1 of the invention at issue, as inferred from the claims and specification, is the treatment of TK2 deficiency. The embodiments in the specification further disclose experimental results demonstrating improvement in clinical symptoms and extension of lifespan in $TK2^{-/-}$ mice, and also state that clinical symptoms improved in human subjects (identification numbers [0045], [0047], [0108], [0112], [0118] to [0153]).

However, the prior art also discloses that administration of dCMP/dTMP to a $TK2^{-/-}$ mouse model resulted in an extended lifespan and alleviation of clinical symptoms, supported by experimental data (Defendant's Exhibit 1, Abstract; p. 1016, right column, last paragraph to p. 1017, left column, first paragraph; Figure 1). Therefore, the effect of Claim 1 cannot be considered qualitatively different from that disclosed in the prior art.

► Defendant's Exhibit 1

[Abstract] (omitted) In an evaluation of 13-day-old $TK2^{-/-}$ mice administered dCMP and dTMP at 200mg/kg/day each ($TK2^{-/-}$ -200dCMP/dTMP), the administered compounds increased dTTP concentrations in mutant animals, elevated mtDNA levels, improved defects in mitochondrial respiratory chain enzymes, and significantly prolonged survival (34 days with treatment versus 13 days without treatment). In a second experiment in which dCMP and dTMP were administered at 400 mg/kg/day each, both phenotypic and biochemical outcomes were improved to a much greater extent. In conclusion, dCMP/dTMP supplementation represents the first effective pharmacological treatment for TK2 deficiency.

[p. 1016, right column, last paragraph to p. 1017, left column, first paragraph] dCMP/dTMP delays disease onset, prevents neuromuscular symptoms, and prolongs survival in TK2-deficient mice.

When oral administration of dCMP and dTMP at 200mg/kg/day each in milk ($TK2^{-/-}$ -200 dCMP/dTMP) was initiated on postnatal day 4, disease onset was delayed to 20–25 days, at which time mutant mice exhibited mild tremor and cessation of weight gain (Supplementary Fig. S1). During the fourth

week, weakness and reduced mobility were observed. In contrast, $TK2^{-/-}$ mice administered dCMP and dTMP at 400mg/kg/day each in milk from postnatal day 4 ($TK2^{-/-400}$ dCMP/dTMP) appeared normal until postnatal day 21, when reduced weight gain velocity and mild head tremor began to occur (Figure 1A). The average lifespan of untreated $TK2^{-/-}$ mice was 13.2 ± 2.5 days (average $\pm$ SD). In contrast, the $TK2^{-/-200}$ dCMP/dTMP group survived for 34.6 ± 3.2 days ($P=0.0028$, $n=7$, Gehan-Breslow-Wilcoxon black), and the $TK2^{-/-400}$ dCMP/dTMP group survived up to 44.3 ± 9.1 days ($P=0.0071$, $n=7$, Gehan-Breslow-Wilcoxon black) (Figure 1B). Post-mortem histological studies of the major organs in 29-day-old $TK2^{-/-200}$ dCMP/dTMP mice failed to identify a clear cause of death. Among the treated homozygous and heterozygous wild-type ($TK2^{+/-}$) and mutant mice, no adverse effects—including malignancies—were observed, with the exception of a slight reduction in the rate of weight gain in the $TK2^{+400}$ dCMP/dTMP group (Supplementary Fig. S1). (omitted hereafter)

[Figure 1]

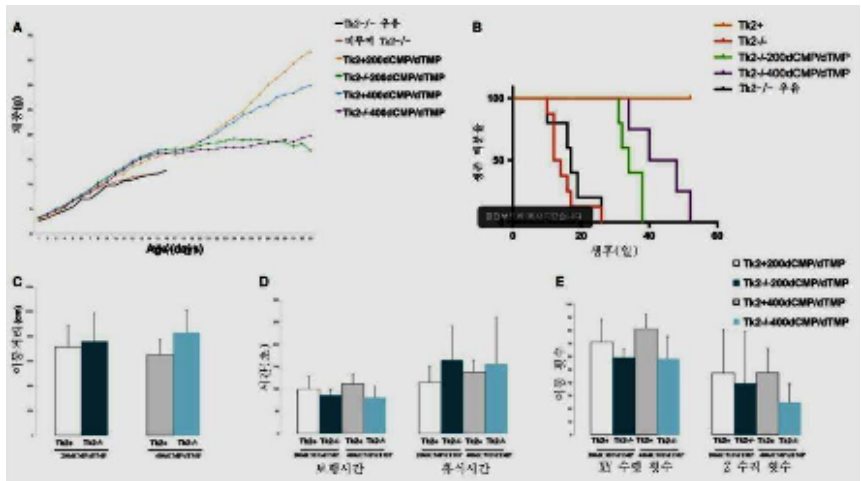


Figure 1. Efficacy of dCMP/dTMP on the clinical phenotype.

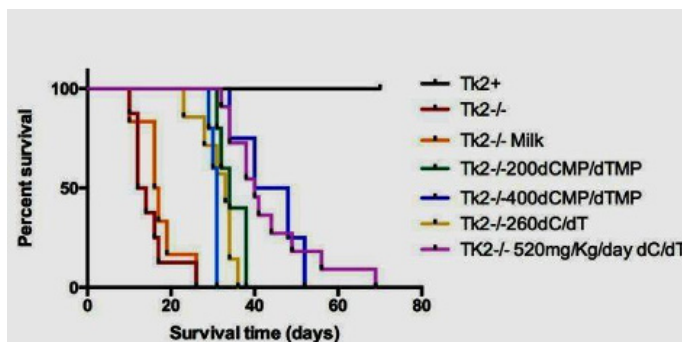
A, B. dCMP/dTMP exerted significant dose-dependent effects on body weight (A) and survival (B) in mutant mice ($n = 7$ per group) ($TK2^{-/-}$ vs. $TK2^{-/-200}$ dCMP/dTMP, $P < 0.005$; $TK2^{-/-}$ vs. $TK2^{-/-400}$ dCMP/dTMP, $P < 0.005$, Gehan-Breslow-Wilcoxon test). (omitted hereafter)

2) The specification of the patent application at issue states that the effect of dC/dT administered at 520mg/kg/day is comparable to the effect of dCMP/dTMP administered at 200mg/kg/day or 400 mg/kg/day (paragraph [0111]). In addition, according to Figure 2 of the specification, the effect of dC/dT at 260mg/kg/day (yellow) appears to be lower than or comparable to the effect of dCMP/dTMP at 200mg/kg/day (green), while the effect of dC/dT at 520mg/kg/day (purple) appears to be similar to the effect of dCMP/dTMP at 400 mg/kg/day (dark blue) (see Defendant's Exhibit 3, p. 2¹⁰).

► The Specification of the Patent Application at Issue (Plaintiffs' Exhibit 1)

[0111] Mutant mice treated with dC and dT at 520g/kg/day ($TK2^{-/-}520\text{mg/kg/day dC/dT}$) continued to gain weight for an additional week; however, they subsequently exhibited deterioration similar to that observed in $TK2^{-/-}60\text{mg/kg/day dC/dT}$, and died at 43 ± 10 days of age. These results are comparable to those observed in $TK2^{-/-}$ mice treated with oral administration of dCMP/dTMP at 200 or 400mg/kg/day. $TK2^{+260\text{mg/kg/day dC/dT}}$ and $TK2^{+520\text{mg/kg/day dC/dT}}$ survived until postnatal day 60. No adverse effects were observed.

► Defendant's Exhibit 3 (p. 3)



3) The specification of the patent application at issue states that

10) There is no dispute between the parties that Figure 2 of the specification at issue, although reproduced in black and white, is identical to the color figure on p. 3 of Defendant's Exhibit 3.

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“each of the deoxynucleosides (dC/dT) was administered to *TK2*^{-/-} mice at doses of 260mg/kg/day and 520mg/kg/day, respectively. These doses of deoxynucleosides were molar equivalents of 400mg/kg/day and 800mg/kg/day of dCMP+dTMP, respectively” (paragraph [0109]). Claim 1 of the invention at issue does not include any limitation regarding the ratio of the active ingredients, dC and dT, nor do the embodiments specify the compositional ratio of the administered formulation. By contrast, in light of the description of the invention in the specification, Claim 1 appears to encompass a range of compositional ratios of dC and dT (*see* identification no. [0021] and [0048]).

Even assuming that the compositional ratios of the two components contained in each administered formulation, shown in Figure 2 (dC/dT or dCMP/dTMP), namely dC and dT in the case of dC/dT, are equimolar¹¹⁾, and even further assuming this to be the case,¹²⁾ a calculation

11) Equimolar: In a solution comprising *n* components, a solution in which each component is present in the same number of moles, that is, a solution in which the mole fraction of each component is 1/*n*. The term is also used to describe a solution containing multiple solutes present in equal molar amounts.

12) In light of the description in identification number [0091] of the specification of the patent application at issue, Figure 2 appears to relate to an experiment in which an equimolar dose composition of dC/dT was administered.

Further, in light of the description below concerning the Prior Arts, it may be inferred that, in the experiments of the Prior Arts, an equimolar dose composition of dCMP/dTMP was administered [original text at p. 1024, left column, last paragraph: “Deoxycytidine monophosphate (dCMP) and deoxythymidine monophosphate (dTMP) (Hongene Biotech, Inc.) were administered in 50 µl of Esbilac milk formula for small pets (Pet-Ag) by daily oral gavage to *TK2* H126N knock-in mice (*TK2*^{-/-}) and age-matched control wild-type (*TK2*⁺) using 2 doses, 200 and 400mg/kg/day, from postnatal day 4 to day 29. At age 29 days, mice were separated from the mother, and the treatment was continued by administration of dCMP and dTMP in drinking water using equimolar doses, respectively, of 1.6 and 3.2 mM. A negative control group of untreated *TK2* mutant and control wild-type mice was weighed and

based on the molecular weights of each component¹³⁾ shows that the mass of dCMP/dTMP having the same molar amount as 260mg of dC/dT corresponds to 347.6mg¹⁴⁾, and the mass of dCMP/dTMP having the same molar amount as 520 mg of dC/dT corresponds to 695.2mg¹⁵⁾. Furthermore, as discussed above, the effect of dC/dT at 260mg/kg/day is similar to the effect of dCMP/dTMP at 200mg/kg/day, and the effect of dC/dT at 520mg/kg/day is similar to the effect of dCMP/dTMP at 400mg/kg/day. Accordingly, what can ultimately be confirmed therefrom is no more than that the therapeutic effects of dC/dT and dCMP/dTMP are similar.

In addition, when the description stating that “the effect of dC/dT at a dose of 520 mg/kg/day is comparable to the effect of dCMP/dTMP at a dose of 200 or 400mg/kg/day” (identification no. [0111]) is taken into account, it is difficult to conclude that the effect of Claim 1 of the invention at issue is quantitatively remarkable compared to the prior art.

4) Meanwhile, the specification of the patent application at issue includes embodiments stating that clinical symptoms were improved in TK2 deficiency patients when dC/dT was administered, or when dC/dT was administered following the administration of dCMP/dTMP (identification no. [0118] through [0153]). However, these embodiments are based on observations of the degree of symptom improvement in nine patients and do not constitute experimental results that compare the effects of dC/dT and dCMP/dTMP. Accordingly, these

observed closely for comparison.”].

13) Molar mass (g/mol) (see footnote 7 on p. 10 of the decision at issue).

dC	dT	dCMP	dTMP
227	242	307	320

14) The molar equivalent of 347.6mg of dCMP + dTMP = 260mg of dC + dT × (molecular weight of dCMP 307 + molecular weight of dTMP 320) / (molecular weight of dC 227 + molecular weight of dT 242).

15) The molar equivalent of 695.2mg of dCMP + dTMP = 520mg of dC + dT × (molecular weight of dCMP 307 + molecular weight of dTMP 320) / (molecular weight of dC 227 + molecular weight of dT 242).

embodiments alone are insufficient to establish that Claim 1 of the invention at issue exhibits a remarkable effect that could not have been predicted by a skilled person, and the other evidence submitted by the Plaintiffs is likewise insufficient to recognize that Claim 1 of the invention at issue demonstrates such an unpredictable and remarkable effect.

E. Discussion on the Plaintiffs' Remaining Arguments

1) The Plaintiffs argue that from the perspective of the pathogenesis of TK2 deficiency, the prior art relating to methods that bypass TK2 is fundamentally different from the patent application at issue, and therefore, a skilled person could not derive Claim 1 of the invention at issue from the prior art. The prior art does not explicitly disclose the use of dC/dT for the treatment of TK2 deficiency, as it relates to a therapeutic method that bypasses TK2 by administering dCMP/dTMP, which are products of TK2. However, in view of the technical common knowledge at the time of filing regarding the structural similarity and biochemical relevance between dC/dT and dCMP/dTMP, the descriptions in the prior art concerning the effects of dC/dT, and the content of Figure 7 illustrating the *in vivo* metabolic pathway of dCMP/dTMP, it appears that a skilled person could easily derive the use of dC/dT for the treatment of TK2 deficiency from the pharmaceutical use of dCMP/dTMP disclosed in the prior art. Accordingly, the Plaintiffs' foregoing argument is without merit.

2) The Plaintiffs argue that since numerous foreign patents have been granted with claims that are substantially identical or similar to the scope of Claim 1 of the invention at issue, the inventive step of Claim 1 of the invention at issue should be acknowledged as well. However, the requirements for patentability must be determined independently in accordance with the standards prescribed by the Korean Patent Act, separate from foreign legal systems, and the mere fact that an invention identical to Claim 1 of the invention at issue has

been granted patent protection abroad does not warrant a different determination. Accordingly, the Plaintiffs' foregoing argument is also without merit.

F. Result of Analysis

Claim 1 of the invention at issue lacks an inventive step, as a skilled person could have easily derived it from the prior art. Where a patent application comprises two or more claims, if any one of the claims is found to be unpatentable, the entire patent application must be rejected. The decision at issue reaches the same conclusion and is therefore lawful, and it does not suffer from any illegality as alleged by the Plaintiffs.

4. Conclusion

The Plaintiffs' claim to reverse the IPTAB decision is without merit and therefore dismissed and renders judgment as ordered.

Presiding Judge	Sook Yeon LEE
Judge	Taeksoo JUNG
Judge	Jiyoung YI

**IP HIGH COURT OF KOREA
FOURTH-SECOND DIVISION
DECISION**

Case No.	2022Heo5447, 5454 (Consolidation) Invalidation of Registration (Trademark)
Plaintiff	Sakura International Co., Ltd. (サクラ インターナショナル 株式會社) Japan CEO A(A) Counsel for Plaintiff Yulchon (Ltd.) Attorney in Charge Sangtae JEONG, Chorong YUN
Defendant	Tulumize Incorporated United States of America Representative B(B) Patent Attorney in Charge Youngil KIM
Date of Closing Argument	September 20, 2023
Decision Date	October 18, 2023

ORDER

1. The Plaintiff's appeal is dismissed.
2. Costs shall be borne by the Plaintiff.

DEMAND FOR RELIEF

The IPTAB Decision 2021Dang3743, dated September 8, 2022, shall

be reversed. (Case No. 2022Heo5447)

The IPTAB Decision 2021Dang3741, dated September 8, 2022, shall be reversed. (Case No. 2022Heo5454)

OPINION

1. Background

A. Claimed Mark at Issue (hereinafter the “Claimed Mark”) (Plaintiff’s and Defendant’s Exhibit 1, Plaintiff’s Exhibit 1-2¹⁾)

1) Filing date of application / Decision date of registration / Date of registration / Registration number: May 30, 2017 / January 8, 2018 / January 19, 2018 / No. 1323231, No.1323232 (Each corresponding 2022Heo5454, 2022Heo5447)

2) Mark:



3) Designated Goods:

a) No.1323231: Goods under Class 18 of the classification of the category of goods including leather trimmings for furniture; bags; leather and imitations of leather; leather boxes; packaging containers of leather; saddlery; pet clothing; leather straps for motorcycle; umbrellas; artificial leather; wallets; walking sticks; sacks of leather for

1) Following the consolidation of Case No. 2022Heo5454 into Case No. 2022Heo5447 at the first hearing of Case No. 2022Heo5447, the Plaintiff resubmitted documentary evidence that was originally filed only in Case No. 2022Heo5454. The resubmitted exhibits have been assigned corresponding branching numbers aligned with the documentary evidence in Case No. 2022Heo5447.

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packaging; handbags; portable cosmetic cases (empty).

b) No.1323232: Goods under Class 25 of the classification of the category of goods including outerwear; hats; scarves; waterproof clothing; winter masks (clothing); winter gloves; shirts; underwear; skirts; stockings; sportswear; footwear; men's clothing; children's clothing; socks; uniforms; clothing; belts for clothing; *Hanbok* (traditional Korean clothing)

4) Applicant : Oji Company Limited (hereinafter "Oji")

5) Trademark Right Holder: Plaintiff

B. Prior-Used Marks

1) Composition:  (Prior-Used Mark 1)  Mark Gonzales
(Prior-Used Mark 2)

2) Goods in Use: Clothes, Shoes, Bags

C. Status of the Parties and Persons Concerned

1) The Plaintiff, represented by A, is a Japanese company whose principal business consists of acquiring and subsequently sublicensing intellectual property (IP) rights to third parties in connection with the import, export, and sale of clothing, etc. Sakura Group Ltd. (hereinafter "Sakura Group") is a separate legal entity from the Plaintiff, and neither party holds any shares or ownership interests in the other. However, C, the representative of Sakura Group, is the spouse of A, who serves as the Plaintiff's representative.

2) B is a world-renowned American professional skateboarder and artist, and was selected as the "Most Influential Skateboarder of All Time" by Transworld Skateboarding magazine in December 2011. To manage his copyrights and business affairs, B established the

Defendant on January 29, 2021, under the laws of the State of New York in the United States (a single-member company of B) and has since served as its CEO.

D. Procedural History

1) On December 20, 2021, the Defendant filed a petition seeking invalidation of the registered trademarks against the Plaintiff with the IPTAB, stating that the Claimed Trademark is identical to the figure

“” (hereinafter “the Angel Figure at Issue”) used by B in his creative activities and goods, thereby falling under Article 34(1)(xiii) of the Trademark Act. The Defendant sought invalidation with respect to each of the registered trademarks.

2) The IPTAB reviewed the above appeal by the Defendant under Case No. 2021Dang3743 and 2021Dang3741, and on September 8, 2022, rendered its decision to admit the Defendant’s petitions (hereinafter “the IPTAB Decision”) on the ground that the Claimed Mark had been filed with unlawful purposes, such as unjust enrichment by taking advantage of the credibility and reputation embodied in the Prior-Used Marks by imitating Prior-Used Marks that had come to be widely-known at home and abroad as indicating the goods of a particular person as of the filing date of application of the Claimed Mark, May 30, 2017, thereby violating Article 34(1)(xiii) of the Trademark Act and shall be invalidated.

【Factual basis】 Undisputed facts, statements and videos in Plaintiff’s Exhibit 1 through 3, statements and videos in Defendant’s Exhibit 47 and 52 (including exhibits with branching numbers), and the purport of the overall argument.

2. Parties' Arguments and Issues

A. Defendant²⁾

The Claimed Mark must be invalidated for the following reasons, and the IPTAB Decision is well-grounded.

1) The Claimed Mark is identical to the Prior-Used Marks that B has been using, together with his handwritten signature in his creative activities and goods. As of the filing date of application, the Claimed Mark was identical or similar to marks that had already been recognized by consumers in Korea or abroad as indicating the goods of a particular person. Therefore, the Plaintiff obtained trademark registration by a third party, Oji with the unlawful purpose of frustrating B's claim for the reversion of his IP rights, thereby falling under Article 34(1)(xiii) of the Trademark Act.

2) The Plaintiff and Oji, through their business relationship involving the license agreement in 2010 between Sakura Group and B (hereinafter "the License Agreement at Issue"), were aware that B was using or preparing to use the Prior-Used Marks. Nevertheless, they filed the application of the Claimed Mark for registration, which is similar to the Prior-Used Marks, thereby falling under Article 34(1)(xx) of the Trademark Act.

B. Plaintiff

The Claimed Mark does not fall under Article 34(1)(xiii) or Article 34(1)(xx) of the Trademark Act for the following reasons, and therefore the IPTAB Decision, which concluded otherwise, is unlawful and shall be reversed.

2) In this litigation, the Defendant additionally asserted, as an alternative ground for invalidation, that the Claimed Mark falls under Article 34(1)(xx) of the Trademark Act (see the Record for Trial III).

1) At the time when the Claimed Mark was applied, the Prior-Used Marks were not recognized by Korean consumers as indicating B's goods. Around the year 2000, the Plaintiff lawfully acquired the copyright on the Angel Figure at Issue pursuant to contracts regarding Music Production Service Agreement and, over the course of twenty years, invested substantial time and resources to develop "B" into a brand and to cultivate the market. As a result, the Prior-Used Marks came to be recognized among consumers in Korea and abroad as indicating the Plaintiff's goods, and the Plaintiff held the legitimate authority to seek protection for the Prior-Used Marks. The Claimed Mark was applied and registered by Oji, entrusted by the Plaintiff, and the Plaintiff had no unlawful intention of obtaining undue profits or causing harm to B at all.

2) The Plaintiff lawfully filed an application of the Claimed Mark for registration pursuant to the License Agreement at Issue, and the assertion that B had used or prepared to use the Angel Figure at Issue at that time cannot be deemed to be true. Therefore, it is also difficult to conclude that the Claimed Mark was applied for registration with full recognition that it was a mark already used or being prepared for use by another person through a contractual relationship, including a partnership or employment.

3. Whether Article 34(1)(xiii) of the Trademark Act Can be Applied

A. Relevant Law

1) For a registered trademark to fall under Article 34(1)(xiii) of the Trademark Act, the Prior-Used Mark shall be recognized by consumers at home and abroad, as indicating the goods of a particular person at the time of trademark application, and the applicant of the registered trademark shall use the mark identical or similar to the Prior-Used Mark with an unlawful purpose. Whether a Prior-Used Mark is perceived among consumers in Korea or abroad as identifying

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a particular person or not should be determined by considering factors such as duration, method, manner, the scope of its use, the course of trade, and the degree to which it is objectively known in light of generally accepted social norms. (Supreme Court Decision, 2017Hu752, decided August 14, 2019; Supreme Court Decision, 2013Hu2460, decided February 13, 2014; Supreme Court Decision, 2011Hu3896, decided May 9, 2013.³⁾)

2) In determining whether the applicant of a trademark had unlawful purpose stipulated in Article 34(1)(xiii) of the Trademark Act, the following factors must be considered comprehensively: the degree of public recognition or creativity of a particular person's mark; the degree of identity or similarity between the two marks by a particular person and the applicant; the existence and contents of negotiations as to the trademark between the applicant and a particular person; other relationships between the two parties; if the applicant had made concrete preparations to conduct business using a mark for which application has been filed; the identity or similarity of goods, or the existence of economically relevant relationship; and the course of trade, etc. (Supreme Court Decision, 2013Hu1986, decided January 23, 2014⁴⁾)

3) Article 2(1)(i) of the Trademark Act defines a “trademark” merely as “a mark used to distinguish goods of one business from those of others.”⁵⁾ Accordingly, the person who “uses a trademark to

3) Although these precedents concern Article 7(1)(xii) of the Old Trademark Act (prior to wholly amended by Act No. 14033, on February 29, 2016), the old provision is identical to Article 34(1)(xiii) of the current Trademark Act. Accordingly, the same legal principles shall apply.

4) The same applies as noted in footnote 3 above.

5) Although Article 2(1)(i) of the Old Trademark Act (prior to wholly amended by Act No. 14033, on February 29, 2016) defined a “trademark” as a “mark used by a person engaged in the business of manufacturing, processing, or selling goods to distinguish goods relating to his or her business from those of another, falling under any of the items of subparagraph (i),” this provision of

indicate that the goods are one's own"—that is, the "one who is entitled to use the trademark"—is not limited to "those who engage in the business of manufacturing, processing, or selling goods," nor to "merchants under the Commercial Act." Furthermore, it is not required that such a person be the "owner" or "possessor" of the goods. Therefore, under Article 34(1)(xiii) of the Trademark Act, "the goods of a particular person" need only be recognized as indicating that a particular person is the source of the goods; it is not necessary that such a person be the manufacturer, processor, seller, owner, or possessor of the goods. In addition, since the party entitled to use the trademark is not required to be a single entity, multiple entities may combine their respective trademarks to identify the source of the goods as theirs.

4) In the case where the Prior-Used Mark is used along with another business's mark, source-identifying mark, or brand (hereinafter "Collaborative Mark") via alliance or collaboration with other business entity, in light of the fact that the duration of use of the Prior-Used Mark in combination with Collaborative Mark (hereinafter "Collaborative Combination Mark"), the manners of utilization, the degree of recognition that the Prior-Used Mark and the Collaborative Mark each had at the time of their use, and the frequency of such alliances and collaborations, if consumers at home and abroad would perceive that the Prior-Used Mark and Collaborative Mark are used in combination, the duration, method, manner, and the scope of use of the Collaborative Combination Mark may also be used as criteria to determine the degree to which the Prior-Used Mark is known. (IP High Court Decision 2021Heo2465⁶), decided January 14, 2022.)

5) When a celebrity who has established fame and popularity in a particular field through his own ability or creative work, makes a

"trademark" was streamlined, focusing on its core meaning and key methods of expression in the total amendments made on February 29, 2016.

6) This decision became final and conclusive as neither party appealed.

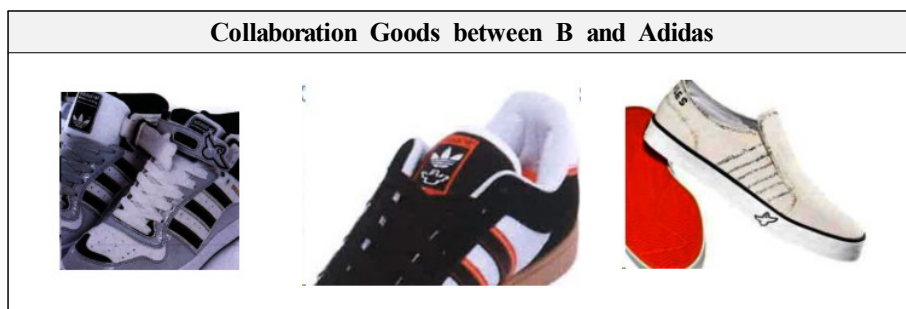
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plan of goods that embodies his name or his creative images in collaboration with manufacturers or sellers based on the consumer appeal derived from his fame and popularity, the public's expectation and trust in the quality of the goods, and the hope among consumers that the celebrity's positive image will be transferred to the anyone who uses a product, and further maintains control over the specifications or quality of such goods, and receives fees on the sale of his works, the celebrity can be deemed as a person who uses his name or his creative images as a source identifier of his goods. In this case where the celebrity's name and images are recognized among consumers as the mark that identifies that celebrity, his name and images can be deemed to be "any trademark recognized as indicating the goods of a particular person by consumers in Korea or abroad", prescribed in Article 34(1)(xiii) of the Trademark Act.

B. Established Facts

1) Collaboration between B, Adidas, and etc.

a) Adidas International Marketing BV, which operates "Adidas," a globally recognized brand of sports apparel, footwear, and sporting goods (hereinafter the brand and the entity are collectively referred to as "Adidas"), collaborated with B from around May 1998 to 2023 and released and sold apparel and footwear products bearing the Prior-Used Marks or marks similar to the Angel Figure at Issue as shown below. Adidas paid B a substantial amount of royalties each year as consideration for the collaboration, and the royalties amounted to USD 183,538, USD 238,052, USD 203,183, and USD 124,389 in 2013, 2014, 2015, and 2016, respectively.



b) On May 7, 2013, Adidas held an exhibition and a celebratory event titled “15 Years of Gonz” at the HVW8 Gallery in Los Angeles, the United States, to commemorate the 15th anniversary of its partnership with B. The Angel Figure at Issue was also featured in articles introducing Adidas’s “15 Years of Gonz” exhibition and a celebratory event.

c) B entered into a collaboration agreement similar to a license agreement with Supreme, a U.S. street-casual brand in around 2002, under which Supreme was granted the right to use B’s name and artwork. Pursuant to this arrangement, T-shirts, bags, cushions, and other products bearing the Prior-Used Marks as shown below were sold across the world.



2) The License Agreement at Issue and Its Performance

a) B and Sakura Group entered into a license agreement on December 8, 2010, to grant Sakura Group an exclusive license to B’s

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name and image designs created and owned by B for a one-year term beginning January 1, 2011 (hereinafter the “License Agreement at Issue”). The main content of the agreement is as follows.

The License Agreement at Issue (Plaintiff’s Exhibit 14)
1) Pursuant to the terms prescribed in each provision of this Agreement, B (hereinafter “B”) grants Sakura Group an exclusive license, effective as of January 1, 2011, for a period of one year, to B’s name, images, and designs created and owned by B for all goods, including apparel, accessories, promotional and advertising materials except for goods related to footwear. 2) B agrees to grant exclusive use to Sakura Group to place B’s images, drawings, poems, stories, and the names “Gonzo Cuntry” and “B” on products and manufacture, distribute, and sell these products in the Asian region (omitted). 3) Sakura Group may use all or part of the copyrights newly submitted to Sakura Group and/or previously provided to Sakura Group, but as B may decline to grant exclusive rights or absolute discretion to Sakura Group, Sakura Group must obtain B’s approval before its use (omitted). 4) Sakura Group may grant sublicenses to a third party to manufacture, carry out marketing, distribute, and sell licensed products; however, only the images and designs approved under the above Article 3 can be sublicensed. Such third party shall be subject to restrictions on goods and geographic restrictions prescribed in Article 2 and to the conditions stipulated in each provision of this Agreement. 10) Sakura Group shall have the option to renew this License Agreement at Issue annually, for up to ten years, on the same terms. 11) B owns all intellectual property rights regarding all goods and products. <u>Sakura Group shall specify B as the copyright holder on all licensed products and shall mark them with “©B.” Sakura Group may obtain registration of the marks “Gonzo Cuntry,” and “B,” and B’s designs to protect B’s rights, provided that such registered rights shall be returned to B upon B’s request.</u> 12) B retains all the rights except the rights explicitly assigned under this Agreement.

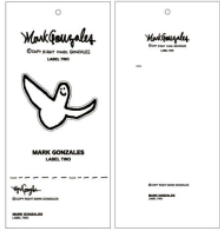
b) Although Sakura Group is the contracting party to the License Agreement at Issue, the Plaintiff nonetheless entered into license agreements with a third party (hereinafter “sublicensee”) as to

the mark “B” and the Angel Figure at Issue, as follows. The sublicense agreements and the sublicensees’ use of the Angel Figure at Issue are as listed below.

(1) On December 31, 2015, the Plaintiff entered into a license agreement with Howard Co., Ltd., regarding the trademark containing B’s name (hereinafter “name mark”) and the Angel Figure at Issue, etc. Howard Co., Ltd., in collaboration with X-LARGE, a U.S. streetwear brand, released T-shirts and other products bearing B’s name mark and the Angel Figure at Issue.

Collaboration Goods between the Plaintiff, Howard, and X-LARGE	Tags Placed onto Howard’s Product
	

(2) Oji and the Plaintiff agreed to a license around 2010 and began to sell products bearing the Angel Figure at Issue, etc.

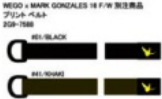
Figure Embodied in Oji’s Product	Tags Placed onto Oji’s Product
	

(3) New Era entered into a license agreement with the Plaintiff and, around 2015, released T-shirts, hats, and other products bearing the Angel Figure at Issue.

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Products Released by New Era	Tags Placed onto New Era's Product
	

(4) WEGO entered into a license agreement with the Plaintiff and, around 2016, released various products such as messenger bags, hats, and belts bearing the Angel Figure at Issue.

Products Released by WEGO		
		

(5) On August 1, 2017, the Plaintiff entered into a license agreement with Sears LLC. Afterwards, Qingdao Xiaai Free Trade Co., Ltd.(青岛希爱子贸易有限公司), a subsidiary of Sears LLC, released T-shirts and other products bearing the Angel Figure at Issue.

Products Released by Sears	Tags Placed onto Sears's Product	Wappen Attached to Sears's Product
		

3) Media Coverage, etc.

a) Articles dated May 9, 2017, published by *Ilgan Sports* and *Financial Today*, and articles dated May 10, 2017, published by *APN (Apparel News)* and *Prime Economy*, introduced that B had continuously collaborated with global brands such as Supreme and Adidas, and that, for the first time in Korea, B was collaborating with “Covernat,” a streetwear brand owned by BKAVE Co., Ltd. (formerly known as BARRELS, Co., Ltd., hereinafter “BKAVE”).

b) The promotional articles distributed in Korea by BKAVE, shortly before the filing of the Claimed Mark application, introduced B as a “world-renowned artist” and as an “artist and professional skateboarder,” and emphasized that B had collaborated with global brands such as Supreme and Adidas. Further, the Angel Figure at Issue was used to promote such a collaboration.

4) Application and Registration of the Claimed Mark

a) On July 15, 2016, Oji filed an application for registration of a mark combining the Angel Figure at Issue with B’s signature



() in Korea. The Korean Intellectual Property Office (hereinafter, “KIPO”) issued a notice of refusal on the ground that

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“the proposed mark is deemed to have an unlawful purpose considering the fact that it contains the name of a prominent person, and the mark is identical or similar to a mark recognized by domestic or foreign consumers as indicating a particular person’s goods.” On May 15, 2017, in response thereto, Oji submitted a copy of the License Agreement at Issue and a power of attorney between Sakura Group and Oji concerning domestic trademark application. Oji obtained registration of the above mark on October 17, 2017 (Trademark Registration Nos. 1293873 and 1293874).

b) Oji, an authorized agent of the Plaintiff, filed an application of the Claimed Mark () for registration in Korea on May 30, 2017, and obtained registration as noted above.

5) Termination of the License Agreement at Issue

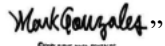
a) The License Agreement at Issue was renewed annually on the same terms for ten years—the maximum renewal period granted to Sakura Group under the agreement. With no further renewal in 2020, it expired on December 31, 2020.

b) On April 12, 2021, B sent an email to Sakura Group, requesting that Sakura Group stop using Mark B registered in multiple Asian countries and return the mark to B based on the fact that the License Agreement at Issue had expired as of December 31, 2020.

6) Registration of the Transferred Claimed Mark

a) On January 22, 2021, the Plaintiff was transferred the Claimed Mark from Oji and registered the said mark.

b) On the same date, the Plaintiff was also transferred the mark


“” from Oji and registered the said mark, but the Plaintiff

abandoned that right on October 25, 2021, and further abandoned the right to the mark “*Mark Gonzales*” on February 25, 2022.

【Factual basis】 Statements and videos in Plaintiff’s Exhibit 14, 16, 28, 29, 30, 32, 33, statements and videos in Defendant’s Exhibit 3, 13 through 15, 19, 21, 23 through 35, 49, 50, 53, 54, and the purport of the overall argument.

C. Discussion

1) Whether the Prior-Used Marks Were Recognized by Domestic or Foreign Consumers as Indicating a Particular Person’s Mark

a) Whether Prior-Used Marks Were Perceived as Indicating The Same and Consistent Source of A Particular Person Considering the following circumstances that can be understood from the above established facts in light of the legal principles examined above, it is reasonable to view that ordinary consumers and traders at home and abroad perceived the Prior-Used Marks as the same and consistent source for identifying a particular person (B)’s product, as of May 30, 2017, the date on which the application of the Claimed Mark was filed.

(1) The Prior-Used Marks seem to have become widely known first among foreign consumers and then among domestic consumers, even before the application for the Claimed Trademark was filed through long-term collaboration between B and Adidas. The Prior-Used Marks, which were used together with or separately from the Collaborative Mark of Adidas, did not lose their independence and remained visually distinctive from the Collaborative Mark. Given the duration of the collaboration, the level of popularity of B and the Angel Figure at Issue, and the advertising statements used for the products, the said marks were used in a manner that would reasonably be perceived as indicating multiple sources, to an extent sufficient to

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identify both B and Adidas, a partner company of B. Therefore, through the collaboration with Adidas, the marks can be deemed to serve as an source indicator of B. The same applies to other collaborations, including those with Supreme.

(2) Sakura Group and the Plaintiff, who is substantively identical to Sakura Group,⁷⁾ are merely licensees authorized under the License Agreement at Issue to use B's name, images, and designs created and owned by B. The first sentence of Article 11 of the License Agreement at Issue explicitly provides that "B retains all IP rights of all goods and products. Sakura Group shall specify B as the copyright holder on all licensed products and shall mark them with "©B." The second sentence of Article 11 further provides that while Sakura Group may obtain registrations of the Mark "B" and its design, such registration is permitted only on the condition that the registered rights must be returned to B upon B's request. In view of these terms of the License Agreement at Issue, it is reasonable to deem that B is the owner of the Prior-Used Marks. Accordingly, even if the Plaintiff or a third party who entered into sublicense agreements with the Plaintiff uses the Prior-Used Marks, it constitutes the use of another person's mark, and not the use of its own mark, and further, the legal effect of the use of such marks is inured to the licensor B instead of licensees (the Plaintiff and a third party).

(3) As examined above, products bearing the Prior-Used Marks were manufactured and sold by various companies, and each of these products emphasized that they were the result of collaborations with B. Domestic and foreign consumers are deemed to have perceived B as the same and consistent source of the products bearing the Prior-Used Marks at the time of Claimed Mark application,

7) Although, as a matter of law, the Plaintiff and Sakura Group are separate and distinct legal entities and the effects of the contracts signed by Sakura Group cannot be deemed to affect the Plaintiff, the Plaintiff has nevertheless conducted various legal acts as though it were the same company as Sakura Group.

although such products were manufactured and sold by multiple companies, judging in entirety from the length of use of the Prior-Used Marks, the manner of the use (in the case of Collaborative Combination Mark, Prior-Used Marks did not lose their independence, and products manufactured and sold pursuant to the License Agreement at Issue or pursuant to sublicense agreements bore no indication of source other than “B,” or, if any, such indication appeared in a manner significantly less prominent than the Prior-Used Marks), the wide range of products to which the marks were applied, and the relevant media coverage.

b) Determination on the Plaintiff’s Arguments

(1) Summary of Plaintiff’s Arguments

The Plaintiff argues that, around 2000, it entered into a music production service agreement with Cujo Arts & Literature, Inc. (hereinafter “Cujo”), an employer of B, under which the Plaintiff acquired the copyright on the Angel Figure at Issue, and that it built up reputation and credit by branding the Angel Figure at Issue for an extended period thereafter. Therefore, domestic and foreign consumers perceived the Prior-Used Marks as the source indicator of the Plaintiff’s goods at the time of the Claim Mark application.

(2) Established Facts

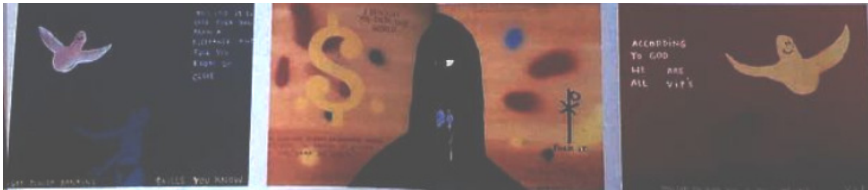
(a) Creation and Use of The Angel Figure at Issue

As described below, B created each of the following works around their respective dates: the illustration included in Emily Dickinson’s poetry collection, “*Selected Poem*”, published around 1996; the painting featured in the catalog “*SOCIAL PROBLEM/D*” issued on May 26, 1998; and the illustration inserted into the article titled “Loving Life” in the U.S. magazine “TRASHER” published in the February issue of 1998. Each of the above illustrations and drawings

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contains figures such as “” and “”,

“”.

Selected Poem, 1996 (Defendant’s Exhibit 40)	“Loving Life”, TRASHER, February 1998 (Defendant’s Exhibit 1-2)
	
SOCIAL PROBLEM, by B, May 26, 1998 (Defendant’s Exhibit 2)	
	

(b) The Music Production Service Agreement at Issue and Its Performance

① On October 1, 1999, B entered into an employment agreement with Cujo, a U.S. corporation, under which B was to serve as Cujo’s executive producer. This employment agreement remained in effect until April 15, 2004.

service agreement⁸⁾ with Cujo and D (hereinafter “the Music

8) The Plaintiff refers to the title of this document as a “copyright assignment agreement,” but such characterization is entirely inconsistent with the original

Production Service Agreement at Issue”). B, as the representative of Cujo, signed the said Music Production Service Agreement at Issue with Cujo. The principal terms of the Music Production Service Agreement at Issue are as follows.⁹⁾

MUSIC PRODUCTION SERVICE AGREEMENT (Plaintiff’s Exhibit 7-1 and 7-2)
Cujo and D collectively referred to as the “Artists.” Article 1 Music Production 1.1 The Artists shall provide to the Plaintiff services consisting of producing musical works (lyrics and compositions, hereinafter “Musical Works”) and sound recordings of the performances of such Musical Works (hereinafter “Sound Recordings”), and creating album cover artwork and/or photographs (“Cover Artwork”) (omitted). Article 2 Rights 2.1 <u>The copyrights of the Music Works and the Sound Recordings shall be assigned to the Plaintiff upon delivery of the materials specified in Article 3.</u> 2.2 The Plaintiff shall have the exclusive right, for the duration of the copyright protection period, to reproduce, distribute, publish, perform, broadcast, transmit and use through communication networks such as the Internet, in whole or in part, the Sound Recordings (hereinafter “Audio Works”), on compact discs, tapes, DVDs, and other media, on a global basis including, but not limited to, Japan, the United States, South America, and Europe (“Global Basis”). 2.3 The Plaintiff shall have the <u>exclusive rights to reproduce and sell all album cover artwork and/or photographs along with the Audio Works, when used on the products, such as T-shirts for promotional purposes of the Audio Works and the Artists,</u> on a Global Basis for the duration of the copyright protection period. 2.4 The Plaintiff shall have the right to use the names B and D for the

title of the contract as stated in the dispositive document, and the document includes no provision indicating that copyrights to creations other than the musical works and the sound recordings can be assigned.

- 9) The name “Sakura” shall be replaced with “the Plaintiff.” The Music Production Service Agreement at Issue is based on the translation submitted by the Plaintiff (Plaintiff’s Exhibit 7-2), with certain modifications to ensure fidelity to the original English text of the Agreement (Plaintiff’s Exhibit 7-1).

purpose of promoting the Audio Works and the Artists.

Article 3 Deliverables

The Artists shall deliver the following materials (“Deliverables”) to the Plaintiff’s office in Tokyo by November 15, 2000:

- a) Master tape: DAT tape recorded from the Sound Recordings
- b) English lyric sheet
- c) Album cover artwork
- d) Information necessary for the future release of the Audio Works, as may be subsequently agreed upon between the Plaintiff and the Artists

Article 5 Rights Provisions

5.1 The Plaintiff shall obtain an unlimited and irreversible license to permanently use the results and rights of the services provided by all musicians, producers, and technical staff except for the Artists (“Related Personnel”) hired by the Artists to assist the creation of the Music Works and the Sound Recordings, including, but not limited to, the copyrights and moral rights of such Related Personnel.

5.2 The Plaintiff shall be obligated to pay all amounts arising from the services of the Related Personnel, including, but not limited to, guarantees, royalties, and fees.

5.3 If any third party, including, but not limited to, the Related Personnel, files a suit regarding the rights provisions stated in this Article, the Plaintiff shall be engaged in such a lawsuit at its own expense.

Article 6 The Right of Control Over the Creative Works

6.1 The Artists shall have full control over all musical compositions and the creation of T-shirts, as well as promotional materials produced together with and/or the release of the Music Works.

6.2 Both Artists shall approve in writing any commercial design before its production.

6.3 If the Artists do not approve or reject the design within thirty days after receiving it, the Plaintiff shall have the right to produce the design without the Artists’ approval.

Article 12 General Provisions

12.3 Jurisdiction

Any dispute arising in connection with or out of this Agreement shall be subject to the exclusive jurisdiction of the courts located in California.

12.6 Governing Law

This Agreement shall be governed by the laws of the State of California, United States.

③ Among the album cover artworks provided to the Plaintiff under the Music Production Service Agreement at Issue, the following works are of particular significance.¹⁰⁾



【Factual basis】 The evidence reviewed, statements and videos in Plaintiff’s Exhibit 4 through 7, statements and videos in Defendant’s Exhibit 1 through 5, and the purport of the overall argument.

(3) Analysis

A close examination of the contents of the Music Production Service Agreement at Issue shows that the subject of copyright assignment is limited to the Music Works and the Sound Recordings, and, among

10) The Plaintiff asserts that all of the images in Plaintiff’s Exhibit 8 constitute album cover artworks provided under the Music Production Service Agreement at Issue (see Plaintiff’s brief dated April 19, 2023, pp. 7–8). However, this assertion is not accepted, as the images appear to be merely a compilation created by the Plaintiff and are inconsistent with the statements and video contained in Plaintiff’s Exhibit 11-1 (D’s statement dated June 24, 2022, and the attached Exhibit A). Moreover, the Angel Figure at Issue is not included in Plaintiff’s Exhibit 11-1.

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artistic works, only the exclusive right to reproduce and sell album cover artwork and/or photographs on T-shirts and other items for the purpose of promoting the Audio Works and the Artists was granted. (Meanwhile, in light of the statements in Plaintiff's Exhibit No. 22 and the purport of the overall argument, it is acknowledged that B, at the Plaintiff's request, personally drew and delivered the Angel Figure at Issue to the Plaintiff around January 2001. However, as discussed below, this figure is identical to the one already created in 1996 or 1998, and the rights granted were limited to reproduction and sale strictly for the purpose of promoting the album under the Music Production Service Agreement at Issue.)

In addition, because B authorized Sakura Group to use his name and the Angel Figure at Issue on products under the License Agreement at Issue, the products released pursuant to that agreement can be regarded only as products whose trademark use, the nature, and quality continued to be controlled by B, not by Sakura Group, the licensee, or the Plaintiff. In fact, at the time of filing an application of the Claimed Mark, it is difficult to find examples in which the labels or tags of the products bearing the Prior-Used Marks or B's signature indicating the Plaintiff or Sakura Group as the source. Thus, it is reasonable to conclude that the credit and customer appeal should be attributed to the original right holder, B, since the Plaintiff and its sublicensees merely used B's reputation and the images of the works created by B under the License Agreement at Issue.

2) Whether the Marks Are Similar and the Designated Goods Are Relevant, etc.

Mark at Issue	Prior-Used Mark 1	Prior-Used Mark 2
		

a) Whether the Marks Are Similar

The Claimed Mark and the Prior-Used Marks depict a flying bird figure with outstretched wings. In this figure, the right wing is drawn significantly thicker than the left, which is slender; the torso is rounded, devoid of legs or a tail; and the head resembles a human face, with two dots for eyes, and a smiling mouth in place of a beak.

The bird in the Claimed Mark is colorless, whereas Prior-Used Marks 1 and 2 are tinted in yellow, with Prior-Used Mark 2 further displaying B's signature at the bottom. Aside from these differences, the overall configuration of the figures is similar.

b) Whether the Designated Goods and Goods in Use Are Similar or Identical

The designated goods of the Claimed Mark are "Outerwear; hats; mufflers; waterproof clothing; winter masks (clothing); winter gloves; shirts; underwear; skirts; stockings; sportswear; footwear; men's clothing; children's clothing; socks; uniforms; clothing; belts for clothing; and *Hanbok* (traditional Korean clothing)" (Application No. 1323232), and "Leather trimmings for furniture; bags; leather; leather and imitations of leather; leather boxes; packaging containers of leather; saddlery; clothing for pets; leather straps for motorcycles; umbrellas; artificial leather; wallets; walking sticks; sacks of leather for packaging; handbags; and portable cosmetic cases (empty)" (Application No. 1323231). On the

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contrary, the goods on which the Prior-Used Marks were used are “clothing, footwear, and bags.”

Among the designated goods of the Claimed Mark, “Outerwear; waterproof clothing; shirts; underwear; skirts; sportswear; footwear; men’s clothing; children’s clothing; uniforms; clothing; and *Hanbok*” are similar to “clothing and footwear” on which the Prior-Used Marks were used. “Bags; leather packaging containers; wallets; handbags; and portable cosmetic bags” are similar to “Bags” on which the Prior-Used Marks were used. Further, considering the circumstances of the relevant marketplace, in which a head-to-toe fashion trend has become prevalent, “hats, mufflers, socks, winter masks (clothing), belts for clothing, stockings, and winter gloves” are considered to have a close economic relevant relationship with goods on which the Prior-Used Marks were used.

3) Whether There Was an Unlawful Purpose

a) Discussion on Whether There Was an Unlawful Purpose

Considering all of the acknowledged facts and evidence reviewed, the following circumstances can be sufficiently inferred: the Plaintiff, who was not a party to the License Agreement at Issue, delegated Oji to file an application for trademark registration with an “unlawful purpose”, namely, to obtain unjust enrichment by free-riding on the business reputation embodied in the Prior-Used Marks, by imitating the Prior-Used Marks that had come to be widely known at home and abroad as indicating the source of a particular person as of the filing date of application of the Claimed Mark.

(1) B is a world-renowned skateboarder and artist, and all of the Prior-Used Marks were created by B. Even before entering into the License Agreement at Issue, these marks were used on collaboration products with H as the source indicator of B itself.

(2) Under Article 11 of the License Agreement at Issue, Sakura Group may register B’s designs to protect the trademark rights;

however, such registration is permitted only under the condition that F must return the registered IP rights to B upon B's request.

(3) Although the License Agreement at Issue provides that Sakura Group may grant sublicenses to a third party for manufacturing, marketing, distributing, and selling the licensed products, it is difficult to conclude that the scope of such sublicenses includes that a third party may directly apply and register B's images, etc.

(4) The Plaintiff's CEO, A, appears to have substantially operated Sakura Group (whose representative is A's spouse), and the Plaintiff and Sakura Group have operated in practice as if they were a single business entity. However, Sakura Group is the party to the License Agreement at Issue, and therefore Sakura Group has the authority to register B's creations as marks. The Plaintiff, by law, has no authority whatsoever to apply for the registration of the Claimed Mark¹¹⁾, and bears no contractual obligation under the License Agreement at Issue to return the trademark rights to B.



(5) Oji filed an application of the mark “”

©COPY RIGHT MARK GONZALES

registration prior to the application of the Claimed Mark, and during the examination process, submitted a copy of the License Agreement at Issue as well as a power of attorney between Sakura Group and Oji concerning the domestic trademark application. The said mark even has a small notation of “©COPY RIGHT B” at the bottom of the mark. Considering all these circumstances, Oji must have been well

11) The Defendant's counsel has made statements as if the License Agreement at Issue was made and entered into “the Plaintiff's side” (see the answer dated December 28, 2022, and the brief dated April 17, 2023). However, as the Plaintiff and Sakura Group are, as a matter of law, distinct legal entities, any argument based on such a mistake of legal provisions does not have an impact on determining this case.

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aware that Sakura Group or the Plaintiff is merely a licensee under the License Agreement at Issue, and that the Angel Figure at Issue is B's creation and subject to the obligation to indicate B as the author under the License Agreement at Issue.

(6) Oji filed the application of the Claimed Mark registration upon the Plaintiff's request¹²⁾, while the Claimed Mark was registered without going through such an application process as in



the prior trademark. Oji did not comply with the obligation under the License Agreement at Issue to indicate the author by placing a mark “©B” when using B's IP rights.

(7) The renewal period of up to ten years guaranteed to Sakura Group under the License Agreement at Issue expired on December 31, 2020, and when B requested the return of the trademark right, the right to the Claimed Mark was transferred from Oji to the Plaintiff and then registered.

b) Discussion on the Plaintiff's Argument

(1) Plaintiff's Argument

The Plaintiff asserts that it had no unlawful purposes of gaining unjust enrichment or causing harm to B for the following reasons: ① The Angel Figure at Issue is a copyrighted material created by B pursuant to the employment contract between B and Cujo and therefore, the Plaintiff lawfully acquired the copyright on the Angel Figure at Issue from Cujo under the Music Production Service Agreement at Issue (even if that were not the case, the Plaintiff was

12) The Plaintiff consistently asserts that Oji was the Plaintiff's licensee and was familiar with the domestic circumstances, and that the Plaintiff therefore filed the application for the registration of the Claimed Mark “by Oji” (see the complaint dated October 21, 2022, p. 32, and the brief dated April 19, 2023, p. 47).

transferred of the right to the Angel Figure at Issue based on Rights Transfer Agreement dated August 7, 2022), and over the course of twenty years, the Plaintiff invested substantial time and resources to develop “B” into a brand and to cultivate the market. As a result, the Prior-Used Marks came to be recognized among consumers in Korea and abroad as indicating the Plaintiff’s goods. ② The Plaintiff held the legitimate authority to seek protection for the Prior-Used Marks. ③ The Plaintiff asserts that the Claimed Mark was applied for and registered by Oji, the Plaintiff’s licensee, at the Plaintiff’s request, and that the Plaintiff had no unlawful purpose whatsoever of obtaining unjust enrichment or causing harm to B.

(2) Discussion

(a) Ownership of the Copyright on the Angel Figure at Issue

① As examined above, the illustrations and drawings created by B between 1996 to 1998 contain figures such as

“” “” and “”. Each of these figures depicts a flying bird with outstretched wings; the right wing is drawn significantly thicker than the left, which is slender; the torso is rounded, devoid of legs or a tail; and the head resembles a human face, with two dots for eyes, and a smiling mouth in place of a beak. These features are very similar, and indeed substantially identical, to the configuration of the Angel Figure at Issue (

“”). Accordingly, it is acknowledged that the Angel Figure at Issue was created before B and Cujo signed an employment contract. Thus, it is difficult to deem that the Angel Figure at Issue is a work made for hire, and it is reasonable to conclude that B is its sole copyright holder.

② It is self-evident that B is the copyright holder of the Angel Figure at Issue in light of the provision in the License Agreement at Issue requiring that B be identified as the copyright holder through markings such as “©B,” etc., and that the mark



“*Mark Gonzales*,” which the Plaintiff had authorized Oji to file and register but later abandoned, explicitly bears the notation “©B” at the bottom, etc. Therefore, the Plaintiff’s argument that it assigned the copyright under the agreement on transfer of rights entered with Cujo dated August 7, 2022, is without merit and does not require further examination as long as it is determined that the Angel Figure at Issue does not constitute a work made for hire and its copyright is inured to B.

③ Furthermore, the evidence submitted by the Plaintiff alone is insufficient to establish that the Angel Figure at Issue was included, in its existing form, in the album cover artwork provided under the Music Production Service Agreement at Issue, and there is no evidence to otherwise support such a finding. Meanwhile, even if B, at the Plaintiff’s request, drew the Angel Figure at Issue and delivered it to the Plaintiff around January 2001 under the Music Production Service Agreement at Issue, this merely constitutes the granting of reproduction and distribution rights for promotional purposes of an album and cannot be construed as an assignment of copyright. In addition, as examined above, the Angel Figure at Issue shall be considered substantially identical to the figure created before it was delivered to the Plaintiff.

(b) Whether the Plaintiff Used the Prior-Used Marks as an Indicator of Its Own Goods

According to the legal principles examined above, whether the Prior-Used Marks are already recognized as a source indicator of the Plaintiff’s goods must be determined objectively based on how ordinary

consumers perceive, and the practice of trading of goods. A review of the tags attached to the products jointly released by the Plaintiff and companies Howard Co., Ltd., Oji, AVOID, New Era, and Sears under the License Agreement at Issue, shows that they bear only the mark “B,” with no reference to the Plaintiff, including any indication such as “Sakura International.” For ordinary consumers who have encountered the Prior-Used Marks displayed on products released through collaborations between B and Adidas, and on products released by various third parties who entered into sublicense agreements with the Plaintiff, would have perceived B as the same and consistent source of those goods. Therefore, the Plaintiff’s argument that the Prior-Used Marks were recognized among consumers at home or abroad, as the source indicator of the Plaintiff’s goods cannot be accepted.

(c) Plaintiff’s Trademark Registrations in Japan

① According to the descriptions in Plaintiff’s Exhibits 10 and 19, it is recognized that on October 24, 2003, the Plaintiff applied for a trademark registration in Japan, regarding the mark



() similar to the Angel Figure at Issue and registered in Japan under Japanese Trademark Registration Nos. 4621594 and 4721595, and that on May 14, 2004, the Plaintiff filed the application for registration of the mark “**MARK GONZALES**” in Japan and registered the mark under Japanese Trademark Registration Nos. 4765359 and 4769801 (hereinafter “Japanese Trademarks”).

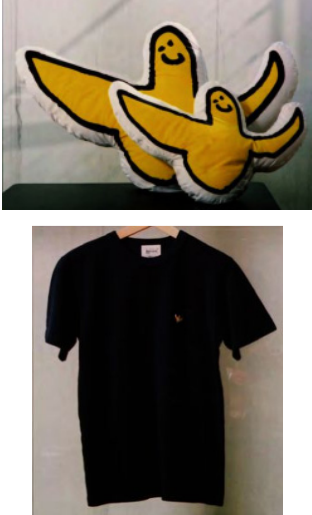
② In response to the Court’s request to clarify the basis for the trademark application filed in Japan, the Plaintiff asserted that it had acquired the copyrights on the works delivered under the Music Production Service Agreement at Issue and that, among these works, it applied and obtained the mark registration of the Angel Figure at Issue in Japan. However, as examined above, neither the Angel Figure at Issue nor the album cover artworks was included

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among the copyrighted works to be assigned under the Music Production Service Agreement at Issue. It also appears that the mark application in Japan was submitted without B's consent, and therefore B filed a claim to invalidate the registration against the Plaintiff with the Japan Patent Office (Defendant's Exhibit 56).¹³⁾

③ Based on the statements and videos contained in the Plaintiff's Exhibits 26 through 28, it is recognized that, around 2004, the Plaintiff collaborated with CA4LA, a company operating a multi-brand headwear store, to sell hats bearing the Angel Figure at Issue, and that the Plaintiff also entered into a license agreement with Autobahn Co., Ltd., a general trading company, to sell products such as T-shirts to which the Angel Figure at Issue is affixed. It is further recognized that the Plaintiff's trade name was written on the tags of those products. However, those products were only distributed in Japan, where the Plaintiff had completed trademark registration, and it is difficult to find a case where the Plaintiff's trade name was written on the tags of products after entering into of the License Agreement at issue.

13) The grounds for the invalidating the Japanese Trademarks were based on Article 4(1)(vii) of the Japanese Trademark Act (trademarks likely to harm public order or morality) or Article 4(1)(xix) (similar to Article 34(1)(xiii) of the Korean Trademark Act, but requiring the mark be "widely" recognized as indicating a particular person's goods). After the close of argument in this case, the Plaintiff submitted this reversal decision for reference. However, the grounds for reversal were merely that, at the time the Japanese trademarks were applied for and registered (around 2003), the evidence was insufficient to prove that the marks were well-known among consumers in Japan or abroad. Further, considering the relationship between D and the Plaintiff at that time, the circumstances surrounding the application and the registration did not constitute a violation of commercial ethics to an extent deemed socially unacceptable. Accordingly, the said decision does not affect the determination of invalidity in the present case, which concerns a trademark registered 14 years after the mark application in Japan, at a time when the Prior-Used Marks are already recognized as indicating B's goods, and merely two to three years prior to the expiration of the License Agreement at Issue.

Products Released by Autobahn Co., Ltd.	Tag Placed onto Autobahn Co., Ltd.'s Product
	

④ The Plaintiff argues that, because it temporarily assigned its Japanese Trademarks to Sakura Group for the purpose of building a brand using copyrighted works related to B, including works created under the Music Production Service Agreement at Issue under Sakura Group's management, Sakura Group is a party to the License Agreement at Issue, and that, since Sakura Group returned the above Japanese trademark rights to the Plaintiff on October 19, 2020, Oji likewise assigned the Claimed Mark to the Plaintiff.¹⁴⁾ However, as examined above, the Plaintiff did not acquire the copyright on the Angel Figure at Issue. Even assuming, for the sake of argument, that the Plaintiff's assertions are accurate, it would have been legitimate for Sakura Group to be the contracting party to the license agreements with various brands while it owned the Japanese Trademarks. However, the license agreements submitted by the Plaintiff identify the Plaintiff—not Sakura Group—as the contracting party. As such, it is

14) See the brief dated September 5, 2023, pp.4,5,26.

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clear that the Plaintiff's filing of applications for the registration of the Japanese Trademarks and its use of the Prior-Used Marks outside the scope of the Music Production Service Agreement at Issue, prior to entering into the License Agreement at Issue, lack legal justification.

D. Summary of Discussion

Summarizing the foregoing, the Claimed Mark is identical or similar to the Prior-Used Marks that, at the time of the application, were recognized by consumers at home and abroad as indicating B's goods. Moreover, the Plaintiff and Oji, the agent of the Plaintiff, applied for Claimed Mark registration with an unlawful purpose, thereby falling under Article 34(1)(xiii) of the Trademark Act.

4. Whether the Mark Falls under Article 34(1)(xx) of the Trademark Act

A. Relevant Law

1) Article 34(1)(xx) of the Trademark Act stipulates that any trademark for the registration of which an applicant applies on goods, which is identical or similar to such trademark, while he or she is aware that another person uses or intends to use the trademark through a contractual relationship, such as partnership or employment, or business transactional relationship, or any other relationship, shall not be registered. The purport of this provision is to prohibit a person, who becomes aware of a trademark that another person uses or intends to use (hereinafter the "Prior-Used Mark") through a contractual relationship, but who is not entitled to register the mark, attempts to file an application for a mark identical or similar to the Prior-Used Mark on identical or similar goods in breach of the principle of good faith. Whether another person or the applicant is entitled to obtain trademark registration for the Prior-Used Mark should be determined by comprehensively considering the following matter: the parties'

internal relationship, the history of the development, selection, and use of the Prior-Used Mark, and the person who controls the use of the Prior-Used Mark or manages the nature or quality of the goods bearing the Prior-Used Mark if it is in use. (Supreme Court Decisions 2019Hu10739, decided September 3, 2020; 2020Hu10827, decided November 5, 2020).

2) The person granted rights to a Prior-Used Mark should be determined by comprehensively examining specific internal relations among the relevant parties concerning the selection and use of the Prior-Used Mark. Further, if there is a person who, under a license agreement, etc., has controlled the use of the Prior-Used Mark or exercised quality control over the goods bearing the Prior-Used Mark besides the user of the Prior-Used Mark, that person shall be regarded as the right holder of the Prior-Used Mark, not the user of the said mark. (Supreme Court Decision 2011Hu1159¹⁵), decided March 14, 2013).

3) Whether the case falls under Article 34(1)(xx) of the Trademark Act should be determined considering the date of filing the application for trademark registration (in the proviso of Article 34(2)), and whether the trademark applicant constitutes the “other person” under the same subparagraph should be determined by the time of the decision to register the mark (in the main clause of Article 34(2)).

B. Discussion

Upon considering all of the acknowledged facts and evidence established above, the following circumstances can be identified.

15) Although this precedent concerns the second sentence of Article 7(1)(xi) of the Old Trademark Act (regarding trademarks likely to deceive consumers), which corresponds to the second sentence of Article 34(1)(xii) of the current Trademark Act its legal principle is equally applicable to the determination of the legitimate rights holder of Prior-Used Marks under Article 34(1)(xx) of the Trademark Act.

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1) The Existence of Reliance, such as a Contractual Relationship or a Business Transactional Relationship

a) On December 8, 2010, B entered into the License Agreement at Issue with Sakura Group, under which B granted Sakura Group an exclusive license to use B's name and images, including the Angel Figure at Issue, which B had created and owned.

b) The Plaintiff, which is a substantially identical company to Sakura Group, entered into the sublicense agreements with Oji based on the License Agreement at Issue. Oji, who directly applied for registration of the Claimed Mark, submitted a copy of the License Agreement at Issue and related materials during the examination

process for the application of the mark  "Mark Gonzales".
©2011 MARK GONZALES

c) Accordingly, the Plaintiff and Oji, through their contractual or business transactional relationships, were aware that B was the licensor of the Angel Figure at Issue and that, upon termination of the License Agreement at Issue, they were under a contractual obligation or the principle of good faith to return all IP rights registered for the performance of the License Agreement at Issue to B.

2) Whether the Plaintiff Knew that the Prior-Used Marks Were Used or Intended to be Used by Another Person

a) According to the above established facts, the Prior-Used Marks used onto the products by Sakura Group, the licensee under the License Agreement at Issue (or by the Plaintiff, regarded as identical thereto), and by the sublicensees should be regarded as having been used by B, the licensor. Even if viewed otherwise, the License Agreement at Issue was about to expire on December 31, 2020, after the maximum renewal period of ten years, and it is easily expected that, upon termination of the License Agreement at Issue, B would use

the Prior-Used Marks directly or through a third party.

b) Moreover, B used the Prior-Used Marks as a source-identifying mark for its own products in collaboration with Adidas and others, regardless of the Plaintiff or Sakura Group, and the Plaintiff and Oji seemed to have been well aware of these circumstances.

c) Therefore, it is reasonable to conclude that both the Plaintiff, as a real party in interest of the License Agreement at Issue and as the substantially identical company to Sakura Group, and Oji, as a sublicensee, who was entrusted to file an application of the Claimed Mark, were well aware of the fact that the Prior-Used Marks were all used by B or being prepared for use by D after the termination of the License Agreement at Issue.

3) Identity and Similarity of the Marks and Goods

As discussed above, the Claimed Mark and the Prior-Used Marks are similar in their trade dress, and the designated goods of the Claimed Mark and the goods on which the Prior-Used Marks were used are likewise similar.

C. Summary of Discussion

In light of these circumstances, both the Plaintiff and Oji, who acted under the Plaintiff's delegation, were well aware—through their contractual and business transactional relationship, etc., with B—that B was using or preparing to use the Prior-Used Marks, and that they had been granted a right to register the marks under the License Agreement at issue only temporarily, and shall return such rights to B upon the termination of the said agreement. Therefore, Sakura Group, and the Plaintiff, and Oji, applied for registration of marks identical or similar to the Prior-Used Marks used on the identical or similar goods, despite being aware that they were not eligible to obtain the registration of the Prior-Used Marks, violating the principle of good

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faith in their relationship with B. Accordingly, the Claimed Mark falls within Article 34(1)(xx) of the Trademark Act.

5. Conclusion

The Plaintiff's claim to reverse the IPTAB Decision is without merit and therefore shall be dismissed. It is decided as ordered.

Presiding Judge	Taeksoo JUNG
Judge	Sook Yeon LEE
Judge	Jiyoung YI

**IP HIGH COURT OF KOREA
FOURTH-SECOND DIVISION
DECISION**

Case No.	2022Heo5690 Cancellation of Registration (Trademark)
Plaintiff	Kyungcheon Foods Co., Ltd. Representative Internal Director B Counsel for Plaintiff You Me Patent & Law Firm Patent Attorney in Charge Kim Dong-gyun, Won Jun-ho
Defendant	Gwangcheon Fisheries Cooperative Cooperation Representative D Counsel for Defendant Seah International Patent & Law Office Patent Attorney in Charge Song Yun-gi, Seo Bong-sik
Date of Closing Argument	October 6, 2023
Decision Date	November 8, 2023

ORDER

1. The IPTAB Decision 2020Dang3393 on October 12, 2022, shall be reversed.
2. Costs shall be borne by the Defendant.

DEMAND FOR RELIEF

As ordered.

OPINION

1. Background

A. Positions of the Defendant

The Defendant is a fisheries cooperative corporation established pursuant to Article 9-2 of the former Fisheries Act (prior to its comprehensive amendment by Act No. 8377 on April 11, 2007).¹⁾ It engages in the manufacturing and marketing of Product C and other business activities related to the Registered Collective Mark.

B. Registered Collective Mark for a Geographical Indication (hereinafter the “Registered Collective Mark”)

1) Registration Number / Application Date / Registration Date /
Registration Decision Date: the Registered Collective Mark No. 268 /
September 13, 2012 / July 29, 2014 / July 17, 2014

2) Mark: 

3) Designated Goods: Class 29 of the Nice Classification —
Roasted and Seasoned Laver Sheets

4) Holder of the Geographical Indication Collective Mark:
Defendant

1) On April 1, 2009, the Act on Fostering and Supporting Agricultural and Fisheries Business Entities (hereinafter the “Agricultural and Fisheries Business Entities Act”) was enacted by Act No. 9620, and Article 3 of its Addenda provides that a fisheries cooperative cooperation established under the former Fisheries Act prior to the enactment of the above Act shall be deemed a fisheries cooperative cooperation under the Agricultural and Fisheries Business Entities Act. Accordingly, the Defendant is a fisheries cooperative cooperation under the Agricultural and Fisheries Business Entities Act.

C. Marks in Actual Use²⁾

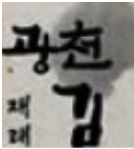
1) Gwangcheon Gim, Changdeok Foods, and Gwangcheon Joyang Foods Corporation (CEO: H), Byeol Foods Corporation, Gwangcheon Seasoned Laver Corporation, Gwangcheon Our Flavor Laver Agricultural Corporation (hereinafter “Gwangcheon Our Flavor Laver”)³⁾ are cooperative members of the Defendant and non-exclusive licensees of the Registered Collective Mark.

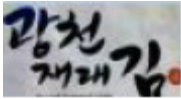
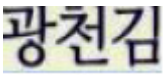
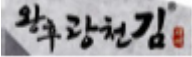
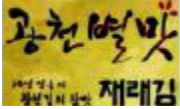
2) The marks in actual use, the corresponding products, and the periods of use by Gwangcheon Gim, Changdeok Foods, and Gwangcheon Joyang Foods Corporation, (CEO: H), Byeol Foods Corporation, Gwangcheon Seasoned Laver Corporation, and Gwangcheon Our Flavor Laver are set forth in the following table:

Member who used the mark	Marks in actual use (No.)	Goods	Period of use	Evidence (including branch numbers)
Gwangcheon Gim Corporation	1. 	Roasted and seasoned laver	August 28, 2019-January 11, 2020	Plaintiff's Exhibit 7, 9, 11, and 14
		Seasoned laver flakes	February-October 2019	Plaintiff's Exhibit 22
		Gimbap laver sheets	April-July 2020	Plaintiff's Exhibits 23 through 25

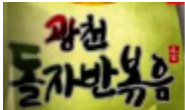
-
- 2) The Defendant does not dispute the marks actually used by its members or the periods during which such marks were used, as asserted by the Plaintiff (see the record for Trial No. 2 dated May 24, 2023).
- 3) It appears to be Our Flavor Laver Corporation (Woori Store) in the Defendant's member roster (Plaintiff's Exhibit No. 5).

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Member who used the mark	Marks in actual use (No.)	Goods	Period of use	Evidence (including branch numbers)
		Roasted paddle weed sheets	March-May 22, 2020	Plaintiff's Exhibits 26 and 27
	2. 	Roasted and seasoned laver sheets	May 7, 2019	Plaintiff's Exhibit No.7
	3. 	Roasted and seasoned laver sheets	February 4, 2020	Plaintiff's Exhibit No.10
	4. 	Roasted and seasoned laver sheets	December 8, 2018	Plaintiff's Exhibit No.8
Changdeok Foods	5. 	Roasted and seasoned laver sheets	August 13, 2020	Plaintiff's Exhibit No.13
	6. 			

Member who used the mark	Marks in actual use (No.)	Goods	Period of use	Evidence (including branch numbers)
	7. 			
	8. 			
Gwangcheon Joyang Foods	9. 	Roasted and seasoned laver sheets	August 25, 2020	Plaintiff's Exhibit No.15
	10-1. 광천조양김 10-2. 광천조양조미구이김	Roasted laver sheets	August 14, 2020	Plaintiff's Exhibit No.28
Byeol Foods Corporation	11. 	Roasted and seasoned laver sheets	May 9, 2019	Plaintiff's Exhibit No.17
	12. 			

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Member who used the mark	Marks in actual use (No.)	Goods	Period of use	Evidence (including branch numbers)
Gwangcheon Seasoned Laver Corporation	13. 	Seasoned laver flakes	April 2020-July 2021	Plaintiff's Exhibits No.18, 19, and 62
	14. 	Laver powder	April 2020-January 2021	Plaintiff's Exhibits No.20, 21, and 63
Gwangcheon Our Flavor Laver	15. 	Seasoned laver flakes	September 2018-May 2020	Plaintiff's Exhibit No. 133-2
	16. 	Roasted laver sheets (without green laver) Seasoned laver flakes	February 2018-January 2019	Plaintiff's Exhibits No.64, 65, and 134

D. Procedural History

1) The Plaintiff filed a petition for cancellation with the IPTAB against the Defendant on November 12, 2020, asserting that the Registered Collective Mark falls within the following grounds for cancellation and should be cancelled: (1) It falls under Article 73(1)5 of the former Trademark Act (prior to the full amendment by Act No.

14033 on February 29, 2016, the same shall apply)⁴⁾, in that “a member of the association used the collective mark in violation of the association’s articles of incorporation, thereby misleading consumers as

4) Article 73 of the former Trademark Act (Trial for Reversal of Trademark Registration)

(1) Where a registered trademark falls under any of the following subparagraphs, a trial for reversal of trademark registration may be requested:

2. Where a trademark rights holder intentionally uses a trademark identical or similar to the registered trademark on the designated goods, or uses the registered trademark or a similar trademark on goods similar to the designated goods, thereby misleading consumers as to the quality of the goods or causing confusion with goods related to another person’s business;

5. Where, with respect to a collective mark, a member of the relevant organization allows another person to use the collective mark in violation of the organization’s articles of association, or a member uses the collective mark in violation of the articles of association and thereby misleads consumers as to the quality or geographical origin of the goods or causes confusion with goods related to another person’s business: *Provided*, That this shall not apply where the owner of the collective mark right has exercised due and reasonable supervision over the member;

8. Where an exclusive or non-exclusive licensee uses the registered trademark or a similar trademark on the designated goods or similar goods and thereby misleads consumers as to the quality of the goods or causes confusion with goods related to another person’s business: *Provided*, That this shall not apply where the trademark right holder has exercised due and reasonable supervision;

11. Where, after the registration of a geographical collective mark, the owner of the geographical collective mark right, through the articles of association of the relevant organization, prohibits any person engaged in producing, manufacturing, or processing designated goods eligible for the geographical indication from joining the organization, imposes excessively strict conditions of entry that effectively preclude others from joining, or allows any person disqualified from using the geographical indication to join the organization;

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to the quality or geographical origin of the goods,” such as by failing to use the raw materials for seasoned laver specified in the Defendant’s articles of incorporation; (2) It falls under Article 73(1)11 of the same Act, in that the Defendant association allowed “persons ineligible to use the relevant geographical indication to join the organization,” namely, persons whose principal place of business or main factory is not located in Gwangcheon-eup to join the association; (3) It falls under Article 73(1)2 of the same Act, “where a trademark right holder willfully uses the registered trademark or a similar trademark on the designated goods in a manner that causes consumers to be misled as to the quality of the goods or confused with goods related to another person’s business” in that the Registered Collective Mark was used not on its designated goods, “roasted and seasoned laver sheets,” but on a similar product, “gimbap laver sheets”; and (4) It falls under Article 73(1)8 of the same Act, “where a non-exclusive licensee uses the registered trademark or a similar trademark on the designated goods or goods similar thereto in a manner that misleads consumers as to the quality of the goods.”

2) The IPTAB examined the case under No. 2020Dang3393 and rendered a decision on October 12, 2022, dismissing the Plaintiff’s petition for trial on the ground that the Registered Collective Mark does not fall under Articles 73(1)5, 11, 2, or 8 of the former Trademark Act.

【Factual basis】 The undisputed facts, statements and video clips in Plaintiff’s Exhibits No. 1 through 11, 13 through 15, 17 through 28, 62 through 65, 133, and 134 (including branching numbers, the same shall apply hereinafter) and Defendant’s Exhibits No.1, 2, and 7, and the purport of the overall argument

2. Summary of Parties’ Arguments

A. Plaintiff

The Registered Collective Mark must have its registration cancelled for the following reasons:

1) Violation of Article 119(1)2 of the Trademark Act⁵⁾

5) Article 119 of the Trademark Act (Trial to Reverse Trademark Registration)

(1) Where a registered trademark falls under any of the following circumstances, a trial to reverse the trademark registration may be requested:

1. Where a trademark right holder intentionally uses a trademark identical or similar to the registered trademark on the designated goods, or uses the registered trademark or a similar trademark on goods similar to the designated goods, thereby misleading consumers as to the quality of the goods or causing confusion with goods related to another person's business;

2. Where an exclusive or a non-exclusive licensee uses the registered trademark or a similar trademark on the designated goods or goods similar thereto in a manner that misleads consumers as to the quality of the goods or causes confusion with goods related to another person's business: *Provided*, That the foregoing shall not apply where the trademark right holder has exercised due and reasonable care;

7. Where a collective mark falls under any of the following circumstances:

(a) Where a member of the organization allows another person to use the collective mark in violation of the articles of incorporation, or uses the collective mark in violation of the articles of incorporation and thereby misleads consumers as to the quality of the goods or the source of the geographical indication, or causes confusion with goods related to another person's business: *Provided*, That the foregoing shall not apply where the holder of the collective mark right has exercised due and reasonable supervision over its members;

(c) Where, even though a third party misleads consumers as to the quality of the goods or the source of the geographical indication, or causes confusion with goods related to another person's business by using the collective mark, the holder of the collective mark right willfully fails to take appropriate measures;

8. Where a geographical indication collective mark falls under any of the following circumstances:

(a) In connection with an application for registration of a collective mark

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(corresponding to Article 73(1)8 of the former Trademark Act)

Although the designated goods for the Registered Collective Mark are “roasted and seasoned laver sheets,” certain members of the association used the Registered Collective Mark, or marks in actual use similar thereto, on similar goods such as “seasoned laver flakes, gimbap laver sheets, laver powder, roasted laver sheets, roasted paddle weed sheets, etc.” As a result, consumers were misled as to the quality of the goods, and the Defendant failed to exercise due and reasonable care in supervising its members.

2) Violation of Article 119(1)7(a) of the Trademark Act (Article 73(1)5 of the former Trademark Act)

Certain members of the Defendant association used the collective mark in violation of the articles of incorporation as set forth below, thereby misleading consumers as to the quality or geographical origin of the goods, and the Defendant failed to exercise due and reasonable care in supervising its members.

a) Though only persons who produce laver within the administrative district specified in the Defendant’s articles of incorporation (Gwangcheon-eup) are qualified to become members of the association, certain members, including Gwangcheon Gim Corporation (with factories located in P-myeon, O-gun, N, and in R-gu, Q-si) and Changdeok Foods (with a factory located in T-myeon, S-si, N), produced roasted and seasoned laver sheets outside the

with a geographical indication, where the articles of incorporation of the organization effectively prevent eligible persons from joining the organization, such as by prohibiting membership, imposing impracticable conditions for entry, or allowing a person ineligible to use the relevant geographical indication to join the organization;

(b) Where the holder of the collective mark right with a geographical indication or a member of the organization uses the collective mark in violation of Article 223, thereby misleading consumers as to the quality of the goods or causing confusion as to the source of the geographical indication;

Gwangcheon-eup area while nonetheless using the Registered Collective Mark.

b) According to the Defendant's articles of incorporation and the annex thereto, the designated goods of the Registered Collective Mark, namely roasted and seasoned laver sheets, must be produced using "raw laver harvested in the West Coast region or in the vicinity of Gwangcheon," and must be seasoned exclusively with "domestic solar salt" and "sesame oil made from domestically produced sesame seeds." Nevertheless, certain members of the Defendant used laver sourced from the South Coast region and used refined salt, flavored salt, foreign solar salt, and foreign sesame oil instead of the prescribed domestic solar salt and sesame oil.

3) Violation of Article 119(1)7(c) of the Trademark Act (corresponding to Article 73(1)10 of the former Trademark Act)

a) Only persons who produce roasted and seasoned laver sheets within the Gwangcheon area are eligible to become members of the Defendant association. However, the Defendant admitted Gwangcheon Gim and Jungang Foods Corporation and, Premium Foods Corporation, all having addresses in P-myeon, O-gun, as well as Changdeok Foods, having an address in T-myeon, S-si. These entities therefore lacked eligibility for membership, and their use of the Registered Collective Mark constitutes use of a collective mark by third parties. As a result, consumers were misled as to the quality or geographical origin of the goods or to confused with goods related to another's business, and the Defendant, despite being fully aware of these circumstances, failed to take any corrective action.

b) As the Defendant has itself acknowledged that Jungang Foods Corporation has never undergone the formal procedures to join the Defendant association, and the entry for "Jungang Foods Corporation" in the member roster (Plaintiff's Exhibit No. 33) is a typo for "Jungang Foods," it is clear that Jungang Foods Corporation

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is not a member of the Defendant association. Nevertheless, Jungang Foods Corporation sold roasted and seasoned laver sheets and related products bearing the Registered Collective Mark through online shopping malls and other distribution channels, and the Defendant, despite being fully aware that Jungang Foods Corporation was not a member, willfully failed to take appropriate measures.

4) Violation of Article 119(1)8(a) of the Trademark Act (corresponding to Article 73(1)11 of the former Trademark Act)

Under the Defendant's articles of incorporation, only "persons who produce roasted and seasoned laver sheets within Gwangcheon-eup" are eligible to become members of the association. Nevertheless, the Defendant permitted the membership of Gwangcheon Gim Corporation, Jungang Foods Corporation, and Premium Foods Corporation, each having an address in P-myeon, O-gun, and of Changdeok Foods, having an address in T-myeon, S-si, all of which are located outside Gwangcheon-eup. The Defendant further permitted the membership of Changdeok Foods, Jungang Foods Corporation, and Premium Foods Corporation, despite the fact that none of these entities had "ever produced roasted and seasoned laver sheets" within the Gwangcheon-eup area. This conduct constitutes permitting the admission into the association of persons not entitled to use the relevant geographical indication.

B. Defendant

1) All of seasoned laver flakes, laver powder, gimbap laver sheets, and roasted laver sheets fall within the designated goods of "roasted and seasoned laver sheets," for which the Registered Collective Mark is registered. Accordingly, the Defendant's members used the Registered Collective Mark on the designated goods, and such use does not give rise to any legal issue. Conversely, if, as the Plaintiff contends, these products do not fall within the category of roasted and seasoned laver sheets, there would be no likelihood of

mistake or confusion between the goods, and thus no risk that consumers would be misled as to the quality of the goods. Moreover, roasted paddle weed sheets differ from roasted and seasoned laver sheets in terms of raw materials and manufacturing processes, and there is no likelihood that consumers would confuse the two or be misled as to their quality.

2) The origin of goods using a geographical indication may be determined by natural factors such as climate, soil, and topography, or by human factors, and does not necessarily have to coincide with administrative boundaries. Both Gwangcheon Gim Corporation and Changdeok Foods have factories located in the vicinity of the Gwangcheon Stream, which flows through Gwangcheon-eup, and they produce roasted and seasoned laver sheets in that area. It is true that certain members of the Defendant did not use domestic solar salt or domestic sesame oil. However, because solar salt is coarse and contains numerous impurities, it is unsuitable for roasted and seasoned laver sheets, and practical manufacturing considerations require the use of refined salt. The annex to the articles of incorporation contains errors that fail to reflect these practical realities. Moreover, although the annex refers to “domestically produced sesame seeds,” this appears to be merely a clerical error in light of the other entries in the annex. Even if certain members failed to comply with the articles of incorporation, such circumstances do not constitute a material defect sufficient to justify cancellation of the registration of the Registered Collective Mark.

3) The Plaintiff further asserts that Jungang Foods Corporation is a member of the Defendant association. However, Jungang Foods Corporation has never undergone the formal procedures required to join the Defendant association, and the entry “Jungang Foods Corporation” in the member roster (Plaintiff’s Exhibit No.33) submitted by the Plaintiff is merely a clerical error made in mistake for “Jungang Foods.” Accordingly, this circumstance likewise does not

fall under Article 119(1)8(c) of the Trademark Act.⁶⁾

4) The Plaintiff further argues that the Defendant permitted Jungang Foods, Premium Foods Corporation, Changdeok Foods, and Gwangcheon Gim Corporation to join the association even though their businesses were not being located in the Gwangcheon area. However, Jungang Food, Premium Foods Corporation, and Changdeok Foods had already been members of the Defendant association prior to the registration of the Registered Collective Mark, and Gwangcheon Gim Corporation, at the time of its admission to the association, was producing roasted and seasoned laver sheets at a factory with an address in Gwangcheon-eup. Accordingly, this circumstance likewise does not fall under Article 119(1)8(a) of the Trademark Act.

3. Whether the Case Falls under Article 119(1)2 of the Trademark Act

A. Plaintiff's Arguments

Gwangcheon Seasoned Laver Corporation, Gwangcheon Gim Corporation, and Gwangcheon Joyang Foods, which are members of the Defendant association and non-exclusive licensees of the Registered Collective Mark, used the Registered Collective Mark on “seasoned laver flakes, laver powder, gimbap laver sheets, roasted paddle weed sheets, and roasted laver sheets,” which are goods similar to the designated goods, namely, “roasted and seasoned laver sheets.” As a result of such use, consumers were misled as to the quality of the goods, and therefore falls under Article 119(1)2 of the Trademark Act.

B. Relevant Law

Article 119(1)2 of the Trademark Act provides that where an

6) The Defendant's Statement of Arguments (Summary of Issues), dated August 9, 2023, p.13.

exclusive licensee or a non-exclusive licensee (hereinafter the “Licensee”) uses the registered trademark or a similar mark on the designated goods or similar goods thereto in a manner that misleads consumers as to the quality of the goods or causes confusion with goods related to another person’s business, the trademark registration may be cancelled. The purpose of this provision is to allow the trademark owner to freely establish licenses, while imposing a duty to supervise licensees so as to prevent licensees from improperly using the registered trademark beyond the scope of their license in a manner that runs counter to the original purpose of the trademark system. By doing so, it seeks to ensure the safety of commercial transactions, prevent acts that take advantage of the credit or reputation of another’s trademark, and protect the interests of traders and consumers, as well as safeguard the business credit and rights of other trademark users (*see* Supreme Court Decision 2017Hu2178, decided February 13, 2020, etc.).

Accordingly, for Article 119(1)2 of the Trademark Act to apply, (i) an exclusive or non-exclusive licensee must have used the registered trademark or a similar mark on the designated goods or goods similar thereto, and (ii) as a result, there must be a likelihood that consumers will be misled as to the quality of the goods or confused with goods related to another’s business.

The phrase “where consumers are misled as to the quality of the goods” encompasses not only cases in which the trademark actually used by an exclusive or non-exclusive licensee causes consumers to mistake the quality of another person’s goods bearing a confusingly similar mark, but also cases in which, based on the composition of the mark as actually used, there exists a likelihood that consumers will be led to believe that the designated goods possess characteristics different from those they inherently have. This includes not only misapprehension as to the quality, raw materials, efficacy, or use of the goods, but also misapprehension as to their place of origin (*see* Supreme Court Decision 2002Hu2457, decided July 11, 2003, etc.).

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Meanwhile, for a trademark owner to be deemed to have exercised due care with respect to improper use of the registered trademark by an exclusive or non-exclusive licensee, it is insufficient merely to caution or warn the licensee against engaging in acts that cause mistake or confusion. Rather, the trademark owner must be in a position where it can be assessed as exercising effective control over the licensee's use of the trademark, such as by regularly supervising the actual state of use. The burden of proof on this point rests with the trademark owner (*see* Supreme Court Decision 2009Hu3329, decided April 15, 2010, etc.).

C. Established Facts

Based on the facts not in dispute between the parties, the facts previously established, the evidence cited above, and the overall purport of the arguments, the following facts are recognized⁷⁾:

1) Gwangcheon Gim Corporation used the “” mark on “seasoned laver flakes” from around February to October 2019, on “gimbap laver sheets” from around April to July 2020, and on “roasted paddle weed sheets” from around March to May 22, 2020.

7) The Defendant acknowledged that it does not dispute the marks actually used, the goods on which those marks were used, or the periods of use as asserted by the Plaintiff (see Record for Trial 2).

“Seasoned laver flakes” product by Gwangcheon Gim Corporation (Plaintiff’s Exhibit No.22)	“Gimbap laver sheets” product by Gwangcheon Gim Corporation (Plaintiff’s Exhibits No. 23 through 25)	“Roasted paddle weed sheets” product by Gwangcheon Gim Corporation (Plaintiff’s Exhibits No. 26 and 27)
		

2) Gwangcheon Joyang Foods, around August 14, 2020, introduced its product using “**광천조양김, 광천조양조미구이김**” in the detailed information section for the “roasted laver sheets” product.

“Roasted laver sheets” product by Gwangcheon Joyang Foods (Plaintiff’s Exhibit No.28)

조미김 조미김

광천조양조미구이김

조미김(조미김)과 김(조미김) 구운 조미김(조미김)

정가	11,000 원
구분별인가	10,450 원
제품명	30 / 박
주요성분	광천조양김
원산지	국내
인증	식약처 HACCP

광천조양김을 맛있게 드시는 방법

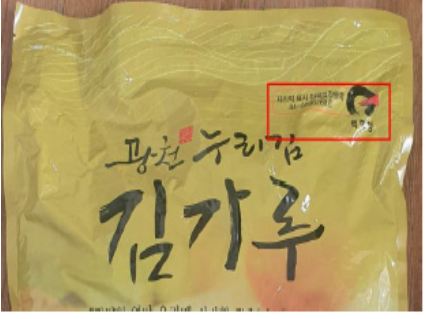
섭취방법

01. 2장씩 밥에 싸 드시면 더욱 맛있어 보입니다.
02. 드시다 남은 김은 밀폐용기에 습기 제거제와 함께 보관하시면 신선도가 유지됩니다.
03. 조미김을 익힌 비닐봉투에 여러 장 넣고 손으로 부수면 고명 또는 주먹밥에 이용 가능합니다.

※ 바깥 서랍에서 직사광선과 습기 찬 곳을 피해 서늘한 장소에 보관하세요.

3) Gwangcheon Seasoned Laver Corporation, from around April 2020 to July 2021 for its “seasoned laver flakes” product, and from around April 2020 to January 2021 with respect to its “laver powder” product, used the marks in actual use shown below together with the registration number of the Registered Collective Mark, namely, “Collectively Registered Mark with Geographical Indication No. 44-0000268,” affixed to the labels of each of the above products.

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“Seasoned laver flakes” product by Gwangcheon Seasoned Laver Corporation (Plaintiff’s Exhibits No.18 and 19)	“Laver power” product by Gwangcheon Seasoned Laver Corporation (Plaintiff’s Exhibits No.20 and 21)
	

4) From September 2018 to May 2020 for its “seasoned laver flakes” product, and from February 2018 to January 2019 for its “roasted laver sheets” product, Gwangcheon Our Flavor Laver used the marks actually used, as shown below, by affixing them to the product labels or by posting them together with product photographs on online sales websites.

“Seasoned laver flakes” product by Gwangcheon Our Flavor Laver (Plaintiff’s Exhibits No.39-2 and 133)	“Roasted laver sheets” product by Gwangcheon Our Flavor Laver (Plaintiff’s Exhibits No.39-2, 64, 65, and 134)
	

D. Whether the Registered Collective Mark And the Marks in Actual Use Are Identical or Similar

Member who used the mark	Marks in actual use (No.)	Goods	Period of use	Evidence (including branch numbers)
Gwangcheon Gim Corporation	1.	Seasoned laver flakes	February - October 2019	Plaintiff's Exhibit No.22
		Gimbap laver sheets	April 2020 - July 2020	Plaintiff's Exhibits No.23 through 25
		Roasted paddle weed sheets	March - May 22, 2020	Plaintiff's Exhibits No.26 and 27
Gwangcheon Joyang Foods	10-1. 10-2.	Roasted laver sheets	August 14, 2020	Plaintiff's Exhibit No.28
Gwangcheon Seasoned Laver Corporation	13.	Seasoned laver flakes	April 2020 - July 2021	Plaintiff's Exhibits No.18, 19, and 62
	14.	Laver powder	April 2020 - January 2021	Plaintiff's Exhibits No.20, 21, and 63
Gwangcheon Our Flavor Laver	15.	Seasoned laver flakes	September 2018 - May 2020	Plaintiff's Exhibit No.133-2

Member who used the mark	Marks in actual use (No.)	Goods	Period of use	Evidence (including branch numbers)
	16. 	Roasted laver sheets	February 2018 - January 2019	Plaintiff's Exhibits No.64, 65, and 134

1) Whether the Marks are Identical or Similar

a) Although Mark in Actual Use 1, used by Gwangcheon Gim Corporation, and Mark in Actual Use 15, used by Gwangcheon Our Flavor Laver, differ in certain respects from the Registered Collective Mark, such as typeface, letter coloration, and the presence or absence of figurative elements, these differences are minor under the customary trade practices, and the marks may therefore be regarded as identical.

b) Whether the Marks in Actual Use 10, 13, 14, and 16 (hereinafter the “Other Marks in Actual Use”) are identical or similar

The Registered Collective Mark, “**광천김**,” consists of the terms “Gwangcheon,” referring to Gwangcheon-eup in the southern part of O-gun, Chungcheongnam-do, and “gim (laver sheet),” a laver belonging to the family *Porphyra*, written side by side without spacing. Among these elements, “gim” merely describes the raw material of the goods and thus lacks distinctiveness, and “Gwangcheon” likewise constitutes nothing more than a well-known geographical name. However, even where a place of origin or prominent geographical name that does not possess distinctiveness as a trademark may nevertheless be registrable as a geographical indication collective mark in order to protect the collective mark holder and traders of the goods, “Gwangcheon” carries relatively greater

distinctiveness than “gim.” Accordingly, it is reasonable to regard “Gwangcheon” as the dominant element of the Registered Collective Mark.

The other marks in actual use are formed by combining relatively short syllabic terms with “Gwangcheon,” and considering the circumstances in which the Defendant’s members, in their actual use of the marks as examined above, have promoted both the Gwangcheon region and the Registered Collective Mark using phrases such as “E made from raw laver harvested in a pristine region,” “C continuing tradition and reputation,” and “C is currently registered as a geographical indication collective mark,” it is concluded that “Gwangcheon” constitutes the dominant element of the marks.

When comparing “Gwangcheon,” the dominant element of the Registered Collective Mark, with the dominant elements of the other marks in actual use, certain visual differences exist in typeface, letter color, and character arrangement. However, because ordinary consumers and traders would pronounce all of the marks identically as “Gwangcheon,” their pronunciation is the same, and they would be understood as referring to “the region located in the southern part of O-gun, Chungcheongnam-do.” Thus, their conceptual meaning is likewise identical. Accordingly, when assessed based on their dominant elements, the Registered Collective Mark and the Other Marks in Actual Use are similar notwithstanding certain visual differences, because their pronunciation and conceptual meaning are identical.

c) Accordingly, the use of each of the above marks in actual use by certain members of the Defendant may be regarded as use of the Registered Collective Mark.

2) Whether the Products are Identical or Similar

When comparing “roasted and seasoned laver sheets,” which is the designated goods of the Registered Collective Mark, with the products used by the Defendant’s members, namely “seasoned laver flakes, laver powder, gimhap laver sheets, and roasted laver sheets,” their

primary ingredient, “laver,” is the same. However, roasted and seasoned laver sheets are produced by washing raw laver, spreading it thinly in sheet form and drying it into dried laver, applying oil and sprinkling salt thereon, and then roasting it over heat. The product is sold either in packaged form as is or after being cut into uniform sizes and packaged, and ordinary consumers typically eat it by wrapping it around rice.

By contrast, seasoned laver flakes are produced by cutting washed raw laver into large pieces, drying them in a thick and loose form, and then stir-frying them with seasonings such as soy sauce. Ordinary consumers typically sprinkle them over rice. Laver powder is produced by crushing or finely cutting roasted and seasoned laver sheets into small pieces and packaging them, and it is likewise typically sprinkled over rice. “Roasted laver sheets” are produced by toasting dried laver without the application of sesame oil or salt, and ordinary consumers generally eat it in the same manner as “roasted and seasoned laver.” “Roasted paddle weed sheets” share with “roasted and seasoned laver sheets” the fact that their primary ingredient is “laver” and that they are produced through a roasting. However, the former does not undergo seasoning with oil or salt, and there are significant differences in both the form and use of the finished product.

Accordingly, “seasoned laver flakes, laver powder, gimhap laver sheets, roasted laver sheets, and roasted paddle weed sheets” constitute goods similar to “roasted and seasoned laver sheets,” the designated goods of the Registered Collective Mark.

3) Discussion on the Defendant’s Arguments

The Defendant contends that the products such as “seasoned laver flakes, laver powder, gimhap laver sheets, and roasted laver sheets” are encompassed within the designated goods, namely, “roasted and seasoned laver sheets,” of the Registered Collective Mark, and that the Defendant’s members therefore used the Registered Collective Mark on the same designated goods, such that their conduct does not constitute

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improper use of the trademark.

According to the statements and video clips in Plaintiff's Exhibits 31, 33, and 35, the Ministry of Food and Drug Safety classifies foods into three tiers—food group (large category), food class (medium category), and food type (small category)—and, with respect to processed laver products, designates only “seasoned laver” as the applicable food type. “Seasoned laver” is defined as “dried laver that has been roasted or seasoned/processed with edible oils and fats, seasonings, salt, etc.” It is acknowledged that the packaging of products such as gimhap laver sheets and seasoned laver flakes likewise identifies their food type as “seasoned laver.”

However, this reflects nothing more than a classification made pursuant to the Ministry of Food and Drug Safety, and the indication on the packaging alone does not suffice to regard “seasoned laver flakes, laver powder, gimhap laver sheets, or roasted laver sheets” as falling within the designated goods of the Registered Collective Mark. Furthermore, for the Defendant's assertion to be valid, the Defendant's articles of incorporation and annex thereto would have needed to set forth the quality characteristics and processing methods for “seasoned laver flakes, laver powder, gimhap laver sheets, roasted laver sheets,” and the like, yet the “specific quality/reputation of the goods” and “C processing method” contained in the Defendant's articles of incorporation and its annex appear to presuppose only “roasted and seasoned laver sheets.” Accordingly, the Defendant's assertion is without merit.

4) Whether There was Misconception of Quality and the Defendant Exercised Due Care

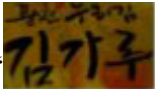
In light of the facts previously established, the evidence cited above, and the statements and video clips contained in Plaintiff's Exhibits No. 19, 22, and 24, as well as the overall purport of the arguments, the following facts and circumstances are recognized: By using marks identical or similar to the Registered Collective Mark on goods similar

to the designated goods “roasted and seasoned laver,” namely, “seasoned laver flakes, laver powder, gimhap laver sheets, roasted laver sheets, and roasted paddle weed sheets,” the Defendant’s members have caused ordinary consumers or traders to perceive such goods as products legitimately entitled to use the Registered Collective Mark.

a) It is established that consumers who purchased the Defendant’s members’ “seasoned laver flakes and gimhap laver sheets” products posted reviews on online shopping sites stating, for example, “As expected, laver sheets and laver flakes must be from Gwangcheon,” “I usually enjoy C and buy it often, and I bought this because I wanted to make rice balls with laver flakes. As expected, it’s so delicious,” and “I purchased it believing it was the famous C.” In light of these facts, it is determined that ordinary consumers or traders could readily be misled into believing that the Registered Collective Mark was legitimately used on the “seasoned laver flakes and gimhap laver sheets” products.

b) A “geographical indication collective mark” is a system that allows registration even of a place of origin or a well-known geographical name that inherently lacks distinctiveness as a trademark, where the quality, reputation, or other characteristics of the goods essentially originate from a specific region. By permitting such marks to be registered as collective marks with geographical indication, the system seeks both to maintain the business credibility of the collective mark holder and its members, and to protect traders and consumers of goods using the geographical indication (see IP High Court Decision 2022Heo4376, decided4376e 30, 2023). Gwangcheon Seasoned Laver

Corporation, in using marks in actual use such as “” and

“” on its “seasoned laver flakes and laver powder”

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products, also used the registration number of the Registered Collective Mark, namely the “Collectively Registered Mark with Geographical Indication No. 44-0000268.” Ordinary consumers or traders could readily be misled into believing that goods bearing these marks in actual use also possess the quality associated with the Registered Collective Mark as a geographical indication collective mark.

c) In response, the Defendant argues that roasted and seasoned laver sheets and roasted paddle weed sheets are clearly distinguishable in appearance, and therefore, even if the Registered Collective Mark was used on “roasted paddle weed sheets” products, there is no likelihood that consumers would be misled as to the quality of the goods.

There is no dispute between the parties that roasted and seasoned laver sheets and roasted paddle weed sheets are clearly distinguishable in appearance. However, a geographical indication collective mark is a system that exceptionally permits registration of a prominent geographical name that otherwise would not be registrable as a trademark, in consideration of the unique production methods, ingredients, and the like indigenous to the relevant region. Consequently, while use of the mark is permitted only to members of the association, those members must strictly comply with the distinctive production methods and other requirements set forth in the association’s articles of incorporation. As a result, ordinary consumers and traders come to rely on the belief that products bearing a geographical indication collective mark are manufactured based on the association’s unique production methods and ingredient selection. Accordingly, whether consumers are misled as to the quality of goods in relation to the use of a geographical indication collective mark does not depend on whether the outward appearance of the goods is identical or similar. If the Registered Collective Mark, “C,” is used on roasted paddle weed sheets products, consumers would inevitably assume that roasted paddle weed sheets are likewise a product permitted to bear the Registered Collective Mark, and thus there exists

ample likelihood that they would be misled into believing that it is produced using the Defendant's unique raw materials and production methods as prescribed in its articles of incorporation.

d) Moreover, based solely on the evidence submitted by the Defendant, it is insufficient to evaluate that the Defendant, as the holder of the Registered Collective Mark, effectively had its association members under its control with respect to the use of the Registered Collective Mark, such as by regularly supervising the actual state of its use, nor is there any other evidence sufficient to establish this.

5) Sub-conclusion

Gwangcheon Seasoned Laver Corporation, Gwangcheon Gim Corporation, and Gwangcheon Joyang Foods, which are members of the Defendant and non-exclusive licensees of the Registered Collective Mark, used marks similar to the Registered Collective Mark on goods similar to the designated goods, thereby causing consumers to be misled as to the quality of the goods. This constitutes a circumstance falling under Article 119(1)2 of the Trademark Act.

4. Whether it falls under Article 119(1)7(a) of the Trademark Act⁸⁾

8) Article 119 of the Trademark Act (Trial to Reverse Trademark Registration)

(1) Where a registered trademark falls under any of the following, a trial to reverse the trademark registration may be requested:

7. Where a collective mark falls under any of the following:

(a) Where a member of the organization allows another person to use its collective mark in violation of its articles of incorporation, or causes the misunderstanding of the quality of goods or the source of a geographical indication, or confusion with goods related to another person's business among consumers by using its collective mark in violation of its articles of incorporation: Provided, That the foregoing shall not apply where the holder of the collective mark right pays due attention to supervise its members;

A. Relevant Law

A collective mark is a mark in which the collective entity holds the rights to the mark but allows its members to use it so that the user may indicate that it is a member of the collective entity. However, because, by the nature of a collective mark, the holder of the rights and the actual user are necessarily separated, stricter management is required to ensure that the mark is used legitimately within the scope of rights represented by the collective mark. The Trademark Act, in line with this purpose, includes several provisions governing the legitimate use of collective marks. In particular, Article 119(1)7(a) of the Trademark Act regulates the legitimate use of collective marks by members, prohibiting (i) members from allowing third parties to use the collective mark in violation of the articles of incorporation, and (ii) members from using the collective mark in violation of the articles of incorporation in a manner that causes consumers to be misled as to the quality or “geographical origin” of the goods or confused with goods related to another’s business, except where the collective mark holder has exercised due care in supervising its members. Accordingly, whether a case falls under Article 119(1)7(a)(ii) depends on “use of the collective mark in violation of the articles of incorporation,” “likelihood of mistake or confusion as to quality or geographical origin,” and “whether the collective mark holder exercised due supervision.”

Meanwhile, the question of whether the collective mark holder exercised due care under the proviso to Article 119(1)7(a) of the Trademark Act should, based on the wording of the provision, be regarded as equivalent to the degree of care required of a trademark owner under the proviso to Article 119(1)2 (cancellation for improper use of a trademark). Therefore, for the collective mark holder to be deemed to have exercised due care with respect to a member’s use of the collective mark in violation of the articles of incorporation, it is insufficient merely to caution or warn the member not to engage in acts causing mistake or confusion. Rather, it must be to such an extent

that the member can be evaluated as being under the collective mark holder’s effective control regarding the use of the collective mark, such as through regular supervision of the actual state of use. The burden of proof for this lies with the collective mark holder.

B. Established Facts

In light of the above facts established and the evidence presented earlier, together with the statements and video clips in Plaintiff’s Exhibits No. 16 and 139, as well as the entire purport of the overall arguments, the following facts and circumstances are recognized.

1) The Defendant’s articles of incorporation and the annex thereto prescribe the quality standards for the goods on which the Registered Collective Mark, as a geographical indication collective mark, is used, as well as the measures for maintaining the specific quality, reputation, or other characteristics of the goods, as follows:

Articles of Incorporation (Defendant’s Exhibit No. 1)
Article 60 (Quality Control) (1) Members and producers (manufacturers or processors) belonging to the cooperative cooperation <u>shall comply with the “self-management standards” and “maintenance measures”</u> for maintaining the quality characteristics of goods bearing geographical indications. (2) The <u>self-management standards</u> concerning the specific quality or reputation of the C goods eligible to use the geographical indication collective mark under the Trademark Act, the geographical environmental factors of the Gwangcheon area associated with such characteristics, the designated area for the geographical indication, the quality, etc., and the <u>maintenance measures for such quality shall follow the provisions set forth in the annex to these Articles of Incorporation.</u> (3) The <u>annex to the articles of incorporation</u> prescribed in paragraph (2) shall be <u>deemed part of the articles of incorporation and shall have the same effect as the articles of incorporation.</u>

Annex concerning the self-management standards for the characteristics and quality of goods subject to the geographical indication
(Plaintiff's Exhibit No. 139, Defendant's Exhibit No. 2)

1. Specific quality, reputation, or other characteristics of the goods
 - 1.1-3. Quality characteristics derived from excellence of raw materials
 - (d) Excellence of raw materials of C
 - Toast twice by applying sesame oil from carefully selected raw materials after rapidly freezing at below -18°C and then pressing on-site, resulting in exceptionally superior taste and aroma.
 - For laver processed in the Gwangcheon area, the type of oil used varies by manufacturer. However, generally, rather than using soybean oil, high-grade oils beneficial to health, such as corn oil, olive oil, and canola oil, are used in processing.
 - Since C processes laver using only domestically produced solar salt harvested from the West Coast, the sodium content per serving is significantly lower than that of seasoned laver sheets produced in other regions that use refined salt or other processed salts.
 - 1.1-4. Quality characteristics arising from the production management process
 - (a) Production management process of C
 - (3) Secondary process: Processing procedures and equipment for seasoned laver
 - 2) C processing procedures
 - (ii) Application of oil
 - Edible oil, such as sesame oil, perilla oil, and corn oil, is applied to the surface of dried laver sheet, and these oils are used either alone or in combination depending on consumers' preferences.
 - By using sesame oil, unlike other regions, a savory taste and aroma suited to traditional Korean preferences are maintained.
 - (iii) Addition of solar salt
 - (beginning omitted) In addition, by using solar salt, the sodium content is approximately 10-20% lower than that of ordinary refined salt.
5. Measures for maintaining the specific quality, reputation, or other characteristics of the goods

[Standards for disposition according to the subject of disposition]

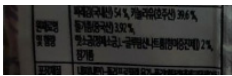
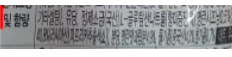
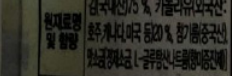
Subject of disposition	Standard of disposition		
	First violation	Second violation	Third violation
Where mandatory collective labeling items are omitted	Corrective order	Suspension of trademark use for one month	Suspension of trademark use for three months
2. Where false labeling or exaggerated labeling inconsistent with the actual contents is made 3. Where the self-quality-management plan for registered goods bearing the geographical indication collective mark C is violated, except as provided in subparagraphs 1, 2, 4, and 5	Suspension of trademark use for three months	Prohibition of trademark use for two years	Expulsion
4. Where the geographical indication collective mark is affixed to laver that does not meet the self-quality-management standards for the registered goods	Suspension of trademark use for three months	Expulsion	—

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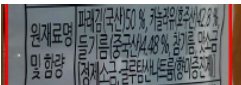
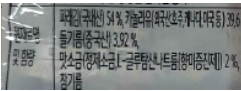
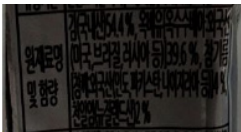
Subject of disposition	Standard of disposition		
	First violation	Second violation	Third violation
bearing the geographical indication collective mark C 5. Where laver not processed in Gwangcheon is mixed into the registered goods bearing the geographical indication collective mark and used as the registered goods bearing the geographical indication collective mark			
6. Where production of the registered goods bearing the collective mark with geographical indication becomes difficult due to reasons such as change of business or closure	Expulsion	—	—

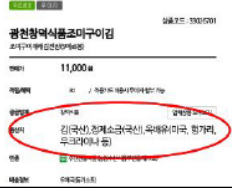
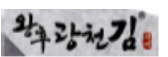
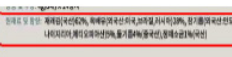
2) The Defendant, on March 21, 2013, submitted a written opinion in response to the notice of reasons for refusal, etc., regarding the Registered Collective Mark, stating: “In the processing stage, C applies sesame oil, pressed on-site after rapidly freezing at below -18°C by carefully selecting domestically produced sesame seeds, onto dried laver, seasons it only with solar salt, and manufactures it by toasting it twice, thereby preserving the original taste and aroma of the raw ingredients, and its sodium content is lower compared to dried laver from other regions. We have supplemented the annex to the articles of incorporation by adding this content under ‘Excellence of C’s Raw Materials.’”

3) As shown in the table below, Gwangcheon Gim Corporation produced roasted and seasoned laver sheets products by adding “flavored salt (refined salt)” or “foreign solar salt,” rather than “domestic solar salt” as stipulated in the articles of incorporation, and Changdeok Foods and Gwangcheon Joyang Foods also added “refined salt” in producing such products and used the following marks in actual use on the corresponding goods.

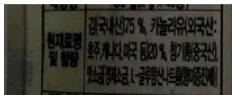
Member who used the mark	Marks in actual use (number)	Raw materials used	Period of use, ingredients, and evidence
Gwangcheon Gim Corporation	4. 		Used December 8, 2018 Plaintiff's Exhibit No.8-1 [flavored salt (refined salt)]
	2. 		Used May 7, 2019 Plaintiff's Exhibit No.7-2 [refined salt]
	1. 		Used August 28, 2019 Plaintiff's Exhibit No.9-1 [flavored salt (refined salt)]

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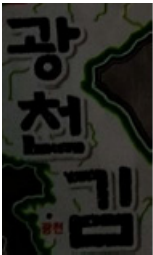
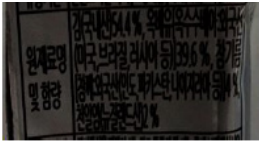
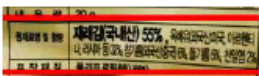
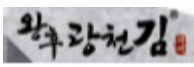
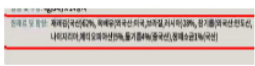
Member who used the mark	Marks in actual use (number)	Raw materials used	Period of use, ingredients, and evidence
	1. 		Used December 10, 2019 Plaintiff's Exhibit No.7-1 [flavored salt (refined salt)]
	1. 		Used December 29, 2019 Plaintiff's Exhibit No.11-1 [flavored salt (refined salt)]
	1. 		Used January 11, 2020 Plaintiff's Exhibit No.11-2 [flavored salt (refined salt)]
	3. 		Used February 4, 2020 Plaintiff's Exhibit No.10-1 [solar salt (New Zealand)]
Changdeok Foods	6. 		Used August 13, 2020 Plaintiff's Exhibit No.13-1 [salt (domestic, refined salt)]

Member who used the mark	Marks in actual use (number)	Raw materials used	Period of use, ingredients, and evidence
	8. 		Used August 13, 2020 Plaintiff's Exhibit No.13-2 [refined salt (domestic)]
Gwangcheon Joyang Foods	9. 		Used August 25, 2020 Plaintiff's Exhibit No.15 [refined salt (domestic)]

4) As shown in the table below, Gwangcheon Gim Corporation, Byeol Foods Corporation, and Gwangcheon Joyang Foods produced roasted and seasoned laver sheets products by adding “sesame oil pressed with imported sesame” and used the following marks in actual use on the packaging of the products.

Member who used the mark	Marks in actual use (number)	Raw materials used	Period of use and evidence
Gwangcheon Gim Corporation	1. 		Used August 28, 2019 Plaintiff's Exhibit No.9-1 [sesame oil (China)]

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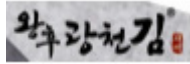
Member who used the mark	Marks in actual use (number)	Raw materials used	Period of use and evidence
	3. 		Used February 4, 2020 Plaintiff's Exhibit No.10-1 [Imported sesame oil and sesame (India, Pakistan, Nigeria, etc.)]
Byeol Foods Corporation	8. 		Used May 9, 2019 Plaintiff's Exhibit No.17 [Imported sesame oil (China)]
Gwangcheon Joyang Foods	9. 		Used August 25, 2020 Plaintiff's Exhibit No.15 [sesame oil (imported from India, Nigeria, or Ethiopia)]

C. Whether the Marks in Actual Use and the Registered Collective Mark are Identical

1) The Marks in Actual Use 1 through 4 used by Gwangcheon Gim Corporation and Mark in Actual Use 8 used by Changdeok Foods differ in certain respects from the Registered Collective Mark, such as typeface, coloration of the letters, and the presence or absence of background figures, yet these differences are minor enough that, under customary trade practices, the marks may be regarded as identical.

2) The Marks in Actual Use 6, 9, and 12 consist of the same “C” as in the Registered Collective Mark, combined with relatively

small-sized characters (Mark in Actual Use 6 , 9



) or with simple figurative elements (Mark in Actual



Use 12 ). However, “Jaerae (traditional)” is merely a term

commonly used for the designated goods, roasted and seasoned laver sheets, and “Wanghu (queen consort)” is likewise nothing more than a word widely used to emphasize the luxuriousness of a product whose primary consumers are women. The sun-and-mountain design also cannot readily be regarded as representing any particular meaning. Thus, none of these elements are inseparably combined with “C,” nor do they generate any new concept when combined. Accordingly, the Marks in Actual Use 6, 9, and 12 can each be perceived separately as “C.” In sum, although the Marks in Actual Use 6, 9, and 12 combine “C,” the Registered Collective Mark, with “Jaerae,” “Wanghu,” or simple figurative elements, the portion “C” remains distinguishable from the other portions, maintaining its identity and independence. Therefore, under customary trade practices, these marks in actual use fall within the scope of marks identical to the Registered Collective Mark.

3) Accordingly, the non-exclusive licensees who are members of the Defendant, by using the Marks in Actual Use 1 through 4, 6, 8, 9, and 12, are deemed to have used the Registered Collective Mark.

D. Whether There Is a Likelihood of Confusion as to Quality or Origin

A geographical indication collective mark is a mark intended to be

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used either directly by a corporation jointly established by those who produce, manufacture, or process goods eligible to bear the geographical indication, or by the members belonging to such corporation. Although the rights to a geographical indication collective mark vest in the corporation, the mark may be used not only by the corporation but also by its members. Therefore, the corporation, as the rights holder, has a duty to manage and supervise its members so that they do not use the mark without authorization beyond the scope of the rights. The members, for their part, must comply with the provisions of the articles of incorporation, which set forth in detail the designated area for the geographical indication collective mark, the designated goods, and the materials and manufacturing methods for producing such goods.

It has been established above that the Defendant's articles of incorporation include a provision stating that the annex to the articles of incorporation constitutes a part of the articles themselves; that the said annex prescribes the use of the Registered Collective Mark for roasted and seasoned laver sheets made with domestic solar salt and sesame oil pressed directly from domestically produced sesame seeds; that, at the time of filing for the registration of the Registered Collective Mark, the Defendant submitted a written opinion stating that it added to the annex the content that "sesame oil pressed directly from domestically produced sesame seeds is used"; that nonetheless, Gwangcheon Gim Corporation and Changdeok Foods, both members of the Defendant, used flavored salt (refined salt) or foreign solar salt instead of domestic solar salt; and that Gwangcheon Gim Corporation and Byeol Foods Corporation, also members of the Defendant, used foreign sesame oil in producing roasted and seasoned laver sheets and thereafter used the Registered Collective Mark on the packaging of such products.

In view of the facts recognized above, it is determined that certain members of the Defendant used the Registered Collective Mark in violation of the provisions of the articles of incorporation, and that

ordinary consumers and traders would believe that goods bearing the Registered Collective Mark were produced in accordance with the quality control standards prescribed in the articles of incorporation. Accordingly, ordinary consumers and traders encountering roasted and seasoned laver sheets bearing the Registered Collective Mark would likely be misled into believing that all such products satisfy the quality standards set forth in the articles of incorporation.

Meanwhile, it is insufficient to evaluate that the Defendant, the holder of the Registered Collective Mark, effectively had its association members under its control with respect to the use of the Registered Collective Mark, such as through regularly supervising the actual state of its use, and there is no other evidence sufficient to establish this.⁹⁾ Therefore, the Registered Collective Mark falls under Article 119(1)(7)(a) of the Trademark Act.

E. Discussion on the Defendant's Remaining Arguments

In response, the Defendant argues that although, at the time of filing for the registration of the Registered Collective Mark, seasoned laver was often manufactured using solar salt, the moisture contained in solar salt and the issue of foreign substances arising in the manufacturing process of solar salt rendered the use of solar salt inconsistent with domestic processing practices for producing the designated goods of the Registered Collective Mark. Thus refined salt was used instead. The Defendant further contends that the term “carefully selected raw materials” in the annex to the articles of incorporation refers to “raw laver,” not “domestically produced sesame seeds,” and that the annex does not specifically restrict the origin or type of oil. Therefore, it is difficult to regard the Defendant's members as having violated the

9) The Defendant acknowledged that it did not conduct ongoing supervision, such as by issuing warnings or notices to its members, to ensure compliance with the articles of incorporation and the annex thereto requiring the use of domestic solar salt (see the Record for Trial 2).

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provisions of the articles of incorporation. Even if the provisions were violated, the Defendant asserts, cancellation of the registration on that basis would be highly unjust.

However, in light of the following facts and circumstances ascertainable from the facts previously established, the evidence cited above, the statements and video clips in Plaintiff's Exhibits No. 161 through 163, and the purport of the overall arguments, the Defendant's argument cannot be accepted.

a) As confirmed in the table below, various roasted and seasoned laver sheets products produced and sold domestically appear to use solar salt. Therefore, the Defendant's assertion that the use of solar salt in seasoned laver is inconsistent with domestic processing practices is difficult to accept.

Pulmuone Co., Ltd	Sung Gyung Food Co., Ltd
 원재료명: 김 50 % (국산), 카놀라유 39.57 % (국산), 들기름 6.4 % (물래, 중국산), 천일염 2.6 % (국산), 참기름, 고추파기름, 우브추출분 들기름으로 바삭바삭 고소하게 구운 "들기름 재래김 (12봉)"	 파래 식탁김 4g 올리브초록색 식탁김 4g
Plaintiff's Exhibit No. 162	Plaintiff's Exhibit No. 163

b) It is further confirmed that Byeol Foods Corporation, a member of the Defendant that was previously found to have violated the articles of incorporation by using foreign sesame oil, has produced and sold roasted and seasoned laver sheets made with solar salt, and that Gwangcheon Gim Corporation, which had violated the articles of incorporation by failing to use domestic solar salt or domestic sesame oil, likewise used domestic solar salt in certain of its products.

Gwangcheon Gim Corporation	Byeol Foods Corporation												
 <table border="1"> <tr> <td>제품명</td> <td>김 90g 100% (광천김)</td> </tr> <tr> <td>내용량</td> <td>20g x 5g x 100% (광천김)</td> </tr> <tr> <td>원재료명</td> <td>김 (90%) (광천김), 소금 (10%), 식품첨가물(산성도 조절제: 구연산, 감미료: 설탕) (10%)</td> </tr> <tr> <td>제조일자</td> <td>제조일자 (제조일자)</td> </tr> <tr> <td>유통기한</td> <td>유통기한 (유통기한)</td> </tr> <tr> <td>수입업체</td> <td>수입업체 (수입업체)</td> </tr> </table>	제품명	김 90g 100% (광천김)	내용량	20g x 5g x 100% (광천김)	원재료명	김 (90%) (광천김), 소금 (10%), 식품첨가물(산성도 조절제: 구연산, 감미료: 설탕) (10%)	제조일자	제조일자 (제조일자)	유통기한	유통기한 (유통기한)	수입업체	수입업체 (수입업체)	
제품명	김 90g 100% (광천김)												
내용량	20g x 5g x 100% (광천김)												
원재료명	김 (90%) (광천김), 소금 (10%), 식품첨가물(산성도 조절제: 구연산, 감미료: 설탕) (10%)												
제조일자	제조일자 (제조일자)												
유통기한	유통기한 (유통기한)												
수입업체	수입업체 (수입업체)												
Plaintiff's Exhibit No. 161-4 and -5	Plaintiff's Exhibit No. 17												

c) Even assuming, as the Defendant argues, that producing roasted and seasoned laver sheets using solar salt is inconsistent with domestic processing practices, the Defendant could have amended the articles of incorporation and the annex thereto pursuant to Articles 54 and 55 of the articles of incorporation in order to manage and maintain the quality characteristics of the designated goods of the Registered Collective Mark, yet no such measures were taken.

d) Considering the statements contained in the “written opinion in response to the notice of reasons for refusal” submitted by the Defendant at the time of filing for the registration of the Registered Collective Mark, the raw material for the “sesame oil pressed on-site” referred to in the annex to the articles of incorporation is recognized as domestically produced sesame seeds. Since the articles of incorporation and its annex expressly require the use of domestic solar salt and sesame oil pressed directly from domestically produced sesame seeds, the Defendant and its members must, pursuant to Article 60(1) of the articles of incorporation, comply with the “self-management standards” and “maintenance measures,” and the Defendant bears responsibility for managing the quality of the goods on which the Registered Collective Mark is used so as to meet those quality standards.

5. Whether Grounds for Cancellation of Trademark Registration Exist under Article 119(1)7(c) of the Trademark Act

A. Plaintiff's Arguments

Although Jungang Foods Corporation is not a member of the association, the Defendant knowingly took no action despite being aware that Jungang Foods Corporation was using the Registered Collective Mark on the packaging of roasted and seasoned laver sheets. This falls under Article 119(1)7(c) of the Trademark Act, and therefore the registration of the Registered Collective Mark must be cancelled.

B. Established Facts

In light of the facts previously established, the evidence cited above, and the statements and video clips contained in Plaintiff's Exhibits No. 37, 49, 60, and 160 and Defendant's Exhibits No. 8 and 12, together with the purport of the overall arguments, the following facts are recognized:

1) Jungang Foods, represented by W and having its address at Gwangcheon-ro X, Gwangcheon-eup, O-gun, N, has been active as a member of the Defendant association, and the Defendant's member roster likewise contains this information (Defendant's Exhibit No. 12). Meanwhile, in another member roster of the Defendant (Plaintiff's Exhibit No. 5), the representative and address are identical to those of Jungang Foods, but the company name is listed as "Jungang Foods Co., Ltd." In this litigation, the Defendant stated that "Jungang Foods" is indeed a member of the association, and that the entry "Jungang Foods Co., Ltd." in the member roster (Plaintiff's Exhibit No. 5) is merely a mistaken entry for "Jungang Foods."

2) Jungang Foods Corporation was established on December 9,

2015, for the purpose of engaging in the manufacture of seasoned laver, among other businesses, and its principal place of business is located at Y, P-ro, P-myeon, O-gun, N, with Z serving as its president.

3) Jungang Foods Corporation, after producing roasted and seasoned laver sheets, has sold products bearing  on their packaging through online shopping malls such as Coupang and Korea Post Shopping since around February 2021.

Product “C” of Jungang Foods Corporation sold on Coupang (Plaintiff’s Exhibit No. 160-1)	Product “C” of Jungang Foods Corporation sold on Korea Post Shopping (Plaintiff’s Exhibit No. 160-3)
	

C. Discussion

The  used by Jungang Foods Corporation, like the Registered Collective Mark, consists solely of the character “C,” and therefore, even if there are some differences in typeface, coloration, or the orientation of the letters, it is deemed identical under customary social perception.

In this case, where Jungang Foods Corporation has sold roasted and seasoned laver sheets products using the Registered Collective Mark,

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“Jungang Foods” and the corporate entity “Jungang Foods Corporation” constitute legally distinct entities. Therefore, absent any basis to regard Jungang Foods Corporation as identical to the sole proprietorship Jungang Foods, or any other evidence establishing that Jungang Foods Corporation is a member of the Defendant association, the use of the Registered Collective Mark by Jungang Foods Corporation cannot be regarded as use by a member of the Defendant.

Meanwhile, when a geographical indication collective mark is used on a product, ordinary consumers or traders would perceive that the product was produced, manufactured, or processed by a member of the collective eligible to use that geographical indication. Accordingly, if a non-member uses the geographical indication collective mark without authorization, there is a substantial likelihood that consumers will be misled regarding product quality. Given these circumstances, and since the Defendant itself has asserted that only the sole proprietorship Jungang Foods is a member and thereby acknowledging that Jungang Foods Corporation is not a member, the Defendant should have taken appropriate measures to prevent Jungang Foods Corporation from unlawfully using the Registered Collective Mark. However, the Defendant has submitted no evidence indicating that it sent a warning notice or certified mail, or took any other appropriate action to prevent such unauthorized use, nor does the Defendant contest this point.

This constitutes a case in which a third party used the Registered Collective Mark, thereby misleading consumers as to the quality of the goods, and yet the Defendant, as the holder of the collective mark, intentionally failed to take appropriate measures. Accordingly, the registration of the Registered Collective Mark must be cancelled pursuant to Article 119(1)7(c) of the Trademark Act.

6. Conclusion

The Plaintiff’s petition to reverse the IPTAB decision is well-grounded and shall be granted as ordered.

Gwangcheon-gim Case

Presiding Judge	Taeksoo JUNG
Judge	Sook Yeon LEE
Judge	Jiyoung YI

IP HIGH COURT OF KOREA
SECOND DIVISION
DECISION

Case No.	2022Heo6587 Invalidation (Patent)
Plaintiff	PSK Co., Ltd. Representative B (U.S. citizen) Counsel for Plaintiff Lee & Ko Attorneys in Charge Young-mo KWON, Heon LEE, Seong-hoon KIM Substitute Counsel Lee & Ko Patent Law Firm Patent Attorneys Jun-young KWAK, Da-eun MOON
Defendant	Cham Engineering Co., Ltd. Representative D Counsel Attorney Hyun-jin JANG Patent Attorneys Seong-rak KWON, Heon-sik KIM, Jun-hyeok SEO Substitute Counsel Attorney Cheon-woo SOHN
Date of Closing Argument	September 6, 2023
Decision Date	November 8, 2023

ORDER

1. The Plaintiff's claim is dismissed.
2. Costs shall be borne by the Plaintiff.

DEMAND FOR RELIEF

The IPTAB Decision 2022Dang204, decided October 31, 2022 shall be reversed.

OPINION

1. Background

A. Patented Invention (Plaintiff's Exhibit 2)¹⁾

1) Title of invention: Plasma Etching Chamber

2) Filing date / Priority date / Registration date / Registration number: December 21, 2006 / December 21, 2005 / March 26, 2013 / Patent No. 1249247

3) Patentee: Defendant

4) Claims

【Claim 1】 A plasma etching chamber for etching an edge of a wafer with plasma (hereinafter “**Element 1**”), comprising:

an upper electrode and a lower electrode disposed to face each other with the wafer interposed therebetween (hereinafter “**Element 2**”);

an insulating panel installed beneath the upper electrode so as to face a central portion of an upper surface of the wafer and to suppress formation of plasma (hereinafter “**Element 3**”); and a panel ring detachably installed at an edge of the insulating panel (hereinafter “**Element 4**”), wherein the plasma etching chamber is characterized by including the foregoing elements (hereinafter “**Claim 1**,” and the remaining claims shall be referred in the same manner).

1) As a general rule, in describing the claims and the technical contents of the Patented Invention and the Prior Art, spelling and spacing are disregarded, and the description follows the specification as written.

【Claim 2】 The plasma etching chamber according to Claim 1, wherein a surface of the panel ring is coated with yttrium.

【Claim 3】 The plasma etching chamber according to Claim 2, further comprising a coating panel installed beneath the insulating panel and having a surface coated with yttrium.

【Claim 4】 The plasma etching chamber according to Claim 1, wherein the upper electrode and the lower electrode have the same diameter.

【Claim 5】 The plasma etching chamber according to Claim 1, wherein the panel ring is formed of a sintered body of yttrium powder.

【Claim 6】 The plasma etching chamber according to Claim 4, further comprising a stem installed on the upper electrode to support the upper electrode, wherein the upper electrode is fastened to a lower portion of the stem by a fixing bolt inserted downward, and an insulating cap is fitted over the head of the fixing bolt.

【Claim 7】 The plasma etching chamber for etching an edge of a wafer with plasma, an upper electrode and a lower electrode disposed to face each other with the wafer interposed therebetween;

an insulating panel installed under the upper electrode so as to face a central portion of an upper surface of the wafer and suppress formation of plasma; and includes a panel ring installed on an edge of the insulating panel, wherein the insulating panel and the panel ring have different dielectric constants.

【Claim 8】 The plasma etching chamber according to Claim 7, wherein the panel ring is made of a yttrium powder sintered body.

【Claim 9】 The plasma etching chamber according to Claim 7,

wherein a baffle is formed in a central portion of the insulating panel, a baffle plate for dispersing an auxiliary gas supplied to the center of the wafer is installed in the baffle, and yttrium is coated on the baffle or the baffle plate.

5) Description of the invention and main contents of the drawings

The patented invention relates to a plasma etching chamber capable of removing, by plasma etching, film residues remaining at an edge end of a wafer and particles deposited in the vicinity thereof. The main contents of the invention and the drawings thereof are as set forth in [Appendix 1].

B. Prior Art

1) Prior Art 1 (Plaintiff's Exhibit 5)

Prior art 1 is an invention entitled "Cleaning of wafer edge, bevel and back-side with a torus-shaped capacitively coupled plasma," disclosed in a paper published on November 6, 2002, and the main contents and drawings thereof are as set forth in [Appendix 2].

2) Prior Art 2 (Plaintiff's Exhibit 6)

Prior Art 2 is an invention entitled "Plasma Processing Apparatus," disclosed in Korean Laid-Open Patent Publication No. 10-1998-0070700, published on October 26, 1998, and the main contents and drawings thereof are as set forth in [Appendix 3].

C. Procedural History

1) On January 21, 2022, the Plaintiff filed a petition for an invalidation trial with the Korean Intellectual Property Trial and Appeal Board (hereinafter the "IPTAB") against the Defendant, who is the patentee of the patented invention, seeking invalidation of Claims 1 through 9. In the course of the trial proceedings, the Plaintiff asserted

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that “Claims 1 through 9 should be invalidated because they lack an inventive step, as a person having ordinary skill in the art (hereinafter a “skilled person”) could have readily produced the inventions by combining cited inventions 1 through 4.”²⁾

2) After examining the Plaintiff’s above petition for trial under Case No. 2022Dang204, the IPTAB issued a decision on October 31, 2022, dismissing the petition on the ground that “Claims 1 through 9 do not lack an inventive step through a combination of cited inventions” (hereinafter the “IPTAB Decision”).

3) In this action seeking reversal of the IPTAB Decision filed on December 20, 2022, the Plaintiff submitted new Prior Art 1 and Prior Art 2, distinct from the cited inventions relied upon in the trial proceedings, and argued that Claims 1 through 9 lack inventive step when considered in combination with Prior Art 1 and Prior Art 2.

【Factual basis】 Undisputed facts, statements in Plaintiff’s Exhibits 1 through 6 and 12 through 14, and the overall purport of the oral arguments.

2. Summary of the Plaintiff’s Arguments

A. Claim 1 allegedly lacks inventive step because, for the reasons set forth below, a skilled person could have easily made the invention by combining Prior Art 1 and Prior Art 2.

2) Cited invention 1 is Korean Registered Patent Publication No. 433008 (registered May 14, 2004), which was not submitted in the present action seeking reversal of the trial decision. Cited invention 2 is Korean Laid-Open Patent Publication No. 2005-8637 (published January 21, 2005), submitted as Plaintiff’s Exhibit No. 12; Cited invention 3 is Korean Laid-Open Patent Publication No. 2003-90192 (published November 28, 2003), submitted as Plaintiff’s Exhibit 13; and cited invention 4 is Korean Laid-Open Patent Publication No. 2005-28629 (published March 23, 2005), submitted as Plaintiff’s Exhibit 14.

1) Claim 1, Prior Art 1 and Prior Art 2 relate to plasma processing apparatuses for etching wafers and therefore belong to the same technical field. Claim 1 has the technical problem of facilitating work processes by detachably installing a “panel ring” so that only the “panel ring” can be separated and replaced, whereas Prior Art 2 discloses a technical problem of reducing maintenance and repair costs through a “shield ring” having a detachable separation structure.

2) Claim 1 differs from Prior Art 1 in that it further recites a detachably installed “panel ring.” A skilled person could have easily overcome the above difference by combining the “shield ring” of Prior Art 2 with Prior Art 1. Sufficient motivation exists for such a combination, and no structural or technical obstacles would impede its implementation.

B. Claim 7 is characterized in that the “insulating panel” and the “panel ring” have different dielectric constants. However, it is common general technical knowledge that components formed of different materials inherently possess different dielectric constants. Accordingly, Claim 7 also lacks inventive step because a skilled person could have easily made the invention by combining Prior Art 1 and Prior Art 2.

C. The additional configurations recited in Claims 2 through 6 and Claims 8 and 9 could likewise be readily derived by a skilled person based on Prior Art 1 and Prior Art 2, together with common general technical knowledge and well-known techniques. Accordingly, the inventions of Claims 2 through 6 and Claims 8 and 9 also lack inventive step.

3. Whether IPTAB Erred

A. Whether Claim 1 Lacks an Inventive Step

1) Relevant Law

a) In determining whether an invention lacks an inventive step, at a minimum, the scope and content of the Prior Art, the differences between the invention subject to the inventive step determination and the Prior Art, and the level of skill of a skilled person must be identified based on the evidence and materials appearing in the record. On that basis, it must then be examined whether, in light of the technical level at the time of the patent application, a skilled person could have easily made the invention subject to the inventive step determination from the Prior Art despite the existence of such differences. In this inquiry, an inventive step must not be assessed with the benefit of hindsight, based on the erroneous premise that the technology disclosed in the specification was already known (Supreme Court Decision 2014Hu2184, decided November 25, 2016, etc.). Further, where a claim described in the claims consists of a plurality of constituent elements, the technical idea of the invention as a whole, in which the respective constituent elements are organically combined, constitutes the subject of the inventive step determination, rather than each constituent element independently constituting the subject of such determination. Accordingly, an inventive step cannot be denied merely by decomposing the claimed invention into individual elements and confirming that each element is disclosed in the Prior Art. Rather, it is necessary to examine the difficulty of the configuration as a whole, which is organically combined based on a distinctive principle for solving a technical problem, and, at the same time, to take into consideration the distinctive effects achieved by the invention as a whole. Moreover, in order to deny an inventive step by citing multiple Prior Art references, there must be a suggestion or motivation presented in the Prior Art

references indicating that the cited technologies could be combined or integrated to arrive at the invention at issue. Even absent such explicit suggestion or motivation, inventive step may be denied only where, in light of the technical level at the time of filing, common general technical knowledge, the fundamental problems in the relevant technical field, developmental trends, and the needs of the relevant industry, it can be recognized that a skilled person could have easily arrived at such a combination (Supreme Court Decisions 2005Hu3284, decided September 6, 2007; and 2013Hu2620, decided July 23, 2015).

b) In determining inventive step of a claimed invention, the scope of the claims and the technical idea of the claimed invention, as well as the scope and technical content of the Prior Art, must first be determined. Next, the Prior Art that is closest to the claimed invention (hereinafter referred to as the “Primary Prior Art”) must be selected. The claimed invention is then compared with the Primary Prior Art to identify commonalities and differences, and it is examined whether a skilled person could have easily made the claimed invention by overcoming such differences in light of the technical level at the time of filing (Supreme Court Decision 2015Hu2341, decided October 31, 2019). The same principles apply when determining the validity of a registered patent.

2) Technical field of Claim 1 and the Prior Arts

Claim 1 relates to “a plasma etching chamber capable of removing, by plasma etching, film residues remaining at an edge of a wafer and particles deposited in the vicinity thereof” (paragraph [0015] of Plaintiff’s Exhibit 2).

Prior Art 1 relates to “cleaning of wafer edges, bevels, and back sides using a torus-shaped capacitively coupled plasma” (page 6 of Plaintiff’s Exhibit 5), and Prior Art 2 relates to “an improvement of a shield ring installed on an upper electrode of a plasma processing apparatus” (paragraph [0002] of Plaintiff’s Exhibit 6).

Claim 1 and Prior Art 1 both relate to plasma etching chambers for

removing particles deposited on wafer edges and therefore belong to the same technical field. Prior Art 2 also relates to a plasma etching chamber for processing semiconductor wafers, and although the etching region differs, the basic mechanism is the same. Accordingly, Prior Art 2 also belongs substantially to the same technical field as Prior Art 1.

3) Technical Level of a Skilled Person

a) Chamber for Etching a Wafer Edge

The specification of the patented invention discloses, as conventional technologies (Korean Registered Patent No. 433008, Utility Model Registration No. 349874, Japanese Published Patent Gazette Heisei 07-142449), a technology for cleaning a wafer edge by plasma etching (paragraphs [0018], [0022], and Figure 4). In addition, Plaintiff's Exhibit 12, which was published (January 21, 2005) before the priority date (December 21, 2005) of the patented invention, discloses a plasma etching chamber for cleaning a wafer edge (paragraph [0001] and Figure 8 of Plaintiff's Exhibit 12). Considering these circumstances as a whole, it can be sufficiently understood that, in the relevant technical field of the patented invention, a dry cleaning method was already being used in which plasma was generated only at the wafer edge region to prevent unintended impurities from accumulating at the wafer edge.

Paragraphs [0018], [0022] of the Specification of the Patented Invention, Figure 4

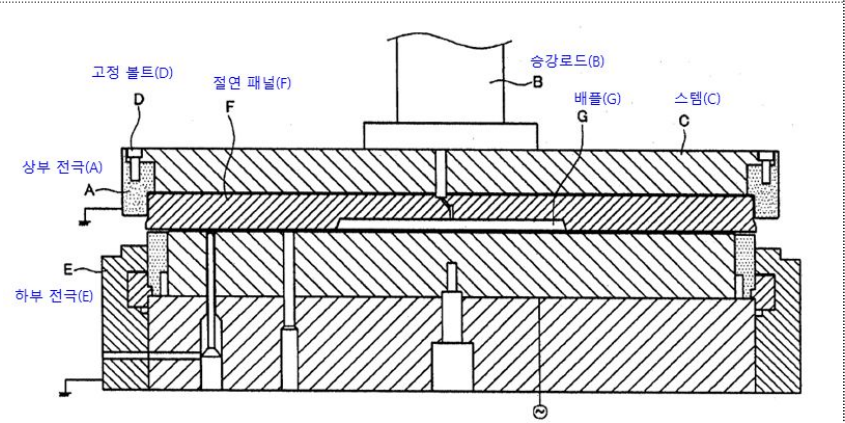
[0018] As a means for removing film residues and particles remaining at the edge of a wafer as described above, Japanese Laid-Open Patent Publication No. Heisei 07-142449 discloses an apparatus for etching, by plasma, particles remaining at the edge end of the wafer.

[0022] In addition, the Applicant has proposed, as in Korean Registered Patent No. 433008, a plasma etching chamber having a structure in which a viewing ring is installed at the edge of an upper electrode, thereby allowing plasma to extend to the side surface of the wafer edge.

Paragraphs [0018], [0022] of the Specification of the
Patented Invention, Figure 4

Furthermore, the Applicant has proposed, as in Korean Utility Model Registration No. 349874, a plasma etching chamber in which plasma is generated along two paths extending between the upper electrode and the lower electrode at the wafer edge, thereby etching portions extending from an upper surface to a side surface and a bottom surface of the wafer edge.

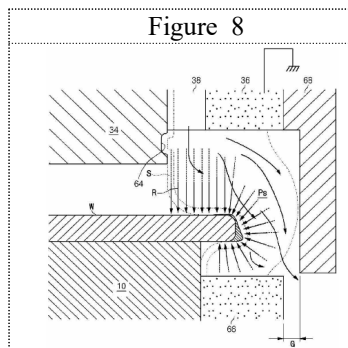
Figure 4. Partial cross-sectional view of a conventional plasma etching chamber



국문	영문
상부 전극(A)	Upper electrode (A)
하부 전극(E)	Lower electrode (E)
고정 볼트(D)	Fixing bolt (D)
절연 패널(F)	Insulating panel (F)
승강로드(B)	Lifting rod (B)
배플(G)	Baffle (G)
스텝(C)	Stem (C)

Plaintiff's Exhibit 12 Paragraph [0001], Figure 8

[0001] The present invention relates to cleaning film residues and particles remaining at an edge end of a semiconductor wafer, more particularly, to film residues remaining at the edge end of a wafer that has undergone plasma dry etching, and particles deposited in the vicinity thereof, a plasma etching chamber capable of completely removing the same by plasma etching, and a plasma etching system using the same.



b) Configurations for Limiting the Plasma Generation Region

(1) According to the following description in the specification of the patented invention (paragraph [0019]), it can be understood that a configuration is employed in which inert gas is injected into a central portion of the upper electrode to prevent the generated plasma from intruding into the inner region of the wafer.

Paragraph [0019] of the Specification of the Patented Invention

[0019] In the disclosed apparatus, reaction gas is introduced between an upper electrode and a lower electrode disposed corresponding to the wafer edge so that etching by plasma is performed, while inert gas is injected into the central portion of the upper electrode to prevent the plasma thus generated from intruding into the inner region of the wafer, thereby enabling edge etching.

(2) Meanwhile, according to the following description in Prior Art 1 (the bottom of page 7 of Prior Art 1), plasma is not generated in the interior of the wafer only when the distance between the wafer and the upper gas distribution plate is narrow, between 0.3 mm and 0.5 mm. From this, a skilled person would also understand that, in order to prevent etching toward the wafer center by plasma, it

is necessary to set the distance between the wafer and the lower surface of the gas distribution plate to be narrow.

Bottom of page 7 of Prior Art 1
<u>Plasma was generated along 2 mm of the wafer edge region and 4 mm of the wafer backside, where unintended deposited films and particles were to be removed.</u> The distance between the wafer and the upper grounded electrode was 5 mm, and the distance between the wafer and the lower grounded electrode was 6 mm. <u>The spacing of the upper grounded electrode was variable. The distance between the wafer and the upper gas distribution plate (GDP) made of ceramic varied between 0.3 mm and 0.5 mm. Due to the very narrow gap between the GDP and the wafer, plasma was not generated inside the wafer.</u>

(3) In addition, according to the following description in Plaintiff's Exhibit 13 (paragraph [0026] of Plaintiff's Exhibit 13), it can be understood that it is known to a skilled person that an inner ring provided at an edge of the lower surface of the upper electrode can limit plasma behavior and thereby limit the location of plasma generation.

Plaintiff's Exhibit 13, Paragraph [0026]
<u>[0026] The inner ring (208) is provided at an edge of a lower surface of the third electrode (206c), and prevents plasma inside the chamber (202) from flowing into the interior of the upper electrode (206), while guiding the plasma toward the semiconductor substrate (10). That is, by restricting plasma behavior inside the chamber (202), uniform plasma is supplied to the semiconductor substrate (10).</u> The outer ring (210) is provided so as to surround the inner ring (208), and is coupled to an upper portion of the chamber (202) by a plurality of bolts (230). The inner ring (208) has a circular flat ring shape, and a first stepped portion is formed at an outer peripheral portion thereof. The outer ring (210) has a circular flat ring shape, and a second stepped portion corresponding to the first stepped portion of the inner ring (208) is

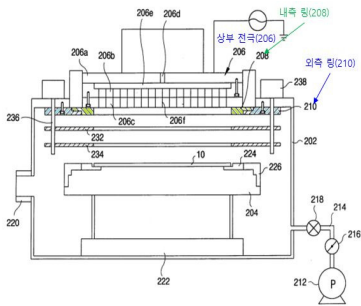


Figure 2

Plaintiff's Exhibit 13, Paragraph [0026]
formed at an inner peripheral portion thereof. That is, the inner ring (208) is fixed to the edge of the lower surface of the third electrode (206c) by the outer ring (210).

4) Element-by-Element Comparison

Element	Claim 1	Prior Art 1
1	A plasma etching chamber for etching an edge of a wafer with plasma,	A dry cleaning system for removing, by plasma etching, thin films and particles deposited or accumulated on a wafer edge, bevel, and backside (page 520, column 2, lines 10-14).
2	Upper and lower electrodes disposed opposite each other with the wafer interposed therebetween	The wafer is placed on an electrode to which power is supplied (page 520, column 2, lines 17-20).
3	An insulating panel installed under the upper electrode so as to face a central portion of an upper surface of the wafer and configured to suppress formation of plasma; and	The distance between the wafer and the upper gas distribution panel (gas distribute panel, GDP) made of ceramic varied between 0.3 mm and 0.5 mm. Due to the very narrow gap between the GDP and the wafer, plasma was not generated inside the wafer (page 521, column 1, lines 19-23).
4	A plasma etching chamber characterized by comprising a panel ring detachably installed at an edge of the insulating panel.	Prior Art 1 does not explicitly disclose a corresponding constituent element.

5) Commonalities and Differences

a) Elements 1 through 3

(1) Elements 1 through 3 are “a plasma etching chamber for etching an edge of a wafer with plasma; an upper electrode and a lower electrode disposed to face each other with the wafer interposed therebetween; an insulating panel installed under the upper electrode so as to face a central portion of an upper surface of the wafer and suppress formation of plasma.”

(2) The corresponding configuration of Prior Art 1 is “a dry cleaning system for removing thin films and particles deposited or accumulated on an edge, a bevel, and a back side of a wafer by plasma etching, comprising: two electrodes disposed to face each other with the wafer interposed therebetween; and an upper gas distribution panel (GDP) made of ceramic.”

(3) Both corresponding configurations are identical in that they are installed in a chamber for etching a wafer edge by plasma and include an upper electrode and a lower electrode disposed to face each other with the wafer interposed therebetween, and there is no dispute between the parties in this regard.

b) Element 4

Element 4 is characterized by “including a panel ring detachably installed at an edge of the insulating panel,” whereas Prior Art 1 does not explicitly disclose a corresponding configuration; accordingly, there exists a difference (hereinafter, the “Difference”).

6) Determination as to the Difference

a) Whether the Difference Can be Easily Overcome

In light of the following descriptions in the specification of the patented invention, it can be understood that the panel ring installed at the edge of the insulating panel adsorbs by-products such as polymers generated during wafer etching, is coated with yttrium having excellent

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polymer adsorption properties and chemical resistance, and is coupled to the insulating panel in a structure detachable by a setting screw, such that, when recoating of the edge of the insulating panel is required, only the panel ring can be detached and replaced while leaving the insulating panel intact, thereby simplifying work processes and enabling an efficient etching process.³⁾

Para40graphs [0040], [0042], [0049], [0050], [0057] of the Specification of the Patented Invention

[0040] A panel ring (22) is installed at an edge of the insulating panel (14), and adsorbs by-products such as polymers that may be generated during etching of a wafer.

[0042] The coating panel (20) and the panel ring (22) at the edge are each configured to be detachably mounted by setting screws.

[0049] The yttrium coating layer (24) of the coating panel (20) and the panel ring (22) has good polymer adsorption properties, and also exhibits properties of excellent chemical resistance, thereby functioning to adsorb and remove particles without causing chemical changes during a cleaning process.

[0050] The yttrium coating layers (24) of the coating panel (20) and the panel ring (22) have generally been deposited and coated on prescribed portions of the insulating panel (14), and because their service life is short, the insulating panel (14) had a service life of approximately one year under a cycle in which it was used twice and recoated once. However, according to the present invention, the insulating panel (14) is left as is and subjected to etching processes twice, and through periodic management in which only the coating panel (20) and the panel ring (22) are separately replaced, the apparatus has a minimum downtime, thereby enabling an efficient etching process. In addition, the replaced coating panel (20) and panel ring (22) are again circulated through a separate yttrium coating process and prepared as components having newly formed yttrium coating layers (24) in preparation for the next replacement.

[0057] In addition, the coating panel and panel ring are provided so as to be detachably mounted on a central-axis portion (G) of the insulating panel

3) The Plaintiff also does not dispute that the “panel ring” of the patented invention constitutes a configuration having such technical features and effects (Plaintiff’s brief dated March 10, 2023, p. 19).

Para40graphs [0040], [0042], [0049], [0050], [0057] of the Specification of the Patented Invention

and on the edge surface thereof, and when recoating is required, only the coating panel and panel ring need to be separated, and it is not necessary to unnecessarily separate the stem, thereby providing an advantage that work processes are simplified.

However, the specification of Prior Art 2 describes the “shield ring (140)” as follows: from this, it can be understood that the shield ring installed to cover a peripheral portion of the upper electrode serves to confine plasma to a central region⁴⁾ of the wafer and efficiently generate plasma while protecting the peripheral portion of the upper electrode, is formed of quartz or polyimide-based resin so as to prevent attachment of deposits, and has a detachable structure that allows only that portion to be replaced, thereby reducing maintenance costs.

Paragraphs [0005], [0008], [0009], [0020]~[0023] of Prior Art 2

[0005] In order to efficiently generate plasma and to protect a peripheral portion of an upper electrode, it is effective to install a shield ring so as to cover the peripheral portion of the upper electrode. The shield ring is made of an insulating material, for example, quartz, and is integrally formed into a substantially annular shape. By placing the shield ring on the upper electrode, it is possible, for example, to prevent deposits from adhering to the peripheral portion of the upper electrode or to prevent the peripheral portion from being sputtered by etching ions.

[0008] First, the degree to which deposits adhere to the shield ring or the shield ring is sputtered varies depending on the position of the shield ring. That is, on a surface of the shield ring exposed to a processing chamber, the closer it is toward the center direction of the upper electrode, the more easily deposits adhere or sputtering occurs, whereas near an outer peripheral portion, deposits rarely adhere or sputtering rarely occurs.

4) The peripheral portion of the upper electrode refers to the edge around the circumference of the upper electrode.

Paragraphs [0005], [0008], [0009], [0020]~[0023] of Prior Art 2
[0009] As described above, although the adhesion of deposits and the tendency for sputtering differ depending on the position of the shield ring, the shield ring has <u>conventionally been integrally formed</u>. For this reason, even when deposits adhere to a specific portion or <u>when that portion is worn, it has been necessary to clean or replace the entire shield ring</u>. [0010] (Omitted) <u>The shield ring includes an inner member and an outer member that are combined so as to be separable from each other. The inner member is made of an insulating resin having heat resistance and sputter resistance, and covers the peripheral portion of the upper electrode while being supported by the outer member at its outer peripheral portion. The outer member is installed on an outer wall of the upper electrode by detachable fixing means.</u> [0035] As illustrated in Figure 3, a shield ring (140) is installed at the peripheral portion of an upper electrode (138). <u>The shield ring (140) is disposed to prevent diffusion of plasma and to excite plasma having a desired plasma density in a plasma generation space.</u> [0036] Like a first member (122a) of a focus ring (122), <u>an inner member (142) is formed of an insulating material that is resistant to adhesion of deposits, from which deposits are difficult to peel off, and that has heat resistance and sputter resistance, such as polyimide-based resins including Kapton (a registered trademark) or Vespel (a registered trademark), polybenzimidazole-based resins such as Celazole (a registered trademark), polyetherimide-based resins such as ULTEM (a registered trademark), or polyether ether ketone such as PEEK (a registered trademark).</u> As illustrated in Figure 4, the inner member (142) has a substantially annular shape. Accordingly, <u>when deposits adhere to the shield ring (140) or when the shield ring (140) is sputtered, only the inner member (142) needs to be cleaned or replaced.</u> In addition, <u>since the inner member (142) is formed of a polyimide-based resin, the cleaning or replacement interval can be significantly extended.</u> [0039] In addition, <u>an outer member (144) is made of an insulating material, for example, quartz or an insulating resin similar to that of the inner member (142), and, as illustrated in Figure 6, has a substantially annular shape.</u>

Accordingly, the “panel ring” of the patented invention and the “shield ring” of Prior Art 2 differ in that their installation purposes are different

—namely, “adsorption of polymers generated during etching” versus “protection of the electrode”—their installation locations are different—namely, the “insulating panel” versus the “electrode”—and the panel ring is coated with or formed of a material suitable for polymer adsorption, whereas the shield ring is formed of a material to which deposits do not readily adhere in order to extend cleaning or replacement intervals. In short, the panel ring and the shield ring differ fundamentally in installation purpose, installation location, material selection, and resulting technical effects. Accordingly, the Court finds no motivation for a skilled person to combine the shield ring of Prior Art 2 with Prior Art 1 so as to arrive at the patented invention, nor, even if such a combination were attempted, would it reasonably be expected to achieve effects equivalent to those of the panel ring recited in Claim 1.

b) Determination as to Plaintiff’s Arguments

In response, the Plaintiff argues that the “shield ring” of Prior Art 2 is identical to the “panel ring” of Claim 1 of the present patent in terms of purpose and effect of installation, installation location and function, and formation material, and that it is also easy for a skilled person to combine Prior Art 2 with Prior Art 1; thus, the above “difference” can be easily overcome by combining Prior Art 2 with Prior Art 1. The Court examines this in detail below.

(1) Regarding the Problem to be Solved and Effects of the Panel Ring and the Shield Ring

The Plaintiff argues that the “panel ring” of the patented invention is intended to make maintenance and management easy by making the panel ring and the insulating panel separate components, which is identical to the problem to be solved and effects of the shield ring of Prior Art 2 that reduces maintenance and repair costs because only the inner member can be separated and cleaned or replaced.

Upon review, the conventional technology in the present specification describes that a yttrium oxide coating layer is formed on the edge surface of the insulating panel so as to adsorb polymer

scattered outward during cleaning, that the yttrium oxide coating layer has weak properties and thus requires frequent recoating, and that each recoating requires disassembling the entire insulating panel (paragraphs [0026], [0027]), and it further discloses that, to solve this, the invention focuses on a detachable “panel ring” (paragraph [0049]).

Paragraphs [0026], [0027], [0049] of the Patented Invention
[0026] In addition, <u>a yttrium oxide (Y_2O_3) coating layer is formed on a central-side baffle (G) of an insulating panel (F)</u> positioned at a central portion of an upper electrode (A) and on a surface at an edge thereof, <u>so that polymers dispersed to the surroundings during cleaning are adsorbed.</u> [0027] However, because the <u>yttrium oxide coating layer</u> has weak physical properties such that it <u>must be recoated after being introduced into the cleaning process twice</u>, the <u>insulating panel (F) must be disassembled each time recoating of the yttrium oxide coating layer is performed, and, in the assembly process conducted after recoating, a centering operation with the stem must be performed again</u>, thereby making the work process extremely cumbersome and resulting in an inconvenient problem. [0049] The <u>yttrium coating layer (24)</u> of the coating panel (20) and the <u>panel ring (22)</u> described above has good polymer adsorption properties and excellent chemical resistance, and therefore exhibits <u>a function of adsorbing and removing particles during cleaning without causing chemical changes.</u>

From this, it is understood that the “panel ring” of the patented invention presupposes not only ease of maintenance and management, but also a function of adsorbing polymers dispersed during cleaning. In contrast, the “shield ring” of Prior Art 2 has the purpose of preventing deposits from readily adhering thereto so as to extend the cleaning or replacement cycle (paragraph [0036] of Prior Art 2). Accordingly, even if the “panel ring” and the “shield ring” share a common aspect in that they reduce maintenance and management costs, the fundamental purpose and effect of the “panel ring”—namely, adsorbing polymers dispersed during cleaning to prevent their diffusion toward the center of the wafer—are not disclosed in Prior Art 2. Therefore, the Plaintiff’s argument on this point cannot be accepted.

Paragraph [0036] of the Prior Art 2

[0036] Like a first member (122a) of a focus ring (122), an inner member (142) is formed of an insulating material that makes it difficult for deposits to adhere thereto and difficult for adhered deposits to peel off, and that has heat resistance and sputter resistance, such as polyimide-based resins including Kapton (a registered trademark) or Vespel (a registered trademark), polybenzimidazole-based resins such as Celazole (a registered trademark), polyetherimide-based resins such as ULTEM (a registered trademark), or polyether ether ketone such as PEEK (a registered trademark), and, as illustrated in Figure 4, has a substantially annular shape. Accordingly, when deposits adhere to the shield ring (140) or when the shield ring (140) is sputtered, only the inner member (142) needs to be cleaned or replaced. In addition, since the inner member (142) is formed of a polyimide-based resin, the cleaning or replacement interval can be significantly extended.

(2) Regarding Installation Location and Function of the Panel Ring and the Shield Ring

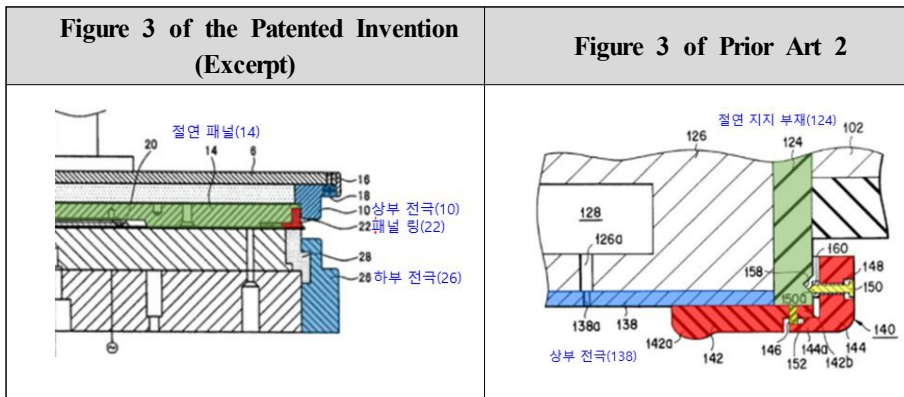
The Plaintiff argues that the “panel ring” of the patented invention is detachably installed on the edge of the insulating panel and is formed of an insulating material, thereby preventing plasma diffusion while allowing polymer adsorption; and that the “shield ring” of Prior Art 2 is detachably installed on the edge surface of an insulating support member and is formed of an insulating material to prevent plasma diffusion, and is arranged at a location where byproducts are likely to adhere; therefore, the “panel ring” can be easily derived from the “shield ring” of Prior Art 2.

Upon review, as examined above regarding the technical level of a skilled person in the relevant technical field, the plasma generation region is limited through the organic combination of configurations such as “injecting inert gas into the central portion of the insulating panel,” “narrowly setting the distance between the insulating panel and the wafer,” and “installing an insulating ring at an electrode edge,” and the “shield ring” and “insulating support member” of Prior Art 2

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correspond to an “insulating ring” among those configurations, in that they are installed at an “outer” edge of the electrode to prevent plasma from being generated outward of the electrode.

Moreover, the “panel ring” of the patented invention is installed on the edge of an “insulating panel” located “inside” the electrode, and thus its installation position differs; and in terms of function, the “panel ring,” whose primary purpose is adsorption of scattered polymer, and the “panel ring” (as argued by the Plaintiff, referring to the shield ring), whose primary function is to efficiently generate plasma and to protect the periphery of the upper electrode by preventing deposits from adhering to the periphery or preventing the periphery from sputtering by etchant ions, have markedly different primary functions. Accordingly, the Plaintiff’s argument based on a different premise is also without merit.



국문	영문
상부 전극(138) / 상부 전극(10)	Upper electrode (138) / Upper electrode (10)
하부 전극(26)	Lower electrode (26)
절연 지지 부재(124)	Insulating support member (124)
절연 패널(14)	Insulating panel (14)
패널 링(22)	Panel ring (22)

(3) Regarding the Material of Formation of the Panel Ring and the Shield Ring

The Plaintiff argues that the claims 1 do not state that the “panel ring” includes a “function of adsorbing polymers,” and that the “panel ring” of claim 1 may be formed of insulating materials such as ceramics, engineering plastics such as ULTEM, aluminum oxide, or a yttrium sintered body. The Plaintiff further argues that the “shield ring” of Prior Art 2 may likewise be formed of insulating materials such as ceramics, quartz, polyimide-based resins such as Kapton (a registered trademark) and Vespel (a registered trademark), polybenzimidazole-based resins such as Celazole (a registered trademark), polyetherimide-based resins such as ULTEM, or polyetheretherketone such as PEEK. Accordingly, the Plaintiff contends that, since both are formed of the same “insulating materials,” there is no difference in function between the “panel ring” and the “shield ring” attributable to the material of formation.

Upon review, however, the specification of the patented invention explicitly states, as a technical objective, that it enables “replacement of only the yttrium oxide layer that adsorbs polymers dispersed during cleaning,” and throughout the specification describes the “panel ring” as a configuration “for adsorbing polymers dispersed during cleaning.” In light of these disclosures, it is reasonable to interpret the “panel ring” of claim 1 as a configuration that inherently includes a function for achieving the technical objective of adsorbing polymers dispersed during cleaning. Accordingly, while the “panel ring” of claim 1 would be formed of, among known insulating materials, materials that readily adsorb polymers, it can be sufficiently anticipated that the “shield ring” of Prior Art 2 would be formed of insulating materials to which deposits are not easily attached. Even if certain engineering plastic materials such as ULTEM, cited as examples among known insulating materials, partially overlap, the primary purposes and functions are different. Therefore, it is difficult to regard the “panel ring” and the “shield ring” as configurations formed of the same material, and there is also a difference in their functions. The Plaintiff’s foregoing argument is without merit.

(4) Ease of Combination

The Plaintiff argues that Prior Art 1 and Prior Art 2 are inventions in the same technical field and share a common technical objective of plasma-based dry etching, and that corrosion and wear due to plasma are foreseeable in the relevant technical field given the nature of plasma chambers, and thus there is sufficient motivation to combine Prior Art 2 for maintenance of Prior Art 1, and there is no technical difficulty in such combination.

Upon review, even if there is no difficulty in the combination itself, considering that the “shield ring” of Prior art 2 has the purpose of limiting plasma and protecting the periphery of the electrode, even if the “shield ring” of Prior Art 2 were applied to Prior Art 1, it could only be installed on the edge of the upper electrode to limit plasma and protect the periphery of the upper electrode of Prior Art 1. In addition, absent recognition in the Prior Arts of a purpose and effect of adsorbing byproducts such as polymer generated during wafer edge cleaning, it cannot be said that a skilled person could have easily overcome the difference relating to the “panel ring” by combining Prior Art 1 and Prior Art 2 without resorting to hindsight informed by the patented invention. The Plaintiff’s argument is not accepted.

7) Summary of Analysis

For the foregoing reasons, Claim 1 could not have been readily derived by a skilled person from a combination of Prior Art 1 and Prior Art 2, and its inventive step is therefore upheld.

B. Whether the Inventive Step of Claim 7 is Denied

Claim 7 excludes the limitation of Claim 1 that the panel ring is detachably installed, and instead adds the feature that the insulating panel and the panel ring have different dielectric constants.

Accordingly, Claim 7 retains the technical feature of Claim 1 in which the panel ring is installed at the edge of the insulating panel to adsorb byproducts such as polymers that may be generated during

wafer etching. For the same reasons discussed above, the Court finds that a skilled person could not have easily invented Claim 7 based on Prior Art 1 and Prior Art 2, and its inventive step is therefore not denied.

C. Whether the Inventive Step of Claims 2 through 6, and Claims 8 and 9 is Denied

The inventions of Claims 2 through 6, and Claims 8 and 9 are dependent inventions that directly or indirectly cite the inventions of Claim 1 and Claim 7, and include without change the characteristic configurations of Claim 1 and Claim 7. Therefore, as examined above, a skilled person could not have easily invented these inventions through a combination of Prior Art 1 and Prior Art 2, and thus their inventive step is not denied.

4. Conclusion

Accordingly, the patented invention is not rendered lacking in an inventive step by the cited Prior Art, and the IPTAB Decision is lawful in reaching the same conclusion. Therefore, the Plaintiff's claim seeking reversal thereof is without merit. The decision is rendered as ordered.

Presiding Judge	Jaheun KU
Judge	Hyejin LEE
Judge	Young Gi KIM

[Appendix 1]

**Main Description and Drawings of the Specification of the
Patent Invention (Plaintiff's Exhibit 2)**

[Technical Field]

[0015] The present invention relates to a plasma etching chamber, and more particularly, to a plasma etching chamber capable of removing, by plasma etching, film residues remaining at an extreme edge of a plasma dry-etched wafer and particles deposited around the edge.

[Background Art]

[0016] In general, in manufacturing a wafer, a film layer stacked as a pattern is formed over the entire surface of the wafer up to the extreme edge. Here, byproducts generated during a dry cleaning process of etching the entire upper surface of the wafer with plasma are not completely exhausted, and remain as particles deposited over the upper surface, side surface, and bottom surface at the edge portion of the wafer.

[0017] Such film residues and particles that remain concentrated at the edge portion of the wafer, if not removed, act as a factor causing serious damage to the semiconductor chip to be obtained.

[0018] As a means for removing film residues and particles remaining at the wafer edge as described above, Japanese Published Patent Gazette Heisei 07-142449 discloses an apparatus for etching, by plasma, particles remaining at the extreme edge of the wafer.

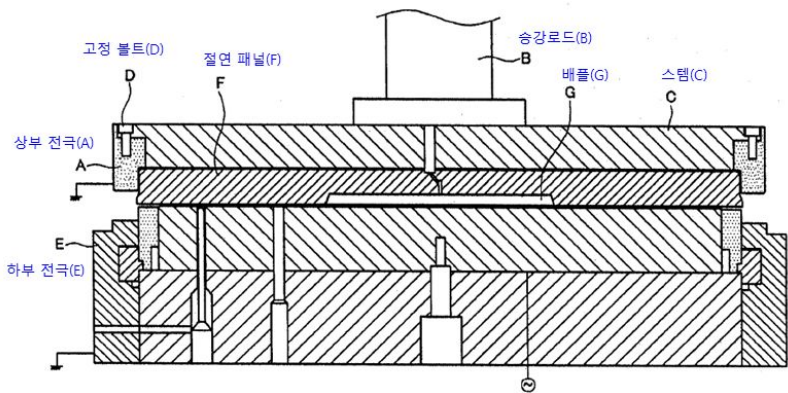
[0019] The disclosed apparatus performs etching by plasma by blowing a reaction gas between an upper electrode and a lower electrode disposed corresponding to the edge of the wafer, and at the same time, injects an inert gas into the central portion of the upper electrode, thereby preventing the plasma generated as described above from intruding into the inside of the wafer while performing edge etching.

[0022] In addition, the Applicant proposed, as in Korean Registered Patent No. 433008, a plasma etching chamber having a structure in which a viewing ring is installed at an edge of an upper electrode so that plasma is derived to the side surface of the wafer edge. Furthermore, the Applicant proposed, as in Korean Utility Model Registration No. 349874, a plasma etching chamber in which plasma is generated along two paths continuing from the wafer edge between the upper electrode and the lower electrode so that a portion extending to the upper surface, side surface, and bottom

surface at the wafer edge is etched.

[0023] However, because the plasma etching chamber proposed by the Applicant has a structure as shown in Figure 4, it needs to be improved in several aspects in actual use.

Figure 4. Partial cross-sectional view of a conventional plasma etching chamber



국문	영문
상부 전극(A)	Upper electrode (A)
하부 전극(E)	Lower electrode (E)
고정 볼트(D)	Fixing bolt (D)
절연 패널(F)	Insulating panel (F)
승강로드(B)	Lifting rod (B)
배플(G)	Baffle (G)
스템(C)	Stem (C)

[0024] First, because the upper electrode (A) is attached by a fixing bolt (D) inserted through the upper side of a stem (C) fixed to the lower end of a lifting rod (B), when replacing the upper electrode (A), it is inconvenient that the stem (C) must also be unnecessarily disassembled.

[0025] In addition, the upper electrode (A) and the lower electrode (E) disposed to face each other vertically are arranged in an asyssmmetrical shape due to a difference in radius, and thus the plasma is also generated in an asymmetrical shape, increasing the power consumed in plasma

generation, and at the same time, the asymmetrical plasma causes a problem of easily damaging the lower electrode (E).

[0026] In addition, a yttrium oxide (Y₂O₃) coating layer is formed on the surface of the baffle (G) on the center side and the edge surface of the insulating panel (F) located at the center portion of the upper electrode (A), so that polymer scattered outward during cleaning is adsorbed.

[0027] However, since the yttrium oxide coating layer has poor durability requiring recoating after being used twice in the cleaning process, the insulating panel (F) must be disassembled every time recoating of the yttrium oxide coating layer is performed, and during the assembly process after recoating, center alignment with the stem must be performed again, resulting in extremely cumbersome work and inconvenience.

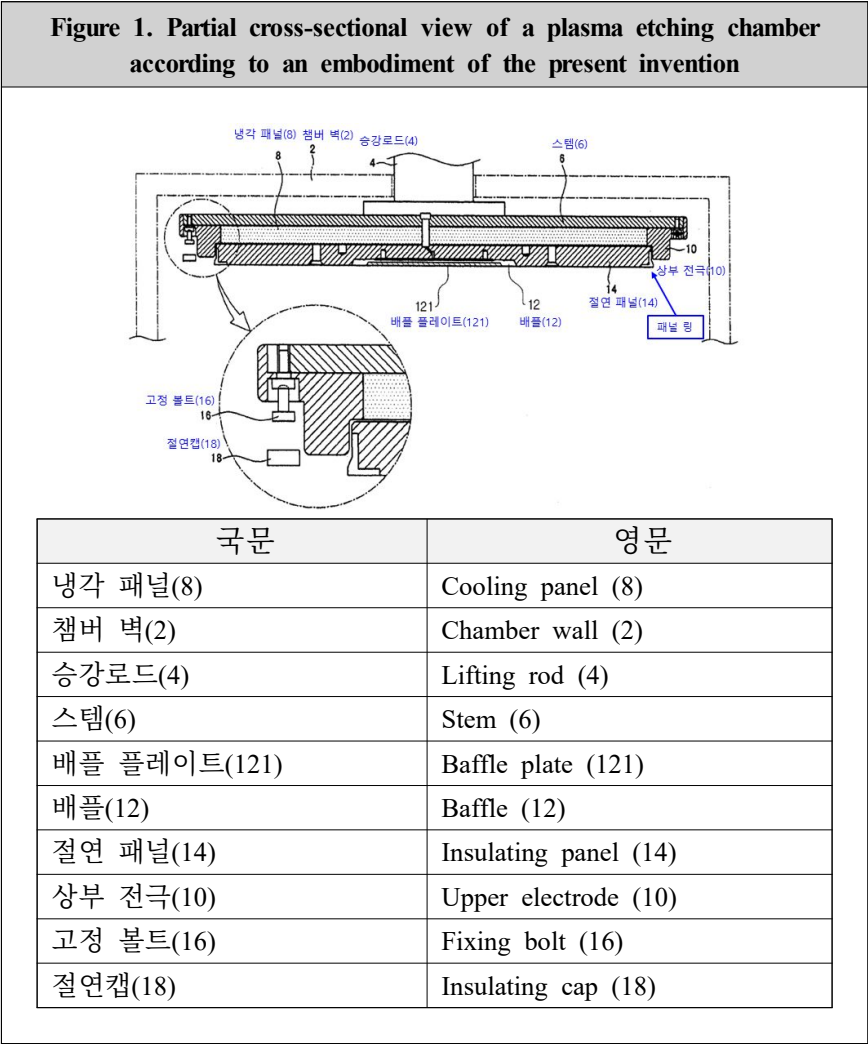
[0028] In addition, the plasma etching chamber has problems in that the RF power transmission efficiency is low and heat generation is high.

[Technical Problem to be Solved]

[0029] The present invention is intended to solve the above problems, and an object of the present invention is to provide a plasma etching chamber that can facilitate replacement of the upper electrode, form plasma generated at the wafer edge in a vertically symmetrical state, replace only the yttrium oxide layer located on the lower surface of the edge of the insulating panel, and increase RF power transmission efficiency.

[Configuration and Operation of the Invention]

[0039] Figure 1 is a diagram showing a detailed structure of an upper electrode of a plasma etching chamber according to the present invention; a lifting rod (4) is disposed to pass through an upper portion inside a chamber wall (2) providing a space isolated from the outside so that it can be lifted and lowered by an actuator (not shown), and a stem (6) is fixed to a lower end of the lifting rod (4).



[0040] On the lower surface of the stem (6), a cooling panel (8) is positioned inward and a ring-shaped upper electrode (10) is disposed at an edge, and an insulating panel (14) having a baffle (12) at the center is installed inside the upper electrode (10). A panel ring (22) is installed on the edge of the insulating panel (14) to adsorb byproducts such as polymer that may be generated during wafer etching.

[0041] In such configuration, the upper electrode (10) is attached by a fixing bolt (16) inserted into a lower side of the stem (6), and an insulating

cap (18) is fitted over the fixing bolt (16).

[0042] Figure 2 is an enlarged view of the insulating panel (14) described above; the insulating panel (14) may be made of alumina (Al₂O₃), and a coating panel (20) is formed on a bottom surface of the baffle (12) formed in the form of a concave groove at the center. The coating panel (20) and the panel ring (22) at the edge are configured to be detachably mounted by setting screws, respectively.

[0043] Meanwhile, a baffle plate (121) may be installed in an inner space of the baffle (12), and the baffle plate (121) functions to disperse and supply an auxiliary gas (e.g., nitrogen gas) supplied to the center of the wafer. The baffle plate (121) may be selectively installed and is fixed by setting screws like the coating panel (20).

[0044] The panel ring (22) is formed to have a dielectric constant different from that of the insulating panel (14). For example, the panel ring (22) may be made of a yttrium sintered body having a dielectric constant of 11, and the insulating panel (14) may be made of alumina having a dielectric constant of 8.4. The panel ring (22) and the insulating panel (14) need only have different dielectric constants; thus, the materials are not limited to ceramics and may also be formed of engineering plastics such as ULTEM.

[0045] Due to such difference in dielectric constants, the amount of charge accumulated in unnecessary portions for actual plasma discharge is reduced. Therefore, when trying to create the same plasma, the amount of current flowing to the lower electrode decreases, thereby reducing heat generation and increasing RF power transmission efficiency.

[0046] The coating panel (20) may be molded of alumina like the insulating panel (14) and may have a yttrium coating layer (24) formed on its surface, and the panel ring (22) may likewise have a yttrium coating layer (24) formed on its surface. Meanwhile, the panel ring (22) may also be formed as a molded body made by pressing yttrium powder at high pressure into a ring shape and then sintering it in a furnace.

[0047] In addition, the coating panel (20) on which the yttrium coating layer (24) is formed may also be formed on an upper surface of the baffle plate (121), rather than on the surface of the baffle (12). That is, the coating panel (20) on which the yttrium coating layer (24) is formed may be selectively formed on either the surface of the baffle (12) or the upper surface of the baffle plate (121).

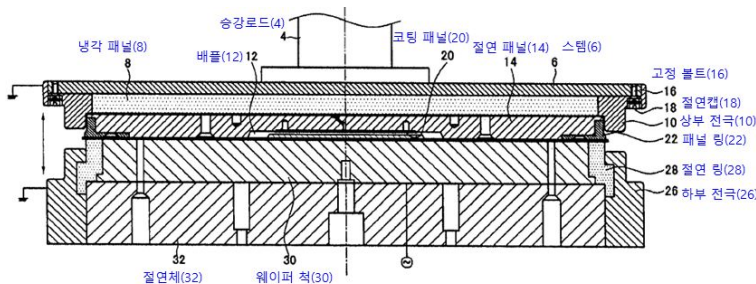
[0048] The yttrium coating layer (24) may be selectively formed on each of the coating panel (20) and the panel ring (22).

[0049] The yttrium coating layer (24) of the coating panel (20) and the panel ring (22) described above has good polymer adsorption properties and excellent chemical resistance, and thus acts to adsorb and remove particles without causing chemical changes during cleaning.

[0050] The yttrium coating layer (24) of the coating panel (20) and the panel ring (22) has generally been deposited and coated on a predetermined portion of the insulating panel (14), and because its service life is short, the insulating panel (14) had a service life of approximately one year in a cycle of using it twice and recoating once. However, according to the present invention, the insulating panel (14) is left as-is and provided for two etching processes, and through periodic management in which only the coating panel (20) and the panel ring (22) are separated and replaced, the apparatus has minimal downtime, enabling an efficient etching process. In addition, the replaced coating panel (20) and panel ring (22) are circulated again through a separate yttrium coating process to be prepared as parts newly having the yttrium coating layer (24) in preparation for the next replacement.

[0051] A lower electrode (26) is disposed downward to face the upper electrode (10) having the above configuration. The lower electrode (26) is a ring-shaped electrode having the same radius as the upper electrode (10), and thus the outer profiles of both electrodes (10)(26) form a completely symmetrical shape.

Figure 3. Cross-sectional view of the arrangement relationship between the upper electrode and the lower electrode



국문	영문
냉각 패널(8)	Cooling panel (8)
배플(12)	Baffle (12)

국문	영문
승강로드(4)	Lifting rod (4)
절연체(32)	Insulator (32)
웨이퍼 척(30)	Wafer chuck (30)
코팅 패널(20)	Coating panel (20)
절연 패널(14)	Insulating panel (14)
스텝(6)	Stem (6)
고정 볼트(16)	Fixing bolt (16)
절연캡(18)	Insulating cap (18)
상부 전극(10)	Upper electrode (10)
패널 링(22)	Panel ring (22)
절연 링(28)	Insulating ring (28)
하부 전극(26)	Lower electrode (26)

[0052] On the inner side of the lower electrode (26), with an insulating ring (28) interposed therebetween, a wafer chuck (30) is located, and the wafer chuck (30) vacuum-adsorbs a wafer placed on its upper surface and is electrically connected to a typical plasma oscillator (not shown) to receive a high frequency applied thereto. At this time, because the outer diameters of the upper electrode (10) and the lower electrode (26) form a perfectly symmetrical outer profile as described above, the plasma shape generated by such electrode arrangement is also perfectly symmetrical with little loss, so it can be operated even with a plasma oscillator of low capacity.

[0053] In addition, the wafer chuck (30) is disposed in a state completely insulated from the lower electrode (26) through an insulator (32) placed below.

[0054] Also in the plasma etching chamber of the present invention, inert gas is injected through the baffle (12) on the lower surface of the insulating panel (14) so that the inside of the wafer becomes a non-discharge region, and reaction gas is injected between the upper electrode (10) and the edge of the insulating panel (14) to generate plasma, thereby etching and removing particles deposited in a portion extending from the upper surface to the bottom surface at the wafer edge, which is performed in the same manner as a conventional plasma etching chamber, and thus a detailed description thereof is omitted.

[Effects]

[0056] As described above, because the present invention has a structure in which the upper electrode is installed by a fixing bolt inserted into the lower side of the stem, the upper electrode can be replaced without disassembling the stem; and because the upper electrode and the lower electrode disposed to face each other vertically have the same radius and thus form perfect symmetry, the plasma generated therebetween is also symmetrical, so that plasma can be generated with low power and the service life of the lower electrode is extended.

[0057] In addition, because detachable coating panels and a panel ring are provided on the surface of the baffle (G) on the center side and the edge surface of the insulating panel, when recoating is required, only the coating panel and the panel ring need be separated, and it is not necessary to unnecessarily disassemble the stem, thereby providing an advantage of simplifying the work process.

[0058] In addition, the present invention provides the effect of increasing RF power transmission efficiency so that it can operate with less power, and reducing heat generation, by making the dielectric constants of the insulating panel and the panel ring different.

[Appendix 2]

Major Contents and Drawings of Prior Art 1 (Plaintiff's Exhibit 5)

Cleaning of Wafer Edge, Bevel and Back-Side with a Torus-Shaped Capacitively Coupled Plasma

Abstract

A new type of capacitively coupled plasma source was developed, and experiments were conducted to remove harmful film layers and particles deposited on wafer edge, bevel and back-side during thin film processes or other semiconductor chip processes. Plasma was generated along 2 mm of the wafer edge region and 4 mm of the wafer back-side region to remove films and particles on wafer edge, bevel and back-side without damaging patterns inside the wafer. For SiO₂ and SiN films, an etch rate of 10,000 Å min⁻¹ or more was obtained, and for polysilicon films, an etch rate of 6,000 Å min⁻¹ or more was obtained.

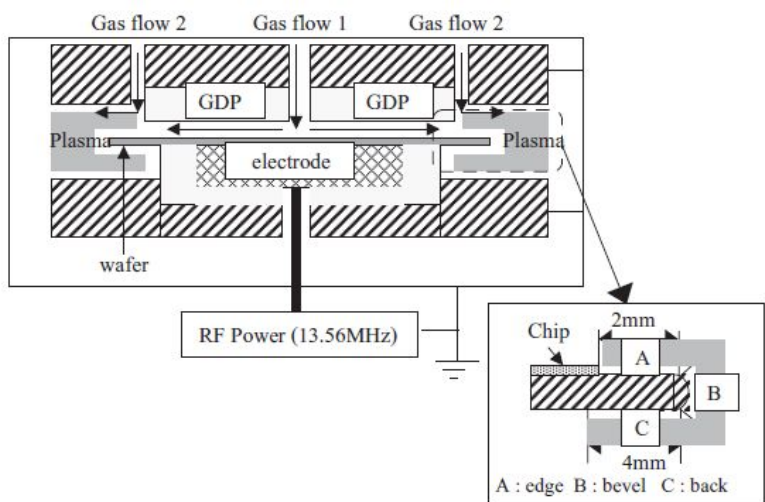
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Experimental Method

In order to overcome the disadvantages of such wet edge cleaning systems, the present study adopted a new edge cleaning system. Figure 1 shows a schematic diagram of the new edge cleaning system, namely, the SUSS CES-2020TM edge cleaning system. The CES-2020TM is a plasma etching apparatus employing a reactive ion etching (RIE) method. Dry etching systems have many advantages over wet etching systems [3].

The wafer is placed on a powered electrode surrounded by two grounded electrodes. The powered electrode and the upper and lower grounded electrodes are cooled to reduce thermal damage to the wafer. An RF power source in the 13.56 MHz frequency band with power of 300–600 W was used. Because the plasma volume is very small, this power is significantly lower than that typically used in conventional etching processes.

Figure 1. Schematic diagram of the experimental setup used in the wafer edge cleaning system



(omitted)

Plasma was generated along 2 mm of the wafer edge region and 4 mm of the wafer back-side region where unintentionally deposited films and particles must be removed. The distance between the wafer and the upper grounded electrode was 5 mm, and the distance between the wafer and the lower grounded electrode was 6 mm. The gap of the upper grounded electrode was variable. **The distance between the wafer and the ceramic upper gas distribute panel (GDP) varied between 0.3 mm and 0.5 mm. Due to the very narrow gap between the GDP and the wafer, plasma was not generated in the interior of the wafer.**

[Appendix 3]

Main Contents and Drawings of Prior Art 2 (Plaintiff's Exhibit 6)

A. Technical Field to Which the Invention Belongs and Prior Art in the Field

[0002] The present invention relates to a plasma processing apparatus, and more particularly, to an improvement of a shield ring installed on an upper electrode of a plasma processing apparatus.

[0005] In order to efficiently generate plasma and to protect the periphery of the upper electrode, it is effective to install a shield ring so as to cover the periphery of the upper electrode. The shield ring is made of an insulating material, for example quartz, and is integrally molded generally in an annular shape. By placing the shield ring on the upper electrode, for example, it is possible to prevent deposits from adhering to the periphery of the upper electrode or to prevent the periphery from being sputtered by etchant ions.

[0006] The shield ring is adversely affected by deposits adhering or sputtering due to processing. Therefore, at each predetermined time for cleaning or replacement, the processing apparatus must be disassembled to clean or replace the shield ring. The amount of deposits on the shield ring or the degree of sputtering depends, for example, on the output of the high-frequency power applied to the electrode.

B. Configuration and Operation of the Invention

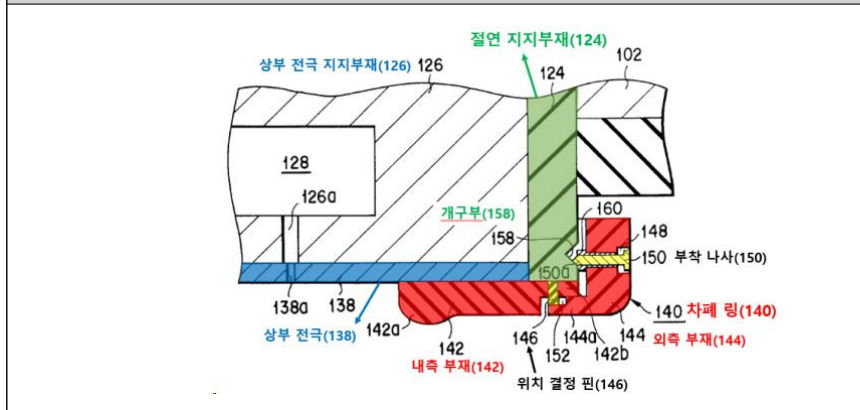
[0020] According to the present invention, because the inner member is disposed in a portion sputtered by plasma and the outer member is disposed in a portion not particularly affected, the member that must be frequently replaced becomes only the inner member, thereby reducing maintenance costs. In addition, the inner member disposed at a location where deposits are likely to adhere can be formed of a material to which deposits, for example deposits made of reaction products, are not likely to adhere and that is not likely to peel off even when adhered, thereby preventing generation of so-called foreign substances. In addition, by forming the inner member of a material that is less likely to be sputtered than the outer member, the replacement timing of the inner member can be further extended.

[0036] The inner member (142), like the first member (122a) of the focus

ring (122), is formed of a heat-resistant and sputter-resistant insulating material, for example a polyimide-based resin such as Kapton (registered trademark) or Vespel (registered trademark), a polybenzimidazole-based resin such as Celazole (registered trademark), a polyetherimide-based resin such as ULTEM (registered trademark), or a polyetheretherketone such as PEEK (registered trademark), and has a generally annular shape as shown in Figure 4. Therefore, when deposits adhere to the shield ring (140) or when the shield ring (140) is sputtered, only the inner member (142) needs to be cleaned or replaced. In addition, because the inner member (142) is formed of a polyimide-based resin, the cleaning or replacement period can be greatly extended.

[0045] When installing the shield ring (140) on the upper electrode (138), first, the inner member (142) is mounted on the outer member (144) while positioning is performed with a pair of positioning elements (146, 152). Next, with the inner member (142) and the outer member (144) in close contact with the peripheral surface of the upper electrode (138), an attachment screw (150) is inserted into a through hole (148). The tip portion (150a) of the attachment screw (150) is generally in a mountain shape, and an opening (158) having, for example, a generally mortar shape is disposed at a portion of the insulating support member (124) where the attachment screw (150) is pressed. That is, the opening (158) has an inclined surface that slopes upward as it extends toward the inside of the insulating support member (124).

Figure 3. Cross-sectional view schematically showing the periphery of the upper electrode of an etching apparatus



IP HIGH COURT DECISIONS

국문	영문
상부 전극 지지부재(126)	Upper electrode support member (126)
절연 지지부재(124)	Insulating support member (124)
상부 전극(138)	Upper electrode (138)
개구부(158)	Opening (158)
내측 부재(142)	Inner member (142)
위치 결정 핀(146)	Positioning pin (146)
외측 부재(144)	Outer member (144)
차폐 링(140)	Shield ring (140)
부착 나사(150)	Mounting screw (150)

End.

IP HIGH COURT OF KOREA
TWENTY-FOURTH-FIRST DIVISION
DECISION

Case No.	2023Na10204 Injunction, etc (Patent)
Plaintiff, Appellant	Lam Research Corporation United States Representative B Counsel Attorneys Hyun-jin JANG, Woong ANH
Defendant, Appellee	SMT Co., Ltd. Chief Executive Officer D Counsel Shin & Kim LLC Attorneys Won LEE, Yun-hee KIM, Hwan LEE, Seok-ho JOO
District Court's Decision	Seoul Central District Court Decision 2020GaHap593102, decided February 15, 2023
Date of Closing Argument	December 20, 2023
Decision Date	February 15, 2024

ORDER

1. Paragraph (1) of formal order of the first instance, including the expansion of the Plaintiff's claims made before this Court, shall be modified as follows.

IP HIGH COURT DECISIONS

A. The part of the action seeking destruction of “other machinery and equipment used for the manufacture of the products described in the Appendix” is dismissed.

B. The Defendant shall

1) be prohibited from manufacturing, using, assigning, leasing, or importing the products described in Appendix 1, or from offering them for assignment or lease (including exhibition for assignment or lease);

2) destroy all finished and semi-finished products described in Appendix 1 that are stored at the Defendant’s head office, branches, business offices, sales offices, factories, and warehouses (items that possess the structure of the finished products but have not yet reached completion), as well as all molds used for the manufacture of such products; and

3) pay to the Plaintiff KRW 3,400,000,000, together with interest calculated at an annual rate of 5 percent on KRW 100,000,000 from November 12, 2020, and on the remaining KRW 3,300,000,000 from May 17, 2022, respectively, until February 15, 2024, and thereafter at an annual rate of 12 percent until full payment is made.

C. The remainder of the Plaintiff’s claims is dismissed.

2. Thirty percent of the total litigation costs shall be borne by the Plaintiff, and the remaining seventy percent by the Defendant.

3. Paragraph 1(b) above may be provisionally executed.

DEMAND FOR RELIEF

1. Plaintiff’s Demand

A judgment identical to Paragraph 1(b)1) of the formal order; and

The Defendant shall ① destroy all finished products and semi-finished products of the products described in Appendix 1 that are stored at the Defendant's head office, branches, business offices, sales offices, factories, and warehouses (products that possess the structure of the finished products but have not yet reached completion), as well as all molds and other machinery and equipment used for the manufacture of such products, and, ② pay to the Plaintiff KRW 4,977,578,214, together with interest calculated at an annual rate of 12% on KRW 100,000,000 from the day following service of the complaint in this action, on KRW 4,392,573,700 from the day following service of the application for amendment of the demand for relief and grounds dated April 29, 2022, and on KRW 485,004,514 from the day following service of the application for amendment of the demand for relief and grounds dated December 11, 2023, respectively, until full payment is made (The Plaintiff expanded the demand for relief of the monetary claim before this Court).

2. Appellant's Demand

The judgment of the first instance shall be denied.

The Defendant shall ① be prohibited from manufacturing, using, assigning, leasing, or importing the products described in Appendix 2, or from offering them for assignment or lease (including exhibition for assignment or lease), ② destroy all finished products and semi-finished products of the products described in Appendix 2 that are stored at the Defendant's head office, branches, business offices, sales offices, factories, and warehouses (products that possess the structure of the finished products but have not yet reached completion), as well as all molds and other machinery and equipment used for the manufacture of such products, and ③ pay to the Plaintiff KRW 4,492,573,700, together with interest calculated at an annual rate of 12% on KRW 100,000,000 from the day following service of the complaint in this action, and on KRW 4,392,573,700 from the day

following service of the application for amendment of the claims and grounds dated April 29, 2022, respectively, until full payment is made (This is the demand for relief as of the time of the judgment of the first instance).¹⁾

OPINIONS

1. Background

A. Patented Invention at Issue

- 1) Title of the invention: Cam-Fixed Electrode Clamp
- 2) Filing date (International filing date) / Registration date /
Registration number: March 13, 2009 / February 13, 2017 /
No. 10-1708060
- 3) Patentee: Plaintiff
- 4) Claims

[Claim 1] A cam-fixed clamp (hereinafter, “Element 1”) comprising: a disk spring stack including one or more disk springs; a stud having a body portion, a first terminal end, and a second terminal end, wherein the first terminal end includes a head region having a first diameter greater than a cross-sectional dimension of the body portion, and the second terminal end has a second diameter greater than the cross-sectional dimension of the body portion (hereinafter, “Element 2-a”), the stud being arranged to support the disk spring stack concentrically with respect thereto (hereinafter, “Element 2-b”)

1) With respect to the claims for prohibition and destruction, the Plaintiff initially sought, at the first instance, prohibition and destruction of the products described in Appendix 2; however, upon reaching this Court, the Plaintiff corrected the demand for relief to seek prohibition and destruction of the products described in Appendix 1, in which the product names and related details were organized in greater specificity.

and configured to be fixed to a consumable electrode in a plasma processing environment so as to be non-rotatable (hereinafter, “Element 2-c”), the stud being hereinafter referred to as “Element 2”; a socket arranged to concentrically and mechanically couple the head region of the stud, the supported disk spring stack, and a periphery of the stud (hereinafter, “Element 3-a”), the socket being configured to be firmly attached to the consumable electrode in the plasma processing environment (hereinafter, “Element 3-b”), wherein the disk spring stack is aligned within the socket to allow limited lateral movement of the stud in a direction perpendicular to a longitudinal axis of the stud (hereinafter, “Element 3-c”), and wherein the disk spring stack and the stud are arranged to be in firm contact with the socket at a base portion thereof (hereinafter, “Element 3-d”), the socket being hereinafter referred to as “Element 3”; and a camshaft (hereinafter, “Element 4”) having a cylindrical body with a diameter greater than the first diameter of the head region, configured to be mounted within a bore of a backing plate, further including an eccentric cutout region positioned at a center of the cylindrical camshaft body, and configured such that, when the consumable electrode and the backing plate are brought into proximity to each other, the camshaft engages the head region of the stud so as to rotate therewith and secure the head region, wherein, when rotatably engaged with the stud, a longitudinal axis of the stud is perpendicular to a longitudinal axis of the camshaft (hereinafter, “Element 5”)[(hereinafter, “Claim 1”)].

【Claims 2 to 7】 Omitted

【Claim 8】 In Claim 1, the socket has external threads, which constitutes a cam-fixed clamp (hereinafter, “Claim 8”).

【Claims 9 to 14】 Omitted

【Claims 15 to 20】 Deleted

5) Main contents of the specification

Among the specification of the patent at issue, the main contents of

the description of the invention and the drawings are as set forth in Appendix 3.

B. Defendant's Product

The Plaintiff is a U.S.-based company that manufactures etching equipment in the “FLEX” product line for semiconductor production and sells such equipment to Korean semiconductor manufacturers. The Defendant manufactured the stud/socket assembly products described in Appendix 1 (hereinafter, “the Defendant’s Product”) and sold them to the above manufacturers beginning on February 14, 2017, and indicated that the Defendant’s Products were used in the Plaintiff’s “FLEX” product line through descriptions such as “Application: FLEX 45 series / D series / E series / F series / G series,” as shown in the website capture screens in Appendix 1. [The Defendant does not dispute ① that the “product name, item name, or specifications” described in Appendix 1 correspond to products sold by the Defendant; and ② that all specific product names listed in the “Application” section of the website capture screens in Appendix 1 fall within the Plaintiff’s “FLEX” product line²].

C. Prior Arts

1) Prior Art 1 (Defendant’s Exhibit No. 8)

Prior Art 1 is titled “Spectrometer Accessory and Phosphorescence Decay Measurement” and is disclosed in Japanese Patent Publication No. 2003-508784, published on March 4, 2003. The principal contents of its specification are as set forth in Appendix 4.

2) Prior Art 2 (Defendant’s Exhibit No. 20)

Prior Art 2 is titled “Electrode Plate for Plasma Processing Apparatus and Plasma Processing Apparatus” and is disclosed in

2) Reference is made to the minutes of the first oral hearing held before this Court.

Japanese Patent Publication No. 2003-297806, published on October 17, 2003. The principal contents of its specification are as set forth in Appendix 5.

3) Prior Art 3 (Defendant's Exhibit No. 21)

Prior Art 3 is titled "Mounting Table" and is disclosed in Japanese Patent Publication No. 2007-5353, published on January 11, 2007. The principal contents of its specification are as set forth in Appendix 6.

【Factual basis】 Undisputed facts; the descriptions and images of Plaintiff's Exhibits Nos. 1 through 6 and 16 and Defendant's Exhibits Nos. 1, 2, 8 through 21, and 59; and the overall purport of the oral arguments

2. Summary of the Parties' Arguments

A. Plaintiff

The Defendant's product lacks the camshaft of Element 4 among the technical configurations of Claim 1 and Claim 8; however, they still include the remaining technical configurations, namely, the disk spring stack of Element 1, the stud of Element 2, and the socket of Element 3, without modification, and accordingly, the Defendant's product constitute product used solely for the manufacture of the cam-fixed clamp, which is the products of each of the above inventions. Therefore, the Defendant's acts of manufacturing (production) and selling (assignment) should be deemed to infringe the patent rights relating to Claim 1 and Claim 8. In other words, the Defendant's acts constitute so-called indirect infringement of each of the above patent rights. Accordingly, on the basis of alternative cause of action regarding each patent infringement, the Defendant is obligated to cease the infringing acts and destroy the infringing products, as demanded for relief (injunctive relief), and is further obligated to pay the damages as demanded for relief which the Plaintiff has specifically claimed partial damages of the damages.

B. Defendant

1) Interpretation of the Claims and Absence of Elements

a) In Claim 1 and Claim 8 ① the configuration in which “the stud is fixed to the electrode so as to be non-rotatable,” as recited in Element 2-c, is construed as a technical configuration in which all rotation of the stud is prevented, regardless of whether the stud is engaged with the camshaft; and ② the configuration in which “the disk spring stack and the stud are in firm contact with the socket at a base portion of the socket,” as recited in Element 3-d, is construed as a technical configuration in which lateral movement of the disk spring stack is not permitted.

b) However, the Defendant’s product ① allow rotational movement of the stud when the stud is not engaged with the camshaft; and ② allow lateral movement of the disk spring stack due to the presence of clearance between the disk spring stack and a base portion of the socket. Accordingly, because the Defendant’s products lack Element 2-c and Element 3-d, respectively, they cannot be regarded as products constituting indirect infringement, as alleged by the Plaintiff.

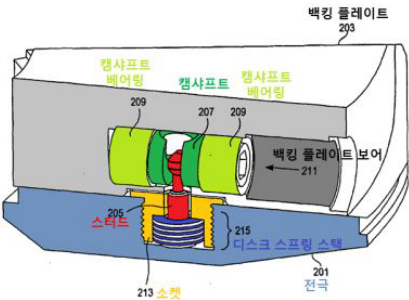
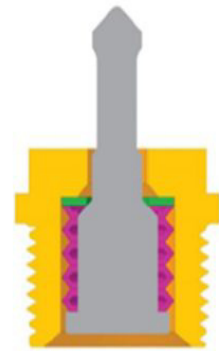


FIG. 2 of the patented invention

Name of the Number
211: Backing plate
209: Camshaft bearing
207: Camshaft
209: Camshaft bearing
211: Backing plate bore
205: Stud
215: Disc spring stack
213: Socket
201: Electrode

2) Violation of the Written Description Requirement Claim 1 and Claim 8, together with the limitations relating to Element 2-c and Element 3-d, which are construed as having the same technical

meanings as set forth in the preceding paragraph within the scope of the claims, also include, in Element 3-c, the limitation that “the disk spring stack is aligned within the socket to allow limited lateral movement of the stud in a direction perpendicular to the longitudinal axis of the stud,” and none of these limitations is supported by the description of the invention. Accordingly, Claim 1 and Claim 8 are invalid because they violate the written description requirement, under which the matters recited in the claims must be supported by the description of the invention. Therefore, the scope of rights of those claims cannot be recognized.



Defendant's Product

3) Exhaustion of Patent Right

The acts of the Korean semiconductor manufacturers purchasing etching equipment in the “FLEX” product line embodying Claim 1 and Claim 8 from the Plaintiff and thereafter replacing simple parts of such equipment do not constitute direct infringement of the patent rights relating to Claim 1 and Claim 8 under the doctrine of patent exhaustion.

Accordingly, the Defendant's acts of manufacturing the Defendant's Product, which correspond to such simple parts, and selling them to the above semiconductor manufacturers cannot be regarded as constituting indirect infringement of the above patent rights.

4) Abuse of Right and Freely Exploited Invention

a) The patented invention at issue (hereinafter, “patented invention”) relates to a simple technical configuration for inserting and fastening a rod-shaped member having a spherical terminal end into a grooved cylindrical member, which merely corresponds to technical content that had already been commonly used in various industrial fields.

Both Claim 1 and Claim 8 are inventions that a person having ordinary skill in the art (hereinafter, a “skilled person”) could easily

arrive at based on ① Prior Art 1; ② a combination of Prior Art 1 and Prior Art 3; ③ a combination of Prior Art 1 and well-known and commonly used technology; ④ a combination of Prior Art 1 and Prior Art 2; ⑤ a combination of Prior Art 1 and Prior Art 2 and Prior Art 3; or ⑥ a combination of Prior Art 1 and Prior Art 2 and well-known and commonly used technology,³⁾ and accordingly, the inventive step of those claims is lacking, and it is apparent that the patent rights thereon would be invalidated. Therefore, the Plaintiff's claims in this action based on alleged infringement of those patent rights constitute an abuse of right.

b) The Defendant's Product can be easily practiced by a skilled person based on a combination of Prior Art 1 and Prior Art 3, or well-known and commonly used technology, and therefore do not fall within the scope of rights of Claim 1 and Claim 8 without the need for a comparison with those inventions.

3. Whether Claim Interpretation and the Written Description Requirement Is Violated

A. Relevant Law

1) The scope of protection of a patented invention is determined by the matters recited in the claims (Article 97 of the Patent Act). However, because the technical meaning of the matters recited in the claims can be accurately understood only by taking into account the

3) The Defendant asserts, as well-known and commonly used technology, ① the matters evidenced by Defendant's Exhibits Nos. 22 through 24, ② the matters evidenced by Defendant's Exhibits Nos. 4 through 7, 64, 82, and 83, and ③ the matters evidenced by Defendant's Exhibit No. 78 (descriptions and illustrations on the 18th and 19th pages) and Defendant's Exhibit No. 79 (descriptions and illustrations on the 2nd and 8th pages) (Prior Art No. 4 prior to withdrawal of the assertion) (reference is made to the minutes of the second oral hearing held before this Court).

description of the invention and the drawings, the claims must be interpreted objectively and reasonably by considering the technical significance intended to be expressed by the claim language, based on the ordinary meaning of the wording and in light of the description of the invention and the drawings. Nevertheless, even when the description of the invention and the drawings are consulted, the claims may not be interpreted in a manner that unduly limits or expands their scope based on other descriptions contained in the description of the invention or the drawings (*see* Supreme Court Decisions Nos. 2019Da222782, 2019Da222799, dated Oct. 17, 2019, etc.). These legal principles apply equally where the claims of a patented invention are expressed not in terms of ordinary structures, methods, or materials, but in so-called functional language describing functions, effects, or properties (*see* Supreme Court Decisions 2017Hu2864, dated Aug. 27, 2020., and 2007Hu4977, dated July 23, 2009., etc.).

2) Meanwhile, Article 42(4)1 of the Patent Act provides that claims defining the matters for which protection is sought must be supported by the description of the invention. The purpose of this provision is to prevent the unjust result of granting patent rights for inventions not disclosed by the applicant, by including in the claims subject matter that is not described in the description of the invention of the specification filed with the patent application. Accordingly, whether the written description requirement under Article 42(4)1 of the Patent Act is satisfied must be determined, in light of the purpose of the provision, from the perspective of a person having ordinary skill in the art, based on the technical level at the time of filing of the patent application, by examining whether the matters corresponding to the invention recited in the claims are described in the description of the invention. Therefore, if, in view of the technical level at the time of filing, the contents disclosed in the description of the invention can be expanded or generalized to the scope of the invention recited in the claims, the claims are deemed to be supported by the description of the

invention (*see* Supreme Court Decision 2017Hu2864, Aug. 27, 2020., and Supreme Court Decision 2014Hu2061, May 26, 2016., etc.).

B. Interpretation of the Technical Meaning of Element 2-c

1) Description in the Claims

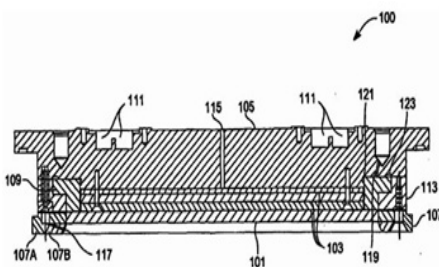
Element 2-c of the claims recites that “the stud is configured to be fixed to a consumable electrode in a plasma processing environment so as to be non-rotatable.” This configuration, namely, that the stud is “fixed to the electrode so as to be non-rotatable,” does not describe an ordinary structure or method, but instead constitutes a functional limitation directed to the function or effect of the stud. Accordingly, this limitation must be interpreted objectively and reasonably, based on the ordinary meaning of the claim language, while also considering the technical significance intended to be conveyed by that language in light of the description of the invention and the drawings.

2) Description of the Invention

a) Problems of the Prior Art

(1) The description of the invention in the specification of the patented invention (Plaintiff’s Exhibit No. 2) includes the following descriptions regarding the prior art and its problems. That is, there are descriptions

stating that “a conventional prior art showerhead electrode assembly (100) for a single-wafer etcher is used in a location where a wafer is spaced apart and supported beneath a silicon electrode (101). The upper surface of the outer edge of the silicon electrode (101) is metallurgically bonded to a graphite support ring (109), for example, by silicon or indium or indium alloy solder. The silicon electrode (101) is a planar disk having a



Prior Art

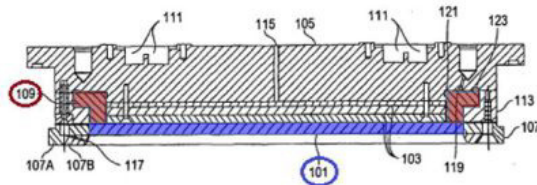
uniform thickness from the center to the edge. ... An outer flange on the graphite support ring (109) is clamped to an aluminum support member (105) by an aluminum clamping ring (113)” (paragraph [0010]), descriptions stating that “the aluminum clamping ring (113) is attached to the aluminum support member (105) by a plurality of circumferentially spaced stainless steel bolts threaded into the aluminum support member (105). ... A radially inwardly extending flange of the aluminum clamping ring (113) engages the outer flange of the graphite support ring (109). Accordingly, clamping pressure is not applied directly to the exposed surface of the silicon electrode (101)” (paragraph [0011]), descriptions stating that “process gas is supplied to the silicon electrode (101) through a central hole (115) in the aluminum support member (105)” (paragraph [0012]), descriptions stating that “to provide enhanced heat transfer between the graphite support ring (109) and the aluminum support member (105), a portion of the process gas is supplied through a first gas conduit hole (119) to fill a small annular groove in the aluminum support member (105). In addition, a second gas conduit hole (117) in the plasma confinement ring (107) allows pressure to be monitored within the reaction chamber” (paragraph [0013]), and descriptions stating that “the difficult and time-consuming prior art process of bonding the silicon electrode (101) to the graphite support ring (109) requires heating the silicon electrode (101) to a bonding temperature that may cause bowing or cracking of the electrode (101) due to the different coefficients of thermal expansion of the silicon electrode (101) and the graphite support ring (109). In addition, contamination of the wafer may result from solder particles or evaporated solder contaminants derived from the joint between the silicon electrode (101) and the graphite support ring (109) or from the graphite support ring (109) itself” (paragraph [0014]).

(2) In view of the above descriptions in the specification, the following points can be ascertained.



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That is, ① in the prior art, the upper surface of the outer edge of the silicon electrode (101) was bonded to the graphite support ring (109) by silicon or indium or indium alloy solder [that is, in the prior art, the means for coupling the silicon electrode (101) and the support ring (109, graphite support ring) of the backing plate was a soldered joint], and the aluminum clamping ring (113) was attached to the aluminum support member (105) by a plurality of circumferentially spaced stainless steel bolts threaded therein, wherein the outer flange on the graphite support ring (109) was clamped to the aluminum support member (105) by the aluminum clamping ring (113), and a portion of the process gas was supplied through the first gas conduit hole (119) in order to provide enhanced heat transfer between the graphite support ring (109) and the aluminum support member (105).



② However, bonding the silicon electrode (101) to the graphite support ring (109) requires heating the silicon electrode to a bonding temperature that may cause bowing or cracking of the silicon electrode (101) due to the different coefficients of thermal expansion between the silicon electrode (101) and the graphite support ring (109). ③ Contamination of the wafer may also occur due to solder particles or evaporated solder contaminants derived from the joint between the silicon electrode and the graphite support ring (109) or from the graphite support ring (109) itself.

b) Technical Problem of the Patented Invention and the Means of Solving It

(1) The description of the invention in the specification of the patented invention states that “accordingly, what is needed is an efficient means for mounting an electrode on a simple, robust, and cost-effective support or backing ring. Such mounting means must also take into account any induced stresses resulting from differences in

coefficients of thermal expansion between the electrode and the support member” (paragraph [0016]). When this passage is considered together with the descriptions of the problems of the prior art discussed in item a) above, it is understood that the technical problem addressed by the patented invention lies in adopting a coupling method between the stud and the camshaft that eliminates the need to bond the silicon electrode to the support ring of the backing plate (graphite support ring) with solder or the like, thereby allowing the electrode to be mounted on the support or backing ring in a simple and efficient manner, ensuring good thermal contact, and relieving stresses caused by differences in coefficients of thermal expansion between the electrode and the support member.

(2) Means of Solving the Problem set forth the Description of the Invention in the Specification of the Patented Invention

(a) The specification states that “the stud (205) / disk spring stack (215) / socket (213) assembly is mounted on the electrode (201)” (paragraph [0027]); that “the electrode cam clamp is assembled by inserting the camshaft (207) into the backing plate bore (211). … The camshaft (207) has an internal eccentric cutout that engages with the head of the shaft (205)” (paragraph [0031]); and that “the head of the stud (205) is inserted through a through-hole below the backing plate bore (211). The camshaft (207) is rotated clockwise until the keying pin

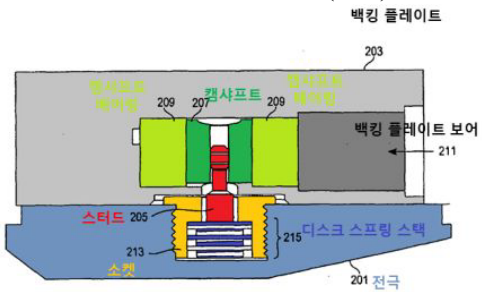


FIG. 2 of the patented invention

Name of the Number
211: Backing plate
209: Camshaft bearing
207: Camshaft
209: Camshaft bearing
211: Backing plate bore
205: Stud
215: Disk spring stack
213: Socket
201: Electrode

(401) moves to contact the end of the half-moon-shaped slot or until an audible click is heard, whereby the electrode (201) is retained with respect to the backing plate (203)” (paragraph [0032]).

Based on the foregoing descriptions in the specification, it can be understood that, in the patented invention, the stud (205) / disk spring stack (215) / socket (213) assembly is mounted on the electrode (201); the camshaft (207) is mounted in the backing plate bore (211); and, with the head of the stud (205) inserted through the through-hole below the backing plate bore (211), the backing plate (203) and the electrode (201) are coupled by rotating the camshaft (207).

(b) In addition, the specification states that “the stud (205) is mounted within the socket (213). ... The stud (205) and the disk spring stack (215) are arranged within the socket (213) so as to allow a limited amount of lateral movement between the electrode (201) and the backing plate (203). Limiting the amount of lateral movement allows a firm fit between the electrode (201) and the backing plate (203), thereby ensuring good thermal contact, while still providing some movement to accommodate differences in thermal expansion between the two parts” (paragraph [0023]), and that “the stud/socket assembly⁴⁾ (303) illustrates

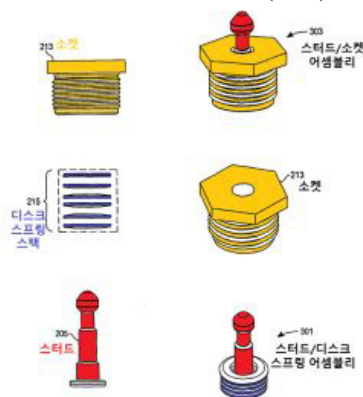


FIG. 3 of the patented invention

Name of the Number
213: Socket
303: Stud/socket assembly
215: Disc spring stack
205: Stud
301: Stud/disc spring assembly

an internal diameter at the upper portion of the socket (213) that is greater than the external diameter of the intermediate portion of the stud (205). ... The difference in diameter between the two parts allows

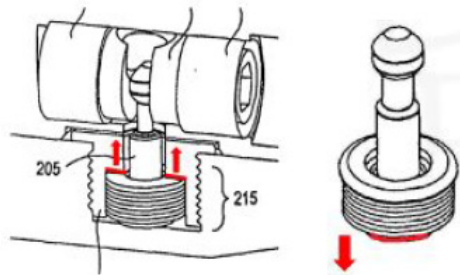
4) Refers to an assembly composed of the stud (205), the disk spring stack (215), and the socket (213). The same shall apply hereinafter.

limited lateral movement in the assembled electrode clamp. The stud/disk spring assembly (301) maintains firm contact with the socket (213) at the base portion of the socket (213), while the difference in diameter allows some lateral movement” (paragraph [0029]).

Based on the above descriptions in the specification, it can be understood that the stud/disk spring assembly is mounted within the socket, and that, while good thermal contact between the electrode and the backing plate is ensured through firm contact with the socket at the base portion of the socket, stress caused by differences in the coefficients of thermal expansion between the electrode and the backing plate is relieved by allowing lateral movement, which is achieved by making the internal diameter of the opening at the upper portion of the socket larger than the external diameter of the intermediate portion of the stud.

(3) The Presence of an Organically Combined Structure in the Patented Invention is Examined as follows.

(a) When the circumstances examined in the preceding paragraph are considered together with the claim language relating to the camshaft of Element 4, namely, “a camshaft having a cylindrical body with a diameter greater than the first diameter of the head region, configured to be mounted



Reference Figures
(Extracted from FIG. 2a and 3 of the patented invention)

within a bore of a backing plate, further including an eccentric cutout region positioned at the center of the cylindrical camshaft body, and configured such that, when the consumable electrode and the backing plate are brought into proximity to each other, the camshaft engages with the head region of the stud so as to rotate therewith and to

secure the head region,” the following points may be understood.

That is, ① during the process in which the stud/socket assembly engages with the camshaft, the first terminal end (head region) of the stud is received in the eccentric cutout region of the camshaft, and, upon rotation of the camshaft, the first terminal end (head region) of the stud is pulled upward; and as a result of such engagement, the disk spring stack positioned inside the socket is compressed in the vertical direction between the socket and the second terminal end of the stud. ② Further, because the disk spring stack, when compressed as described above, exerts an elastic restoring force that pushes the socket and the second terminal end of the stud apart, the backing plate and the electrode are thereby firmly coupled to each other in the vertical direction.

(b) However, the specification of the patented invention contains a description stating that “the electrode (201) may be composed of various materials, including, for example, silicon (Si), silicon carbide (SiC), or polysilicon (α -Si). The backing plate is often composed of aluminum, but other materials are known in the art” (paragraph [0022]). The specification also includes the previously examined passage stating that “the stud socket assembly (303) illustrates an internal diameter at the upper portion of the socket (213) that is greater than the external diameter of the intermediate portion of the stud (205). ... The difference in diameter between the two parts allows limited lateral movement in the assembled electrode clamp. The stud disk spring assembly (301) maintains firm contact with the socket (213) at the base portion of the socket (213), while the difference in diameter allows some lateral movement” (paragraph [0029]). In addition, Claim 1 and Claim 8 recite, as Element 3-c, that “the disk spring stack is aligned within the socket to allow limited lateral movement of the stud in a direction perpendicular to the longitudinal axis of the stud.”

Accordingly, even if, as examined in the preceding paragraph, the electrode and the backing plate are in a state of firm coupling after

the stud/socket assembly has engaged with the camshaft, the patented invention may be understood as having the following technical content. In order to relieve stress caused by differences in coefficients of thermal expansion between, for example, a silicon electrode and an aluminum backing plate, which constitutes the particular problem addressed by the invention, the stud is configured to allow lateral movement (rotation) during the plasma processing process by providing the opening at the upper portion of the socket with an internal diameter greater than the external diameter of the intermediate portion of the stud. [This is consistent with the description in Defendant's Exhibit No. 50 (p. 12), which indicates that the coefficient of thermal expansion of an Al plate is 23.1×10^{-6} m/m·°C, whereas that of a Si plate is 2.6×10^{-6} m/m·°C.] Further, in light of the general meaning of the term "rotation" in the claim language of Element 2-c, namely, "a movement in which a figure in a plane or space moves a certain distance or angle about a point or a fixed axis without changing the relative positions of its points" (Defendant's Exhibit No. 46), it may be considered that limited lateral movement (tilting) of the second terminal end about the head region of the stud also falls within the above general meaning of "rotation."

3) Technical Meaning of Element 2-c

a) When the foregoing considerations are taken together, ① the technical meaning of the functional expression in the claim language of Element 2-c, namely, that the stud is "configured to be fixed to the electrode so as to be non-rotatable," is objectively and reasonably interpreted as meaning that, during the process in which the backing plate and the electrode are fastened together, the electrode and the backing plate are placed in a coupled state such that the stud does not readily rotate. ② Further, the claim language of Element 2-c, namely, that "the stud is configured to be fixed to a consumable electrode in a plasma processing environment so as to be non-rotatable," which includes the above functional expression, is

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properly understood as having the technical content that, after the stud has engaged with the camshaft, firm contact for heat transfer between the electrode and the backing plate is maintained to such an extent that the stud does not rotate, while still permitting lateral movement of the stud in response to external forces arising from differences in coefficients of thermal expansion between the electrode and the backing plate under plasma processing conditions.

b) Meanwhile, it should be understood as a premise of the above technical content that the stud is not fastened by a rotational method such as a conventional screw, and that, because the internal diameter of the opening at the upper portion of the socket is configured to be greater than the external diameter of the intermediate portion of the stud, rotation of the stud (i.e., lateral movement or tilting) is possible before the stud engages with the camshaft. This conclusion is further supported by the fact that, with respect to Element 2-c, the claims do not state that the stud is “fixed” to the consumable electrode in a plasma processing environment so as to be non-rotatable, but rather recite that it is “configured to be fixed” in that manner. This indicates that the principal technical content lies in enabling the stud to be fixed in a non-rotatable manner to the consumable electrode in the plasma processing environment after the stud has engaged with the camshaft.

c) In short, in the patented invention including Element 2-c, rotation of the stud (i.e., lateral movement or tilting) is possible before the stud engages with the camshaft; however, after such engagement, firm contact is maintained between the electrode and the backing plate for heat transfer to such an extent that the stud cannot rotate. However, the state of contact described as being to such an extent that “rotation of the stud is not possible” is properly understood as referring to a degree of contact that still permits rotation of the stud (i.e., lateral movement or tilting) resulting from external forces caused by differences in coefficients of thermal expansion between the

electrode and the backing plate during the plasma processing process.

d) If, as argued by the Defendant, the claims were interpreted to mean that the stud is completely fixed such that all rotation, including lateral movement or tilting, is not possible even before engagement with the camshaft, such an interpretation might allow the backing plate and the electrode to be coupled more firmly. However, such an interpretation would render rotation of the stud impossible even in the “plasma processing state,” and would ultimately prevent achievement of the technical objective of the patented invention, namely, relieving stress caused by differences in coefficients of thermal expansion between the electrode and the backing plate. [As previously examined, the specification of the patented invention states that “the means for mounting the electrode must take into account any induced stresses resulting from differences in coefficients of thermal expansion between the electrode and the support member” (paragraph [0016]).] Accordingly, such an interpretation cannot be regarded as a reasonable construction that takes into account the organic relationship of the overall configuration of the patented invention.

4) Determination on the Defendant’s Arguments

a) The Defendant argues that, in the claim language of Element 2-c, the phrase “in a plasma processing environment” merely modifies “the electrode,” and that the configuration should therefore be interpreted as one in which the stud is fixed to the electrode so as to be non-rotatable regardless of whether the stud is engaged with the camshaft.

However, as shown by the specification of the patented invention, which states that “the present invention generally relates to the field of process equipment used in semiconductor, data storage, and flat panel display industries, as well as in the same or other industries. More particularly, the present invention relates to a cam-actuated clamp for attaching an electrode or other material to a backing plate in process

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equipment” (paragraph [0003]), the cam-locking clamp of the patented invention is premised on being a technical means for attaching an electrode to a backing plate within plasma process equipment, rather than in a general environment. As previously examined, the patented invention addresses the problem of relieving stress caused by differences in thermal expansion between the backing plate and the electrode in a plasma processing environment. Accordingly, it is difficult to regard the technical meaning of the phrase “in a plasma processing environment” as merely modifying the electrode alone. The Defendant’s above argument, which is premised on a different assumption, is therefore not accepted.

b) The Defendant further argues that, during prosecution of the patented invention, the Plaintiff amended the claims by adding the phrase “in a plasma processing environment” to the claim language of Element 2-c and, in a written opinion, asserted that a “consumable electrode in a plasma processing environment” means “an electrode that may be excessively worn and consumed by chemically activated reactive agents in a plasma processing environment.” On this basis, the Defendant contends that a configuration in which “the stud is capable of rotation while fixed to the electrode” was consciously excluded.

However, even if the circumstances pointed out by the Defendant existed during prosecution of the patented invention, such circumstances can only be understood as emphasizing the technical characteristics of the cam-locking clamp of the patented invention as a means for replacing electrodes more efficiently than existing methods in a “plasma processing environment,” in which electrodes are frequently consumed and scheduled for replacement. The Defendant’s above argument therefore cannot be accepted.

c) The Defendant further argues that, if the shape and length of the stud and the size of the groove within the camshaft are appropriately adjusted such that the side surface of the stud body portion comes into close contact with the camshaft groove, the stud

would not tilt during thermal expansion and, as a result, could move laterally without tilting under horizontally applied forces. Accordingly, the Defendant contends that it cannot be regarded as a technical premise of the patented invention that rotation (tilting) of the stud is possible in the state prior to engagement, namely before the occurrence of external forces caused by differences in coefficients of thermal expansion between the electrode and the backing plate in a plasma processing environment.

However, Claim 1 and Claim 8 state, as Element 3-c, that “the disk spring stack is aligned within the socket to allow limited lateral movement of the stud in a direction perpendicular to the longitudinal axis of the stud,” and the description of the invention also contains, as previously examined, statements that “the stud socket assembly (303) illustrates an internal diameter at the upper portion of the socket (213) that is greater than the external diameter of the intermediate portion of the stud (205). ... The difference in diameter between the two parts allows limited lateral movement in the assembled electrode clamp. The stud disk spring assembly (301) maintains firm contact with the socket (213) at the base portion of the socket (213), while the difference in diameter allows some lateral movement” (paragraph [0029]). These descriptions merely limit the configuration to one that “allows limited lateral movement of the stud,” and neither the claims nor the specification of the patented invention provide any specific limitation as to the form of such lateral movement. In light of the above claim language and the descriptions in the specification, the phrase “limited lateral movement of the stud” cannot be interpreted narrowly as meaning “horizontal movement of the stud without tilting,” as argued by the Defendant. Rather, the term should be construed to encompass both horizontal movement of the stud without tilting and lateral movement resulting from tilting of the stud. Accordingly, rotation (tilting) of the stud during thermal expansion cannot be deemed to be excluded from the patented invention, and the Defendant’s argument, premised on the contrary assumption that the possibility of rotation

(tilting) of the stud prior to engagement cannot be regarded as a technical premise of the patented invention, is therefore unpersuasive.

C. Interpretation of the Technical Meaning of Element 3-d

1) Determination on the Prerequisite Issue

a) The claim language of Element 3-d recites that “the disk spring stack and the stud are arranged in firm contact with the socket at a base portion of the socket.” Here, the arrangement in which the stud is in “firm contact” with the socket does not constitute an ordinary structure or method, but rather corresponds to a functional expression relating to function or effect, and accordingly, this expression must be interpreted objectively and reasonably, based on the ordinary meaning of the terms, while considering the technical significance intended by the claim language and also taking into account the description of the invention and the drawings. As previously examined, the patented invention adopts a coupling method using a stud and a camshaft that eliminates the need for a process of bonding the silicon electrode and the support ring of the backing plate (graphite support ring) by solder or the like, thereby enabling the electrode to be mounted on the support or backing ring in a simple and efficient manner, ensuring good thermal contact, and relieving stress caused by differences in coefficients of thermal expansion between the electrode and the support member. The patented invention is understood to ensure good thermal contact through the technical configuration of Element 3-d, which provides that the stud-and-disk-spring stack assembly achieves firm contact with the socket at the base portion thereof in order to accomplish the above-described technical task. However, the specific part denoted by the “base portion” of the socket presents an issue in interpreting the technical meaning of Element 3-d.

b) Upon examination, Claim 1 and Claim 8, in the portion

relating to Element 3-a, recite “the head region of the stud exposed above the topmost portion of the socket.” In addition, the description of the invention in the specification of the patented invention states that “the internal diameter of the upper portion of the socket (213) is greater than the external diameter of the intermediate portion of the stud (205)” (paragraph [0029]), and further states that “the socket (213) has external threads and a hexagonal upper member (or, for example, a polygonal

shape, ... or any other shape) that allow easy insertion into the electrode (201) using a small torque (see FIGS. 2A and 2B)” (paragraph [0028]). As described above, in the patented invention, the portion of the socket on which no external threads are formed is referred to as the “upper member,” and the portion of the upper part of the socket at which the stud is exposed is specified as the “topmost portion.” However, because there is no explicit description specifying the “base portion” of the socket, this term must be interpreted reasonably in light of the technical characteristics of the patented invention at issue.

c) As discussed above, the cam locking clamp of the patented invention has a structure in which, after engagement, the disk spring stack positioned inside the socket is compressed in the vertical direction between the socket and the second terminal end of the stud, and the compressed disk spring stack pushes the socket and the second

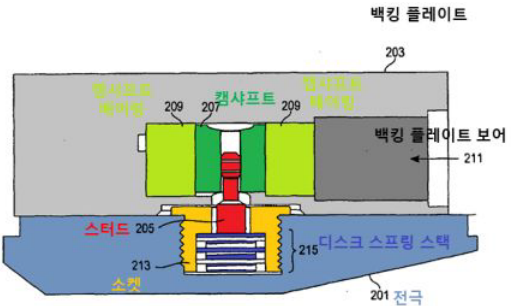
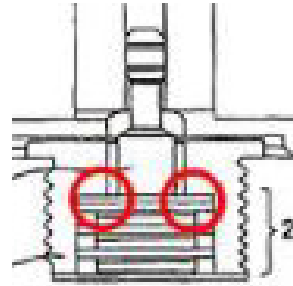


FIG. 2b of the patented invention

Name of the Number
211: Backing plate
209: Camshaft bearing
207: Camshaft
209: Camshaft bearing
211: Backing plate bore
205: Stud
215: Disc spring stack
213: Socket
201: Electrode

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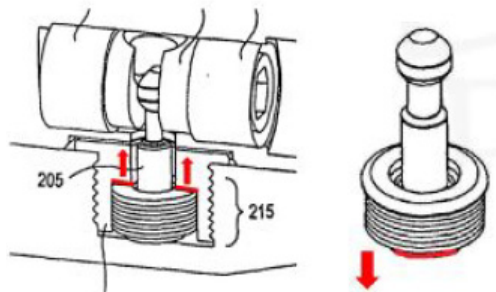
terminal end of the stud away from each other due to its elastic restoring force. Because the disk spring stack, when compressed in this manner, comes into firm contact with the socket beneath the upper member of the socket by virtue of its elastic restoring force, it is reasonable, in light of the technical significance understood from the overall descriptions and drawings of the specification, to interpret that the “base portion” of the socket in the claim language relating to Element 3-d refers to the lower surface of the upper member of the socket, which is the specific portion where the disk spring stack comes into contact with the socket.



Extracted from FIG. 2b
of the patented invention

2) Technical Maning of Element 3-d

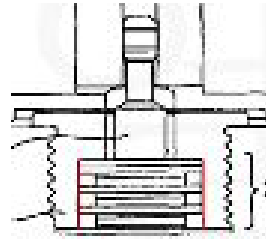
As described above, the “base portion” of the socket in the claim language relating to Element 3-d refers to the lower surface of the upper member of the socket, where the disk spring stack comes into actual contact with the socket. On this premise, the claim language of Element 3-d stating that “the disk spring stack and the stud are arranged so as to be in firm contact with the socket at the base portion of the socket,” which includes the functional expression that the stud is arranged so as to be in “firm contact” with the socket, is properly understood as having the technical content that the uppermost surface of the disk spring stack presses against and contacts the lower surface (base portion) of the upper member of the socket.



Reference Figures
(Extracted from FIG. 2a and 3 of the
patented invention)

3) Determination on the Defendant's Arguments

a) The Defendant argues that the base portion of the socket should be construed as the inner circumferential surface of the lower member of the socket, which contacts the outer circumferential surface of the disk spring stack and on which external threads are formed, and that, on this premise, the technical content of Element 3-d should be understood as the disk spring stack being firmly coupled to the inner circumferential surface of the lower member of the socket as the base portion of the socket. However, for the following reasons, the Defendant's argument is not accepted.



(1) First, it is self-evident that merely having the inner circumferential surface of the lower member of the socket firmly coupled to the disk spring stack as the base portion of the socket, as argued by the Defendant, cannot achieve good thermal contact between the electrode and the backing plate, which is the technical problem the patented invention seeks to solve. Accordingly, the Defendant's argument bears no organic relationship to the achievement of the technical problem of the patented invention, as discussed above, and therefore cannot be regarded as a reasonable interpretation of Element 3-d.

(2) Moreover, in the technical field relating to disk spring stacks, it is generally understood that the diameter of a disk spring in a compressed state differs from its diameter in a released state, and that the diameter in the released state is designed to be smaller than that in the compressed state. If, as argued by the Defendant, the inner circumferential surface of the lower member of the socket were regarded as the base portion of the socket, the entire outer circumferential surface of the disk spring would be in firm contact with the inner circumferential surface of the socket even before the stud engages with the camshaft. As a result, elastic compression of the

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disk spring stack during the coupling process between the camshaft and the stud would be impossible. However, if the outer circumferential surface of the disk spring stack were in firm contact with the socket so as to prevent elastic compression, the technical significance of employing a disk spring stack would be lost.

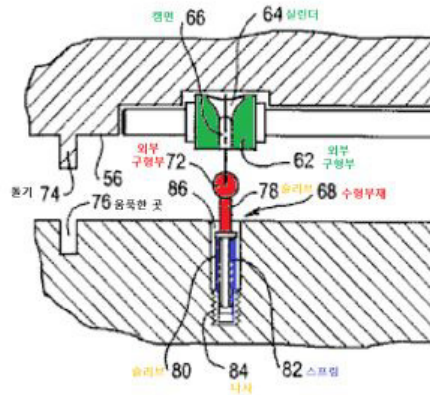
The same point is also observed in the Defendant's Products. In the Defendant's Products, the outer diameter of the disk spring is 7.50 mm in its normal state and 7.80 mm when compressed, while the inner diameter of the socket is 8.27 mm (Defendant's Exhibit No. 34). Accordingly, because the disk spring in the Defendant's Products is configured such that its outer diameter when compressed is smaller than the inner diameter of the socket, it can be understood that the Defendant's Products likewise take into account the fact that elastic compression would be impossible if the entire outer circumferential surface of the disk spring stack were in firm contact with the inner circumferential surface of the socket, and are designed in accordance with the physical characteristics of such a structure.

(3) In addition, as discussed above, the socket of the patented invention is made of materials such as polyamide, polyimide, acetal, and ultra-high molecular weight polyethylene (*see* paragraph [0024]), whereas the stud and the disk spring stack are made of materials such as stainless steel (*see* paragraphs [0023] and [0026]). In view of the foregoing, because the coefficients of thermal expansion of the socket differ from those of the stud and the disk spring stack, a skilled person would reasonably understand that at least some clearance for thermal expansion must be provided between the disk spring stack and the socket during the process in which the stud is coupled to the camshaft.

b) The Defendant further argues that, during the prosecution of the patented invention, the Plaintiff consciously excluded a configuration in which "the disk spring stack and the stud are not in

firm contact with the socket at the inner circumferential surface of the lower member of the socket, which constitutes the base portion of the socket,” by asserting that, in Prior Art 1 (Cited Invention 1), cited for comparison with the patented invention, the spring and the male member are not in firm contact with the sleeve at the base portion thereof.

According to the evidence presented above, it is found that, after the Plaintiff submitted a domestic written statement pursuant to Article 203 of the Patent Act with respect to the patented invention on September 13, 2010, and filed a request for examination on March 13, 2014, the Plaintiff received, on July 28, 2015, a notice of grounds for rejection from a patent examiner of the Korean



Extracted from FIG. 3 of
Prior Art 1

Intellectual Property Office, stating that the patented invention lacked inventive step in view of a combination of Prior Arts Nos. 1 and 2. Thereafter, upon receiving a decision of refusal on February 22, 2016, the Plaintiff filed an appeal against the decision on May 23, 2016, and submitted an amendment to the appeal brief on June 22, 2016. It is found that the amendment included statements to the effect that “the disk spring stack (215) and the stud (205) of the patented invention are arranged so as to be in firm contact with the socket (213) at the base portion of the socket (213), thereby allowing a firm fit between the electrode (201) and the backing plate (203) and ensuring good thermal contact,” whereas “in Prior Art 1, the spring (coil spring, 82) and the male member (68) are not in firm contact with the sleeve (80) at the base portion of the sleeve (80), and rather, due to the coil-shaped spring (82), the male member (68) and the spring (82) are in relatively loose contact with the sleeve (80) at the base portion of

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the sleeve (80)” (see pages 12 to 13 of Defendant’s Exhibit No. 15).

Upon examination, it is found that, according to the contents of the above amendment, the Plaintiff asserted that the male member (68) and the spring (82) of Prior Art 1 are in relatively loose contact with the sleeve (80) at the base portion of the sleeve (80). However, in the amendment, the Plaintiff did not specify that the base portion of the sleeve corresponds to the inner circumferential surface of the lower member of the socket, but merely emphasized that such “relatively loose contact” is insufficient to ensure good thermal contact between the electrode and the backing plate. Accordingly, it is difficult to conclude, solely on the basis that the Plaintiff submitted an amendment containing the above statements during the prosecution of the patented invention, that the “base portion of the socket” in the patented invention refers to the inner circumferential surface of the lower member of the socket, or that the Plaintiff consciously excluded a configuration in which the disk spring stack and the stud are not in firm contact with the socket at the inner circumferential surface of such lower member. The Defendant’s above argument likewise cannot be accepted.

D. Determination on the Defendant’s Argument Concerning Violation of the Written Description Requirement

1) As discussed above, the claim language of Element 2-c, which states that “the stud is configured to be fixed to a consumable electrode in a plasma processing environment so as to be non-rotatable,” when considered in its organic relationship with the claim language of Element 3-c, which states that “the disk spring stack is aligned within the socket to allow limited lateral movement of the stud in a direction perpendicular to the longitudinal axis of the stud,” is properly interpreted, in light of the description of the invention, as having the technical meaning that, after the stud engages with the camshaft, firm contact for heat transfer between the electrode and the backing plate is

maintained to such an extent that rotation of the stud is prevented, while still allowing lateral movement of the stud in response to external forces caused by differences in coefficients of thermal expansion between the electrode and the backing plate under plasma processing conditions. Further, the claim language of Element 3-d, which states that “the disk spring stack and the stud are arranged so as to be in firm contact with the socket at the base portion of the socket,” is likewise properly interpreted, in light of the description of the invention, as having the technical meaning that the uppermost surface of the disk spring stack is arranged to contact the lower surface of the upper member of the socket, which constitutes the base portion.

2) In light of the foregoing circumstances, from the standpoint of a person having ordinary skill in the art and in view of the technical level at the time of filing of the patent application, the contents disclosed in the description of the invention with respect to Elements 2-c, 3-c, and 3-d can be expanded or generalized to the scope recited in the claims. Accordingly, it is found that the matters corresponding to the inventions recited in the claims are described in the description of the invention. Accordingly, the Defendant’s argument that Claim 1 and Claim 8 lack a recognized scope of rights due to invalidity on the ground that the claim language relating to Elements 2-c, 3-c, and 3-d is not supported by the description of the invention is premised on a different assumption and therefore is not accepted.

4. Whether Indirect Infringement Is Established

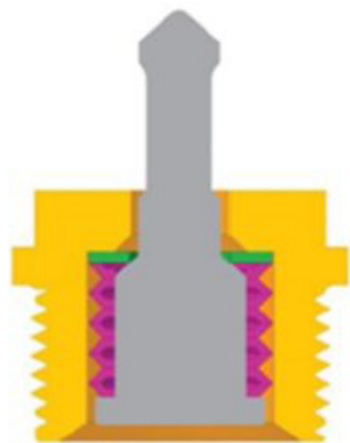
A. Whether Indirect Infringement of the Patent Right Relating to Claim 1 Is Established

1) Element-by-Element Comparison

a) ① Element 1 of Claim 1 recites “a disk spring stack

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including one or more disk springs,” and the Defendant’s Products likewise include a disk spring stack comprising a single disk spring. ② Element 2 of Claim 1 relates to a stud, and Element 2-a recites “a stud having a body portion, a first terminal end, and a second terminal end, wherein the first terminal end includes a head region having a first diameter greater than a cross-sectional dimension of the body portion, and the second terminal end has



Defendant’s Products

a second diameter greater than a cross-sectional dimension of the body portion.” The stud of the Defendant’s Products likewise includes a body portion, a first terminal end, and a second terminal end corresponding to Element 2-a. Element 2-b is configured to support the disk spring stack concentrically with respect to the stud, and the stud of the Defendant’s Products likewise includes such a supporting configuration. ③ Element 3 of Claim 1 relates to a socket, and Element 3-a is configured to concentrically and mechanically couple the head region of the stud exposed above the topmost portion of the socket, the supported disk spring stack, and the periphery of the stud, and the socket of the Defendant’s Products likewise includes such a coupling configuration. Element 3-b recites that the socket is configured to be firmly attached to the consumable electrode in a plasma processing environment, and the socket of the Defendant’s Products is likewise so configured. Element 3-c recites that the disk spring stack is aligned within the socket to allow limited lateral movement of the stud in a direction perpendicular to the longitudinal axis of the stud, and the socket of the Defendant’s Products likewise includes such an alignment configuration. ④ Element 5 of Claim 1 recites that, when rotationally engaged with the stud, the longitudinal axis of the stud is perpendicular to the longitudinal axis of the

camshaft, and the stud-socket assembly of the Defendant's Products likewise has such a structure. With respect to the foregoing component-by-component comparisons, there is no particular dispute between the Plaintiff and the Defendant.

b) Element 2-c of Claim 1 recites that "the stud is configured to be fixed to a consumable electrode in a plasma processing environment so as to be non-rotatable," which, as discussed above, is interpreted as having the technical meaning that, after the stud engages with the camshaft, firm contact for heat transfer between the electrode and the backing plate is maintained to such an extent that rotation of the stud is not possible. In light of the evidence presented above, the Defendant's Products are likewise found to have such technical content.

The Defendant's argument to the contrary, namely, that the Defendant's Products lack Element 2-c because the stud is capable of rotational movement when not engaged with the camshaft, cannot be accepted. As discussed above, the technical content of Claim 1 presupposes that the stud is capable of rotation, including lateral movement and tilting, prior to engagement with the camshaft. The Defendant's argument is instead premised on its own interpretation that the stud must be completely fixed such that all rotation, including lateral movement and tilting, is impossible even prior to engagement with the camshaft, and therefore cannot be accepted.

c) Element 3-d of Claim 1 recites that "the disk spring stack and the stud are arranged so as to be in firm contact with the socket at the base portion of the socket," which, as discussed above, is interpreted as having the technical meaning that the uppermost surface of the disk spring stack is arranged to contact the base portion of the socket by pressing against the lower surface of the upper member of the socket. In light of the evidence presented above, the Defendant's Products are likewise found to have such technical content.

The Defendant's argument to the contrary, namely, that the

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Defendant's Products lack Element 3-d because a clearance exists between the disk spring stack and the base portion of the socket, which the Defendant defines as the inner circumferential surface of the lower member of the socket, appears to be based solely on the Defendant's own interpretation that the base portion of the socket referred to in Element 3-d is not the lower surface of the upper member of the socket, but rather the inner circumferential surface of the lower member of the socket, and therefore cannot be accepted.

2) Whether Indirect Infringement is Established

The stud/socket assembly of the Defendant's Products lacks the camshaft of Element 4 among the technical configurations of the cam-locking clamp of Claim 1, and there is no particular dispute between the Plaintiff and the Defendant on this point. Accordingly, it must be examined whether, as alleged by the Plaintiff, the Defendant's Products constitute products that indirectly infringe the patent right relating to Claim 1, and whether the Defendant's acts of manufacturing, producing, selling, or transferring the Defendant's Products constitute acts of indirect infringement of that patent right.

a) Relevant law

(1) Article 127(1) of the Patent Act provides that, where a patent is directed to a product invention, the act, as a business, of producing, transferring, leasing, importing, or offering for transfer or lease a product used solely for producing the patented product shall be deemed to constitute infringement of the patent right. This provision is intended to enhance the effectiveness of remedies for future patent infringement by deeming certain acts to constitute patent infringement under specified conditions, even where a product including all elements of the invention has not yet been practiced, but there is a high likelihood that such a product will be practiced as a result of those acts, even at a preliminary stage (*see* Supreme Court Decision 2014Da42110, dated July 23, 2015., etc.).

(2) In light of the text and purpose of Article 127(1) of the Patent Act, the term “production” refers to any act by which a product embodying all elements of the invention is newly created through the use of a product that lacks one or more such elements. Accordingly, the term is not limited to industrial mass production, but also encompasses acts such as processing and assembly (*see* Supreme Court Decision 2014Da42110, dated July 23, 2015., etc.). Further, for a product to qualify as one used “solely” for the production of a patented product, it must lack any other economically, commercially, or practically viable use that would be generally accepted under prevailing social norms. Conversely, where there exists only a theoretical, experimental, or temporary possibility that the product could be used for purposes other than the patented product, such a possibility does not constitute another use sufficient to defeat a finding of indirect infringement (*see* Supreme Court Decision 2007Hu3356, dated September 10, 2009., etc.). Even where a product is a consumable component that is subject to wear or depletion through use of the patented invention or a related product and therefore requires frequent replacement, the product qualifies as one “used solely for the production of a patented product” within the meaning of indirect infringement if it constitutes an essential element of the patented invention; it has no other use; it is not generally or readily available on the market; its replacement was contemplated at the time the product relating to the invention was purchased; and it is separately manufactured and sold by the patentee (*see* Supreme Court Decision 2000Da27602, dated November 8, 2002., etc.).

(3) Whether a product qualifies as one “used solely for the production of a patented product” must be alleged and proven by the patentee. (*see* Supreme Court Decision 2000Da27602, dated November 8, 2002., etc.). However, because the requirement that a product be used “solely” for the production of a patented product concerns a negative fact, namely, the absence of any other economically,

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commercially, or practically viable use that would be generally accepted under prevailing social norms, it is reasonable to allocate the burden of proof as follows. Unless it is apparent that the product manufactured by the opposing party in a patent infringement action (hereinafter, the “accused product”) is itself a general-purpose product, once the alleged infringer presents a reasonable argument as to the objective possibility that the accused product could be used for purposes other than practicing the patented invention, the patentee must prove that any such alternative use is not economically, commercially, or practically viable. (*see* IP High Court Decision 2016Heo7305, dated May 25, 2017.).

b) Specific Examination

In light of the foregoing legal principles, and considering the following circumstances as established by the evidence of record, including the descriptions and video materials contained in Plaintiff’s Exhibit No. 12, the Defendant’s product, which includes all elements of Claim 1 except Element 4, qualifies as a product used solely for the production of the cam-actuated fastening clamp, the product of Claim 1, and therefore constitutes a product of indirect infringement.

(1) In the cam-actuated fastening clamp of claim 1, the stud socket assembly, comprising the stud (205), the disk spring stack (215), and the socket (213), is configured such that the head portion of the stud is secured to a camshaft mounted within the bore of a backing plate. In this configuration, the relative sizes and shapes of the stud, socket, and disk spring stack, as well as their cooperative relationship, play an important role in enabling lateral movement of the stud upon engagement with the camshaft. Accordingly, the stud socket assembly of the cam-actuated fastening clamp of Claim 1 constitutes a core and essential element of the invention.

(2) As discussed above, the Defendant’s Products, a stud socket assembly, includes all elements of Claim 1 except Element 4, and its technical configuration is substantially identical to that of the

stud socket assembly of Claim 1. Further, the FLEX product line manufactured and sold by the Plaintiff to domestic semiconductor manufacturers practices Claim 1 and consists of etching equipment used to form circuit patterns on semiconductor wafers. In light of the Defendant's express statements, in connection with the manufacture and sale of the accused product, that it was intended for use with the Plaintiff's FLEX product line through descriptions such as "Application (FLEX 45 series D series E series F series G series)" it is evident that the Defendant's product is one used for the production of the cam-actuated fastening clamp of Claim 1.

(3) The Defendant's product cannot be regarded as a general-purpose product in itself. Notwithstanding the foregoing, the Defendant has failed to present any reasonable argument regarding the objective possibility that its product could be used for purposes other than practicing Claim 1, and instead merely asserts that the product constitutes so-called freely exploitable technology that could be readily implemented by a skilled person based on the prior art. (If the Defendant's product were to qualify as freely exploitable technology, there would be substantial grounds to view it as a multipurpose product lacking exclusivity. As discussed below, however, the Defendant's assertion of freely exploitable technology is unpersuasive.) Nor is there any evidence suggesting that the Defendant's product has any other economically, commercially, or practically viable use that would be generally accepted under prevailing social norms.

(4) The Defendant's product appears to be a consumable component that wears out or is depleted through use of the cam-actuated fastening clamp of Claim 1 and therefore requires frequent replacement. However, the stud socket assembly of the cam-actuated fastening clamp of Claim 1 constitutes an essential element of Claim 1, is not used for any other purpose, and is not generally or readily available on the market. Replacement of the component was contemplated at the time of purchase of the

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cam-actuated fastening clamp of Claim 1, and the Plaintiff in fact manufactured and sold the stud socket assembly separately for the convenience of customers using the Plaintiff's FLEX product line.

c) Summary of the Examination

In sum, because the Defendant's product is one used solely for the production of the cam-actuated fastening clamp of Claim 1 and therefore falls within the scope of indirect infringement, the Defendant, by manufacturing (producing) and selling (assigning) the product, is deemed to have committed an act of indirect infringement of the patent right relating to Claim 1.

B. Indirect Infringement of the Patent Right Relating to Claim 8

1) Claim 8 depends from claim 1 and further recites that the socket includes external threads. The evidence of record also shows that the socket of the Defendant's product is provided with external threads.

2) Accordingly, as discussed above, because the Defendant's product includes all elements of Claim 1 except Element 4 and therefore constitutes a product used solely for the production of the cam-actuated fastening clamp of Claim 1, the product likewise falls within the scope of indirect infringement as to Claim 8, which recites the same cam-actuated fastening clamp with the additional limitation of external threads on the socket. Accordingly, by manufacturing (producing) and selling (assigning) the product, the Defendant is deemed to have committed an act of indirect infringement of the patent right relating to Claim 8.

C. Determination on the Defendant's Assertion of Patent Exhaustion

1) When the patentee of a product invention lawfully sells, within Korea, a product embodying the patented invention, the patent right is exhausted as to that product because the purpose of the patent

right has already been fulfilled (*see* Supreme Court Decision 2017Da289903, dated January 31, 2019.). On this basis, the Defendant argues that, where domestic semiconductor manufacturers purchase equipment of the FLEX product line embodying claim 1 from the Plaintiff and then replace the stud socket assembly, which is a simple component of such equipment, with the Defendant's product, no direct infringement of the patent rights relating to Claims 1 and 8 is established under the doctrine of patent exhaustion. Accordingly, the Defendant contends that its act of manufacturing and selling the Defendant's product, which corresponds to such a simple component, to the semiconductor manufacturers cannot be regarded as an act of indirect infringement of the respective patent rights.

2) However, as discussed above, even where a product is a consumable component that wears out or is depleted through use of the patented invention or a related product and therefore requires frequent replacement, where such component corresponds to an essential element of the patented invention, is not used for any other purpose, and is not a product that is generally or readily available on the market, and where replacement of such component was already anticipated at the time of purchase of the product relating to the invention and such component is separately manufactured and sold by the patentee, the product falls within the category of a "product used solely for the production of the patented product" for purposes of indirect infringement of a patent right.

Based on these legal principles, and in light of the circumstances examined above in subsection A-2)-b)-(4), where a consumer who has purchased the Plaintiff's FLEX product line replaces the stud socket assembly with the Defendant's product, it is difficult to regard the product after replacement as maintaining its identity as the cam-actuated fastening clamp of Claim 1, which is composed of a stud socket assembly and a camshaft. Such replacement constitutes an act that goes beyond the scope of permissible repair in the course of use

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and instead corresponds, in substance, to a new act of production. Therefore, the Defendant's argument that, on the premise that the replacement acts by domestic semiconductor manufacturers do not constitute direct infringement of the patent rights relating to Claims 1 and 8 under the doctrine of patent exhaustion, the Defendant's manufacture and sale of the Defendant's product do not amount to acts of indirect infringement of the respective patent rights cannot be accepted. (Supreme Court Decision 2017Da290095, dated February 28, 2019., cited by the Defendant, concerned indirect infringement of a patent right relating to a method invention. In that case, the Court held that, if the acts of producing and assigning dedicated articles by a third party were also deemed to constitute indirect infringement where a licensee authorized by the patentee of a method invention commissions the third party to manufacture such dedicated articles and receives them in order to practice the method invention, this would impose an undue restriction on the licensee's right to practice the invention and result in an unjustified expansion of the patent right. Accordingly, the above Supreme Court decision concerns a different factual and legal context from the present case, which relates to a product invention, and therefore cannot be directly applied.)

5. Determination on the Defendant's Assertions of Abuse of Right and Freely Exploited Technology

A. Whether Claim 1 Lacks an Inventive Step

1) Comparison of Elements of Claim 1 and Prior Art 1

A comparison between each element of Claim 1 and the corresponding elements of Prior Art 1, presented by the Defendant as the primary prior art, is set forth in the table below.

Element	Claim 1	Prior Art 1
1	A disk spring stack including one or more disk springs	Spring (82)

Element		Claim 1	Prior Art 1
2	a	A stud having a body portion, a first end portion, and a second end portion, wherein the first end portion includes a head region having a first diameter greater than a cross-sectional dimension of the body portion, and the second end portion has a second diameter greater than the cross-sectional dimension of the body portion,	- The male member (68) consists of a stem (78) and an external spherical portion (72) having a diameter greater than the cross-sectional dimension of the stem (78) - A spring (82) is installed at an end of the stem (78) - The male member (72) is provided within a sleeve (80), and threads are provided at a lower or inner end of the sleeve (80) - The spring (82) is provided concentrically with respect to the male member (68) - The stem (78) is fixed to the base (70) (see paragraph [0043] and Figures 3 and 4)
	b	Arranged to support the disk spring stack concentrically with respect to the stud,	
	c	The stud configured to be fixed to a consumable electrode in a plasma processing environment so as to prevent rotation, the stud;	
3	a	Arranged to concentrically mechanically couple the head region of the stud exposed above the topmost portion of the socket, the supported disk spring stack, and the periphery of the stud,	
	b	Configured to be firmly attached to the consumable electrode in the plasma processing environment,	
	c	The disk spring stack arranged within the socket to allow limited lateral movement of the stud in a direction perpendicular to a longitudinal axis of the stud,	
	d	The disk spring stack and the stud arranged to be in firm contact with the socket at a base portion of the socket, the socket; and	

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Element	Claim 1	Prior Art 1
4	Including a camshaft having a cylindrical body with a diameter greater than the first diameter of the head region, configured to be mounted within a bore of a backing plate, further including an eccentric cutout region positioned at a center of the cylindrical camshaft body, and further configured to rotationally engage with and secure the head region of the stud when the consumable electrode and the backing plate approach each other,	- The cam means (54) includes a cylinder (62), the cylinder (62) including a curved cam surface (66), and when the external spherical portion (72) of the male member (68) engages the curved cam surface (66), rotation of the cam means (54) by the handle (60) causes the curved cam surface (66) to interact with the external spherical portion (72) of the male member (68), such that the base (56) of the accessory (48) comes into contact with the base (70) of the instrument, thereby fixing the accessory to the instrument (see identification numbers [0042], [0043] and Figures 3 and 4)
5	A cam-actuated fastening clamp, wherein, when rotationally engaged with the stud, the longitudinal axis of the stud is perpendicular to the longitudinal axis of the camshaft	

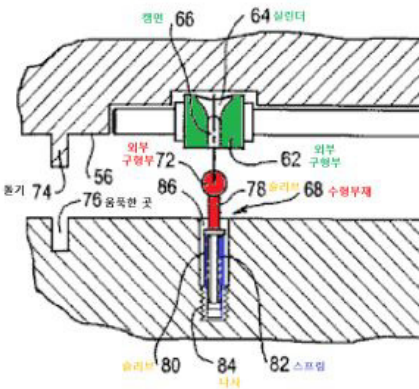
2) Differences in the Disputed Structure

a) Claim 1 is composed of a stud, a disk spring stack, a socket, a camshaft, and the like as Elements 1 through 4, and the specific shapes of the respective elements and their coupling relationships are concretely defined. In contrast, Prior Art 1 discloses a male member (68), a stem (78), a sleeve (80) / spring (82), and cam means (54).

b) However, most importantly, as stated in the specification of the patented invention, “the present invention generally relates to the field of process equipment used in semiconductor, data storage, flat panel display, as well as the same or other industries. More

particularly, the present invention relates to a cam-actuated clamp for attaching an electrode or other material to a backing plate within process equipment” (paragraph [0003]), Claim 1 relates to a cam-actuated clamp for attaching an electrode or other material to a backing plate within process equipment. Elements 1 through 4 constitute technical means for coupling a consumable electrode and a backing plate in an etching process for the manufacture of semiconductors and the like.

c) In contrast, Prior Art 1, as seen from the description in its specification (Defendant’s Exhibit No. 8) that “the present invention generally relates to instrumentation for spectroscopic analysis and, more particularly, to spectrophotometric measurement of fluorescence, phosphorescence, and luminescence” (paragraph [0001]), concerns a spectrophotometer and therefore belongs to a technical field different from that of Claim 1. The corresponding structures of Prior Art Reference 1 are coupling means between a replaceable accessory (48)⁵⁾ of a spectroscopic analysis instrument and the base (70) of that



Excerpt from FIG. 3 of Prior Art 1

Name of the Number
66: Cam surface
64: Cylinder
62 and 72: External spherical portion
74: Projection
76: Recess
78: Sleeve
68: Male member
84: Screw
82: Spring

5) The specification of prior art invention 1 (Exhibit E-8) contains a statement that “in general, spectroscopic analysis instruments, and spectrophotometers for fluorescence, phosphorescence, and luminescence measurements, are known to be equipped with interchangeable accessories. Generally, these can provide a variety of sample presentation functions. For example, a fluid sample presentation accessory can be exchanged for an accessory for solid sample presentation”

instrument. In this respect, there is a clear difference in the objects to be coupled, as compared with Elements 1 through 4 of Claim 1. Accordingly, it is difficult to regard the technical significance of the individual elements or the cooperative relationships among them as being identical, or to view the corresponding structures as ones from which Elements 1 through 4 could be readily derived.

3) Whether the Differences can be readily Overcome

In this regard, the Defendant argues that all of the elements of the invention of Claim 1 relate merely to a very simple technical means in which a rod-shaped member having a spherical end portion is inserted into and fastened within a cylindrical member having a groove, which was already widely used across various industrial fields. According to the Defendant, even if a person of ordinary skill in the art were to start from Prior Art 1, which differs in technical field and in the objects to be coupled by the respective elements, the technical configurations of Elements 1 through 4 could be readily derived by combining Prior Arts 2 and 3 or well-known and commonly used technologies. The validity of this assertion by the Defendant constitutes the central issue in the present case.

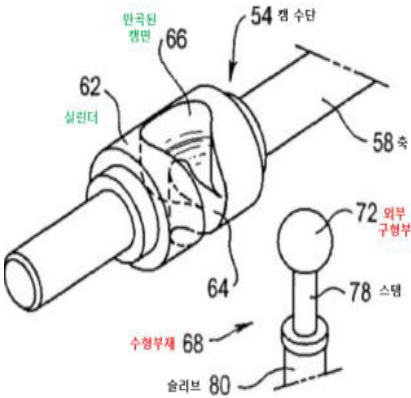


FIG. 4 of Prior Art 1

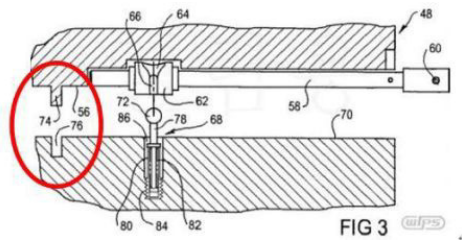
영어
66: Curved cam surface
54: Cam means
62: Cylinder
58: Shaft
72: External spherical portion
78: Stem
68: Male member
80: Sleeve

a) Examination of Prior Art 1

(paragraph [0003]).

(1) Prior Art Reference 1 relates to a mounting mechanism for mounting spectrometer accessories of a spectrophotometer and addresses, as its technical problem, the achievement of rapid replacement as compared with conventional screw-type mounting (see paragraph [0004]). As specific means for solving this problem, Prior Art 1 includes a male member (68) having a spherical portion (72), a spring (82), a sleeve (80) provided with a thread at its lower or inner end, and cam means (54). The spherical portion (72) of the male member (68) is pressed inward by the spring (82), and, after the cam means (54) and the male member (68) are fully engaged, the spring (82) maintains the mounting of the accessory (48) on the base (70) of the spectrophotometer by providing a positive supporting force (see paragraph [0043]).

(2) However, the specification of Prior Art 1 does not disclose at all the technical problem addressed by the patented invention, namely, alleviating stress caused by differences in thermal expansion



Excerpt from FIG. 3 of Prior Art 1

coefficients between an electrode and a support member, nor does it disclose any specific technical means for solving such a problem. This stems from a fundamental difference in that the spectrophotometer of Prior Art 1 is used in a room-temperature environment. It is difficult to regard the spectrophotometer of Prior Art 1 as a measuring instrument used under high-temperature conditions such as plasma processing, and it even includes, as elements, a projection (74) and a recess (76) serving as positioning attachment means for precise positioning. As such, Prior Art 1 is configured such that the upper member and the lower member are fixed through the projection and the recess, thereby fundamentally preventing any lateral movement. Consequently, if high temperatures were applied, deformation or

damage would inevitably occur because stress caused by differences in thermal expansion could not be absorbed, which is directly contrary to the technical problem addressed by Claim 1, as discussed above.

(3) In short, Prior Art 1 relates to a spectrophotometer used in a room-temperature environment, and it is a prior art reference from which it is difficult to find any suggestion or motivation leading to a configuration change, such as setting a dimensional difference between the sleeve (80) and the male member (68) so as to allow lateral movement of the male member, as in the “disk spring stack allowing limited lateral movement” of Element 3-c.

b) Examination of Prior Art 2

(1) The specification of Prior Art 2 (Defendant’s Exhibit No. 20) contains the following statements. That is, it states that “the present invention relates to an electrode plate for a plasma processing apparatus and a plasma processing apparatus, and more specifically, for example, to an electrode plate for a plasma etching apparatus and a plasma etching apparatus for etching a semiconductor processing substrate in a plasma atmosphere” (paragraph [0001]); that “since electrode plates (used in conventional plasma processing apparatuses) are made of quartz or the like, forming screw holes in the electrode plate is not desirable due to issues such as strength and ease of machining” (paragraph [0005]); and that “the present invention has been made in order to solve the above problems, and provides a novel electrode plate for a plasma processing apparatus and a plasma processing apparatus that can enlarge the effective gas hole diameter, reliably

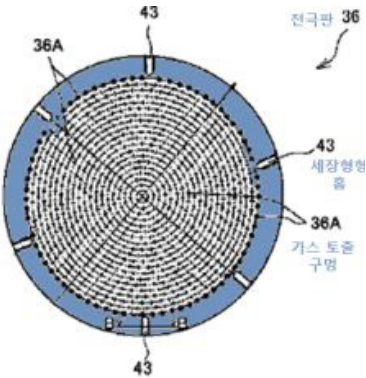


FIG. 3a of Prior Art 2

Name of the Number
36: Electrode plate
43: Elongated groove
36A: Gas discharge hole

conceal the fastening means from the plasma, and form a flat surface contacting the plasma at low cost. The electrode plate for a plasma processing apparatus according to the present invention is detachably mounted by fastening means to the lower end of a support member disposed opposite an electrode that supports a substrate to be processed, and has a plurality of gas discharge holes for supplying a processing gas to the substrate to be processed on the electrode, wherein the electrode plate has a socket in which a screw hole is formed and a receiving portion that accommodates the socket, and is characterized in that the electrode plate is joined to the support member by screwing the fastening means

into the screw hole of the socket accommodated in the receiving portion” (paragraphs [0007] and [0008]). It is further stated that “by inserting and removing the socket (44) into and from the groove (43) of the electrode plate (36), it can be detachably mounted to the electrode plate (36). ... Since a screw hole (44A) is formed on the upper surface on one end side of the socket (44), the screw hole (44A) can be visually confirmed through the opening (43A) of the electrode plate (36) with the socket (44) installed in the groove (43, receiving portion) of the electrode plate (36)” (paragraphs [0024] and [0025]).

(2) As can be seen from the above descriptions in the specification, Prior Art 2 relates to an electrode plate for a plasma processing apparatus and a plasma processing apparatus, and discloses coupling means including a socket (44) having a screw hole formed therein and a receiving portion (43) that accommodates the socket, in order to

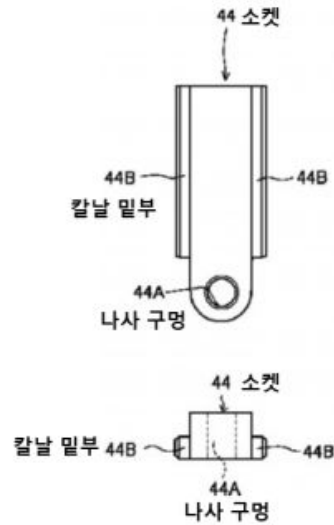


FIG. 4 of Prior Art 2

Name of the Number
44: Socket
44B: Blade base
44A: Threaded hole

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solve problems associated with screw fastening means, such as the strength and machinability of conventional electrodes and backing plates. However, Prior Art 2 merely discloses a corresponding configuration of a socket (44) having a screw hole formed therein and accommodated in the receiving portion (groove, 43), and does not disclose at all the individual components necessary to complete the cam locking clamp of Claim 1, such as the stud of Element 2 and the camshaft of Element 4, nor the coupling relationships among those components.

(3) Accordingly, Prior Art 2 does not constitute prior art capable of overcoming the technical limitations of Prior Art 1 discussed above, nor of deriving the technical configurations of Elements 1 through 4 of Claim 1 and their cooperative relationships.

c) Examination of Prior Art 3

(1) The specification of Prior Art 3 (Defendant's Exhibit No. 21) contains the following statements. That is, it states that "the present invention relates to a stage for placing substrates such as glass that are subjected to plasma processing" (paragraph [0001]); that "in the prior art, various materials are used as constituent members of the heater block (14), and at high temperatures, in order to allow free contraction and expansion between different materials due to differences in thermal expansion coefficients, the heater block (14) itself moves as a result of contraction and expansion" (paragraph [0011]); that "Figure 6 shows an example in which a heater block (14) on a stage body (12) fixed to a support portion (11) is constrained by an outer circumferential clamp (61), and when plasma heat input is applied, the heater block (14) becomes convex due to thermal expansion, thereby causing in-plane non-uniformity at the heat transfer interface" (paragraph [0012]); that

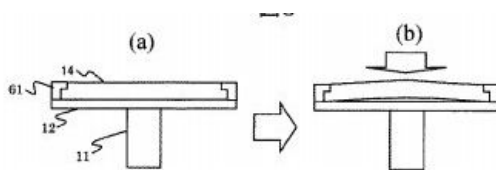


FIG. 6 of Prior Art 3

“the present invention relates to a stage structure of a plasma processing apparatus, and particularly, in a heater support structure, the heater is supported and fixed by an elastic body so as to be fixed under a load equal to or greater than a predetermined level in the direction of heat flux of plasma heat input, while being freely movable in the direction in which the heater moves due to thermal expansion, namely the direction perpendicular to the heat flux” (paragraph [0015]); that “a plurality of through holes (15) are provided in a thermal insulator (13), and through these through holes (15), the tip ends of bolts (17) are fixed to screw holes (16) provided in the heater block. In addition, openings (18) corresponding to the through holes (15) are also provided in the stage body (12), and the bolts (17) pass through these through holes (15) and openings (18). A coil spring (19) is interposed between the head portion of the bolt (17) and the stage body (12), and the coil spring (19) is accommodated in a spring groove (20) provided in the stage body (12)” (paragraphs [0019] and [0020]); that “the coil spring (19) is compressed by the screw fastening of the bolt (17), and by the spring force opposing this compression, the heater block (14), the thermal insulator (13), and the stage body (12) are elastically maintained” (paragraph [0021]); and that “the heater block (14) is supported under a predetermined load in the direction of heat flux of plasma heat input by the spring force of the coil spring (19), and, by

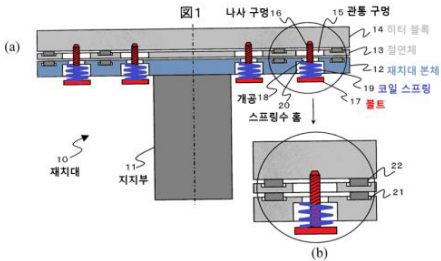


FIG. 1 of Prior Art 3

Name of the Number
16: Threaded hole
15: Through hole
14: Heater block
13: Thermal insulator
12: Mounting table body
18: Opening
19: Coil spring
20: Spring groove
17: Bolt
10: Mounting table
11: Support portion

utilizing torsion of the coil spring (19), is allowed to move freely in a direction perpendicular to the heat flux” (paragraph [0024]).

(2) As can be seen from the above specification statements, Prior Art 3 is an invention relating to a stage structure of a plasma processing apparatus. In order to prevent the problem that, when a heater block (14) on a stage body (12) fixed to a support portion (11) is constrained by an outer circumferential clamp (61), the heater block (14) becomes convex due to thermal expansion upon plasma heat input, thereby causing in-plane non-uniformity at the heat transfer interface, the invention discloses a technical configuration in which the heater block (14) is fixed so as not to lift or separate at the contact surface with the thermal insulator (13) that supports it, while maintaining a constant distance between the heater block (14) and the stage body (12). At the

same time, the heater block (14) itself is allowed to move by contraction and expansion so as to freely expand and contract between materials due to differences in thermal expansion coefficients at high temperatures. Specifically, a coil spring (19) is accommodated in a spring groove (20) provided in

the stage body (12) between the head portion of a bolt (17) and the stage body (12), and, by the coil spring (19), the heater block (14), the thermal insulator (13), and the stage body (12) are elastically maintained. Upon plasma heat input, the heater block (14) is supported under a predetermined load in the vertical direction by the spring force of the coil spring (19), while, when the heater block (14) moves laterally due to thermal expansion, an opening (18) is formed such that

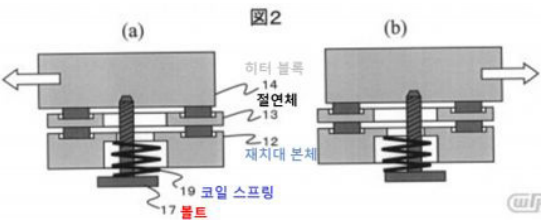


FIG. 2 of Prior Art 3

Name of the Number
14: Heater block
13: Thermal insulator
12: Mounting table body
19: Coil spring
17: Bolt

its inner diameter is larger than the outer diameter of the bolt (17), thereby allowing free movement in the horizontal direction.

(3) Upon examination, Prior Art 3 discloses, as described above, a corresponding configuration in which lateral movement of the stage body (12) due to differences in thermal expansion is enabled by configuring the threaded portion of the bolt to be movable laterally within the space of the spring groove (20) in the vertical coupling between the heater block (14) and the bolt (17). However, such a screw-and-bolt coupling method in Prior Art 3 is entirely different in technical nature and specific technical configuration from the coupling method using a stud and a camshaft as recited in Claim 1. Therefore, even if a person of ordinary skill in the art were to encounter Prior Art 3, which allows lateral movement of the stage body due to differences in thermal expansion, it would be difficult to derive, on that basis, the technical concept of Claim 1, which allows lateral movement (rotation) of a stud during a plasma processing process to relieve stress caused by differences in thermal expansion coefficients between an electrode and a backing plate.

d) Summary of the Examination Results of the Prior Arts

(1) As discussed above, Prior Art 2 merely discloses a coupling means including a socket having a threaded hole formed therein in a detachable manner and a receiving portion for accommodating the socket, for reasons such as ease of machining, without any recognition of the need to ensure proper heat transfer or to relieve stress caused by differences in thermal expansion in a high-temperature environment. Accordingly, it does not serve as prior art that, when combined with Prior Art 1, would lead to the technical configuration of Elements 1 through 4 of Claim 1 and their cooperative relationship.

(2) In addition, Prior Art 3 merely discloses a corresponding configuration in which space is provided by a spring so as to facilitate movement due to thermal expansion as a method of relieving stress

IP HIGH COURT DECISIONS

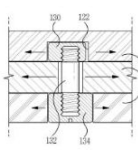
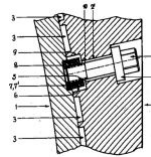
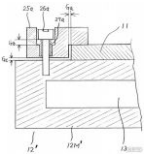
associated with a screw-and-bolt coupling means. It does not disclose any specific technical means for relieving stress caused by thermal expansion by using a stud-and-camshaft coupling means as recited in Claim 1. Therefore, it is difficult to find a technical motivation by which a skilled person would combine it with Prior Art 1 to derive, without omission, Elements 1 through 4 of Claim 1. This is all the more so because Prior Art Reference 1, as discussed above, includes, as elements, a projection (74) and a recess (76), which serve as positioning attachment means for accurate positioning, making it difficult to combine it with a configuration such as that of Prior Art 3 that provides clearance between members, even if providing a small amount of clearance between members is a technical measure that could be readily adopted.

e) Examination of the Defendant's Assertion regarding Well-Known and Commonly Used Technology

The Defendant's assertion regarding well-known and commonly used technology appears to be intended to emphasize its principal argument that Claim 1 is merely a simple technical means, commonly used across various industries, in which a rod-shaped member having a spherical end portion is inserted into and fastened within a grooved cylindrical member. However, as explained below, the technical content of the evidence presented by the Defendant cannot be regarded as well-known and commonly used technology that overcomes the differences between Claim 1 and Prior Art 1 and enables a complete derivation of the technical configuration of Claim 1.

(1) Defendant's Exhibits Nos. 22 through 24, which the Defendant presents as evidence of well-known and commonly used technology, all disclose, similarly to Prior Art 3, technical configurations for relieving stress due to thermal expansion in screw-fastening mechanisms, such as providing clearance between adjacent elements or compensating for differences in expansion coefficients by allowing coolant to flow. By contrast, they do not disclose any configurations

corresponding to the disk spring stack, stud, or socket that constitute the core of the inventive concept of Claim 1, nor do they disclose any specific technical configuration that would allow limited lateral movement of a stud.

		
Defendant's Exhibit No. 22	Defendant's Exhibit No. 23	Defendant's Exhibit No. 24

(2) The content disclosed in Defendant's Exhibits Nos. 4 through 7, 64, 82, and 83, which the Defendant presents as another set of evidence of well-known and commonly used technology, relates to fastening means that generally employ a rod-shaped member having a spherical end portion and a grooved cylindrical member (cam lock nuts). Based solely on such general technical content, it is extremely difficult to conclude that a person of ordinary skill in the art could readily and completely derive the technical configurations of Claim 1, which is applied to a plasma processing apparatus and is intended to solve the problem of stress caused by thermal expansion.

(3) Defendant's Exhibits Nos. 78 and 79, which the Defendant also presents as evidence of well-known and commonly used technology, disclose a cam mechanism, a male member, and a coil spring. However,



based solely on such technical content, it is difficult to conclude that a skilled person would be able to recognize the technical problem addressed by Claim 1, namely the relief of stress caused by differences in coefficients of thermal expansion. Even if there were tolerance-level clearances between the cam mechanism, male member, and coil spring disclosed in Defendant's Exhibits Nos. 78 and 79, such that stress caused by differences in thermal expansion coefficients might be alleviated to some extent, it does not appear that a skilled person would directly recognize this from Defendant's Exhibits Nos. 78 and 79 or readily perceive the above technical problem of claim 1

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and proceed to solve it. Accordingly, even if a skilled person were to encounter the content disclosed in Defendant's Exhibits Nos. 78 and 79, it cannot be concluded that the technical configurations of Claim 1 could be easily derived by combining Prior Art 1 or other prior art references with reference thereto.

4) Summary of the Examination Results

In light of the foregoing, Claim 1 cannot be deemed to lack an inventive step on the ground that a skilled person could have easily made it by ① relying on Prior Art 1; ② combining Prior Art 1 with Prior Art 3; ③ combining Prior Art 1 with well-known and commonly used technology; ④ combining Prior Art 1 with Prior Art 2; ⑤ combining Prior Art 1 with Prior Arts 2 and 3; or ⑥ combining Prior Art 1 with Prior Art 2 and well-known and commonly used technology.

B. Whether Claim 8 Lacks an Inventive Step

1) Claim 8 is dependent on Claim 1 and further includes a limiting configuration in that the socket has external threads, while otherwise including all technical configurations of Claim 1 as they are.

2) As discussed above, Claim 1 cannot be regarded as lacking an inventive step on the ground that a skilled person could have easily made it by combining Prior Art 1 with Prior Art 2, Prior Art 3, or well-known and commonly used technology. Accordingly, Claim 8 likewise cannot be regarded as lacking an inventive step based on the above prior art, in the same manner as Claim 1.

C. Whether the Plaintiff's Claims Constitute an Abuse of Right

As discussed above, because neither Claim 1 nor Claim 8 can be regarded as lacking an inventive step based on the prior art presented by the Defendant, the Defendant's assertion that, on a different premise, the patents for the respective inventions would clearly be

invalid for lack of inventive step, and that the Plaintiff's claims based on infringement of those patents therefore constitute an abuse of rights, cannot be accepted.

D. Whether the Defendant's Products Constitute Freely Exploited Technology

1) As discussed above, the Defendant's products include the components of Claim 1 and Claim 8 except for Element 4, and neither Claim 1 nor Claim 8 can be regarded as lacking an inventive step based on the prior art presented by the Defendant.

2) Accordingly, it cannot be said that a skilled person could easily practice the Defendant's Products by combining Prior Art 1 with Prior Art 3 or with well-known and commonly used technology. Accordingly, the Defendant's assertion, on a different premise, that the Defendant's products fall outside the scope of the rights of Claims 1 and 8 without any need for comparison must be rejected.

6. Determination on the Claims for Injunction and Destruction

A. Claim for Injunction

As discussed above, the Defendant infringed the Plaintiff's respective patent rights relating to Claim 1 and Claim 8 by producing and transferring the Defendant's products. Therefore, as sought by the Plaintiff as the patent holder, the Defendant is obligated not to produce, use, transfer, lease, or import the Defendant's products, or to offer them for transfer or lease (including exhibition for the purpose of transfer or lease).

B. Claim for Destruction

1) Denied Portion

The Court, *sua sponte* , examines the legality of the portion of the claim seeking destruction of "other machinery and equipment used to

manufacture the Defendant's product" among the claims on this case.

a) In civil litigation, the demand for relief must be specified with sufficient particularity so that its content and scope can be clearly identified. In seeking an injunction against patent infringement, the products or methods subject to the claim must be specified to a degree that allows them to be distinguished, under generally accepted social norms, from other items as objects for which an injunction against infringement is sought (*see* Supreme Court Decision 2011Da17090, dated September 8, 2011, etc.). This principle applies equally when seeking preventive measures against patent infringement, including destruction.

b) In this action, the portion seeking destruction of "other machinery and equipment used to manufacture of the Defendant's product" does not specify, based solely on the statement of the relief sought, the objects to be destroyed with sufficient particularity. Even if a judgment were rendered as requested by the Plaintiff, it would be difficult to clearly ascertain, from the operative part of the judgment itself, the content and scope of the order for destruction. Accordingly, the portion of the claim in this action seeking destruction of "other machinery and equipment used for the production of the Defendant's products" is inadmissible because the relief sought is not specified.

2) Granted Portion

In light of the circumstances that the Defendant has infringed the Plaintiff's respective patent rights relating to the inventions of Claim 1 and Claim 8 by producing and transferring the Defendant's product from February 14, 2017 to the present, it is determined that there remains a risk that the Defendant will infringe the Plaintiff's patent rights in the future. Therefore, as sought by the Plaintiff as the patent holder, the Defendant is obligated to destroy all finished and semi-finished Defendant's Product (product that possess the structure of the finished products but have not yet reached completion) stored at

the Defendant's head office, branches, business offices, sales offices, factories, and warehouses, as well as all molds used for the production of those products.

7. Determination on the Claim for Damages

A. Occurrence of Liability for Damages

From February 14, 2017, the Defendant manufactured and sold (transferred) the Defendant's products, which constitute products of indirect infringement with respect to the patent rights relating to the inventions of Claim 1 and Claim 8, thereby infringing the respective patent rights. Accordingly, the Defendant is obligated to compensate the Plaintiff for the damages incurred as a result of the infringement of those patent rights.

B. Scope of Liability for Damages

1) Whether to Calculate Damages Pursuant to Article 128(4) of the Patent Act

a) According to the contents of Plaintiff's Exhibit No. 29 and the overall purport of the pleadings, the total sales revenue of the Defendant's Products from February 14, 2017 to November 6, 2023 amounts to KRW 11,338,599,370.⁶⁾

2017 (from February 14)	2018	2019	2020
KRW 2,459,804,000	KRW 2,971,976,000	KRW 1,791,098,000	KRW 1,085,810,000
2021	2022	2023 (through November 6)	Total
KRW 1,157,585,480	KRW 1,130,936,370	KRW 741,389,520	KRW 11,338,599,370

6) The Defendant does not dispute the above sales revenue amount as well (see

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b) In this regard, the Plaintiff argues that, on the premise that the marginal profit rate of the Defendant's products must necessarily be higher than the overall gross profit margin of the Defendant's entire product lineup, the gross profit margin should be regarded as the marginal profit rate of the Defendant's products. Based on this, the Plaintiff contends that the profits obtained by the Defendant as a result of the infringing acts amount to KRW 4,977,578,214, as stated in Item 4 of the relief sought. However, absent special circumstances indicating that the marginal profit rates are identical across products, it is difficult to conclusively determine, as the Plaintiff asserts, that the gross profit margin corresponds to the marginal profit rate of the Defendant's Products. Accordingly, in this case, it is difficult to specifically calculate the amount of damages suffered by the Plaintiff pursuant to Article 128(4), of the Patent Act.

2) Calculation of Damages pursuant to Article 128(7) of the Patent Act

a) In light of the foregoing circumstances, although it is recognized that the Plaintiff suffered damages as a result of the Defendant's infringement of the Plaintiff's patent rights relating to the inventions of Claim 1 and Claim 8, this case falls within the category in which proving the facts necessary to substantiate the amount of damages is extremely difficult by the nature of those facts. Accordingly, the amount of damages shall be calculated pursuant to Article 128(7) of the Patent Act.

b) As discussed above, the total sales revenue of the Defendant's Products from February 14, 2017 to November 6, 2023 amounts to KRW 11,338,599,370. In addition, based on the evidence previously cited, the statements in Plaintiff's Exhibits No. 17, 19, 29, and 30, the statements in Defendant's Exhibits No. 57 and 58, and the results of the first-instance court's order to submit taxation information

the minutes of the second hearing before this Court).

directed to the Head of the Suwon Tax Office, the following additional circumstances are established.

(1) The sales revenue and gross profit for all products manufactured and sold by the Defendant, including the Defendant's Products, are as shown in the table below. Based on this data, the average gross profit margin for the Defendant's entire product lineup from 2017 through 2022 is 43.70 percent, which is calculated as the total gross profit of KRW 11,424,185,432 divided by the total sales revenue of KRW 26,144,898,736 over the same period.

	2017	2018	2019
Sales revenue	3,509,525,410 KRW	3,885,446,870 KRW	4,320,019,073 KRW
Gross profit	1,294,253,547 KRW	1,925,338,785 KRW	2,069,297,432 KRW
Gross profit margin	36.88%	49.55%	47.90%
	2020	2021	2022
Sales revenue	4,285,346,383 KRW	4,654,853,000 KRW	5,489,708,000 KRW
Gross profit	2,007,445,668 KRW	1,858,909,000 KRW	2,268,941,000 KRW
Gross profit margin	46.84%	39.93%	41.33%

(2) According to the Business Management Analysis published by the Bank of Korea, the ratio of variable costs to sales and the marginal profit rate,⁷⁾ calculated by excluding the said ratio of variable costs to sales from total sales, in the field of "Semiconductors and Electronic Elements" are as set out in the table below. Based on this data, the average marginal profit rate from 2017 through 2022 is 55.70 percent.

7) Marginal profit rate margin equals 1 minus the ratio of variable costs to sales.

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	2017	2018	2019
Ratio of variable costs to sales	49.79%	41.26%	44.12%
Marginal profit rate	50.21%	58.74%	55.88%
	2020	2021	2022
Ratio of variable costs to sales	43.69%	41.98%	44.97%
Marginal profit rate	56.31%	58.02%	55.03%

(3) Meanwhile, the Defendant registered the factory producing the accused products under the business category of “Manufacture of Other Special Purpose Machinery.” According to the Business Management Analysis published by the Bank of Korea, the ratio of variable costs to sales and the marginal profit rate, calculated by excluding the said ratio of variable costs to sales from total sales, in the field of “Special Purpose Machinery” are as set out in the table below. Based on this data, the average marginal profit rate from 2018 through 2020 is 36.54 percent.

	2018	2019	2020
Ratio of variable costs to sales	63.65%	62.66%	64.07%
Marginal profit rate	36.35%	37.34%	35.93%

(4) As discussed above, the accused products are assembly products that include all components of Claim 1 and Claim 8, except for Element 4, the camshaft. Based solely on the evidence submitted by the Defendant, no circumstances are found to indicate that the Defendant incurred any special research and development costs for the said assembly products. Rather, as seen above, by expressly stating, through descriptions such as “Application: FLEX 45 series / D series / E series / F series / G series,” that the accused products are intended for use in the Plaintiff’s FLEX product line, the Defendant made clear that the accused products are directly adopted in the cam locking

clamp of Claim 1 and Claim 8. In doing so, the Defendant appears to have significantly reduced the costs required for the development of the accused products while manufacturing and selling them.

(5) As discussed above, the stud/socket assembly composed of the remaining components of Claim 1 and Claim 8, excluding Element 4, the camshaft, constitutes a core and essential inventive concept for the cam locking clamp of Claim 1 and Claim 8. Apart from this, there are no other assertions or proof regarding the proportion occupied by the accused products among all electrical and electronic components manufactured and sold by the Defendant, or the extent to which the technical content of Claim 1 and Claim 8 contributed to the manufacture and sale of the accused products.

c) In light of all the foregoing circumstances, it is reasonable, based on the overall purport of the pleadings and the results of the examination of evidence, to conclude that the Defendant, by manufacturing and selling the accused products corresponding to products of indirect infringement of each patent right relating to Claim 1 and Claim 8 from February 14, 2017 to the present, obtained profits in the amount of at least approximately 30 percent of the total sales of the accused products from February 14, 2017 to November 6, 2023, namely KRW 11,338,599,370, which amounts to KRW 3,400,000,000, and that the Plaintiff suffered damages in the same amount as a result of the infringement of those patent rights. The above damage amount of KRW 3,400,000,000 is recognized as the same regardless of whether it is based on the claim for infringement of the patent right relating to Claim 1 or the claim for infringement of the patent right relating to Claim 8, which the Plaintiff seeks in the alternative.

3) Sub-conclusion

Accordingly, the Defendant is obligated to pay the Plaintiff the above damages of KRW 3,400,000,000 and, as requested by the Plaintiff, with respect to KRW 100,000,000 thereof, delay damages calculated at an annual rate of 5 percent as prescribed by the Civil

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Act from November 12, 2020, which is the day following service of the complaint in this action, and subsequent to the infringing acts, until February 15, 2024, the date of pronouncement of this judgment, on which it is deemed reasonable for the Defendant to dispute the existence and scope of its obligation, and thereafter at an annual rate of 12 percent as prescribed by the Act on Special Cases Concerning Expedition, etc. of Legal Proceedings until full payment. With respect to the remaining KRW 3,300,000,000, delay damages shall be calculated at an annual rate of 5 percent from May 17, 2022, which is the day following service of the Plaintiff's application dated April 29, 2022 for amendment of the purport of the claim and the cause of action, until February 15, 2024, and thereafter at an annual rate of 12 percent until full payment. The Plaintiff's claim for damages, including the expanded portion of the claim before this Court, is well founded within the scope recognized above.

8. Conclusion

Among the Plaintiff's claims against the Defendant, including the expanded portion before this Court, the claim seeking destruction of "other machinery and equipment used for the production of the products listed in Attached Table 1" is unlawful and must therefore be dismissed. The remaining claims are well founded within the scope recognized above and should be partially upheld. Accordingly, the judgment of the first instance, which dismissed all of the Plaintiff's claims in contravention of this conclusion, is unjust. Therefore, the Plaintiff's appeal is partially granted, and the judgment of the first instance is modified as set forth in the order.

Presiding Judge	Sook Yeon LEE
Judge	Taeksoo JUNG
Judge	Jiyoung YI

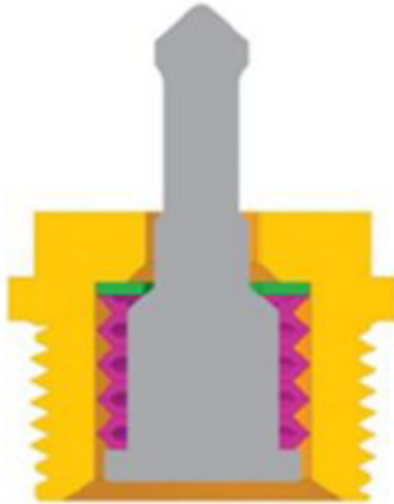
[Appendix 1]

Stud Socket Assembly Products

Products whose product name, item name, or specifications include any of the following:

- Socket
- Socket Ass'y
- Socket Ass.y
- Socket ELE
- Socket Electrode
- Socket Electrode Cam
- Stud socket
- Stud socket inner flex
- STUD SOCKET INNER FLEX
- STUD SOCKET OUTER FLEX
- SOCKET OUTER ELECTRODE STUD
- Outer electrode stud socket
- STUD-SOCKET INNER
- YNNN)ETC ASSY, STUD, SOC
- YNNNN)ETC ASSY, STUD, SO
- YYNN)STUD SOCKET OUTER
- YYYN)STUD SOCKET INNER
- YYYN)STUD SOCKET INNE
- YYNY)STUD SOCKET INNE
- YYYN)STUD SOCKET OUTE

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[Cross-Sectional View of the Stud Socket Assembly Products Sold by the Defendant]

Website⁸⁾ Screenshot Showing the Defendant's Stud Socket Assembly Products



회사소개

제품소개

품질관리

고객센터

공지사항

KOR

제품소개

Polymer Thermal Conductive Component

Electro-Conductive & BMC Component

Engineering Plastic Component

Special Material Component

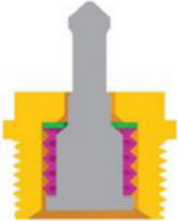
STUD Socket Ass'y

Main Features

- Excellent chemical & plasma resistance
- Excellent electrical durability
- High mechanical strength, impact strength & wear resistance
- Very precisely dimensional control

Sepcification

Item	Value
Component	Body
Density (g/c ³)	1.41
Tensile Strength (psi)	12
Modulus of Elasticity (psi)	0.6 x 10 ⁶
Material	Engineering Plastic



Application

FLEX 45 series / D series / E series / F series / G series



List

SMT

Special Material Technology

사외회계 | 제품지원 | 개인정보처리방침

경기도수원시관천구관천로40번길 46(2) 제4호 | 전화번호: 031327-0499 | 팩스: 031327-3373

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[Defendant's Website Screenshot]

8) See <http://www.smtcore.com/?tpf=product/product_view&category_code=13&code=61&category_code=13>.

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[Appendix 2]

Indication of the Defendant's Products

Defendant's Product "STUD Socket Ass'y (for the Plaintiff's FLEX® product line)"



[Cross-Sectional View of the Defendant's Product "Stud Socket Ass'y"]

[Appendix 3]

Main Content of the patented invention

① Technical Field and Technical Problem

[0003] The present invention generally relates to the field of process equipment used in semiconductors, data storage devices, flat panel displays, as well as the same or other industries. More specifically, the present invention relates to a cam-actuated clamp for attaching an electrode or other material to a backing plate within process equipment.

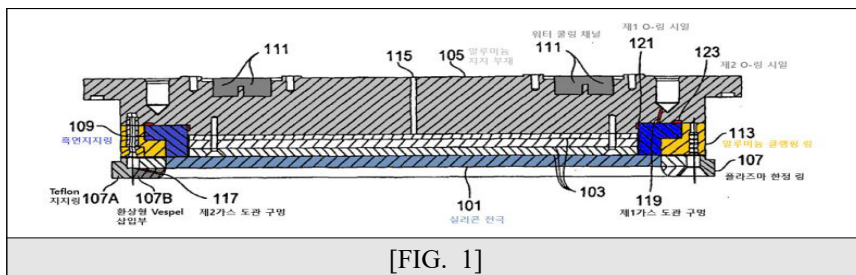
[0007] Often, etching processes can be performed more efficiently by using gases that chemically react with the material to be etched. Reactive ion etching (RIE) combines the energetic etching effects of plasma with the chemical etching effects of gas. However, many chemically active agents cause excessive electrode wear. Worn electrodes need to be replaced quickly and efficiently in order to maintain high process yield within a fabrication facility.

[0008] Typically, a reactive ion etching system consists of an etching chamber having an upper electrode (anode) and a lower electrode (cathode). The cathode is negatively biased relative to the anode and the chamber walls. The wafer to be etched is covered by an appropriate mask and is positioned directly on the cathode (that is, typically an electrostatic chuck). Chemically reactive gases such as carbon tetrafluoride (CF₄), trifluoromethane (CHF₃), chlorotrifluoromethane (CClF₃), sulfur hexafluoride (SF₆), or mixtures thereof are combined with oxygen (O₂), nitrogen (N₂), helium (He), or argon (Ar) and introduced into the etching chamber, where they are maintained at a pressure typically in the millitorr range.

[0009] Typically, the upper electrode is provided with gas apertures that allow the input gases to be uniformly distributed into the chamber through the electrode. The electric field established between the anode and the cathode dissociates the reactive gases, thereby forming a plasma. The surface of the wafer is etched by chemical interactions with active ions and by the momentum of ions colliding with the unmasked portions of the wafer. The electric field generated by the electrodes attracts the ions toward the cathode, causing the ions to strike the wafer primarily in a vertical direction so that the process produces well-defined, vertically etched sidewalls.

[0010] Referring to FIG. 1, a conventional prior-art showerhead electrode

assembly (100) for a single-wafer etcher is used, in which a wafer is supported at a distance of approximately 1 to 2 centimeters below a silicon electrode (101). The upper surface of the outer edge of the silicon electrode (101) is metallurgically bonded to a graphite support ring (109), for example by silicon or indium or an indium-alloy solder. The silicon electrode (101) is a planar disk having a uniform thickness from the center to the edge. The silicon electrode (101) may also take other forms, such as an annular ring. An outer flange on the graphite support ring (109) is clamped to an aluminum support member (105) by an aluminum clamping ring (113). The aluminum support member (105) includes surrounding water-cooling channels (111). A plasma confinement ring (107), composed of a Teflon® support ring (107A) and an annular Vespel® insert (107B), surrounds the outer periphery of the silicon electrode (101).



[0011] The purpose and function of the plasma confinement ring (107) are to increase the electrical resistance between the walls of the reaction chamber and the plasma, thereby more directly confining the plasma between the upper electrode and the lower electrode. The aluminum clamping ring (113) is attached to the aluminum support member (105) by a plurality of circumferentially spaced stainless steel bolts threaded into the aluminum support member (105). The plasma confinement ring (107) is attached to the aluminum clamping ring (113) by a plurality of circumferentially spaced bolts threaded into the aluminum clamping ring (113). A radially inwardly extending flange of the aluminum clamping ring (113) engages the outer flange of the graphite support ring (109). Accordingly, clamping pressure is not applied directly to the exposed surface of the silicon electrode (101).

[0012] Process gas is supplied to the silicon electrode (101) through a central hole (115) in the aluminum support member (105). The process gas is then distributed through one or more vertically spaced baffle plates (103)

and passes through gas distribution holes in the silicon electrode (101), thereby uniformly distributing the process gas into the reaction chamber (that is, the reaction chamber is located directly below the silicon electrode (101)).

[0013] In order to provide improved thermal conduction between the graphite support ring (109) and the aluminum support member (105), a portion of the process gas is supplied through a first gas conduit opening (119) to fill a small annular groove within the aluminum support member (105). In addition, a second gas conduit opening (117) in the plasma confinement ring (107) allows the pressure to be monitored within the reaction chamber. To maintain the process gas under pressure between the aluminum support member (105) and the graphite support ring (109), a first O-ring seal (121) is provided between the radially inner surface of the graphite support ring (109) and the radially outer surface of the aluminum support member (105). A second O-ring seal (123) is provided between an outer portion of the upper surface of the graphite support ring (109) and the lower surface of the aluminum support member (105).

[0014] The difficult and time-consuming prior-art process of bonding the silicon electrode (101) to the graphite support ring (109) requires heating the silicon electrode (101) to a bonding temperature that may cause bowing or cracking of the electrode (101), due to the different coefficients of thermal expansion of the silicon electrode (101) and the graphite support ring (109). In addition, contamination of the wafer may result from solder particles or vaporized solder contaminants originating from the joint between the silicon electrode (101) and the graphite support ring (109), or from the graphite support ring (109) itself. Problems associated with such particles or other contaminants are far more pronounced in sub-65-nanometer designs used in current IC fabrication.

[0015] During the silicon electrode (101) bonding process, the temperature of the electrode (101) may be sufficiently high to melt the solder and cause the entire electrode (101), or portions thereof, to separate from the graphite support ring (109). Even if the silicon electrode (101) becomes partially separated from the graphite support ring (109), localized changes in the transmission of electrical and thermal power between the graphite support ring (109) and the silicon electrode (101) may result in non-uniform plasma density beneath the electrode (101).

[0016] Accordingly, there is a need for a simple, robust, and cost-effective means for mounting an electrode to a support or backing ring. Such a

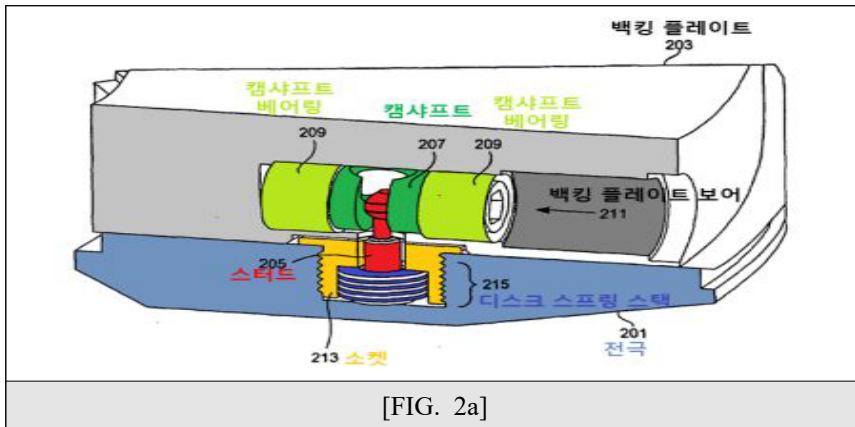
mounting means must also account for any induced stresses resulting from differences in coefficients of thermal expansion between the electrode and the support member.

⑤ Solution to the Problem

[0017] In one exemplary embodiment, a cam-lock clamp is disclosed. The cam-lock clamp includes a stud having a body portion, a first end portion, and a second end portion. The first end portion includes a head region having a first diameter greater than a cross-sectional dimension of the body portion, and the second end portion includes a second diameter greater than the cross-sectional dimension of the body portion, and is arranged to concentrically support one or more disc springs relative to the stud. A socket is arranged to concentrically mechanically couple around the head region of the stud exposed above an uppermost portion of the socket, the one or more supported disc springs, and the stud. The socket is configured to be securely attached to a consumable material. The cam-lock clamp further includes a camshaft having a substantially cylindrical body with a diameter greater than the first diameter. The camshaft is configured to be mounted within a bore of a backing plate and further includes an eccentric cutout region located at a central portion of the cylindrical camshaft body. The camshaft is also configured to engage with and secure the head region of the stud when the consumable material and the backing plate are brought into proximity.

© Detailed Description of Embodiments

[0022] Referring to FIG. 2a, a three-dimensional view of an exemplary cam-lock electrode clamp of the present invention includes portions of an electrode (201) and a backing plate (203) in order to illustrate to a person skilled in the art how the cam-lock electrode clamp functions. The electrode clamp enables a consumable electrode (201) to be quickly, cleanly, and accurately attached to a backing plate in various fab-related tools, such as dielectric etching chambers. The electrode (201) may be formed of various materials, for example silicon (Si), silicon carbide (SiC), or polysilicon (α -Si). The backing plate is often made of aluminum, although other materials are known in the art.



[0023] When including portions of the electrode clamp, a stud (205) is mounted within a socket (213). The stud may be surrounded by a disk spring stack (215), such as stainless-steel Belleville washers. The stud (205) and the disk spring stack (215) are then press-fitted into the socket (213) or may be secured to the socket (213) through the use of adhesive or mechanical fasteners. The stud (205) and the disk spring stack (215) are arranged within the socket (213) such that a limited amount of lateral movement is possible between the electrode (201) and the backing plate (203). Limiting the amount of lateral movement allows a firm fit between the electrode (201) and the backing plate (203), thereby ensuring good thermal contact, while still providing some movement to accommodate differences in thermal expansion between the two components. Additional details regarding the limited lateral movement characteristic are described in further detail below.

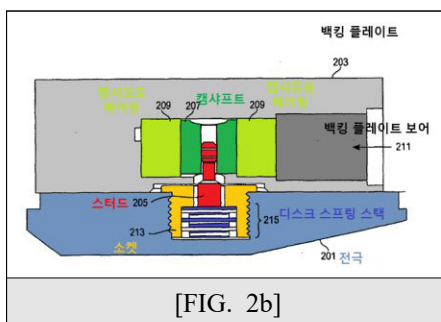
[0024] In one specific exemplary embodiment, the socket (213) is manufactured from bearing-grade Torlon®. Alternatively, the socket (213) may be manufactured from other materials that possess certain mechanical characteristics such as good strength and impact resistance, as well as readily available creep resistance, dimensional stability, radiation resistance, and chemical resistance. Various materials such as polyamide, polyimide, acetal, and ultra-high molecular weight polyethylene may all be suitable. High-temperature-specific plastics and other related materials are not required to form the socket (213), since 230°C is the typical maximum temperature encountered in applications such as etching chambers. Generally, normal operating temperatures are closer to 130°C.

[0025] Other portions of the electrode clamp include a camshaft (207)

surrounded at each end by a pair of camshaft bearings (209). The camshaft (207) and the camshaft bearing assembly are mounted within a backing plate bore (211) machined into the backing plate (203). In a typical application for an etching chamber designed for 300 mm semiconductor wafers, eight or more electrode clamps may be positioned around the periphery of the electrode (201)/backing plate (203) combination.

[0026] The camshaft bearings (209) may be machined from various materials, including Torlon®, Vespel®, Celcon®, Delrin®, Teflon®, Arlon®, or other materials having a low coefficient of friction and low particle shedding, such as fluoropolymers, acetals, polyamides, polyimides, polytetrafluoroethylene, and polyether ether ketone (PEEK). The stud (205) and the camshaft (207) may be machined from stainless steel (for example, 316, 316L, 17-7) or any other material that provides good strength and contamination resistance.

[0027] Next, referring to FIG. 2b, a cross-sectional view of the electrode cap clamp further illustrates how the cam clamp operates by drawing the electrode (201) toward the backing plate (203). The stud (205)/disk spring stack (215)/socket (213) assembly is mounted to the electrode (201). As shown, the assembly may be screwed into a

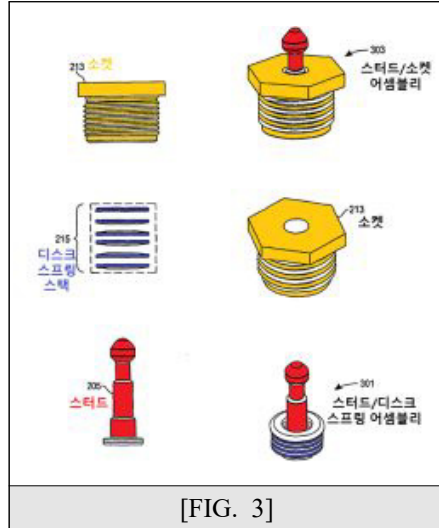


threaded pocket formed in the electrode (201) by means of external threads on the socket (213). However, a person skilled in the art will recognize that the socket may alternatively be mounted using adhesives or other types of mechanical fasteners.

[0028] In FIG. 3, side views and an assembly view (300) of the stud (205), the disk spring stack (215), and the socket (213) provide additional details of an exemplary design of the cam-lock electrode clamp. In one specific exemplary embodiment, the stud/disk spring assembly (301) is press-fitted into the socket (213). The socket (213) includes external threads and a hexagonal upper portion (or, for example, any other shape such as polygonal, Torx®, Robertson, or the like), allowing easy insertion into the electrode (201) using a small torque, for example approximately 20 inch-pounds in one specific exemplary embodiment (see FIGS. 2a and 2b). As described above, the socket (213) may be machined from various types

of plastics. The use of plastic minimizes particle generation and allows easy installation of the socket (213) into the mating socket formed in the electrode (201).

[0029] The stud/socket assembly (303) illustrates that the internal diameter of the upper portion of the socket (213) is greater than the external diameter of the intermediate portion of the stud (205). As discussed above, the difference in diameters between the two components allows limited lateral movement in the assembled



[FIG. 3]

electrode clamp. The stud/disk spring assembly (301) maintains firm contact with the socket (213) at the base portion of the socket (213), while the difference in diameters permits some lateral movement (see also FIG. 2b).

[0030] Referring to FIG. 4a, an exploded assembly view (400) of the camshaft (207) and the camshaft bearings (209) further illustrates a keying pin (401). First, the end of the camshaft (207) having the keying pin (401) is inserted into the backing plate bore (211) (see FIG. 2b). A half-moon-shaped slot at the far end of the backing plate bore (211) provides proper alignment of the camshaft (207) within the backing plate bore (211). The half-moon-shaped slot limits rotational movement of the camshaft (207) and thereby prevents damage to the stud (205). A side view (420) of the camshaft (207) clearly illustrates a possible arrangement of a hexagonal opening (403) at one end of the camshaft (207) and the keying pin (401) at the opposing end.

[0031] By way of example, with continued reference to FIGS. 4a and 2b, the electrode cam clamp is assembled by inserting the camshaft (207) into the backing plate bore (211). The keying pin (401) interfaces with one of a pair of small mating holes, thereby limiting rotational movement of the camshaft (207) within the backing plate bore (211). First, the camshaft may be rotated in one direction, for example counterclockwise, using the hexagonal opening (403) to allow entry of the stud (205) into the camshaft (207). The camshaft is then rotated clockwise to fully engage and secure the stud (205). The clamping force required to retain the electrode (201) on the

backing plate (203) is provided by compressing the disk spring stack beyond its free stack height. The camshaft (207) includes an internal eccentric cutout that engages the head of the stud (205). As the disk spring stack (215) is compressed, clamping force is transmitted from the individual springs within the disk spring stack (215) to the socket (213) and through the electrode (201) to the backing plate (203).

[0032] In an exemplary mode of operation, once the camshaft bearings are attached to the camshaft (207) and inserted into the backing plate bore (211), the camshaft (207) is rotated counterclockwise through its full range of rotational travel. The stud/socket assembly (203) (FIG. 3) is then lightly torqued into the electrode (201). Thereafter, the head of the stud (205) is inserted through the through-hole beneath the backing plate bore (211). While the electrode (201) is retained against the backing plate (203), the camshaft (207) is rotated clockwise until the keying pin (401) reaches the end of the half-moon-shaped slot or until an audible click is heard. To separate the electrode (201) from the backing plate (203), the exemplary mode of operation may simply be reversed.

[0033] Referring to FIG. 4b, cross-section A-A of the side view (420) of the camshaft (207) shown in FIG. 4a illustrates the cutter path edge (440) by which the head of the stud (205) is fully retained. In a particular exemplary embodiment, two radii R1 and R2 are selected such that the head of the stud (205) generates the aforementioned audible click sound to indicate that the stud (205) is fully retained.

[Appendix 4]

Main Content of Prior Art 1

② Technical Field and Technical Problem

[0001] The present invention generally relates to spectroscopic instrumentation, and more particularly to spectrophotometry for fluorescence, phosphorescence, and luminescence.

[0003] It is generally known that spectroscopic analytical instruments, including spectrophotometers for fluorescence, phosphorescence, and luminescence measurements, are provided with interchangeable accessories. These accessories generally provide a variety of sample presentation functions. For example, a fluid sample presentation accessory may be interchangeable with an accessory for presenting solid samples. Various accessories may also control the temperature of a sample by means of a Peltier device, a Dewar, or another cryostat device, may sequentially supply multiple samples to a reading location, or may provide multiple-sample carriers such as well plates, or readers therefor.

[0004] In order not to compromise test results, it is important that such interchangeable accessories for a spectrometer be repeatedly and accurately positioned on the instrument. Conventional configurations for this purpose mount components to other components by threaded engagement, and thus do not generally allow rapid interchange of accessories.

③ Summary of the Invention

[0007] According to a first aspect, the present invention provides a spectroscopic analytical instrument and an interchangeable accessory therefor. The accessory includes a manually operable mechanism for mounting the accessory to the instrument. The mechanism comprises a manually rotatable cam means associated with one of the accessory or the instrument, and a male member associated with the other of the accessory or the instrument. The male member has a cam surface engageable by the cam means. The accessory can be positioned at a predetermined location on the instrument, and the cam means is manually rotatable to engage the cam surface of the male member so as to secure the accessory at the predetermined location on the instrument.

[0008] Ideally, the cam means is rotated through less than 360° in order to install the accessory, and more preferably the rotation is approximately 180°.

[0009] Preferably, the cam means has a female configuration for receiving

the male member. For example, it may be spherical or cylindrical with a recess formed therein, the recess having a curved cam surface that interacts with the cam surface of the male member. Preferably, the cam means is located substantially at the center of the base of the accessory and is operable by means of a shaft extending to the outer periphery of the accessory for manual operation. Preferably, the shaft includes a handle or a knob to facilitate manual operation.

[0010] Preferably, the male member is associated with the instrument and is biased in a direction toward the instrument, and when the cam means and the male member are engaged, the male member is caused to move against that bias in a direction away from the instrument. As a result, when the cam means and the male member are fully engaged to secure the accessory on the instrument, a positive retaining force is maintained on the accessory.

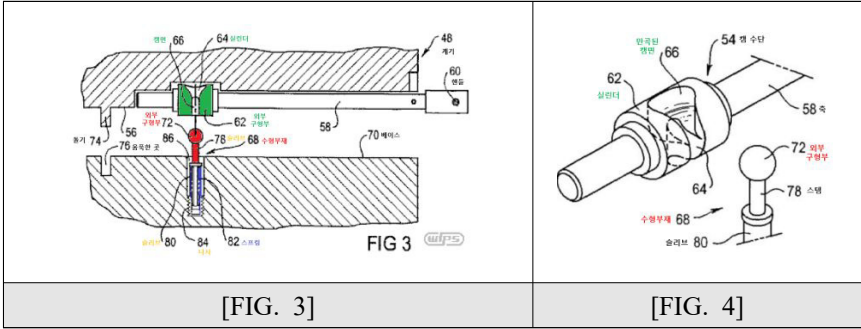
[0011] Alternatively, the cam means may be associated with the instrument and the male member may be associated with the accessory.

[0012] Preferably, the accessory and the instrument include a plurality of complementary projections on opposing surfaces thereof to establish the predetermined location for the accessory on the instrument. These may be, for example, pins on a surface or recesses formed in a surface. Accordingly, when the cam means is rotated to engage the male member and pull the accessory toward the instrument, the projections on the accessory are preferably positioned within the complementary recesses in the instrument, thereby positioning the accessory at the correct location on the instrument.

[0013] From the foregoing description and the detailed description that follows, it will be understood that embodiments of the present invention provide a mounting mechanism for spectroscopic analytical instruments, preferably spectrophotometers, that allows accessories to be rapidly attached and detached and that is easily manually operable. This advantage of rapid attachment and detachment is derived from the use of a single mounting point and from the fact that the actual mounting can be achieved by rotating the cam means through approximately a half turn using a conveniently projecting handle, knob, or the like.

© Configuration of the Invention

[0042] The male member (68, see FIG. 3) is mounted on the base (70) of the sample compartment of the instrument and includes an outer spherical surface (72). This outer spherical surface (72) is engageable by the cam means (54), specifically by its cam surface (66). Accordingly, by rotating the cam means (54) by means of the handle (60), the cam surface (66)



interacts with the spherical surface (72) of the male member (68), whereby the base (56) of the accessory comes into contact with the base (70) of the instrument and the accessory is secured at a predetermined location on the instrument. This predetermined location is determined by the relative positions of the cam means (54) and the male member (68), as well as by complementary positioning means provided on the accessory and the instrument. Such complementary positioning means may include projections (74) on the base (56) of the accessory, only one of which is shown in Figures 2 and 3, the projections being positionable within recesses (76) in the base (70) of the instrument. A convenient and preferred mechanism for spatially positioning the accessory within the sample compartment is the use of a kinematic mount. This consists of three projecting pegs provided on one of the instrument or the accessory. A first peg engages in a hole in an abutting surface and precisely locates one point of the accessory relative to the instrument. Height adjustment may be achieved by the peg bearing on the bottom of the hole or by a shoulder of the peg bearing on the upper part of the hole. A second peg is provided on the abutting surface and is located in a slot whose centerline passes through the center of the hole described above. Height adjustment is achieved in the same manner as for the first peg. This arrangement allows angular positioning of the accessory relative to the first location point. A third peg is supported on a plate on the abutting surface.

[0043] The spherical portion (72) of the male member (68) is located at the end of a stem (78) installed within a sleeve (80) and is biased inwardly by a spring (82). A lower or inward end (84) of the sleeve (80) is threaded for mounting within a base opening (86). Accordingly, when the cam means (54) engages the male member (68) and is rotated relative thereto, the spring (82) acts to urge the spherical portion (72) downwardly toward the

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base (70) of the instrument. As a result, when the cam means (54) and the male member (68), specifically their respective surfaces (66) and (72), are fully engaged to secure the accessory (48) on the instrument, a positive retaining force is maintained on the accessory.

[0050] A plug of the accessory may be configured on the accessory such that, when the accessory is mounted on the instrument by the same mechanical mounting mechanism described above, the plug automatically engages a corresponding socket of the instrument. Accordingly, a single operation of mounting the accessory automatically establishes electrical connection with the instrument, completes a recognition circuit, and may subsequently cause a program to be automatically loaded.

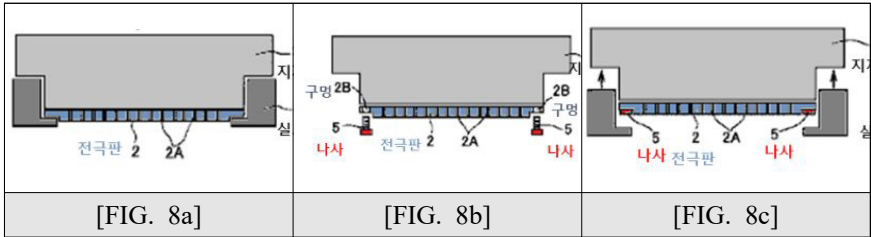
[Appendix 5]

Main Content of Prior Art 2

㉠ Technical Field and Technical Problem

[0001] The present invention relates to an electrode plate for a plasma processing apparatus and a plasma processing apparatus, and more specifically, for example, to an electrode plate for a plasma etching apparatus and a plasma etching apparatus for etching a semiconductor processing substrate in a plasma atmosphere.

[0002] Plasma processing technologies, including plasma etching processing and plasma chemical vapor deposition processing, are widely used in the manufacture of semiconductor devices and liquid crystal display devices. A typical plasma processing apparatus employing such technologies includes an upper electrode and a lower electrode disposed opposite each other within a processing chamber. High frequency power is applied to the upper electrode to generate plasma from a processing gas within the processing chamber, whereby plasma processing is performed on a substrate to be processed placed on the lower electrode. In addition to high frequency power for plasma generation and processing gas for process treatment, cooling water for cooling the electrode to a desired temperature is supplied to the upper electrode.



[0003] An upper electrode used in a conventional plasma processing apparatus will be described with reference to the conceptual diagrams shown in FIG. 8. As shown in FIG. 8(a), the upper electrode 1 includes an electrode plate 2, which is formed of, for example, quartz and has a plurality of gas holes 2A distributed over its entire surface, a support member 3, which is formed of, for example, aluminum and supports the electrode plate 2 while performing heat exchange with the electrode plate 2, and an annular shield ring 4 disposed to seal the peripheral portions of the

electrode plate 2 and the support member 3.

[0004] When assembling the upper electrode 1, as shown in FIG. 8(b), the bottom surface of the support member 3 and the upper surface of the electrode plate 2 are first brought into surface contact, after which the two members 2 and 3 are fixed using screws 5. Thereafter, in order to prevent abnormal discharge or metal contamination, as shown in FIG. 8(c), the shield ring 4 is disposed around the electrode plate 2 to cover the head portions of the screws 5 that are exposed within the processing chamber.

⑥ Problem to Be Solved by the Invention

[0005] However, since the electrode plate (2) is made of quartz or the like, it is not desirable to form screw holes in the electrode plate (2) due to issues such as strength and ease of machining. Accordingly, in the conventional art, through-holes 2B penetrating near the outer periphery of the electrode plate (2) are provided, and screw holes are formed on the support member (3) side made of aluminum or the like. As a result, it is necessary to fasten screws (5) from the processing chamber side (the lower electrode side) into the screw holes on the support member side to join the electrode plate (2) and the support member (3). Furthermore, as described above, it has been necessary to install a shield ring (4) around the electrode plate (2) to isolate the screws (5) from the plasma.

[0006] In addition, in order to prevent abnormal discharge or to execute a desired process, it is necessary to consider minimizing surface irregularities within the processing chamber. To satisfy this requirement, the shape of the joint portion between the electrode plate (2) and the support member (3) has become increasingly complex, resulting in higher costs. Moreover, since through-holes (2B) for passing the screws (5) must be provided at or near the outer peripheral portion of the electrode plate (2), the shape becomes extremely complicated as described above, which imposes a limitation in that the outermost diameter of the gas holes (2A) for introducing processing gas into the processing chamber, namely the effective gas hole diameter, cannot be increased.

[0007] The present invention has been made to solve the above problems and provides a novel electrode plate for a plasma processing apparatus and a plasma processing apparatus that allow the effective gas hole diameter to be increased, reliably conceal the fastening means of the electrode plate from plasma, and form a flat plasma-facing surface at low cost.

[0008] The electrode plate for a plasma processing apparatus according to claim 1 of the present invention is detachably mounted by fastening means

to a lower end of a support member disposed opposite an electrode that supports a substrate to be processed, and includes a plurality of gas discharge holes for supplying processing gas to the substrate to be processed on the electrode. The electrode plate includes a socket having a screw hole and a housing portion that accommodates the socket, and the electrode plate is joined to the support member by screwing the fastening means into the screw hole of the socket accommodated in the housing portion.

[0009] The electrode plate for a plasma processing apparatus according to claim 2 of the present invention is the electrode plate according to claim 1, wherein the housing portion includes a stepped portion that directly or indirectly engages with the socket inside the housing portion.

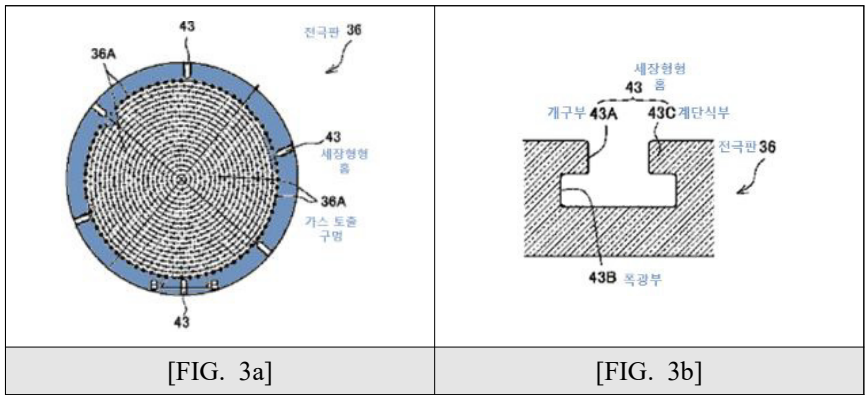
[0010] The electrode plate for a plasma processing apparatus according to claim 3 of the present invention is the electrode plate according to claim 1 or 2, wherein the screw hole of the socket accommodated in the housing portion opens toward a surface to be joined to the support member.

© Configuration of the Invention

[0022] The electrode plate (36) is formed in a disk shape from quartz or the like, and its outer diameter is set to be substantially the same as the bottom surface of the cooling plate (35). As described above, the electrode plate (36) is capable of uniformly supplying processing gas into the processing chamber (11) through a plurality of gas discharge holes (36A) formed over a wide area on its entire surface. In addition, the cooling plate (35) has a plurality of through-holes (35B) formed along the circumferential direction at positions outside the gas supply path (35A). Screws (42, fastening means) made of aluminum, stainless steel, or the like are inserted into and fastened in the respective through-holes (35B), and these screws (42) are screwed into sockets (screw holes) to be described later that are additionally provided in the electrode plate (36), thereby firmly joining the cooling plate (35) and the electrode plate (36). That is, the cooling plate (35) functions as a support member that supports the electrode plate (36).

[0023] The upper electrode (23) will be further described with reference to FIG. 3 and FIG. 4. As shown in FIG. 3(a), a plurality of elongated grooves (43, housing portions) extending in the radial direction from the outer peripheral edge of the electrode plate (36) or its vicinity to the vicinity of the outermost gas discharge holes (36A) are provided at or near the outer peripheral edge of the electrode plate (36). As shown in FIG. 3(b), each groove (43) includes an opening (43A) that opens on the upper surface of the electrode plate (36) and a widened portion (43B) formed with a

substantially larger width inside the opening (43A), and a stepped portion (43C) is formed at the boundary between them. A socket (44) shown in FIGS. 4(a) and 4(b) is installed in each groove (43) configured as described above.

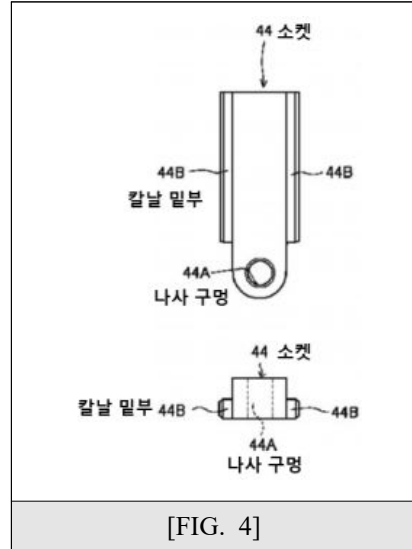


[0024] The socket (44) is formed in an elongated shape from, for example, a high-performance plastic, preferably a polybenzimidazole resin such as Celazole® (trade name). As shown in FIG. 4(a), one end of the socket (the lower side in FIG. 4(a)) is formed in an arcuate shape, while the other end (the upper side in FIG. 4(a)) is formed in a straight shape. A threaded hole (44A) is provided at the one end side. Further, as shown in FIGS. 4(a) and 4(b), blade-base portions (44B) are continuously formed along the longitudinal direction on both side surfaces of the socket (44), so that the front view has an inverted T-shaped configuration. By inserting and removing the socket (44) into and from the groove (43) of the electrode plate (36), the socket (44) can be detachably mounted to the electrode plate (36). The socket (44) is not limited to being made of a high-performance plastic, and may alternatively be made of aluminum, stainless steel, or the like.

[0025] As described above, since the threaded hole (44A) is formed in the upper surface of the one end side of the socket (44), the threaded hole (44A) can be visually confirmed through the opening (43A) of the electrode plate (36) when the socket (44) is installed in the groove (43), which serves as a receiving portion, of the electrode plate (36). In other words, in the upper electrode (23) of the present embodiment, a socket (44) having a threaded hole (44A) is installed in the electrode plate (36), thereby additionally providing the electrode plate (36) with the threaded hole (44A).

The socket may have one or more threaded holes, and includes all configurations that are accommodated in a receiving portion such as a groove or a hole of a counterpart member corresponding to the electrode plate.

[0026] When installing the electrode plate (36) on the cooling plate (35), the through-holes (35B) of the cooling plate (35) and the threaded holes (44A) of the sockets (44) accommodated in the openings (43A) of the electrode plate (36) are aligned with each other in plan view, and the upper surface of the electrode plate (36) and the bottom surface of the cooling plate (35) are brought into surface contact. In this state, screws (42), serving as fastening means, are inserted into the through-holes (35B) from the upper surface side of the cooling plate (35) and are threadingly engaged with the threaded holes (44A) of the sockets (44), thereby joining the cooling plate (35) and the electrode plate (36). In this manner, since the sockets (44) are installed in the electrode plate (36) such that the threaded holes (44A) open toward the upper surface side of the electrode plate (36), the screws (42) are threadingly engaged in a concealed region away from the processing space (plasma space), thereby isolating the screws (42), which serve as fastening means, from the plasma space. Furthermore, by directly engaging the blade-base portions (44B) of the sockets (44) with the stepped portions (43C) of the electrode plate (36), the electrode plate (36) can be reliably supported by the cooling plate (35).



[Appendix 6]

Main Content of Prior Art 3

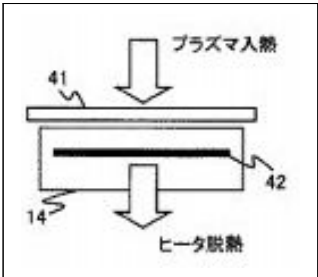
② Technical Field and Technical Problem

[0001] The present invention relates to a substrate mounting table (stage) for substrates such as glass that are subjected to plasma processing.

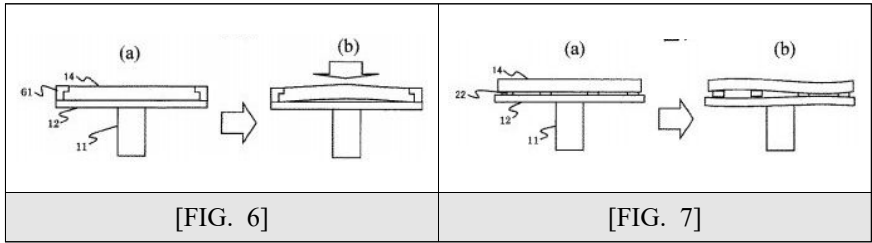
[0002] As a mounting table for a substrate to be plasma processed, Patent Document 1 (Japanese Patent Application Laid-Open No. Hei 10-223621) discloses a vacuum processing apparatus in which a first dielectric plate is installed on an upper surface of a mounting table body via an O-ring, a second dielectric plate having a heater embedded therein is installed on the first dielectric plate, the surface of the first dielectric plate is formed with irregularities, a gap is formed between the first and second dielectric plates by recessed portions, and deterioration of the O-ring due to heat is suppressed.

[0005] As a requirement for a plasma apparatus for plasma processing of a substrate, as shown on the right side of FIG. 4, plasma heat input is generated toward the substrate (41) on the mounting table (hereinafter also referred to as a “stage”) simultaneously with plasma ignition. Therefore, in order to stabilize the stage temperature, it is necessary to compensate for the heat input during processing.

[0011] However, since the heater block (14) is composed of various materials, differences in thermal expansion coefficients among the materials at high temperatures cause the respective materials to freely expand and contract, resulting in the heater block (14) itself moving due to thermal expansion and contraction.



[FIG. 4]



[0012] FIG. 6 shows an example in which the heater block (14) on the mounting table body (12) fixed to a support portion (11) is constrained by an outer peripheral clamp (61). When plasma heat input occurs, the heater block (14) becomes convex due to thermal expansion, as shown in FIGS. 6(a) and 6(b), thereby causing in-plane non-uniformity at the heat transfer interface.

[0013] FIG. 7 shows an example in which the heater block (14) placed on a spacer (22) on the mounting table body (12) is of a self-supporting type. In this case as well, due to thermal expansion of the heater block and thermal expansion of the mounting table body, the relative position of the mounting table moves in an unstable manner.

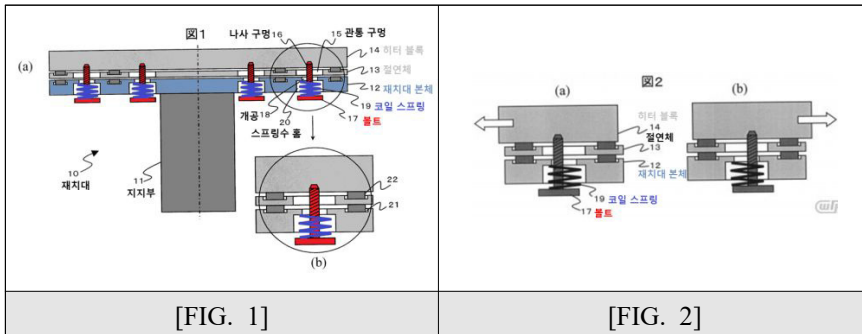
[0014] Accordingly, in order to stabilize the contact portion as a heater block supporting function, a support structure is required that constrains the heater block in the spacing direction while allowing it to freely move in the direction of thermal expansion.

② Means for Solving the Problem and Effects of the Invention

[0015] The present invention relates to a stage structure of a plasma processing apparatus, and particularly to a heater support structure. The invention is characterized in that, in the heater support structure, the heater is supported and fixed by an elastic body with at least a predetermined load in the direction of heat flux caused by plasma heat input, while being allowed to move freely in the direction in which the heater moves due to thermal expansion, that is, in a direction perpendicular to the direction of the heat flux.

[0016] By equalizing plasma heat input and heat dissipation from the heater within the plane, uniform plasma processing within the plane can be achieved, and in particular, uniform plasma processing can be performed on large-sized substrates.

③ Means for Carrying Out the Invention



[0018] FIG. 1 is a schematic structural diagram of a mounting table (10) according to the present invention, and FIG. 1(b) is an enlarged view of a portion indicated by a circle in FIG. 1(a). A mounting table body (12) fixed to a support portion (11) is provided, and a thermal insulator (13) and a heater block (14) are sequentially disposed on the mounting table body (12).

[0019] A plurality of through holes (15) are formed in the thermal insulator (13), and through these through holes (15), tip portions of bolts (17) are fixed to threaded holes (16) formed in the heater block. In addition, the mounting table body (12) is also provided with openings (18) corresponding to the through holes (15), and the bolts (17) pass through the through holes (15) and the openings (18).

[0020] A coil spring (19) is interposed between the head portion of each bolt (17) and the mounting table body (12), and the coil spring (19) is accommodated in a spring groove (20) formed in the mounting table body (12).

[0021] In FIG. 1, the coil spring (19) is compressed by screw fastening of the bolt (17), and the heater block (14), the thermal insulator (13), and the mounting table body (12) are elastically maintained by the spring force generated in response to the compression.

[0023] FIG. 2 illustrates an example in which the heater block (14) moves laterally due to thermal expansion during plasma heat input. FIG. 2(a) shows a case in which the heater block moves to the left, and FIG. 2(b) shows a case in which it moves to the right.

[0024] As shown in FIG. 2, the heater block (14) is supported with a constant load in the direction of heat flux caused by plasma heat input (vertical direction in the figure) by the spring force of the coil spring (19), and is allowed to move freely in a direction perpendicular to the heat flux (horizontal direction in the figure) by utilizing torsional deformation of the coil spring (19).

[0025] By maintaining a constant spacing between the mounting table body (12) and the heater block (14) in this manner, highly reliable plasma processing can be performed. Although the case in which the heater block (14) moves has been described here, the same applies to a case in which the heater block (14) and the mounting table body (12) move together in the horizontal direction.

IP HIGH COURT OF KOREA
TWENTY SECOND-SECOND DIVISION
DECISION

Case No.	2023Na10327 Compensation for Employee Invention
Plaintiff, Appellant and Appellee	A Counsel for Plaintiff Attorneys Seonwoo MOON and Minjin KIM
Defendant, Appellee and Appellant	LG Electronics Inc. CEO C Counsels for Defendant Attorneys Seongsu PARK, Jeongseop KIM, Won KIM, Yuna JIN, Jaehyuk ANG, Gyumin BAEK, Changju JEONG, Dawoon KIM
District Court's Decision	Seoul Central District Court 2018GaHap580714, decided Feb. 15, 2023
Date of Closing Argument	April 24, 2024
Decision Date	June 12, 2024

ORDER

1. Pursuant to the expansion of the demand for relief sought before this Court, the decision of the district court is modified as follows.

IP HIGH COURT DECISIONS

- A. the Defendant shall pay the Plaintiff KRW 138,932,000, together with interest calculated as follows: (a) with respect to KRW 100,000,000, interest at an annual rate of 5% from November 30, 2018, through February 15, 2023, and thereafter at an annual rate of 12% from the following day, until paid in full; and (b) with respect to the remaining KRW 38,932,000, interest at an annual rate of 5% from October 13, 2023, through June 12, 2024, and at an annual rate of 12% from the following day, until paid in full
- B. All remaining claims of the Plaintiff are dismissed.
2. Costs shall be allocated as follows: 50% to the Plaintiff and 50% to the Defendant.
3. Paragraph A of Item 1 may be enforced provisionally.

DEMAND FOR RELIEF

1. Plaintiff's Demand

The Defendant shall pay the Plaintiff KRW 300,000,000, together with interest on each amount set forth in the column titled “Claimed Amount” in the table entitled Claim Amount Details in Appendix 1, calculated as follows: (a) interest at an annual rate of 6% from the respective dates¹⁾ listed in the column titled “Commencement Date for

1) At the appellate stage, the Plaintiff, by an application dated October 12, 2023, to amend the relief sought and the grounds therefor, sought delay damages using different commencement dates for each claimed amount, as set forth in the Claim Amount Details table in Appendix 1. Although, in a consolidated brief dated April 6, 2024, the Plaintiff also expressed an intent to seek delay damages calculated from December 19, 2013, the Plaintiff did not amend the relief sought to reflect that position. Accordingly, the commencement dates for delay damages are properly understood to be those set forth in the relief sought, as described above.

Delay Damages” in the same table until the date of service of the complaint; (b) interest at an annual rate of 15% from the following day through May 31, 2019; and (c) interest at an annual rate of 12% from June 1, 2019, until paid in full (the Plaintiff expanded the scope of the claim in this Court).

2. Appellant’s Demand

[Plaintiff] The decision of the trial court is modified as follows:

The Defendant shall pay the Plaintiff KRW 100,000,000, together with interest thereon calculated at an annual rate of 6% from December 19, 2013, to the date of service of the complaint; at an annual rate of 15% from the following day through May 31, 2019; and at an annual rate of 12% from June 1, 2019, until paid in full.²⁾

[Defendant] The portion of the trial court’s decision adverse to the Defendant is reversed, and the Plaintiff’s corresponding claims are dismissed.

2) At the trial level, the Plaintiff sought a judgment in the form set forth in the appellate prayer for relief above. The court of first instance entered judgment ordering that “the Defendant shall pay the Plaintiff KRW 100,000,000, together with interest thereon calculated at an annual rate of 12% from November 30, 2018, until the date of full payment.” Although the judgment did not expressly state that “the remainder of the Plaintiff’s claims is dismissed,” its substance was that of a judgment partially granting the Plaintiff’s claims. Accordingly, the Plaintiff has a legally cognizable interest in appealing the judgment. At the appellate stage, the Plaintiff, through an application dated October 12, 2023, to amend the relief sought and the grounds therefor, expanded the prayer for relief to seek a judgment in the form set forth above.

OPINION

1. Relevant Law

A. Former Patent Act (prior to its amendment by Act No. 7871 on March 3, 2006; hereinafter the same applies)

Article 39 (Employee Inventions)

(1) Where an invention made by an employee, a corporate officer, or a public official (hereinafter referred to as “Employee, etc.”) falls, by its nature, within the business scope of the employer, the corporation, or the State or a local government (hereinafter referred to as “Employer, etc.”), and the acts leading to the invention belong to the Employee’s present or past duties, such invention (hereinafter referred to as an “Employee Invention”) shall, if a patent is granted to the Employee, etc., or to a person who has succeeded to the right to obtain a patent therefor, entitle the Employer, etc. to a non-exclusive license to practice the patented invention.

Article 40 (Compensation for Employee Inventions)

(1) Where an Employee, etc. assigns to the Employer, etc., pursuant to a contract or employment regulations, the right to obtain a patent for an Employee Invention or the patent right to such Employee Invention, or grants the Employer, etc. an exclusive license thereto, the Employee, etc. shall have the right to receive reasonable compensation therefor.

(2) In determining the amount of compensation under paragraph (1), consideration shall be given to the amount of profit to be obtained by the Employer, etc. from the invention, and to the respective contributions of the Employer, etc. and the Employee, etc. to the completion of the invention.

B. Former Invention Promotion Act (prior to its full revision by Act No. 8357, April 11, 2007; hereinafter the same applies)

Article 2 (Definitions)

For purposes of this Act, the following terms shall have the meanings set forth below:

2. The term “Employee Invention” means an invention that is made by an employee, a corporate officer, or a public official (hereinafter referred to as an “Employee, etc.”) in the course of his or her duties; by its nature, falls

within the business scope of the employer, the corporation, or the State or a local government (hereinafter referred to as an “Employer, etc.”); and results from acts belonging to the Employee’s present or past duties.

Article 8 (Employee Inventions)

(1) Where, with respect to an Employee Invention, an Employee, etc. obtains a patent, utility model registration, or design registration (hereinafter collectively referred to as “Patent, etc.”), or where a person who has succeeded to the right to obtain such Patent, etc. obtains the Patent, etc., the Employer, etc. shall have a non-exclusive license with respect to the patent right, utility model right, or design right (hereinafter collectively referred to as “Patent Rights, etc.”).

Article 13 (Compensation for Employee Inventions)

(1) Where an Employee, etc., with respect to an Employee Invention, causes the Employer, etc., pursuant to a contract or employment regulations, to succeed to the right to obtain a patent, utility model registration, or design registration, or to succeed to the patent right, utility model right, or design right, or grants the Employer, etc. an exclusive license thereto, the Employee, etc. shall have the right to receive reasonable compensation therefor.

(2) Where the compensation under paragraph (1) is prescribed by a contract or employment regulations, such compensation shall be deemed reasonable if it is recognized as reasonable in light of, among other things, the circumstances set forth in each of the following paragraphs.

1. The circumstances of the consultations between the Employer, etc. and the Employee, etc. concerning the method of compensation and the criteria for determining the amount thereof.

2. The extent to which the established compensation standards were disclosed, posted, or otherwise made known to the Employee, etc. including the manner in which such standards were communicated to the Employee, etc.

3. The circumstances under which the Employee, etc.’s opinions were solicited and taken into account in determining the method and amount of compensation.

(3) Where compensation under paragraph (1) is not prescribed by a contract or employment regulations, or where such compensation cannot be deemed reasonable under paragraph (2), the amount of compensation shall be determined by taking into account the profits obtained by the Employer, etc. from the invention and the respective contributions of the Employer, etc. and the Employee, etc. to the completion of the invention.

2. Accrual of the Right to Claim Compensation for Employee Inventions

A. Basic Facts

1) The Six Employee Inventions and the Succession of Rights Thereto

the Defendant is a company engaged in the manufacture and sale of electronic, telecommunications, electrical, and other machinery and equipment. the Plaintiff was employed by the Defendant beginning on April 18, 2002, and served as a senior research engineer until February 7, 2011. During this period, while performing duties including the development of user interfaces at the Defendant's Mobile Communication Research Institute, the Plaintiff made the six inventions listed in the table below (each hereinafter a "Employee Invention No. 1," and so forth). On or about the dates set forth in the "Succession of Rights" column of the table below, the Defendant succeeded to the right to obtain patents for each of the Employee Inventions from the Plaintiff, thereafter filing patent applications in Korea and abroad and ultimately obtaining registration of eighteen patents.

No.	Inventor	Date of Succession of Rights	Patent Applications and Registrations (Including Unregistered Applications)				
			Invention	Country	Filing Date	Registration No.	Registration Date
Employee Invention No. 1	Plaintiff (1 inventor)	January 23, 2007	Invention No. 1	Korea	March 7, 2007	1330873	November 12, 2013
			Invention No. 2	China	March 6, 2008	101262518	March 13, 2013
			Invention No. 3	U.S.	February 20, 2008	7986975	July 26, 2011
			Invention No. 4	France	February 26, 2008	2913556	October 21, 2016
Employee Invention	Plaintiff + 6	August 10, 2005	Invention No. 5	Korea	September 23, 2005	0774187	November 1,

No.	Inventor	Date of Succession of Rights	Patent Applications and Registrations (Including Unregistered Applications)				
			Invention	Country	Filing Date	Registration No.	Registration Date
No. 2	(7 inventors)						2007
	Plaintiff + 2 (3 inventors)	August 26, 2005	Invention No. 6	Korea	October 1, 2005	0686164	February 15, 2007
	Plaintiff + 6 (7 inventors)		Invention No. 7	Japan	September 25, 2006	5048295	October 17, 2012
			Invention No. 8	U.S.	September 25, 2006	7953431	May 31, 2011
			Invention No. 9	Europe	September 19, 2006	1768364	November 6, 2013
			Invention No. 10	Germany	September 19, 2006	2006021123	December 5, 2012
		Invention No. 11	China	September 22, 2006	Rejected	-	
Employee Invention No. 3	Plaintiff (1 inventor)	March 8, 2005	Invention No. 12	Korea	April 26, 2005	0672478	January 16, 2007
			Invention No. 13	China	April 26, 2006	001855021	June 23, 2010
Employee Invention No. 4	Plaintiff (1 Inventor)	March 18, 2005	Invention No. 14	Korea	April 27, 2005	0672325	January 16, 2007
			Invention No. 15	U.S.	June 8, 2010	8549419	October 1, 2013
			Invention No. 16	U.S.	April 25, 2006	7761801	July 20, 2010
Employee Invention No. 5	Plaintiff + 2 (3 inventors)	August 10, 2005	Invention No. 17	China	September 26, 2006	001941982	February 29, 2012
			Invention No. 18	U.S.	September 26, 2006	8194043	June 5, 2012

IP HIGH COURT DECISIONS

No.	Inventor	Date of Succession of Rights	Patent Applications and Registrations (Including Unregistered Applications)				
			Invention	Country	Filing Date	Registration No.	Registration Date
			Invention No. 19	Europe	August 31, 2006	Rejected	-
Employee Invention No. 6	Plaintiff (1 inventor)	March 9, 2007	Invention No. 20	U.S.	April 28, 2008	8111255	February 7, 2012
			Invention No. 21	Europe	April 25, 2008	Withdrawn	-
			Invention No. 22	China	April 25, 2008	Rejected	-

2) Main Content of Each Employee Invention

a) Employee Invention No. 1

Employee Invention No. 1 relates to a “method for playing video clips on a web page of a mobile communication terminal.” The description and drawings set forth in the specification for Employee Invention No. 1 (Plaintiff’s Exhibit 3-1), which disclose its principal technical features, are as follows.

Prior Art

[0016] In the Prior Art, electronic devices capable of accessing the Internet were able to connect to websites providing video content and reproduce such content through streaming playback. In such cases, it was generally the practice that the user viewed the video through a web browser.

[0017] However, the video playback screens provided on such websites were generally limited to a predetermined size, resulting in inconvenience to users. In particular, for mobile communication terminals with relatively small display screens, when video content is played within a playback window of a predetermined size fixed by the website, users are unable to adequately view the content, thereby further exacerbating inconvenience.

[0018] In particular, as user-driven content known as User Created Content (UCC) has recently emerged as a new cultural phenomenon on the Internet, a need has arisen for functionality that enables users to conveniently enjoy video content provided on web pages.

Technical Problem

[0019] The present invention was proposed to address the foregoing problems and in response to recent trends and demands, and aims to provide an electronic device, a mobile communication terminal, and a method for playing video content from a web page on a mobile communication terminal, whereby video provided by a website may be played on a playback screen larger than its original size.

Configuration

[0037] FIG. 4 is a diagram illustrating a web page screen that provides video content.

[0038] The user may select a specific video by touching the area (50) that displays the video shown in FIG. 4.

[0040] According to the Prior Art, the selected video is played on a playback screen having a predetermined size set by the accessed web page. The term “playback screen larger than the original size” refers to a playback screen that is larger than the predetermined size. The size of the playback screen larger than the original size may vary. For example, the full screen of the display unit (120) or the full screen of the web browser may constitute a playback screen larger than the original size.

[0042] FIG. 5 is a diagram illustrating an example in which video content is played in full-screen mode on the display unit, in accordance with one embodiment of the present invention. In FIG. 5, an area (70) for displaying information regarding the status of the mobile communication terminal (10a) is shown; however, according to one embodiment of the present invention, when video content is played in full-screen mode, the area (70) for displaying such ancillary information may be omitted.

[0045] Meanwhile, when the selected video is played in full-screen mode within the area allocated to the web browser, a screen for performing functions other than video playback, according to one embodiment of the present invention, may be displayed concurrently on the display unit (120). For example, referring to FIG. 8, according to one embodiment of the present invention, while the selected video is played in full-screen mode (60) within the area allocated to the web browser, a message input window (90) through which the user may enter a message may be displayed on the display unit.



FIG. 4

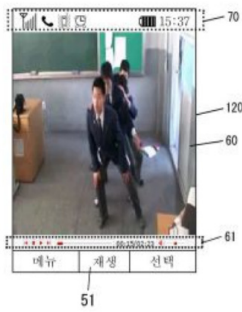


FIG. 5



FIG. 8

한국어	영어
메시지 입력창	Message input window
제1영역	First area
제2영역	Second area

Claim 1

A method for controlling a mobile communication terminal, comprising: executing a web browser and displaying, on a touchscreen, a web page that provides at least one video; receiving an input selecting a video from among the at least one video displayed on the web page; displaying a playback screen for the selected video in a first area of the touchscreen allocated to the web browser; and while the selected video is being played, displaying a message input screen in a second area of the touchscreen allocated to a messaging E-lication.

b) Employee Invention No. 2

Employee Invention No. 2 relates to a “method for displaying text messages on a mobile communication terminal.” The descriptions and drawings set forth in the specifications for Invention No. 5 (Plaintiff’s Exhibit 3-5) and Invention No. 6 (Plaintiff’s Exhibit 3-6), which disclose the principal technical features thereof, are as follows.

(1) Specification of Invention 5

Prior Art

<15> In conventional mobile communication terminals, numerous

inconveniences associated with composing text messages have been identified. For example, when composing a reply text message after receiving a message from another party, the reply had to be drafted without the content of the received text message being displayed. Accordingly, if, while composing a reply to a received text message, the user did not clearly remember the content of the received message, the user often had to close the reply composition window, open the received text message to review its content, and then reopen the reply composition window and begin composing the reply anew.

<16> In addition, when a text message was received from a third party while a text message was being composed, there was a risk that the content of the message being composed could be lost.

<17> Moreover, with the increasingly frequent use of text messaging, the volume of sent and received text messages stored in the terminal has continued to grow, and accordingly, a need has arisen for a method that enables more convenient searching of large quantities of previously received or transmitted messages.

Technical Problem

<18> The present invention was devised to address the foregoing problems and aims to provide a text message display method and a mobile communication terminal therefor that allows a user, while composing a reply to a received text message, to view the received message without closing the reply composition window; enables the user to conveniently search a large volume of stored text messages and compose a new text message related thereto; and prevents loss of the content of a text message being composed even when a text message is received from a third party during message composition.

Configuration

<67> A third embodiment relates to a text message display method that allows a text message being composed to be continuously maintained even when a text message is received from another party during the composition process.

<70> When, in the general standby mode shown in FIG. 5(5-1), the “Menu” icon (160) is selected to enter the text-message composition menu, the screens of the first and second display units (100, 200), as shown in FIG. 5(5-2), are displayed. Specifically, in FIG. 5(5-2), the first display unit (100) displays a keypad for composing a text message, and the second display unit (200) displays the content of the message being composed via the

keypad.

<71> As shown in FIG. 5(5-2), when a text message is received from another party while a text message is being composed, the first and second display units (100, 200) are displayed as illustrated in FIG. 5(5-3). That is, as shown in FIG. 5(5-3), the second display unit (200) continues to display the message being composed, as in FIG. 5(5-2), while the first display unit (100) displays the content of the received text message. Accordingly, the terminal user is able to view the received text message while continuously maintaining the text message then being composed.

<72> When the terminal user, after viewing the received text message, selects the “Confirm” icon (140) shown in FIG. 5(5-3), a keypad for composing a text

message is again displayed on the screen of the first display unit (100), as illustrated in FIG. 5(5-4), thereby enabling the terminal user to complete the text message that was being composed.

Claim 58

A message display method in a mobile communication terminal, comprising: (a) displaying a message being composed by a terminal user; (b) when a message is received from another party while the terminal user is composing the message, displaying the received message while continuing to display the message being composed; and (c) enabling the terminal user, after confirming the received message, to continue composing the message being composed.

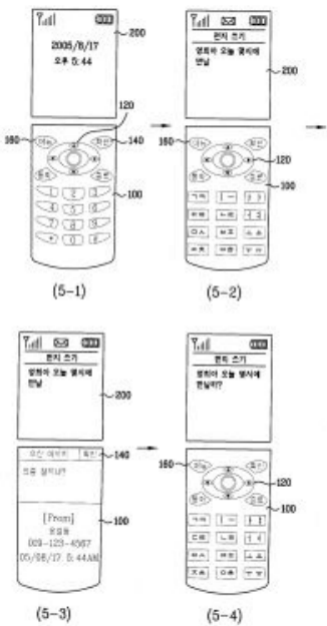


FIG. 5

(2) Invention 6

Prior Art

In conventional mobile communication terminals, numerous inconveniences associated with composing text messages have been identified. For example,

when composing a reply text message after receiving a message from another party, the reply had to be drafted without the content of the received text message being displayed. Accordingly, if, while composing a reply to a received text message, the user did not clearly remember the content of the received message, the user often had to close the reply composition window, open the received text message to review its content, and then reopen the reply composition window and begin composing the reply anew.³⁾

Moreover, with the increasingly frequent use of text messaging, the volume of sent and received text messages stored in the terminal has continued to grow, and accordingly, a need has arisen for a method that enables more convenient searching of large quantities of previously received or transmitted messages.⁴⁾

Technical Problem

The present invention was devised to address the foregoing problems and aims to provide a text message display method and a mobile communication terminal therefor that enable a user to view a received text message while composing a reply thereto without closing the reply composition window, and conveniently search a large volume of stored text messages and compose a new text message related thereto.⁵⁾

Configuration

When, in the general standby mode shown in FIG. 2(2-1), the user selects the “Menu” icon (160) to enter the text message list display mode and operates the terminal to display the full list of sent and received text messages, the screens of the first display unit (100) and the second display unit (200) change to those shown in FIG. 2(2-2). That is, the screens of the first display unit (100) and the second display unit (200) display, in order of transmission or reception time, a list of all text messages previously sent or

-
- 3) This content is identical to that set forth in paragraph <15> of the specification for Invention 5.
 - 4) This content is identical to that set forth in paragraph <17> of the specification for Invention 5.
 - 5) This content includes the same subject matter as that set forth in paragraph <18> of the specification for Invention 5, with the additional objective stated therein of preventing loss of the content of a text message being composed even when a text message is received from a third party during message composition.

received by the terminal user and stored in the memory unit (400). Each text message displayed in the list may be accompanied by an identifying indicator denoting whether the message is a sent message or a received message, although such indicators are not shown in FIG. 2.

Thereafter, when the terminal user selects the “Group” icon (170) on the first display unit (100), the screens of the first display unit (100) and the second display unit (200) change to those shown in FIG. 2(2-3). That is, the second display unit (200) continues to display a reduced version of the list, while the first display unit (100) displays the list grouped into one or more groups based on transmission or reception information. The transmission or reception information may include the sender’s or recipient’s name or telephone number, the date of transmission or receipt, and the like. In the present embodiment, it is assumed that such information is the sender’s or recipient’s name, and the description proceeds on that basis.

Thereafter, when the terminal user selects one of the groups displayed on the first display unit (100), namely “Hong Gil-dong,” the second display unit (200) displays, as illustrated in FIG. 2(2-4), a list of text messages sent by “Hong Gil-dong” to the terminal user and text messages sent by the terminal user to “Hong Gil-dong.”

Thereafter, when the terminal user selects a text message from the list, the second display unit (200) displays, as illustrated in FIG. 2(2-5), the content of the selected text message, while the first display unit (100) displays a text message composition screen that enables the terminal user to compose a new text message related to the selected text message.

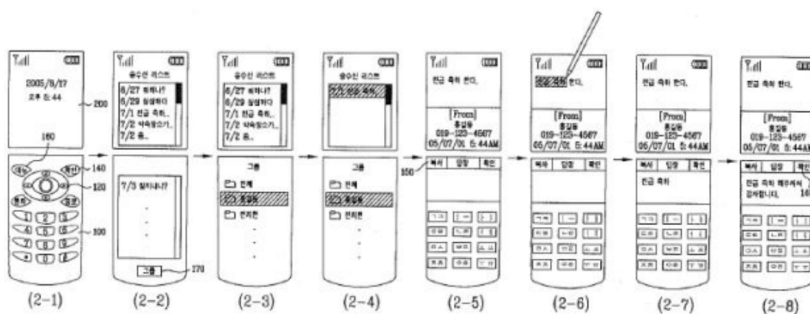


FIG. 2

Claim 13

A mobile communication terminal, comprising: a message processing unit configured to transmit and receive messages; at least one display unit; a

memory unit configured to store transmitted and received messages; and a control unit configured to control the message processing unit, the display unit, and the memory unit,

wherein the control unit is configured to cause the display unit to (i) display a list of messages stored in the memory unit in order of transmission or reception time; and (ii) display the messages by grouping the messages into one or more groups based on transmission or reception information.

c) Employee Invention No. 3

Employee Invention No. 3 relates to a “method for controlling menu operations of a mobile communication terminal.” The description and drawings set forth in the specification for Invention No. 12 (Plaintiff’s Exhibit 3-12), which disclose its principal technical features, are as follows.

Prior Art

In a user interface of the Prior Art, menu execution in a mobile communication terminal is performed using a four-directional input that moves along the x- and y-axes. Under this approach, control of the terminal is achieved by manipulating a cursor within a predefined grid, such as a menu list. However, as memory capacity has increased and diverse multimedia functions have been introduced, the growing volume of data and the increasing complexity of menu structures in mobile devices have rendered grid-type, hierarchical, step-by-step interfaces inadequate, as such interfaces impose significant limitations on the presentation of large amounts of information and on users’ ability to configure the interface in a desired manner. Even in window-based environments employing object-oriented menu presentation, a fixed layout similarly limits the ability to provide users with a sense of engagement and dynamism.

Technical Problem

The present invention is directed to addressing the foregoing problems and seeks to provide a new type of user interface that enables the management of and access to increasingly complex and voluminous data, menu structures, and mobile device event information through the use of a pointing device, such as a touchscreen, touchpad, or mouse. The invention aims to enhance the usability of a mobile communication terminal by enabling a user to create a desired menu structure and to readily access such

structure through the use of a pointing device.

Configuration

FIG. 3 is an exemplary diagram illustrating the interface flow of a mobile object associated with a corresponding application when an alarm event occurs, in accordance with the present invention.

(a) Each E-lication mobile object in the menu moves in a predetermined direction while in the standby screen state. (b) As the preset alarm time approaches, the icon of the corresponding E-lication mobile object changes in color, blinking behavior, size, movement, or a combination thereof. (c) When the preset alarm time is reached, an alarm sound is output.

(d) The interface transitions to the corresponding E-lication menu and displays the current time corresponding to the preset alarm time while outputting the alarm sound.

Claim 1

A method for controlling menu operations of a mobile communication terminal, comprising: displaying mobile objects representing respective menu E-lications;

detecting an event occurrence signal for activating a menu E-lication; and displaying the mobile object corresponding to the detected event in a manner distinguishable from other mobile objects.

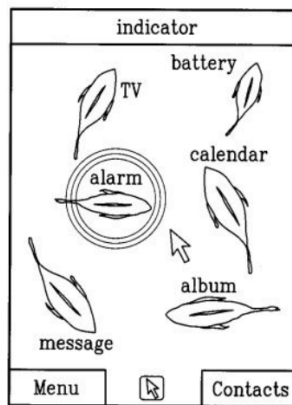


FIG. 3b

d) Employee Invention No. 4

Employee Invention No. 4 relates to a “directional interface method using a pointing device.” The description and drawings set forth in the specification for Invention No. 14 (Plaintiff’s Exhibit 3-14), which disclose its principal technical features, are as follows.

Prior Art

In the Prior Art, the menu display screen of a mobile communication terminal employs a grid-type menu structure. In such systems, because a user must access a desired menu by navigating along x-y coordinates using four-directional keys or the like, both the number of required key operations

and the time required for such operations are increased. Similarly, shortcut menus in window-based personal computer environments that rely on pointing are arranged in fixed positions on the screen, requiring the user to move the pointer directly to the relevant menu and select it to gain access, resulting in additional time and operational cost.

Technical Problem

The present invention is to address the foregoing problems and aims to provide a position-oriented interface for E-lication mobile objects using a pointing device, which enables a user to quickly and easily select and access a desired E-lication by utilizing the spatial relationships among freely moving mobile objects, in order to reduce time and operational cost and enhance overall usability.

Configuration

FIGs. 2(a) to 2(f) are exemplary diagrams illustrating a method for providing a position-oriented interface menu for E-lication mobile objects in accordance with the present invention.

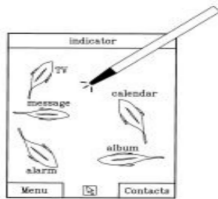


FIG. 2b

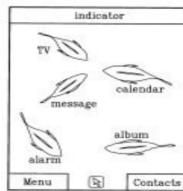


FIG. 2c

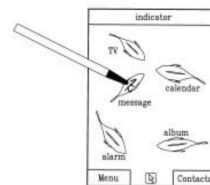


FIG. 2d

(2a) Each E-lication mobile object icon in the menu moves in a predetermined direction while in the standby screen state. (2b) A position is input by clicking, with a pointer, a point within the space between the E-lication mobile object icons. (2c) The E-lication icons located within a predetermined number and range converge toward the clicked LCD pointing position. (2d) The user selects a desired menu E-lication icon and clicks the icon using the pointer. (2e) The selected message icon changes its visual appearance to indicate that execution in response to the input is being performed. The interface transitions to the corresponding E-lication menu and displays the received message history.

Claim 1

A directional interface method for a mobile communication terminal using a pointing device, comprising: displaying, on a standby screen, one or more

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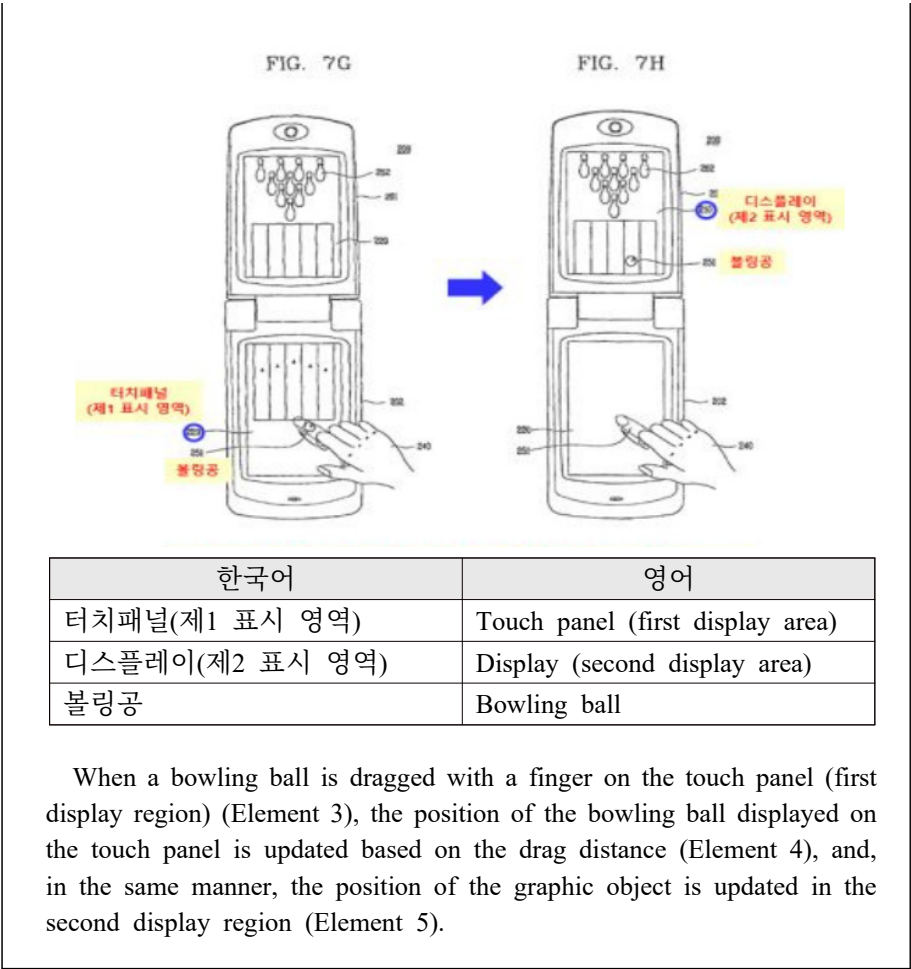
mobile objects representing respective menu E-locations; pointing, by means of the pointing device, to an arbitrary position within the standby screen; moving the mobile objects toward the pointed position; and selecting one of the mobile objects that have moved to the pointed position.

e) Employee Invention No. 5

Employee Invention No. 5 relates to a “data processing method for a mobile communication terminal having multiple displays.” The description and drawings set forth in the specification for Invention No. 18 (Plaintiff’s Exhibit 3-18), which disclose its principal technical features, are as follows.

Claim 1

A method of selecting and moving at least one graphical object among graphical objects shown in multiple display regions, the method comprising: detecting, via a single touch sensitive display unit, a touch input at a first location on a first display region of the touch sensitive display unit resulting in selection of a graphical object from the first display region of the touch sensitive display unit; detecting, via the touch sensitive display unit, a drag input from said first location resulting in movement of the selected graphical object, wherein detecting the drag input is based on a drag distance from said first location to a second location on the first display region; changing displayed locations of said graphical object on the first display region based on the drag distance; changing displayed locations of said graphical object on the second display region based on the drag distance; wherein the second display region is graphically adjacent the first display region on the touch sensitive display unit, and providing a visual indicator along an edge of the first display region or along an edge of the second display region on the touch sensitive display unit to indicate that the first display region and the second display region are attached to each other in a graphically continuous manner.



f) Employee Invention No. 6

Employee Invention No. 6 relates to a “display information control method for a mobile communication terminal.” (Since the principal subject matter of this invention is not at issue in the present case, detailed disclosure is omitted.)

【Factual basis】 Undisputed facts, the contents of Plaintiff’s Exhibits 1 through 4 and Defendant’s Exhibits 4, 5, 7 through 10, 13, and 15 (including all branching numbers where applicable, the same shall apply hereinafter unless otherwise noted) and the overall purport of the

parties' arguments.

B. Discussion

1) Based on the foregoing findings of fact, the Plaintiff qualifies as the sole inventor or a joint inventor of Employee Inventions Nos. 1 through 6. Employee Inventions Nos. 1 through 6 were made by the Plaintiff, while employed by the Defendant, in the course of his duties, and the acts of invention, by their nature, fall within the Defendant's business scope, and moreover, the acts giving rise to Employee Inventions Nos. 1 through 6 also fall within the scope of the Plaintiff's duties at the relevant time. Accordingly, Employee Inventions Nos. 2 through 6 constitute employee inventions subject to compensation under the Former Patent Act, whereas Employee Inventions Nos. 1 through 6 constitute employee inventions subject to compensation under the Former Invention Promotion Act.⁶⁾ (There is

6) (1) The Invention Promotion Act, as amended by Act No. 7869 on March 3, 2006 (effective September 4, 2006), deleted Articles 39 and 40 of the Patent Act pursuant to Article 6 of its Addenda as a related amendment to other statutes. At the same time, Article 4 of the Addenda sets forth a transitional provision providing that "compensation arising from the succession of the right to obtain a patent, utility model registration, or design registration, or from the establishment of an exclusive license, effected in accordance with the former provisions as of the time this Act enters into force, shall be governed by the former Patent Act. In addition, the Invention Promotion Act, as fully revised by Act No. 8357 on April 11, 2007 (effective April 11, 2007), again provides, in Article 3 of its Addenda, a transitional provision stating that "compensation arising from the succession of the right to obtain a patent, utility model registration, or design registration, or from the establishment of an exclusive license, effected prior to September 4, 2006, shall be governed by the former Patent Act." (2) Accordingly, where the succession of an Employee Invention occurred prior to September 4, 2006, the Former Patent Act applies; where such succession occurred on or after September 4, 2006 but prior to April 11, 2007, the Former Invention Promotion Act applies. (3) In this case, the dates on which the Defendant succeeded to the rights to obtain patents for Employee Inventions 2 through 5 all precede September 4, 2006, whereas the dates on which the Defendant succeeded to the rights to obtain patents for Employee

no material dispute between the parties on this point.)

2) Accordingly, as the employer that succeeded to the rights to obtain patents for Employee Inventions Nos. 1 through 6, the Defendant is obligated to pay the Plaintiff reasonable compensation, consisting of compensation under the Former Patent Act with respect to Employee Inventions Nos. 2 through 5 and compensation under the Former Invention Promotion Act with respect to Employee Inventions Nos. 1 and 6.

3. Scope of Employee Invention Compensation

1) Plaintiff

the Defendant is obligated to pay the Plaintiff KRW 300,000,000, which the Plaintiff seeks as an expressly claimed partial payment of the reasonable compensation calculated as set forth below, together with delay damages thereon.

a) Disposition Compensation

(1) Royalty reduction benefits arising from patent assignments: ① the Defendant assigned Employee Invention No. 1 and, in consideration thereof, received a reduction in royalty obligations in the amount of USD 1,641,334, and assigned Employee Invention No. 2 and, in consideration thereof, received a reduction in royalty obligations in the amount of USD 1,666,666; ② the Defendant assigned Employee Inventions Nos. 3, 4, and 5 and, in consideration thereof, received a reduction in royalty obligations in the amount of either USD 4,225,000 or USD 1,819,400; and ③ the Defendant assigned Employee Invention No. 6 and, in consideration thereof, obtained a royalty-related benefit in the amount of USD 520,833.

(2) Benefits arising from grant-back license⁷⁾ provisions:

Inventions 1 and 6 all fall on or after September 4, 2006 but prior to April 11, 2007.s

7) Grant-back license: A contractual provision under which the assignor is granted

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Pursuant to the grant-back license provisions applicable at the time of each assignment, the Defendant obtained the following benefits: ① Upon assigning Employee Invention 1, the Defendant obtained a benefit in the amount of USD 492,400.2, and upon assigning Employee Invention No. 2, obtained a benefit in the amount of USD 499,000.8; ② Upon assigning Employee Inventions Nos. 3, 4, and 5, the Defendant obtained a benefit in the amount of either USD 845,000 or USD 363,880; and ③ Upon assigning Employee Invention No. 6, the Defendant obtained a benefit in the amount of USD 156,249.

(3) Amount of disposition compensation: Based on the foregoing royalty reduction benefits and related considerations, the compensation arising from the patent assignments is calculated, as set forth in the tables in Paragraph (A) of Appendix 2, as follows: ① USD 775,902 with respect to Employee Invention 1, and USD 112,553 with respect to Employee Invention No. 2; ② USD 1,690,000 or USD 727,760 with respect to Employee Inventions Nos. 3 and 4, and USD 563,333 or USD 242,586 with respect to Employee Invention No. 5; and ③ USD 270,833 with respect to Employee Invention No. 6.

b) Compensation for Practice

(1) Compensation for internal practice: The patented inventions corresponding to Employee Invention No. 1 (Inventions Nos. 1, 2, and 3) and Employee Invention No. 2 (Inventions Nos. 5, 6, and 8) were implemented in the Defendant's products, including the G2, G3, G4, and Optimus One, among others. The compensation attributable to such internal practice is calculated, as set forth in the tables in Paragraph (B) of Appendix 2, as follows: ① KRW 914,812,902 with respect to Invention No. 1; ② KRW 645,404,279 with respect to Invention No. 2; ③ USD 3,690,758 with respect to Invention No. 3; ④ KRW 327,960,378 with respect to Invention No. 5; ⑤ KRW 797,321,396 with respect to Invention No. 6; and ⑥ USD

a royalty-free, non-exclusive license to practice the assigned patent, as well as any improvement patents derived therefrom.

827,588 with respect to Invention No. 8.

(2) Compensation for third-party use: The patented inventions corresponding to Employee Invention No. 1 (Inventions Nos. 1, 2, and 3), Employee Invention No. 2 (Inventions Nos. 5, 6, and 8), Employee Invention No. 3 (Invention No. 12), Employee Invention No. 4 (Inventions Nos. 14 and 15), and Employee Invention No. 5 (Invention No. 18) were implemented in products manufactured or sold by Samsung Electronics, Apple Inc. or Sony Corporation. The compensation attributable to such third-party use is calculated, as set forth in the tables in Paragraph (C) of Appendix 2, as follows: ① KRW 4,720,789,457 with respect to Invention No. 1; ② KRW 17,974,248,385 with respect to Invention No. 2; ③ USD 43,460,671 with respect to Invention No. 3; ④ KRW 2,858,217,269 with respect to Invention No. 5; ⑤ KRW 6,651,950,977 with respect to Invention No. 6; ⑥ USD 29,457,299 with respect to Invention No. 8; ⑦ KRW 26,340,715,212 with respect to each of Inventions Nos. 12, 14, and 15; and ⑧ KRW 38,066,910 with respect to Invention No. 18.

(3) Compensation for non-use: With respect to the patented inventions corresponding to Employee Invention No. 1 (Inventions Nos. 1, 2, and 3), Employee Invention No. 2 (Inventions Nos. 5, 6, and 8), Employee Invention No. 3 (Invention No. 12), Employee Invention No. 4 (Inventions Nos. 14 and 15), and Employee Invention No. 5 (Invention No. 18), during the period from the respective patent application dates until actual implementation, the Defendant was able to obtain exclusive and exclusionary benefits by preventing competitors from using the respective inventions, even where the Defendant itself did not practice such inventions. The compensation attributable to such exclusionary benefits is calculated, as set forth in the tables in Paragraph (D) of Appendix 2, as follows: ① KRW 334,090,353 with respect to the First Employee Invention; ② KRW 68,002,331 with respect to the Second Employee Invention; ③ KRW 1,296,405,205 with respect to each of the Third and Fourth Employee Inventions;

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and ④ KRW 690,154,555 with respect to the Fifth Employee Invention.

2) Defendant

a) Notably, each of the patented inventions corresponding to Employee Inventions Nos. 1 through 6 constitutes a so-called “non-practicing patent,” in that it lacks practical implementability or independent commercial utility. Moreover, Invention No. 1, which is a patented invention corresponding to Employee Invention No. 1, is subject to grounds for invalidation based on lack of novelty or an inventive step in view of the Prior Art (Defendant’s Exhibits 73 and 74). Invention No. 6, which is a patented invention corresponding to Employee Invention No. 2, is likewise subject to grounds for invalidation in light of the Prior Art (Defendant’s Exhibits 75 and 76). Invention No. 12, which is a patented invention corresponding to Employee Invention No. 3, is subject to grounds for invalidation based on the Prior Art (Defendant’s Exhibit 77). Finally, Invention No. 14, which is a patented invention corresponding to Employee Invention No. 4, is also subject to grounds for invalidation based on lack of novelty or an inventive step in view of the Prior Art (Defendant’s Exhibit 78).

b) For the following reasons, the Plaintiff’s claim for disposition compensation lacks merit. That is, ① the Defendant’s assignment of Employee Inventions Nos. 1 and 2 was undertaken only after an agreement to reduce the applicable royalties had already been reached, and solely for the purpose of conferring the outward form of an assignment in order to avoid imposing an uncompensated burden on the assignee; accordingly, the assignment of Employee Inventions 1 and 2 did not contribute in any way to the reduction of royalties. ② The assignment of Employee Inventions Nos. 3, 4, and 5 was carried out separately from, and independently of, the cross-license agreement that provided for any royalty reduction. Therefore, by assigning

Employee Inventions Nos. 3, 4, and 5, the Defendant did not obtain the royalty reduction benefits alleged by the Plaintiff. ③ the Defendant assigned Employee Invention No. 6, which lacks practical utility, solely to satisfy the scale requirements of its patent licensing business; accordingly, the Defendant obtained no consideration or cognizable benefit from the assignment of Employee Invention No. 6. ④ The grant-back license provision is a customary provision included to prevent the assignor from being exposed to actions such as patent infringement litigation by the assignee with respect to the assigned patented inventions. Moreover, because the Defendant, as the employer, already possessed a royalty-free, non-exclusive license to practice Employee Inventions Nos. 1 through 6, the Defendant obtained no additional consideration or cognizable benefit under the grant-back license clause at the time of the assignments of Employee Inventions Nos. 1 through 6.

c) For the following reasons, the Plaintiff's claim for working compensation likewise lacks merit. That is, ① the products of the Defendant, Samsung Electronics and Apple Inc. do not fall within the scope of the claims of Inventions 1, 2, 3, 5, 8, and 18. ② The Sony Corporation products that the Plaintiff alleges to practice Inventions 12 and 14 were neither manufactured nor sold domestically. ③ The Ericsson products that the Plaintiff alleges to practice Invention No. 15 were released prior to the registration of the patent for Invention No. 15, and there is no evidence that such products were manufactured or sold after the patent was registered.

B. Legal Basis

1) Legal Nature of the Right to Claim Employee Invention Compensation

Article 40(1) of the former Patent Act and Article 13(1) of the former Invention Promotion Act provide that, where an employee causes the employer to succeed to the right to obtain a patent or

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related rights with respect to an employee invention, the employee is entitled to receive reasonable compensation therefor.⁸⁾ Article 40(2) of the former Patent Act and Article 13(3) of the former Invention Promotion Act further provide that, in determining the amount of reasonable compensation, consideration shall be given to the amount of profit to be “obtained” by the employer from the invention and the extent to which the employer and the employee each contributed to the “completion” of the invention. In light of these express statutory provisions, the employee’s right to claim compensation for an employee invention under Article 40 of the former Patent Act and Article 13 of the former Invention Promotion Act is properly understood as a statutory monetary claim that accrues at the time the employer succeeds to the rights in the employee invention. The amount of such claim is to be determined as a single, integrated sum, calculated by taking into account the profits reasonably expected to be obtained by the employer from the employee invention as of the time of succession, as well as the respective degrees of contribution by the employer and the employee to the completion of the invention (IP High Court Decision 2020Na1155, dated Feb. 3, 2021). This conclusion is further supported by the following considerations: the right to claim compensation for an employee invention, like an ordinary monetary claim, is subject to a ten-year statute of limitations, which, as a general rule, begins to run at the time the employer succeeds to the right to obtain a patent for the employee invention (Supreme Court Decision 2009Da75178, dated July 28, 2011); and the “profit obtained by the employer” refers to the profit attributable to the employee invention itself, and does not encompass accounting profits,

8) The succession of the right to obtain a patent or the patent right for an employee invention, or the establishment of an exclusive license thereto, and the payment of reasonable compensation are not in a relationship of concurrent performance (Supreme Court Decisions 2011Da77313 and 2011Da77320, dated Nov. 13, 2014; Supreme Court Decision 2012Do6676, dated Nov. 15, 2012, etc.).

such as operating profit, remaining after the settlement of revenues and expenses (Supreme Court Decisions 2014Da220347, dated Jan. 25, 2017; 2009Da75178, dated July 28, 2011, etc.). Accordingly, as set forth above, the right to claim compensation for an employee invention arises, for each employee invention, at the time of succession as a single, indivisible monetary claim in its entirety, and does not arise separately based on the employer's post-succession modes of exploitation, such as practice, assignment, or licensing of the employee invention, or the duration of such exploitation.⁹⁾

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- 9) As discussed above, in this case, the Plaintiff sets forth its compensation calculations by dividing them into separate categories based on the Defendant's respective modes of exploitation, including disposition compensation, compensation for internal use, compensation for third-party use, and compensation for non-use. However, according to the Claim Amount Details Table in Appendix 1, the Plaintiff's assertions as to the grounds for the claimed compensation amounts may be understood as follows: ① With respect to the First Employee Invention, the Plaintiff seeks KRW 89,000,000, calculated as KRW 50,000,000 (Primary No. 1) + KRW 6,000,000 (aggregate of Primary Nos. 6-8 relating to Invention No. 1) + KRW 6,000,000 (aggregate of Primary Nos. 9-11 relating to Invention No. 2) + KRW 6,000,000 (aggregate of Primary Nos. 12-15 relating to Invention No. 3) + KRW 6,000,000 (aggregate of Primary Nos. 33-35 relating to Invention No. 1) + KRW 6,000,000 (aggregate of Primary Nos. 36-38 relating to Invention 2) + KRW 6,000,000 (aggregate of Primary Nos. 39-42 relating to Invention No. 3) + KRW 1,000,000 (aggregate of Secondary Nos. 6-12 relating to Invention No. 1) + KRW 1,000,000 (aggregate of Secondary Nos. 13-18 relating to Invention No. 2) + KRW 1,000,000 (aggregate of Secondary Nos. 19-23 relating to Invention 3), together with delay damages thereon; ② With respect to the Second Employee Invention, the Plaintiff seeks KRW 59,000,000, calculated as KRW 20,000,000 (Primary No. 2) + KRW 6,000,000 (aggregate of Primary Nos. 16-21 relating to Invention 5) + KRW 6,000,000 (aggregate of Primary Nos. 22-27 relating to Invention 6) + KRW 6,000,000 (aggregate of Primary Nos. 28-32 relating to Invention 8) + KRW 6,000,000 (aggregate of Primary Nos. 43-48 relating to Invention 5) + KRW 6,000,000 (aggregate of Primary Nos. 49-54 relating to Invention 6) + KRW 6,000,000 (aggregate of Primary Nos. 55-59 relating to Invention 8) + KRW 1,000,000 (aggregate of Secondary Nos. 24-29 relating to Invention 5) + KRW 1,000,000 (aggregate of Secondary Nos. 30-35 relating to Invention 6) + KRW 1,000,000 (aggregate of Secondary Nos. 36-41 relating to

2) Calculation of Reasonable Compensation

a) Article 40(2) of the former Patent Act and Article 13(3) of the former Invention Promotion Act provide that, in determining the amount of reasonable compensation payable to an employee upon the employer's succession to an employee invention, consideration shall be given to the profit obtained by the employer from the invention. However, under Article 39(1) of the former Patent Act and Article 8(1) of the former Invention Promotion Act, an employer is entitled to a royalty-free, non-exclusive license to practice an employee invention even without succeeding to the patent right. Therefore, the phrase "profit obtained by the employer" refers to the profit derived from acquiring an exclusive and exclusionary position to practice the employee invention, beyond the scope of such non-exclusive license (Supreme Court Decisions 2014Da220347 dated January 25, 2017; 2009Da91507, dated Sept. 8, 2011, etc.).

b) In an action seeking payment of compensation on the ground that an employee caused the employer to succeed to the rights in an employee invention, the court, in determining the scope of reasonable compensation, shall consider both the amount of profit obtained by the employer from the employee invention and the respective degrees of contribution by the employer and the employee

Invention 8), together with delay damages thereon; ③ With respect to Employee Inventions Nos. 3 and 4, the Plaintiff seeks KRW 107,000,000, calculated as KRW 100,000,000 (Primary No. 3) + KRW 6,000,000 (aggregate of Primary Nos. 60-68 relating to Inventions 12, 14, and 15) + KRW 1,000,000 (aggregate of Secondary Nos. 42-46 relating to Inventions Nos. 12, 14, and 15), together with delay damages thereon; ④ With respect to Employee Invention No. 5, the Plaintiff seeks KRW 25,000,000, calculated as KRW 20,000,000 (Primary No. 4) + KRW 4,000,000 (aggregate of Primary No. 69 and Secondary Nos. 1-5 relating to Invention No. 18) + KRW 1,000,000 (aggregate of Secondary Nos. 47-53 relating to Invention No. 18), together with delay damages thereon; and (v) With respect to the Sixth Employee Invention, the Plaintiff seeks KRW 20,000,000 (Primary No. 5), together with delay damages thereon.

to the completion of the invention as of the time of succession. Because it is often difficult to objectively calculate the employer's future profits based solely on materials available at the time of succession, the court may, based on the results of the evidentiary proceedings and the overall purport of the parties' arguments, reasonably estimate the employer's exclusive and exclusionary benefits by comprehensively taking into account indirect facts, including the objective value of the employee invention as revealed in the proceedings (including its economic exploitability); the existence of alternative technologies; and the employer's post-succession utilization of the invention, such as its practice, assignment, licensing, and course of commercialization. In addition, in assessing the respective contributions to the completion of the employee invention, the court shall consider indirect facts such as the employer's provision of human and material resources leading to the invention, the employee's job responsibilities and research experience, and, in the case of a joint invention, the extent of the individual employee's contribution, and shall determine, on that basis, the relative degrees of contribution by the employer and the employee to the completion of the invention.

c) Meanwhile, even where an employee invention that has been succeeded to by the employer and registered as a patent is subject to grounds for invalidation, such as where the invention was already publicly known or could have been readily derived by a person having ordinary skill in the art (hereinafter, "a skilled person") from publicly known technology, the mere existence of such invalidity grounds does not, standing alone, categorically negate the employer's exclusive and exclusionary benefits derived from the patent, nor does it relieve the employer of the obligation to pay employee invention compensation. This is so unless it can be said that competing third parties could readily recognize the existence of such invalidity grounds, and the employer has, in fact, obtained no exclusive or exclusionary benefit whatsoever from the patent right. Rather, the

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existence of grounds for invalidation may be considered as a relevant factor in estimating the scope of the exclusive and exclusionary benefits attributable to the patent right (Supreme Court Decision 2014Da220347, dated Jan. 25, 2017).

C. Profits Obtained by the Defendant from the Employee Inventions

1) Assignment of Employee Inventions

The following facts concerning the assignments of Employee Inventions Nos. 1 through 6 are either undisputed by the parties or established by the documentary evidence, including Plaintiff's Exhibits 89, 90, 91, 119, 127, 194, and 203, and Defendant's Exhibits 6, 11, 12, 14, 34, 38 through 42, 44, 45, 62, 87, 88, 89, 91, 93, 104, 107, and 108, as well as the overall purport of the arguments and evidence presented at trial.

a) Employee Inventions 1 and 2

(1) Beginning in 2007, the Defendant entered into a cross-license agreement with Microsoft Corporation (hereinafter, "MS"), pursuant to which the parties mutually granted rights to practice patents and other intellectual property owned by each. Under that agreement, the Defendant began paying additional annual royalties to MS in 2011. Meanwhile, in or around November 2010, MS filed a complaint with the United States International Trade Commission ("ITC") against Motorola Mobility (hereinafter, "Motorola"). On December 20, 2011, the ITC Administrative Law Judge issued an Initial Determination finding that Motorola's accused products infringed U.S. Patent No. 6,370,566, one of the seven patents asserted by MS. The Administrative Law Judge further made a decision that Motorola's accused products did not infringe the remaining asserted patents, including U.S. Patent No. 5,758,352 (hereinafter the "352 Patent") and that the 352 Patent was invalid because it lacks an inventive step (hereinafter, the "Initial Determination").

On December 31, 2011, the Defendant entered into a first

amendment to the foregoing cross-license agreement with MS. Under that amendment, the parties defined a “Qualifying Outcome” to include circumstances in which MS, without reaching a settlement with Motorola, effectively lost with respect to the 352 Patent or abandoned the litigation. The parties further agreed that, upon the occurrence of such a Qualifying Outcome, the Defendant would be entitled to a forty percent reduction in the royalties payable to MS (Amendment, Art. 5(3)(2)). On May 18, 2012, the ITC modified the Initial Determination, reversing the finding that H’s accused products did not infringe the 352 Patent and instead finding infringement, while leaving undisturbed the prior determination that the 352 Patent was invalid for lack of an inventive step. On October 24, 2012, MS notified the Defendant that it had waived its appeal of the ITC’s decision concerning the 352 Patent, thereby triggering the occurrence of a “Qualifying Outcome” under the amended cross-license agreement. As a result, the Defendant paid MS an amount reflecting a forty percent reduction of the royalties that had accrued up to that time.

(2) In or around 2014, the Defendant withheld payment of the royalties owed to MS for the 2013 period and entered into negotiations with MS regarding a further reduction of royalties. As a result of those negotiations, the Defendant and MS executed a supplemental agreement providing for a reduction of USD 23,898,935.7, representing forty percent of the royalties at issue. Thereafter, on or about March 23, 2015, the Defendant entered into an agreement with Microsoft Technology Licensing, LLC [a company established by MS for the purpose of managing patents and other intellectual property (hereinafter, “MTL,” and together with MS, the “MS Group”)] pursuant to which the Defendant agreed to assign twenty-nine family patents to the MS Group for an assignment price of USD 23,898,935.7 (hereinafter, the “First MS Assignment Agreement”), and thereafter transferred the rights to such family patents to the MS Group. The First MS Assignment Agreement

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expressly states that the assignment price is equal to the amount corresponding to forty percent of the 2013 royalties that the Defendant and MS had previously agreed to reduce. Specifically, it states ① “MS and Seller disputed the application of the 40% Royalty Credit as provided in Section 5.3.2 of the First Amendment, … entered into a 2013 Royalty Addendum … the Amendment provides that MS and Seller shall negotiate … on a MS purchase of Seller patents at a Price up to the disputed 40% Amount(US \$23,898,935.7) which MS shall apply against the 40% Amount of Seller’s remaining 2013 Fees” and ② “MS and Seller … have identified certain Patents of Seller having a Price exactly equal to the 40% Amount(US \$23,898,935.7).”

(3) The patents corresponding to Inventions Nos. 1 through 4 of Employee Invention No. 1 constituted a single patent family, were included among the twenty-nine family patents subject to the First MS Assignment Agreement, and were accordingly assigned to the MS Group.

(4) In or around 2015, the Defendant again withheld payment of the royalties due to MS for the 2014 period and entered into negotiations with MS concerning a further reduction of royalties. As a result of those negotiations, the Defendant and MS agreed to a reduction of USD 20,000,000 in the royalties, and the Defendant thereafter paid MS the royalties as so reduced.

On or about September 30, 2015, the Defendant entered into an agreement with MTL pursuant to which the Defendant agreed to assign twelve family patents to the MS Group for an assignment price of USD 20,000,000 (hereinafter, the “Second MS Assignment Agreement”), and transferred the rights to such family patents to the MS Group. The Second MS Assignment Agreement expressly states that the assignment price is identical to the agreed-upon royalty reduction of USD 20,000,000 described above. Specifically, it states that “the Royalty Addendum provided that MS and Seller shall additionally negotiate in good faith on a MS purchase of Seller patents

at a price \$20M Amount.”

(5) The patents corresponding to Inventions 5 through 10 of Employee Invention No. 2 constituted a single patent family, were included among the twelve family patents subject to the Second MS Assignment Agreement, and were accordingly assigned to the MS Group.

b) Employee Inventions Nos. 3, 4, and 5

(1) Beginning in or around 2003, the Defendant and British Telecommunications public limited company(hereinafter, “BT”) entered into a comprehensive cross-license agreement covering fields such as telecommunications equipment and mobile phones, pursuant to which each party granted the other reciprocal rights to practice the patents owned by each. The foregoing cross-license agreement between the Defendant and BT expired in or around 2011.

(2) Thereafter, in or around March 2015, BT asserted that the Defendant was manufacturing and selling products that infringed certain U.S. patents owned by BT, namely, U.S. Patent No. 6,578,079 (the “Gittins Patent”), U.S. Patent No. 7,142,510 (the “Beddus Patent”), and U.S. Patent No. 7,222,031 (the “Heatley Patent”), and demanded that the Defendant enter into a new cross-license agreement. In response, on January 30, 2017, the Defendant entered into a five-year cross-license agreement with BT, pursuant to which each party granted the other a comprehensive license to practice patents then owned or thereafter acquired (the “BT Cross-License Agreement”). As consideration, the Defendant paid BT USD 1,000,000.

At or about the time of execution of the BT Cross-License Agreement, the Defendant entered into a separate agreement with BT entitled “Selection, Assignment, and Monetization of Certain Patents”¹⁰⁾ (the “BT Assignment Agreement”). The BT Assignment Agreement became effective on January 30, 2017, and provided, in

10) Selection, Assignment and Monetisation of Certain Patents

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relevant part, that ① the Defendant would assign to BT 20 family patents (the “BT Assigned Patents”) for GBP 1 and that ② BT would grant the Defendant’s affiliates a royalty-free, non-exclusive license to the BT Assigned Patents, and if BT were to realize profits from the exploitation of the BT Assigned Patents in the future, 30% of such profits would be distributed to the Defendant.

Recitals

(A) the Defendant and BT desire to enter into this Agreement regarding the selection, assignment, and monetization of certain patents, pursuant to which the parties shall, by mutual agreement, select twenty family patents to be assigned by the Defendant to BT for purposes of monetization. In the event that BT sells any of the BT Assigned Patents during the term of this Agreement, the parties shall allocate BT’s net proceeds from such sale seventy percent to BT and thirty percent to the Defendant.

Definitions

“Assignor Group” or “Defendant Group”: the Defendant’s subsidiaries that, as of the Effective Date, are controlled by the Defendant or are more than fifty percent owned by the Defendant. Notwithstanding the foregoing, LG Innotek shall not be deemed a member of the Defendant Group.

“BT Assigned Patents”: The patents and patent applications owned by the Defendant and identified in accordance with the procedure set forth in Article 2 below (together with all related utility models and petty patents worldwide that form part of the same patent family, all worldwide applications claiming priority therefrom, and all continuations, continuations-in-part, and divisional applications, as well as any and all reissue or reexamination patents relating thereto).

“Consideration”: The portion of the sale proceeds allocated to the Defendant pursuant to Article 3.3.

“Sales Proceeds”: The revenue received by BT from the sale, assignment, or licensing of the BT Assigned Patents (limited to instances in which BT licenses all or part of the BT Assigned Patents without including any other patents in the licensed subject matter), net of the taxes and other costs specified in Article 3 below.

“Term”: A period of five years commencing on the Effective Date.

2. Selection of the BT Patents to be Assigned

2.1 The procedure for identifying and selecting the twenty family patents

to be assigned to BT and monetized pursuant to this Agreement shall be as follows.

2.1.1 Within thirty days from the Effective Date of this Agreement, the Defendant shall submit to BT a list of seventy-five family patents owned by the Defendant (the “Candidate List”).

2.1.2 Within three months from the date on which the Defendant submits the list pursuant to Section 2.1.1, BT shall provide a final list identifying the twenty family patents BT intends to acquire from the Candidate List (the “BT Selection List”).

2.1.3 Within six months from the date on which the Defendant submits the list pursuant to Section 2.1.1, the Defendant and BT shall execute assignment documents effecting the transfer of the twenty family patents from the Defendant to BT.

2.1.4 BT shall keep strictly confidential both the list of the seventy-five family patents and the list of the twenty family patents selected by BT, and shall not disclose or share such lists, or any details of such selection, with any third party. Upon execution of the assignment documents, BT shall acquire ownership of the twenty family patents and, thereafter, shall be entitled to disclose and share the contents of such family patents with third parties.

3. Assignment and Monetization of the BT Patents to be Assigned

3.3 In the event that generates revenue from transactions with third parties involving the BT Patents to Be Assigned,

3.3.1 any and all amounts received or receivable by BT shall be deemed “Revenue” only after deduction of all applicable taxes properly payable by BT, and all actual out-of-pocket expenses and any and all costs incurred in connection with such transactions.

3.3.2 The Revenue shall be allocated on a seventy percent to thirty percent basis, with BT retaining seventy percent thereof and the Defendant retaining thirty percent thereof.

3.3.3 BT shall notify the Defendant of the amount of Revenue and the portion thereof attributable to the Defendant at least twice per year (or, upon the Defendant’s written request, more frequently), and shall provide copies of the relevant agreements evidencing such Revenue for the Defendant’s verification.

3.6 The consideration for the assignment of each Patent to Be Assigned shall be one pound sterling, the receipt and sufficiency of which are hereby

acknowledged.

3.11 Upon assignment of the BT Patents to Be Assigned comprising the BT Selection List to BT, the expiration or termination of this Agreement shall have no effect on BT's ownership of such BT Patents to Be Assigned. Any Revenue generated during the Term of this Agreement or thereafter shall be allocated in accordance with Section 3.3.

6. License to the Assignor

6.1 Concurrently with the assignment of the BT Patents to Be Assigned to the Assignee, and as consideration therefor, and subject to the terms and conditions of this Agreement and the Assignor's compliance therewith, the Assignee hereby grants to the Assignor and the Assignor Group an irreversible, non-exclusive, royalty-free, worldwide, and non-transferable license to develop, or have developed, manufacture, or have manufactured, offer for sale, export, import, sell, and otherwise dispose of products or services that, but for this license, would infringe the BT Patents to Be Assigned, solely for the purpose of delivery to the Assignor or the Assignor Group. ... Provided, however, that the license-back granted to the Assignor and the Assignor Group pursuant to this Section 6.1 is intended solely to permit the Assignor Group to continue to benefit therefrom in the event that certain members of the Assignor Group are separated to form a separate and independent business (for example, without limitation, Openreach, BT's network management business unit), and not in the event of any sale to, or merger with, a third party.

(3) The Defendant and BT selected the BT Patents to Be Assigned, incorporated the list thereof into a supplemental agreement in the form of Appendix 3 (List of Patents to Be Assigned) to the BT Assignment Agreement dated July 31, 2017, and duly executed such supplemental agreement by their respective signatures. The effective date of the transfer of the BT Patents to Be Assigned, as set forth in the supplemental agreement, is July 31, 2017.

(4) The patents covering Inventions Nos. 12 through 16 of the Employee Inventions Nos. 3 and 4 constitute a single patent family, and the patents covering Inventions Nos. 17 and 18 of Employee Invention No. 5 likewise constitute a single patent family.

Each such patent family was included among the BT Patents to Be Assigned, comprising twenty family patents in total, and was assigned to BT pursuant to the BT Assignment Agreement.

c) Employee Invention No. 6

(1) Beginning around 2004, the Defendant and Telefonaktiebolaget LM Ericsson (hereinafter, “Ericsson”) entered into a cross-license agreement pursuant to which they mutually permitted each other to practice and use patents and other intellectual property rights owned by the respective parties, and thereafter, the Defendant and Ericsson established a cooperative relationship, including the formation of a joint venture known as “LG-Ericsson” around 2010. Around the latter half of 2012, the Defendant and Ericsson began discussions regarding a business plan under which each would assign a portion of its telecommunications patents to a newly formed company, have that company conduct patent licensing activities on their behalf, and generate and distribute revenue therefrom. Based on those discussions, around 2013, the Defendant and Ericsson selected PanOptis as a partner and established Optis Cellular Technology, LLC (hereinafter, “Optis”), in the form of a subsidiary, to carry out their patent licensing business.

(2) In accordance with the foregoing discussions, beginning in late 2012, the Defendant commenced the process of selecting the patents to be assigned to Optis, which process was subject to mutual verification by Ericsson, and on October 22, 2013, the Defendant entered into an agreement with Optis entitled the “Master Sale Agreement,” which included, inter alia, the following terms (hereinafter, the “OP Assignment Agreement”). The principal terms of the OP Assignment Agreement provided that the Defendant would assign to Optis an initial set of thirty-two family patents, as well as additional patents, over the ensuing several years.

“Defendant Listed Patents” (the “LE Listed Patents”) means the patents to

be assigned by the Defendant, as specified in Schedule 4.2(g).

“Defendant Specified Patents” (the “LE Specified Patents”) means those patents, among the LE Listed Patents, that are identified as the Defendant Specified Patents in Schedule 4.2(g).

Article 3

Purchase Price

3.1 Patent Purchase Price. As consideration for the assignment of the Patents to Be Assigned hereunder, Optis(NewCo) shall pay the purchase price in the amount set forth in this Article 3 in the manner specified herein, and each ■¹¹⁾ hereby agrees that Optis shall make such payment accordingly.

3.2 Closing Payment. At the Closing, Optis shall pay to each Seller USD 12,500,000 in immediately available funds. The aggregate amount payable to the Sellers at the Closing shall be USD 25,000,000 (the “Closing Amount”).

3.3 Post-Closing Payments.

(a) On and after the Closing Date, Optis shall pay to each Seller an amount equal to ■% of Optis’s cumulative gross revenues, calculated and payable in accordance with Section 3.4.

Article 6

6.5

(b) The Defendant shall, for no additional consideration, assign to Optis up to twenty additional patents per year, as determined in the Defendant’s sole discretion.

In or around December 2013, the Defendant agreed to assign an additional seventeen family patents to Optis, and, on December 19, 2013, entered into an amendment to the OP Assignment Agreement entitled the “Amendment to Master Sale Agreement,” which included, inter alia, the following terms.

2.2 Amendment to Section 1.1 of the Sale Agreement

(a) Section 1.1 of the Sale Agreement is hereby amended by inserting the following definition in alphabetical order:

11) Among the foregoing descriptions relating to the OP Assignment Agreement, the portions indicated by black square markings correspond to redacted portions of the relevant evidence (Defendant’s Exhibits 14 and 104).

“Additional Patents” means any other patents assigned to Optis(NewCo) by the Sellers or any of their respective Affiliates pursuant to this Amendment, including, without limitation, the Defendant Additional Patents and those assigned pursuant to Section 6.5 of this Amendment.

By December 19, 2013, the Defendant had assigned to Optis a total of forty-nine family patents, comprising the initial thirty-two family patents and an additional seventeen family patents, and, on May 29, 2014, further selected and assigned an additional three family patents to Optis. With respect to the foregoing assignment of a total of fifty-two family patents, the Defendant received from Optis, on three occasions between in or around December 2013 and in or around December 2015, aggregate payments totaling USD 37,500,000.

(3) The Sixth Employee Invention constituted a single patent family and was included among the twenty family patents assigned to Optis in the foregoing additional assignments, namely, the first additional assignment of seventeen family patents and the second additional assignment of three family patents.

d) Evaluation of the MS Patent Assignment as Calculation Data

(1) Existence of the Defendant’s Profit Arising from the MS Patent Assignment

(a) ① As the Defendant points out, prior to the execution of the MS Assignment Agreement, the Defendant had already negotiated with MS regarding a reduction in royalty payments and had completed payment of the reduced royalties. Thus, as discussed above, (i) prior to the first MS Assignment Agreement, the Defendant, upon entering into the first amendment to the cross-license agreement with MS in December 2011, agreed that, in the event of a “Qualifying Outcome,” forty percent of the royalties payable by the Defendant to MS would be reduced; and, when MS notified the Defendant in October 2012 that such a Qualifying Outcome had

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occurred, the Defendant paid royalties to MS reflecting a forty percent reduction. (ii) Prior to the second MS Assignment Agreement, the Defendant, as a result of negotiations with MS regarding a reduction in royalties, agreed to a reduction of USD 20,000,000 in the royalties payable to MS and, accordingly, paid royalties to MS reflecting that reduction. ② In addition, in light of the descriptions set forth in Defendant's Exhibit 46, portions of Plaintiff's Exhibit 80, portions of Defendant's Exhibits 27 through 29 and 86, and the overall purport of the pleadings and oral arguments, the Court finds that (i) at the time of the first MS Assignment, the Defendant's licensing team had agreed to select for assignment primarily non-practicing patents that the Defendant no longer needed to retain and that would have no material impact on its patent portfolio; and (ii) around November 9, 2021, MS's Chief Patent Counsel prepared a written statement (Defendant's Exhibit 46 stating that "MS entered into nominal agreements pursuant to which it acquired twenty-nine family patents from the Defendant in 2013 and twelve family patents in 2014. The patent assignment transactions should be understood in a broader context, taking into account the strong mutual relationship between the two companies. Viewed in light of the objective of promoting deeper business cooperation between the two companies, the acquisition of the foregoing patents constituted only a minimal portion of the reduction of patent royalties."

(b) However, in light of the descriptions set forth in portions of Plaintiff's Exhibit 80, portions of Defendant's Exhibits 27 through 29 and 86, and the overall purport of the pleadings and oral arguments, the Court finds that ① during negotiations over a reduction in royalties prior to the first MS Assignment Agreement, MS initially demanded, as consideration for such reduction, that its software be incorporated into the Defendant's products, and, when the Defendant refused, MS instead demanded a patent assignment; in connection with the selection of the patents to be assigned and the number thereof, MS

pre-designated and proposed to the Defendant the technical fields of the patents to be assigned; and ② after the Defendant selected and notified MS of fifteen patents proposed for assignment, MS demanded, on two occasions, the assignment of additional patents, resulting in the ultimate assignment of twenty-nine family patents (out of the thirty patents proposed by the Defendant, two (2) were determined to belong to the same patent family, such that the patents actually assigned comprised twenty-nine family patents).

(c) Accordingly, the Defendant argues as follows: ① had MS taken into account the substantive value of the patents, it would not have acquired the patents merely as designated by the Defendant; nevertheless, MS acquired the patents as proposed by the Defendant without raising any objection; ② although, among the thirty family patents proposed in the course of the first MS Assignment, two were determined to belong to the same patent family, such that the patents actually assigned comprised twenty-nine family patents, MS raised no objection to that circumstance; and ③ most importantly, discussions regarding the reduction in royalties had already been concluded, and the Defendant had completed remittance of the reduced royalties, even before the first and second MS Assignment Agreements were prepared. On these grounds, the Defendant contends that both the first and second MS Assignment Agreements were merely formal arrangements entered into without any payment of assignment consideration, because reducing the Defendant's royalties would have been burdensome for MS in its relationships with other licensees; accordingly, the Defendant asserts that it derived no substantive or tangible benefit from the MS patent assignments.

(d) Upon examination, the Defendant's foregoing contention that both the first and second MS Assignment Agreements were merely formal in nature and that the Defendant therefore derived no assignment-related benefit may appear, at least to some extent, to be supported by the circumstances described above in subsection (a).

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However, when the circumstances described above in subsection (b) are taken into account, the circumstances set forth in subsection (a), standing alone, are insufficient to accept the Defendant's foregoing contention as presented (In this case, the Defendant failed to submit materials that would permit concrete verification of the substance of its negotiations with MS regarding the royalty reduction, such as records of negotiations, meeting materials, or documentation reflecting the course of those discussions). Moreover, even according to the statement of MS's Chief Patent Counsel discussed above, the MS patent assignments must be regarded as having contributed to "a minimal portion of the reduction of patent royalties."

(e) Accordingly, the Defendant's foregoing assertion that it derived no benefit whatsoever from the MS patent assignments cannot be accepted, and it is reasonable to conclude that the Defendant obtained assignment-related benefits to a certain extent.

(2) Whether the entire assignment consideration may be regarded as profit from the patent assignment

In light of the foregoing considerations taken as a whole, it is difficult to regard the entire assignment consideration of USD 23,898,935.7 stated in the first MS Assignment Agreement and USD 20,000,000 stated in the second MS Assignment Agreement as profits obtained by the Defendant as a result of the assignment of Employee Inventions Nos. 1 and 2.

(a) As discussed above, ① the first MS Assignment Agreement contains language to the effect that "MS and the Defendant agree that MS shall acquire the Defendant's patents at a price of up to USD 23,898,935.7, which corresponds to 40% Amount of Seller's Remaining 2013 Fees," and further states that "MS and the Defendant identify the Defendant's patents at a Price exactly equal to the 40% Amount (USD 23,898,935.7)"; and ② the second MS Assignment Agreement contains language to the effect that, pursuant to the Royalty Addendum, MS and the Defendant negotiated for MS to

additionally acquire the Defendant's patents for USD 20,000,000. The meaning of the foregoing contractual provisions must be examined in light of their overall context, and, as the Plaintiff points out, it cannot be conclusively determined based solely on isolated language such as "exactly equal to" that the entire assignment consideration constitutes profit derived by the Defendant from the patent assignment.

(b) If MS and the Defendant had, at the relevant time, treated the full amounts of USD 23,898,935.7 stated in the first MS Assignment Agreement and USD 20,000,000 stated in the second MS Assignment Agreement as substantive assignment consideration payable to the Defendant, the Defendant could have discharged its monetary obligations vis-à-vis MS by, for example, setting off such assignment receivables against MS's royalty receivables in corresponding amounts. Moreover, if the monetary obligations between MS and the Defendant could have been settled in such a manner, there would have been no reason for the first MS Assignment Agreement to include language such as "forty percent of the Defendant's remaining 2013 fees" or "a price exactly equal to the 40% Amount of USD 23,898,935.7," nor would there have been any reason for the term "Royalty Addendum" to appear in the second MS Assignment Agreement. This is because, even if the full stated assignment consideration would have been sufficient, standing alone, to fully discharge the foregoing monetary obligations between the parties had it indeed constituted substantive assignment consideration, the inclusion of such language would instead have served only to create potential grounds for additional legal disputes between them.

(c) When the foregoing circumstances are considered together with the fact that, as discussed above, negotiations regarding a reduction in royalties between the Defendant and MS had already been conducted prior to the execution of the MS Assignment Agreements and that payment of the reduced royalties had already been completed as a result thereof, it is difficult to conclude that the

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Defendant obtained profits in an amount equal to the full assignment consideration stated in the first and second MS Assignment Agreements. Rather, it is reasonable to find that the Defendant obtained transactional benefits only to the extent that, by entering into the first and second MS Assignment Agreements, it ultimately finalized and consummated the outcome of the royalty-reduction negotiations with MS.

(d) Meanwhile, the Plaintiff contends, citing analytical materials prepared by the Defendant (Plaintiff's Exhibits 104 through 111, 117, 118, 126, 128, 160 through 174, and 186 through 192), that among the patents assigned not only to BT and Optis but also to MS are so-called "strategic patents" possessing high objective value, and therefore that the Defendant should be deemed to have obtained the full amount of the assignment consideration as profit.

However, in light of the descriptions set forth in Plaintiff's Exhibits 10 and 152 and the overall purport of the pleadings and oral arguments, the Court finds that the foregoing analytical materials were merely prepared by the Defendant's personnel in the course of developing presentation materials for internal strategic patent seminars centered on members of the patent prosecution team when potential grounds for patent infringement were identified, that patents were designated as "strategic patents" only upon consensus among the participants in such seminars, and that even patents once classified as strategic patents could subsequently be reclassified as general patents or non-practicing patents. In light of these circumstances, the analytical materials presented by the Plaintiff are insufficient to conclude that the Defendant obtained profits equal to the full amount of the assignment consideration by assigning to MS patents that included so-called strategic patents. The Plaintiff's foregoing contention is therefore rejected (Likewise, for the reasons discussed below, the Plaintiff's analytical materials alone are insufficient to establish that the Defendant obtained profits equivalent to the full amount of the

assignment consideration in connection with the evaluation of the BT patent assignments and the evaluation of the Optis patent assignments).

(3) Compilation of Specific Calculation Data

(a) When the foregoing findings of fact are considered together with the descriptions set forth in Defendant's Exhibits 49, 58, 68, and 70, and the circumstances thereby established are taken as a whole, it is reasonable to find that i) the amount under the first MS Assignment Agreement that may be used as calculation data for calculating reasonable compensation should be assessed at USD 4,779,787, corresponding to twenty percent of the stated assignment consideration (i.e., $\text{USD } 23,898,935.7 \times 20\%$, with amounts of less than one dollar rounded down; the same applies hereinafter); and (ii) the amount under the second MS Assignment Agreement that may be used as calculation data for calculating reasonable compensation should be assessed at USD 2,000,000, corresponding to ten percent of the stated assignment consideration (i.e., $\text{USD } 20,000,000 \times 10\%$).

① The first and second MS Assignment Agreements were not entered into in the manner of ordinary patent assignment agreements, in which the assignment of patent rights constitutes the primary subject of negotiation from the outset and the agreements are executed following an assessment of the technical and economic value of the patents. The Defendant has maintained a longstanding business relationship with MS under which, while manufacturing and selling laptops, mobile phones, and other products domestically and internationally, the Defendant has purchased software and other items from MS for substantial consideration and incorporated them into the Defendant's products. In addition, since 2007, the Defendant and MS were parties to a cross-license agreement pursuant to which they mutually granted licenses to patents and other intellectual property rights owned by each party and paid certain royalties, and following a patent infringement dispute between MS and Motorola, the Defendant obtained a forty percent reduction of the royalties payable for 2012

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and on that basis, subsequently negotiated and reached agreements to obtain further reductions of the royalties payable for 2013 and 2014. It can be found that, in the first and second MS Assignment Agreements, the royalty reductions determined as consideration were significantly influenced by factors unrelated to the patents themselves, including the Defendant's business influence and bargaining power, as well as the need to maintain and adjust the cooperative relationship between the Defendant and MS.

② The Defendant organized and managed, in a separate ledger (Defendant's Exhibit 58), a list of the patents that were the subject of the first and second MS Assignment Agreements, together with the values assigned to each. According to the patent valuation amounts recorded in the foregoing ledger, the aggregate value of the patents subject to the first MS Assignment Agreement is KRW 1,454,407,505, and the aggregate value of the patents subject to the second MS Assignment Agreement is KRW 732,197,326, which differ markedly from the respective assignment consideration amounts of USD 23,898,935.7 and USD 20,000,000 stated in the first and second MS Assignment Agreements.

③ Under the first MS Assignment Agreement, the subject matter of the assignment comprised twenty-nine family patents, and the assignment consideration was USD 23,898,935.7, while under the second MS Assignment Agreement, the subject matter of the assignment comprised twelve family patents, and the assignment consideration was USD 20,000,000. In light of the foregoing, although the subject matter of the second MS Assignment Agreement was reduced by approximately sixty percent as compared to that of the first MS Assignment Agreement, the assignment consideration was nevertheless set at a corresponding round figure of USD 20,000,000, which further indicates that the extent to which the Defendant's business influence and bargaining power affected the second MS Assignment Agreement was substantially greater than in the first MS

Assignment Agreement.

(b) Furthermore, upon examination, as there are no materials sufficient to permit a specific assessment of the individual value of each of the twenty-nine family patents subject to the first MS Assignment Agreement and each of the twelve family patents subject to the second MS Assignment Agreement, it is reasonable to presume that the individual patents carried equal value within each respective assignment agreement. Accordingly, ① the amount under the first MS Assignment Agreement attributable to the First Employee Invention that may be used as calculation data for calculating reasonable compensation, when calculated on an equal-allocation basis, is USD 164,820 (i.e., $\text{USD } 4,779,787 \div 29$), and therefore, when converted at the base exchange rate applicable at the time of the first MS Assignment Agreement (KRW 1,093.40 per USD), this amount is reasonably assessed at KRW 180,214,188, and ② the amount under the second MS Assignment Agreement attributable to the Second Employee Invention that may be used as calculation data for calculating reasonable compensation, when calculated on an equal-allocation basis, is USD 166,666 (i.e., $\text{USD } 2,000,000 \div 12$), and therefore, when converted at the base exchange rate applicable at the time of the second MS Assignment Agreement (KRW 1,159.4 per USD), this amount is reasonably assessed at KRW 193,232,560.

(c) Meanwhile, the Plaintiff argues that, where the benefit obtained by the Defendant is denominated in foreign currency, a claim for employee-invention compensation constitutes a foreign-currency claim, and therefore, the appropriate point in time for conversion into Korean currency is the date of the conclusion of oral argument.

Upon examination, a statutory claim arises in the currency of the state whose law governs the claim, and a claim for employee-invention compensation constitutes a statutory monetary claim that arises when the employer succeeds to the rights to the employee invention.

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Accordingly, such claim should be regarded as a monetary claim payable in Korean won, the lawful currency of the Republic of Korea. Moreover, as discussed above, a claim for employee-invention compensation arises, with respect to each employee invention, as a single and indivisible monetary claim in its entirety at the time the employer succeeds to the rights therein and does not arise separately or incrementally depending on the subsequent modes of exploitation of the employee invention after such succession, such as implementation, assignment, or licensing. Rather, because it is difficult to objectively ascertain the benefit obtained by the employer based solely on the circumstances existing at the time of succession, the subsequent modes of exploitation and the period thereof are considered only as calculation data for the purpose of calculating the amount of compensation. Accordingly, where a court takes into account the results of the exploitation of an employee invention that yielded benefits denominated in foreign currency solely as calculation data for calculating reasonable compensation, it is reasonable for the court to convert such benefits into Korean won by applying an appropriate method, such as the exchange rate prevailing at the time the benefit arose or the exchange rate prevailing at the conclusion of oral argument.

In this case, given that the exploitation of the employee inventions occurred intermittently in the form of assignments, it is appropriate, as a method of evaluating calculation data for reasonably estimating the benefits obtained by the employer, the Defendant, to apply the base exchange rates prevailing at the time of the first and second MS Assignment Agreements, when the assignment-related benefits for the First and Second Employee Inventions, respectively, arose. Accordingly, the Court cannot accept the Plaintiff's contention that the exchange rate prevailing at the time of the conclusion of oral argument must be used as the conversion reference point (The same reasoning applies to the evaluation of the BT patent assignments and the evaluation of the Optis patent assignments discussed below).

e) Evaluation of the BT Patent Assignment as Calculation Data

(1) Existence of the Defendant's Profit arising from the BT Patent Assignment

(a) The Defendant contends that the BT Assignment Agreement was executed merely to provide a formal basis for the BT Cross-License Agreement, and that it constituted a separate and independent agreement lacking any consideration-based linkage to the BT Cross-License Agreement; accordingly the Defendant argues that it derived no benefit from the BT patent assignment such as royalty reductions.

(b) However, when the foregoing findings of fact are considered together with the circumstances that can be ascertained from the descriptions set forth in Plaintiff's Exhibits 89 through 91 and Defendant's Exhibit 62, the Defendant's contention that the BT Assignment Agreement was unrelated to the BT Cross-License Agreement or that the Defendant derived no benefit whatsoever from the BT patent assignment cannot be accepted as it stands, and it is reasonable to find that the Defendant obtained benefits to a certain extent through the execution of the BT Assignment Agreement.

① Around March 2015, BT asserted that the Defendant was infringing patents owned by BT, including the Gittins patent, the Beddus patent, and the Heatley patent, and, in response to such assertions of patent infringement, negotiations concerning the BT Assignment Agreement and the cross-license agreement with BT appear to have been initiated. In light of the fact that, since around 2003, the Defendant and BT had maintained a comprehensive cross-license agreement under which they mutually permitted the practice of patent inventions owned by each party, and further considering, as discussed below, that BT's foregoing assertions of patent infringement are difficult to regard as being grounded on a sound basis, it is reasonable to infer that BT's assertions were not

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made for the purpose of imposing actual infringement liability on the Defendant, but rather to demonstrate bargaining leverage in the course of negotiations aimed at entering into a new cross-license agreement with the Defendant.

② However, under the BT Assignment Agreement, BT was to acquire the relevant patents from the Defendant for a nominal consideration of one pound sterling and, in the event that BT generated revenue through the exploitation of those patents, to distribute only thirty percent of such revenue to the Defendant, which means that if not linked to the BT Cross-License Agreement, the BT Assignment Agreement would necessarily constitute an arrangement that was markedly unfavorable to the Defendant. In addition, beginning around March 2015, BT asserted the foregoing patent infringement claims and demanded that the Defendant enter into a cross-license agreement. Thereafter, in the course of negotiations with the Defendant, BT requested that the Defendant assign certain patents owned by the Defendant, and, on January 30, 2017, BT and the Defendant ultimately entered into the BT Cross-License Agreement and the BT Assignment Agreement concurrently.

③ After BT selected twenty family patents to be assigned from among the seventy-five family patents proposed by the Defendant as candidate for assignment, BT entered into a supplemental agreement on July 31, 2017, by attaching a list of such patents as Appendix 3 (List of Patents to Be Assigned) to the BT Assignment Agreement. In selecting the BT Patents to Be Assigned, no objective evidence has been submitted sufficient to substantiate the Defendant's assertion that the family patents designated as the BT Patents to Be Assigned were evaluated between the Defendant and BT as non-practicing patents lacking utility or having low exploitation value (Nor is it sufficient, based solely on the Defendant's assertions that the family patents at issue were classified as general patents in the Defendant's internal systems, that BT responded to the Defendant

indicating that it had not generated revenue from exploitation of those patents, or that the valuation amounts assessed by the technology appraisal firm WIPS Co., Ltd. were low, to conclusively determine that the family patents constituted non-practicing patents).

(2) The Relationship Between BT's Patent Infringement Claims and the BT Patent Assignment

The Plaintiff contends that BT's patent infringement allegations were highly likely to be meritorious, and therefore that the Defendant obtained substantial benefits, that is, reductions in royalties under the BT Cross-License Agreement through the BT Assignment Agreement. However, for the reasons set forth below, the Plaintiff's foregoing contention cannot be accepted.

(a) First, in light of the circumstances that can be ascertained from the descriptions set forth in Plaintiff's Exhibits 91-1 and 93-2, as well as from the overall purport of the pleadings and oral arguments, it cannot be found that BT's allegation of infringement of the Gittins patent, made prior to the execution of the BT Assignment Agreement, was grounded on specific and substantiated bases.

① The main contents of the specification of the Gittins patent (Plaintiff's Exhibit 93-2) are set forth in Appendix 6. At that time, BT asserted that the Defendant infringed Claim 8 of the Gittins patent by manufacturing and selling Internet television products equipped with a Service Delivery Platform. According to BT's claim chart (Plaintiff's Exhibit 91-1), BT asserted at the time that (i) among the limitations of Claim 8 of the Gittins patent, step (a), namely, "storing a customer ID, a list of IDs of information items (hereinafter "items") to which each customer has access rights, and IDs of information sources through which each item can be retrieved," and "receiving, via a network, a request message for access to an information service together with at least one customer ID," together with step (c), "reading the received message," and step (d), "retrieving from storage a list of information item IDs associated with the

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received customer ID,” corresponded to the signal processing performed in the Defendant’s product under “Purchase Scenario 2: Accessing from a List of Multiple Contents” and (ii) among the limitations of Claim 8, step (e), namely, “where an item ID is not received in step (b), transmitting the list to the customer and reading the item ID from an additional message received from the customer,” corresponded to the signal processing performed in the Defendant’s product under “Purchase Scenario 3-A: Open API Flow.”

② However, the Defendant’s product’s “Purchase Scenario 2: Accessing from a List of Multiple Contents” concerns a processing procedure in which, when a user selects a specific item from among a displayed list of multiple content items, the SDP determines whether the selected content corresponds to content previously purchased by the user and, based on that determination, decides whether playback of the selected content is permitted or whether a purchase is required. In addition, the Defendant’s product’s “Purchase Scenario 3-A: Open API Flow” concerns a procedure in which, upon a user’s request for “My Page,” the SDP loads the My Page and displays to the user “a list of all content previously purchased by the user,” and, when the user selects “Adult Only” content from that list, the SDP determines whether playback of the selected content is permitted (by performing an adult-verification check). As such, the two scenarios in the Defendant’s product, that is, “Purchase Scenario 2” and “Purchase Scenario 3-A,” relate merely to distinct signal-processing operations. They are difficult to regard as constituting a single execution flow that is necessarily performed upon the satisfaction of particular conditions, nor do they constitute a single signal-processing operation having any specific correlation or organically integrated relationship.

(b) Moreover, in light of the foregoing evidence, the descriptions set forth in Defendant’s Exhibit 62, and the overall purport of the pleadings and oral arguments, it can be found that,

following J's infringement assertions, the Defendant's CTO Patent Center prepared a report around September 2016 concluding that the Defendant's products at issue did not infringe Claim 8 of the Gittins patent. In light of these circumstances, it can be found that, at the time, the Defendant had analyzed and concluded that J's allegation of infringement of the Gittins patent lacked merit.

(c) Likewise, in light of the circumstances that can be ascertained from the descriptions set forth in Plaintiff's Exhibits 89-1 and 93-1, as well as from the overall purport of the pleadings and oral arguments, it cannot be found that BT's allegation of infringement of the Beddus patent, made prior to the execution of the BT Assignment Agreement, was grounded on specific and substantiated bases.

① The principal contents of the specification of the Beddus patent (Plaintiff's Exhibit 93-1) are set forth in Appendix 7. The Beddus patent relates to a mobile communication system, and Claim 11 thereof is directed to a technical configuration in which a terminal receives call control capability data identifying a plurality of different call control protocols and different network address types, setting a call with another communication terminal based on the selected call control protocol and network address. This is further evidenced by the description in the specification of the Beddus patent stating that "FIG.4a, ... a call is set-up using e.g., the sequence of messages defined for an ISDN protocol such as H.320, ... illustrated in FIG.4b, and ... prior to a call being set-up using e.g., the H.323 call protocol, Session Invitation Protocol(SIP) to establish the session," where setting up a call is disclosed as supporting a plurality of call control protocols (H.320 and H.323).

② According to BT's claim chart (Plaintiff's Exhibit 89-1), BT asserted at the time that, based on the DLNA¹²⁾ standard

12) DLNA (Digital Living Network Alliance): A set of standards to establish interoperability among devices manufactured by different vendors within a home network environment, such that those devices may operate compatibly through a

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specifications and the UPnP¹³⁾ standard specifications, the Defendant infringed Claim 11 of the Beddus patent by manufacturing and selling Internet television (Smart TV) products that complied with the DLNA standard. In other words, BT did not assert infringement by directly comparing Claim 11 of the Beddus patent with the Defendant's products, but asserted that, on the premise that the Beddus patent constituted a standard-essential patent under the DLNA and UPnP standards, the Defendant's products that adopted DLNA standards necessarily constituted infringing products with respect to the Beddus patent.

③ However, for BT's infringement allegation premised on the foregoing to be substantiated, it would first have been necessary to establish that the Beddus patent had in fact been adopted as a standard-essential patent under the DLNA and UPnP standards; yet no evidence whatsoever was presented that would support such a finding. Accordingly, even if, as discussed below, the Defendant's products adopted the DLNA standard, that fact alone is insufficient to conclude that such products constituted infringing products with respect to the Beddus patent. Even assuming that the Beddus patent had been adopted as a standard-essential patent under the DLNA standard, it would still be improper to conclusively determine that the Defendant's products constituted infringing products with respect to the Beddus patent, without a detailed comparative analysis of the specific technical features of the patent.

(d) Moreover, in light of the foregoing evidence, the descriptions set forth in Defendant's Exhibit 62, and the overall purport of the pleadings and oral arguments, it can be found that, following BT's infringement allegations, the Defendant's CTO Patent Center prepared a report that contained the following findings around

shared router.

13) UPnP (Universal Plug and Play): An interface specification that connects various consumer electronic devices to a home network.

September 2016. In light of these circumstances, it can be found that, at the time, the Defendant had analyzed and concluded that BT's allegation of infringement of the Beddus patent lacked merit.

① Although the Defendant's products complied with the DLNA standard, the communication protocol applied to the content-sharing function was limited to HTTP¹⁴), and accordingly, unlike Claim 11 of the Beddus patent, the Defendant's products do not involve any "selection" among "multiple, disparate call control protocols or network addresses."

② HTTP is a representative so-called "stateless protocol," characterized by the fact that the server does not retain session information or state for each communication partner; accordingly, there is no need to separately initiate prior setup procedures to maintain device-to-device communication sessions on each occasion. In other words, the HTTP communication protocol operates through discrete message exchanges between a client and a server, whereby the client issues requests as needed and receives corresponding responses from the server, and therefore, unlike a telephone call, a continuous call connection is unnecessary, and there is no need for an initiating call set-up process for each session.

③ Accordingly, the Defendant's products, which apply HTTP as the communication protocol, do not perform a call set-up operation of the kind required by Claim 11 of the Beddus patent.

(e) Likewise, in light of the circumstances that can be ascertained from the descriptions set forth in Plaintiff's Exhibits 90-1 and 93-3, as well as from the overall purport of the pleadings and oral arguments, it cannot be found that BT's allegation of infringement of

14) HTTP (Hypertext Transfer Protocol): A communication protocol used to exchange Hypertext Markup Language (HTML) documents between a web browser and a web server, under which a client sends a request message to the server and the server returns a response to the client's request.

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the Heatley patent, made prior to the execution of the BT Assignment Agreement, was grounded on specific and substantiated bases.

① Claim 1 of the Heatley patent, as set forth in the specification (Plaintiff's Exhibit 93-3), reads as follows.

【Claim 1】 A battery power supply device, comprising:
a battery pack disposed within a power supply housing;
an inlet disposed outside the housing for supplying a charging current from an external source to terminals of the battery pack; a storage configured to store a unique identifier of the battery power supply device;
a diagnostic interface configured to monitor at least one charge level indicator of the battery pack and to output the monitored charge level indicator together with the unique identifier stored in the storage; and
a wireless communication interface configured to transmit the output from the diagnostic interface to an external monitoring device.

As described above, the Heatley patent relates to a rechargeable battery power supply device installed in, for example, a wireless workstation. Here, the battery power supply device monitors a charge level and transmits that information, together with a unique identifier stored in the device, to an external monitoring device via wireless communication.

② At the relevant time, BT asserted that the Defendant's "Life-band Touch" product and its "heart rate monitoring earphone" product infringed Claim 1 of the Heatley patent. However, the Defendant's products at issue are powered solely through AC adapters and therefore cannot be regarded as including any functionality for supplying power to associated equipment. Accordingly, the Defendant's products at issue cannot be regarded as infringing products with respect to Claim 1 of the Heatley patent, which is directed to a rechargeable battery power supply device.

(f) Moreover, in light of the foregoing evidence, the descriptions set forth in Defendant's Exhibit 62, and the overall purport of the pleadings and oral arguments, it can be found that,

following BT's infringement allegations, the Defendant's CTO Patent Center also prepared a report around September 2016 concluding that the Defendant's products at issue did not infringe Claim 1 of the Heatley patent, on the ground that they were not battery power supply devices. In light of these circumstances, it can be found that, at the relevant time, the Defendant had analyzed and concluded that BT's allegation of infringement of the Heatley patent lacked merit.

(3) Compilation of Specific Calculation Data

(a) In light of the foregoing circumstances, it is reasonable to find that, by entering into the BT Assignment Agreement, the Defendant obtained transactional benefits to the extent that it was able to influence and steer the outcome of the royalty-reduction negotiations under the BT Cross-License Agreement in its favor. When all circumstances before and after the execution of the BT Assignment Agreement are considered together, it is reasonable to view, as calculation data for calculating reasonable compensation, the difference between the amount of royalties that the Defendant would have been required to pay to BT had the BT Assignment Agreement not existed, that is, had the Defendant not assigned the BT Patents to Be Assigned, and the USD 1,000,000 that the Defendant actually paid to BT as consideration under the BT Cross-License Agreement.

(b) When the following circumstances, as can be ascertained from the foregoing findings of fact, are considered as a whole, it is reasonable to conclude that, by assigning the BT Patents to Be Assigned, the Defendant obtained the benefit of a reduction in the royalties payable to BT in an amount equal to at least one-half of the royalties that the Defendant would otherwise have been required to pay had the BT Assignment Agreement not existed and the BT Patents to Be Assigned not been transferred.¹⁵⁾ Accordingly, the amount

15) The USD 1,000,000 paid by the Defendant to BT as consideration under the BT Cross-License Agreement may be regarded as corresponding to fifty percent

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attributable to the BT Assignment Agreement that may be used as calculation data for calculating reasonable compensation is assessed at USD 1,000,000 [= USD 1,000,000 $\times$ 50% / 50% (i.e., 1 - 50%)].

① The BT Assignment Agreement was executed concurrently with the BT Cross-License Agreement following negotiations conducted by the Defendant in response to BT's royalty demands.

② Upon review, i) although the negotiations for the BT Assignment Agreement were initiated when BT asserted patent infringement claims against the Defendant, the fact that the Defendant transferred as many as twenty family patents to BT for the highly unusual consideration of one pound sterling indicates that no proper or meaningful valuation of those twenty patent families was conducted at the time. ii) Moreover, as discussed above, none of BT's assertions of infringement of the Gittins patent, the Beddus patent, or the Heatley patent made prior to the execution of the BT Assignment Agreement were supported by sufficiently concrete or persuasive grounds, and the Defendant, while fully aware of these deficiencies on the basis of internal analytical reports prepared by its patent center, nevertheless proceeded to enter into the BT Assignment Agreement. iii) Moreover, given that BT granted the Defendant and its affiliates a royalty-free, non-exclusive license to practice the BT Assigned Patents, and further agreed that, if BT were to generate profits from the exploitation of the BT Assigned Patents in the future, a specified portion of such profits would be shared with the Defendant, it is reasonable to find that, at the time the BT Assignment Agreement was executed, any concrete valuation of the transactional value of the BT Assigned Patents was effectively deferred, and the parties' attention was instead directed toward the possibility that some exploitable value of the BT Assigned

(50% = 1 - 50%) of the royalties that the Defendant would otherwise have been required to pay to BT had the BT Assignment Agreement not existed, that is, had the Defendant not assigned the BT Patents to Be Assigned.

Patents might arise after execution of the agreement.

③ However, in response to the Court's repeated requests for clarification regarding the relationship between the BT Cross-License Agreement and the assignment of the BT Assigned Patents, the Defendant asserted i) because BT shared the Defendant's understanding that the foregoing allegations of patent infringement lacked merit, BT proposed that the parties enter into the BT Cross-License Agreement upon the Defendant's payment of a merely "symbolic" amount and that, in addition, the Defendant would assign a portion of its patent portfolio to BT, with any profits generated by BT through the exploitation of such patents to be shared between the parties and (ii) the BT Assignment Agreement was executed pursuant to this proposal. Thereafter, in its brief filed on April 4, 2024, the Defendant clarified that the "symbolic" amount agreed upon through negotiations between the parties was USD 1,000,000.

④ Accordingly, even if the BT Assignment Agreement was executed at a time when no proper objective valuation of the twenty BT Assigned Patents had been conducted and the parties' attention was directed solely toward the potential future exploitative value of those patents, and even if, as a result, the negotiations between the Defendant and BT concluded with the assignment value of the BT Assigned Patents being treated as merely "symbolic," it is nevertheless reasonable, in light of all the circumstances surrounding the concurrent execution of the BT Assignment Agreement and the BT Cross-License Agreement, to conclude that such a "symbolic" amount necessarily corresponds to at least USD 1,000,000, the same "symbolic" royalty amount actually paid by the Defendant to BT.

⑤ Meanwhile, the Plaintiff contends that the Defendant's royalty-reduction benefit derived from the BT Assignment Agreement may be calculated by reference to analogous prior transactions, including a license agreement entered into by the

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Defendant around 2006 pursuant to which the Defendant agreed to pay royalties totaling USD 285,000,000 over a five-year period, as well as the MS patent assignment transactions. However, because those license agreement and MS assignment transactions involved different patents, different subjects of royalty negotiation, and negotiation processes materially distinct from those underlying the BT Assignment Agreement, the Court finds it difficult to regard such transactions as appropriate or direct benchmarks for calculating the exclusive or proprietary benefit allegedly obtained by the Defendant through the BT Assignment Agreement.

(c) Because no evidence has been submitted that would permit a concrete or individualized assessment of the respective value of each of the twenty BT Assigned Patents, it is reasonable to presume that such patents are of equal value. Accordingly, ① the portion of the amount attributable to the BT Assignment Agreement that may properly be used as a basis for calculating reasonable compensation with respect to Employee Inventions Nos. 3 and 4, which together constitute one patent family, amounts, on an equal-allocation basis, to USD 50,000 ($= \text{USD } 1,000,000 \times 1/20$), and therefore, converting this amount at the base exchange rate applicable at the time of execution of the BT Assignment Agreement, namely KRW 1,163.60 per USD, the value is assessed at KRW 58,180,000; and ② likewise, the portion of the amount attributable to the BT Assignment Agreement that may properly be used as a basis for calculating reasonable compensation with respect to Employee Invention No. 5, which also constitutes one patent family, is likewise assessed at KRW 58,180,000 under the same method of equal allocation.

f) Evaluation of the OP Patent Assignment as Calculation Data

(1) Existence of Any Benefit Derived by the Defendant from the OP Patent Assignment

(a) The Defendant contends that Employee Invention No. 6 transferred pursuant to the OP Assignment Agreement constituted a non-practicing or obsolete patent, bore no substantive quid pro quo relationship to the consideration paid under that agreement, and, accordingly, that the Defendant derived no benefit whatsoever from the assignment of Employee Invention No. 6 under the OP Assignment Agreement.

(b) However, when the foregoing evidence is considered together with the contents of Defendant's Exhibits 43, 56, and 63, the Court finds it difficult to accept the Defendant's contention that Employee Invention No. 6 constituted a non-practicing patent lacking any substantive relationship to the assignment consideration, or that the Defendant derived no benefit whatsoever from the transfer of Employee Invention No. 6, and rather, it is reasonable to conclude that the Defendant obtained a certain measure of benefit by assigning Employee Invention No. 6 pursuant to the OP Assignment Agreement.

① In the course of executing the OP Assignment Agreement and implementing the related patent transfers, the Defendant and Optis, in selecting the initial thirty-two patents to be assigned, classified eleven LTE telecommunications standard-essential patents and five non-standard terminal-related patents as "key patents," collectively referring to this group as "MUNIN 1"; sixteen additional non-standard terminal communication patents as "additional patents," referring to this group as "MUNIN 2"; and patents assigned on an additional basis thereafter as MUNIN 3 and MUNIN 5 successively. Employee Invention No. 6 was not included among the core patents, but rather fell within the category of additional patents and was included in MUNIN 3. Under the OP Assignment Agreement, the Defendant warranted only the patents designated as the "LE Specified Patents," which corresponded to the patents classified as "MUNIN 1." On March 20, 2017, Optis sent a letter to the Defendant stating that it had identified certain patents acquired from the Defendant as

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candidates for abandonment to enhance the efficiency of its patent business, and that Employee Invention No. 6 was included among those proposed abandonment candidates.

② Even under the Defendant's own account, the patents classified as MUNIN 2, MUNIN 3, and MUNIN 5 were assigned on the premise that a patent licensing business is viable only when it holds a portfolio of patents of a certain scale, and that, like the non-standard patents included in MUNIN 1, these patents were transferred for the purpose of securing so-called "bulk patents" capable of increasing the overall size of the portfolio. Accordingly, the patents classified as MUNIN 2, MUNIN 3, and MUNIN 5 including Employee Invention No. 6 must be regarded as possessing at least a level of economic utility and value sufficient to enable Optis to exercise external bargaining leverage in the conduct of its patent licensing business.

③ In distributing employee-invention compensation internally from the proceeds received from Optis pursuant to the OP Assignment Agreement, the Defendant applied contribution weights as follows: a weight of seventy percent was assigned to the eleven patents classified as "MUNIN 1" that constituted LTE telecommunications standard-essential patents; a weight of twenty percent was assigned to the five patents also classified as "MUNIN 1" that, while not standard-essential, related to smartphone technologies; and a combined weight of ten percent was assigned to the remaining thirty-six patents in the aggregate [namely, sixteen MUNIN 2 patents, seventeen MUNIN 3 patents, and three MUNIN 5 patents (including the Second Group Invention)] with the contribution of each category evaluated on that basis.

(2) Summary of Specific Calculation Data

(a) As discussed above, Employee Invention No. 6 was not classified as a core patent, but rather was categorized as part of "MUNIN 3," and was included among the patents identified by Optis

as candidates for abandonment. According to the foregoing evidence, it is established that, among the patents constituting Employee Invention No. 6, Invention No. 20 lapsed on February 7, 2020 due to nonpayment of the annual maintenance fee; Invention No. 21 was withdrawn on January 17, 2018; and Invention No. 22 was rejected on January 20, 2016. There is no evidence demonstrating that the Sixth Employee Invention was ever implemented in an actual commercial product. In light of these circumstances, it is reasonable to conclude that, at the time of the OP Assignment Agreement, Employee Invention No. 6 was not transferred on the basis of an independent assessment of its intrinsic technical value, but rather was assigned as part of a collective transfer of patents pursuant to the Defendant's overall business judgment. Accordingly, Employee Invention No. 6 cannot reasonably be accorded a contribution weight equivalent to that of the patents classified as "MUNIN 1" including the LTE telecommunications standard-essential patents under the OP Assignment Agreement.

(b) In view of the foregoing, including the fact that the Defendant itself assigned an aggregate contribution weight of ten percent to the thirty-six non-core family patents, including those classified as "MUNIN 3," to which Employee Invention No. 6 belongs, and the absence of any evidentiary basis for distinguishing or separately valuing the individual patents within that group, it is reasonable to conclude that the appropriate contribution attributable to Employee Invention No. 6 should be determined by allocating the aggregate ten percent weight assigned to those thirty-six family patents on a pro rata basis. [Meanwhile, the Plaintiff contends that, based on the compensation paid to the inventors of the MUNIN 1 standard-essential patents as reflected in the Lee Gwang-jun Declaration (Defendant's Exhibit 24), the Defendant in fact assessed the disposition contribution rate of the MUNIN 1 standard-essential patents at thirty percent, rather than seventy percent, and that on that

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premise, the patents classified as MUNIN 2, 3, and 5 should likewise be evaluated as having contribution weights equivalent to those of the MUNIN 1 patents. However, the mere fact that the compensation paid with respect to certain MUNIN 1 standard-essential patents, as reflected in the above-referenced declaration, was less than the seventy percent allocation does not, in light of the foregoing circumstances, warrant treating the patents classified as MUNIN 2, 3, and 5 as having contribution weights equivalent to those of the MUNIN 1 patents.]

(c) In light of all the foregoing considerations, the portion of the amount attributable to the OP Assignment Agreement that may properly be used as calculation data for calculating reasonable compensation with respect to Employee Invention No. 6 comprising a single patent family is assessed at USD 104,166 (= USD 37,500,000 $\times$ 10% $\times$ 1/36). When converted at the base exchange rate applicable at the time of execution of the OP Assignment Agreement, namely KRW 1,022.60 per USD, this amount corresponds to KRW 106,520,151 (rounded down to the nearest won, as hereinafter applied).

2) Practice of Employee Inventions

a) In-house Practice of Employee Invention No. 1

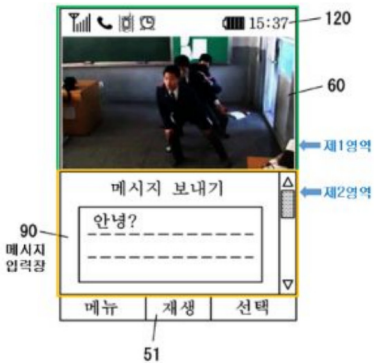
(1) Invention No. 1

(a) When the foregoing description and drawings set forth in the specification of Invention No. 1 (Plaintiff's Exhibit 3-1) are considered together with the descriptions and video evidence contained in Plaintiff's Exhibit 6-1, as well as the overall purport of the oral arguments, Invention No. 1, that is, the patented Employee Invention No. 1, implements a multitasking function by dividing the display so as to allow two screens to be viewed simultaneously, and the Defendant's "G2" and "G4" products identified by the Plaintiff correspond, to each of the constituent elements of Invention No. 1, and therefore may both be deemed to practice Invention No. 1.

① G2 Product

Claim 1 of Invention No. 1	Q slide of G2 product														
[Element 1] a step of displaying, on a touchscreen, a web page providing at least one video upon execution of a web browser;	Displays, on a touchscreen, a Naver web page providing a video														
[Element 2] a step of receiving an input selecting a specific video from among the at least one video displayed on the web page;	Receives an input (touch) selecting a specific video (a camping car video) from among a plurality of videos displayed on a Naver web page;														
[Element 3] a step of displaying a playback screen of the selected video in a first region of the touchscreen allocated to the web browser; and	Displays a playback screen of the camping car video in a first region (an upper portion) of the touchscreen allocated to the Naver web page;														
[Element 4] A method of controlling a mobile communication terminal, comprising a step of displaying, while the selected video is being played, a message input screen in a second region of the touchscreen allocated to a messaging E-lication.	Displays a message input screen in a second region (a lower portion) of the touchscreen while the camping car video is being played														
<table><thead><tr><th>한국어</th><th>영어</th></tr></thead><tbody><tr><td>제1영역</td><td>First area</td></tr><tr><td>제2영역</td><td>Second area</td></tr><tr><td>메시지 입력창</td><td>Message input window</td></tr></tbody></table>	한국어	영어	제1영역	First area	제2영역	Second area	메시지 입력창	Message input window	<table><thead><tr><th>한국어</th><th>영어</th></tr></thead><tbody><tr><td>제1영역</td><td>First area</td></tr><tr><td>제2영역</td><td>Second area</td></tr></tbody></table>	한국어	영어	제1영역	First area	제2영역	Second area
한국어	영어														
제1영역	First area														
제2영역	Second area														
메시지 입력창	Message input window														
한국어	영어														
제1영역	First area														
제2영역	Second area														

② G4 Product

Claim 1 of Invention No. 1	Dual window of G4 product
[Element 1] a step of displaying, on a touchscreen, a web page providing at least one video upon execution of a web browser;	Displays, on a touchscreen, a YouTube web page providing a video
[Element 2] a step of receiving an input selecting a specific video from among the at least one video displayed on the web page;	Receives an input (touch) selecting a specific video (a golf video) from among a plurality of videos displayed on a YouTube web page
[Element 3] a step of displaying a playback screen of the selected video in a first region of the touchscreen allocated to the web browser; and	Displays a playback screen of the golf video in a first region (an upper portion) of the touchscreen allocated to the YouTube web page
[Element 4] A method of controlling a mobile communication terminal, comprising a step of displaying, while the selected video is being played, a message input screen in a second region of the touchscreen allocated to a messaging E-lication.	Displays a message input screen in a second region (lower portion) of the touchscreen while the golf video is being played
	

(b) In response, the Defendant argues that, for the reasons set forth below, Element 4 of Invention No. 1 indicates that a message input screen is displayed simultaneously and in coordination with the display of the playback screen of the selected video, but that

+the products identified by the Plaintiff merely display two E-lications separately and sequentially, in accordance with the order selected by the user when invoking the dual-window function, and therefore do not satisfy Element 4 of Invention No. 1. However, the materials relied upon by the Defendant, namely, the specification of Invention No. 1 (paragraph [0045]), the drawings (FIGs. 4 and 8), and the written arguments submitted in connection with Invention No. 1 (Defendant's Exhibit 20)¹⁶, are insufficient to support the Defendant's proposed limiting interpretation of Element 4. In the absence of any other evidence substantiating that interpretation, the Court declines to accept the Defendant's argument.

(c) Meanwhile, the Plaintiff further contends that the Defendant's "G3" and "V10" products also practice Invention No. 1, but has failed to present any specific arguments or evidence sufficient to substantiate that contention. Accordingly, the Court declines to accept this claim.

(2) Invention No. 2

(a) The Plaintiff asserts that the Defendant's "G2" and "G4" products constitute products that practice Claim 1 of Invention No. 2, which is another patented invention encompassed within Employee Invention No. 1. However, in light of the following circumstances, as established by the specification of Invention No. 2 (Plaintiff's Exhibit 3-2) and the descriptions and video evidence contained in Plaintiff's Exhibit 6-2, the Plaintiff's foregoing assertion is difficult to accept.

① Invention No. 2 builds upon the technical configuration of Invention No. 1 by additionally incorporating features that selectively terminate the display of a selected video within a display region, while maintaining the audio associated with the

16) Page 5 of the written arguments above states that "the present invention discloses a concept for implementing a multitasking function, and simultaneously executes video playback and a messaging E-pplication."

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selected video, and that display other content within the same display region after termination of the video display.

② However, with respect to the Defendant’s G2 product, once playback of the video ends, other content (such as a status notification window) is not displayed solely within the relevant display region (user area), but is instead displayed across the entire screen, and no technical feature is observed by which the audio associated with the selected video is maintained. The same is true with respect to the Defendant’s G4 product.

(b) Meanwhile, although the Plaintiff asserts that the Defendant’s “V10” product also practices Invention No. 2, the Plaintiff has failed to present any specific arguments or evidence sufficient to support that assertion. Accordingly, the Court likewise declines to accept the Plaintiff’s claim in this respect.

(3) Invention No. 3

The Plaintiff contends that the Defendant’s “G2” and “G4” products constitute products that practice Claim 1 of Invention No. 3, which is another patented invention encompassed within Employee Invention No. 1. However, in light of the following circumstances, as established by the specification of Invention No. 3 (Plaintiff’s Exhibit 3-3), the descriptions and video evidence contained in Plaintiff’s Exhibit 6-3, 113-1, and 113-2, the Court find it difficult to accept the Plaintiff’s foregoing contention.

(a) Element-by-Element Comparison

Claim 1 of Invention No. 3	Q slide of G2 product	
[Element 1] A method for displaying video on a mobile terminal comprising a display defined by a user area and an information area,		
	한국어	영어
	정보 영역	Information area
	사용자 영역	User area
	디스플레이	Display

Claim 1 of Invention No. 3	Q slide of G2 product								
[Element 2] a step of displaying, in the user area, a list of playable videos;									
[Element 3] a step of selecting one video from the video list;									
[Element 4] a step of automatically playing and displaying the selected video in a display area that substantially occupies the entire user area;	 <table><tr><th>한국어</th><th>영어</th></tr><tr><td>정보 영역</td><td>Information area</td></tr><tr><td>사용자 영역</td><td>User area</td></tr><tr><td>디스플레이</td><td>Display</td></tr></table>	한국어	영어	정보 영역	Information area	사용자 영역	User area	디스플레이	Display
한국어	영어								
정보 영역	Information area								
사용자 영역	User area								
디스플레이	Display								

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Claim 1 of Invention No. 3	Q slide of G2 product
[Element 5] a step of selectively terminating display of the selected video being played in the display area;	
[Element 6] a step of maintaining audio associated with the selected video;	
[Element 7] A method of displaying video, comprising displaying other content in the display area after selectively terminating display of the selected video.	

Displays a product status screen (or a screen of an application to be shared) in the display area after selectively terminating display of the golf video

(b) In the G2 product, a web page providing a list of videos is displayed within the user area, that is, the entire portion of the touchscreen excluding the status bar at the top (the information area), and when a specific video is selected (by touch), the playback screen of that video is displayed across the entire user area, thereby satisfying Elements 1 through 4 of Invention No. 3. However, no technical configuration substantially identical to Elements 5 through 7 of Invention No. 3 is found in the G2 product.

(c) In response, the Plaintiff argues that, in the G2 product, when the status bar located in the upper portion of the screen (the information area) is dragged downward to open the device settings screen, the video being played is temporarily obscured, which corresponds to “terminating display” recited in Element 5; that because the video continues to play while only the display is temporarily

covered and the audio remains audible, this corresponds to “maintaining audio” recited in Element 6; and that the expanded status bar (settings screen) opened by the drag action constitutes the “other content” recited in Element 7. However, for the reasons set forth below, the Court does not accept the Plaintiff’s foregoing argument.

Specifically, ① pulling down the status bar merely causes the settings screen to be temporarily overlaid on top of the video display, and when the status bar is dragged back up, the video that had been playing while obscured reappears; accordingly, this configuration cannot reasonably be regarded as terminating the display of the video, nor can the expanded status bar (settings screen) be considered “other content.” ② Moreover, the specification of Invention No. 3 expressly states, in the final paragraph of Column 1, that “displaying other content in the display area after selectively terminating display of the selected video” and further provides, in the second paragraph of Column 5, that “when the display of the selected video is terminated in order to display other content, the audio associated with the selected video continues to be played through the mobile terminal.” Even in light of the foregoing disclosures in the specification, Invention No. 3 shows a sequence in which the display of the selected video is first terminated, and only thereafter is other content displayed, but by contrast, a configuration in which the video becomes temporarily invisible merely as a result of opening a status bar for device settings during video playback, such that the video reappears once the status bar is closed, cannot be regarded as constituting a “termination of video display” within the meaning of Invention No. 3. ③ In addition, the specification of Invention No. 3 describes the “other content” as content that is “provided from a website or server connected to the Internet” (Claim 11), and further specifies that such “other content” includes “a list of videos displayed through a web browser” (Claim 12). Even in light of these disclosures, the “other content” of Invention No. 3 is properly understood to mean ordinary content that is executed after the display of the selected video has been terminated

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such as content displayed through a web browser and not, as in the G2 product, an expanded status bar or device settings screen used merely for adjusting functions such as brightness or volume.

(d) Accordingly, although the G4 product includes Elements 1 through 4 of Invention No. 3, the same conclusion applies in that no technical configuration corresponding to Elements 5 through 7 is found in the G4 product.

b) In-house Practice of Employee Invention No. 2

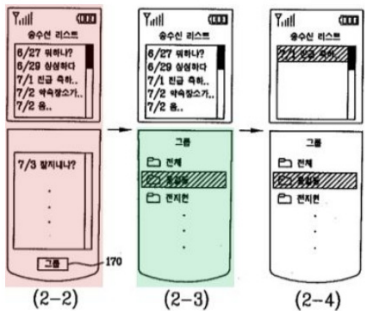
(1) Invention No. 6

In light of the descriptions and drawings contained in the specification of Invention No. 6 (Plaintiff's Exhibit 3-6), the descriptions and images set forth in Plaintiff's Exhibit 7-2, and the record as a whole, the Court finds that the technical configuration of the "Optimus One" product, as identified by the Plaintiff, corresponds to each and every constituent element of Invention No. 6. Accordingly, the Court finds that the Optimus One product practices Invention No. 6.

Claim 13 of Invention No. 6	Optimus One product
[Element 1] a message processing unit configured to transmit and receive messages;	Includes a message processing unit, a display unit, a memory unit, and a controller
[Element 2] at least one display unit;	
[Element 3] a memory unit for storing the transmitted or received message; and	
[Element 4] a controller configured to control the message processing unit, the display unit, and the memory unit;	
[Element 5] wherein the controller is configured to display, on the display unit, a list of messages stored in the memory unit in order of transmission or reception time; and	Groups a list of messages based on sender or receiver telephone numbers constituting transmission or reception information; displays the grouped messages in an order from the most

control the display unit to group the displayed list of messages into one or more groups based on transmission or reception information and to display the grouped messages.

recently transmitted or received message according to transmission or reception time (FIG. 1); and
upon selection of one of the groups (telephone number “15882001”), displays messages belonging to the selected group in chronological order (FIG. 2).



(2-2) (2-3) (2-4)

[FIG. 1]



[FIG. 2]

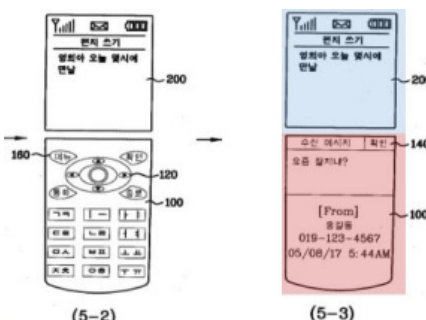


(2) Invention No. 5

(a) The Plaintiff contends that the Defendant’s “Optimus One” product constitutes a product that practices Claim 58 of Invention No. 5, which is another patented invention encompassed within Employee Invention No. 2. However, in light of the circumstances set forth below, as evidenced by the descriptions and images contained in Plaintiff’s Exhibit 3-5 (the specification of Invention No. 5) and Plaintiff’s Exhibit 7-1, the Plaintiff’s foregoing contention cannot be accepted.

① Element-by-Element Comparison

Claim 58 of Invention No. 5	Optimus One product
[Element 1] a step of displaying a message created by a terminal user;	When a message is received from a third party while a message is being composed, a portion of the message from the third party is temporarily displayed in an upper region (displayed as a pop-up window or pop-up
[Element 2] a step of displaying the received message while continuing to display the message being composed when the terminal user receives a	

Claim 58 of Invention No. 5	Optimus One product						
message from another person while composing the message; and  (5-2) (5-3)	notification) so that the user can check the message.  <table border="1"> <thead> <tr> <th>한국어</th><th>영어</th></tr> </thead> <tbody> <tr> <td>제1 표시 영역</td><td>First display area</td></tr> <tr> <td>제2 표시 영역</td><td>Second display area</td></tr> </tbody> </table>	한국어	영어	제1 표시 영역	First display area	제2 표시 영역	Second display area
한국어	영어						
제1 표시 영역	First display area						
제2 표시 영역	Second display area						
[Element 3] A message display method in a mobile communication terminal, comprising a step of allowing the terminal user, after checking the received message, to continue composing the message being written.	 After checking the third text message, upon returning to the text message composition screen, the text message that was being composed is temporarily						

Claim 58 of Invention No. 5	Optimus One product
	stored, thereby enabling the user to continue composing the text message.

② Invention No. 5 is mainly characterized by a technical configuration in which, when a message from another person is received while a message is being composed, the message being composed and the received message are displayed simultaneously (Element 2), thereby allowing the user to review the contents of the received message without leaving the message composition screen and to continue composing the message that was being written (Element 3).

③ However, when the Optimus One product receives a message from another person while a message is being composed, it merely notifies the user of the receipt through a pop-up notification. When the user drags or expands the pop-up, the message composition screen is no longer displayed, and only a message list screen is displayed. The content of the received message is displayed only after the user selects the received message from the message list, and at that time, the content of the message that was being composed is not displayed simultaneously. After reviewing the received message, if the user selects the temporarily stored message being composed from the message list, the device returns to the original message composition screen. In short, under Element 2 of Invention No. 5, the message being composed and the received message (i.e., the message body) are displayed simultaneously, thereby enabling the user to review the contents of the received message without leaving the message composition screen. By contrast, in the Optimus One product, while a message is being composed, only the fact that a message has been received from a third party and, at most, a portion thereof is notified to the user via a pop-up notification. To review the contents of the received message, the user must perform a separate operation to access and display the received message. Accordingly, because the Optimus One product does not simultaneously display the message being

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composed and the received message, it differs from the technical configuration of Invention No. 5. Ultimately, the Optimus One product must be regarded as not fully including the technical configuration of “displaying the received message while continuing to display the message being composed,” as set forth in Element 2 of Invention No. 5.

(b) In response, the Plaintiff argues, in substance, that when the Optimus One product receives a message from another person while a message is being composed, the act of notifying the receipt through a pop-up notification (appearing in the upper portion of the message composition screen) substantially corresponds to the technical configuration of “displaying the received message while continuing to display the message being composed,” as recited in Element 2. However, the Plaintiff’s argument cannot be accepted, as it is based on an subjective view that assigns different technical meanings to the “display” of the message being composed and the “display” of the received message.

(c) Meanwhile, although the Plaintiff asserts, in substance, that the Defendant’s “V20” product likewise constitutes a product that practices Invention No. 5 as claimed, the Plaintiff has failed to present any specific allegations or evidence sufficient to substantiate that assertion. Accordingly, the Plaintiff’s foregoing argument is likewise rejected.

(3) Invention No. 8

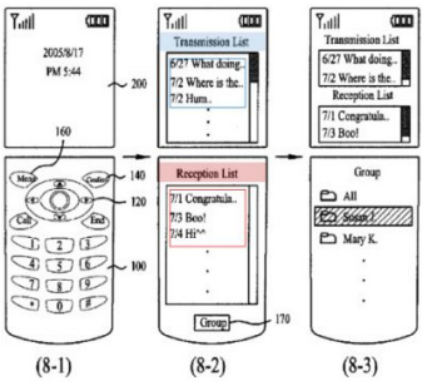
(a) The Plaintiff contends that the Defendant’s “Optimus One” product constitutes a product that practices Claim 1 of Invention No. 8, which is another patented invention encompassed within Employee Invention No. 2. However, in light of the circumstances set forth below, as evidenced by the descriptions and images contained in Plaintiff’s Exhibit 3-8 (the specification of Invention No. 8) and Plaintiff’s Exhibit 7-3, the Plaintiff’s foregoing contention likewise cannot be accepted.

① Element-by-Element Comparison

Claim 1 of Invention No. 8	Q Slide of G2 Product
[Element 1] A method of displaying messages on a mobile communication terminal, comprising a step of receiving a message from a specific counterparty;	Displays the received message in a first display area, displays a message input screen in a second display area, and transmits a response message to the counterparty.
[Element 2] a step of displaying, in a first display area of the terminal, the message received from the specific counterparty;	
[Element 3] a step of displaying a message input screen in a second display area of the terminal so as to allow entry of a response message to the message received from the specific counterparty;	
[Element 4] a step of transmitting the response message to the specific counterparty;	
[Element 5] a step of storing messages previously received from the specific counterparty or other persons, and messages previously transmitted to the specific counterparty or other persons.	Stores previously received and transmitted messages, and displays, together with a list of sender/recipient names or telephone numbers, one of the messages received from each sender included in the list. 

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Claim 1 of Invention No. 8	Q Slide of G2 Product
[Element 6] a step of displaying a list including the name or telephone number of the sender of each previously received message and the name or telephone number of the recipient of each previously transmitted message, while displaying, together with the list, one of the messages received from each sender included in the list;	Selects a specific counterparty from the list to extract only messages transmitted to the specific counterparty and messages received from the specific counterparty from among the previously transmitted and received messages.
[Element 7] a step of selecting a specific counterparty from the list to extract, from among the previously transmitted and received messages, only messages transmitted to the specific counterparty and messages received from the specific counterparty;	Selects a specific counterparty from the list so as to extract only messages transmitted to the selected counterparty and messages received from the selected counterparty from among the previously transmitted and received messages.
[Element 8] a step of displaying, in a separated manner, a first message list including only messages received from the specific counterparty and a second message list including only messages transmitted to the specific counterparty.	Displays messages received from the specific counterparty and messages transmitted to the specific counterparty together in a single list without separating them.
[Element 9] a step of displaying, within the first message list and the second message list, the respective message receipt dates and message transmission dates together, with the dates being displayed so as to be aligned with each other in a vertical direction;	Displays the respective message receipt and transmission dates together within the received messages and the transmitted messages, and displays the received and transmitted messages so as to be arranged in chronological order.
[Element 10] a step of providing a message input mode in which a message to be transmitted to the specific counterparty can be entered	Provides a message input mode in which a message to be transmitted to the counterparty can be entered while the message list is displayed.

Claim 1 of Invention No. 8	Q Slide of G2 Product
after displaying the first message list and the second message list for a predetermined period of time;	
[Element 11] A message display method comprising a step of displaying content relating to the first message list in a first display area of the terminal and displaying a message input screen in a second display area of the terminal in the message input mode.	Displays received messages and transmitted messages together, intermixed, within the message list.
 (8-1) (8-2) (8-3)	

② The Optimus One product displays a received message in a first display area and displays a message input screen in a second display area, and it further displays, together with a list of sender or recipient names or telephone numbers, one message received from each sender. Accordingly, the Optimus One product includes Elements 1 through 7 of the Eighth Invention.

③ However, i) Element 8 requires separately displaying a first message list including messages “received” from a specific counterparty and a second message list including messages “transmitted” to the specific counterparty, whereas the Optimus One

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product differs in that it displays messages received from the specific counterparty and messages transmitted to the specific counterparty together in a single list without separating them. The Optimus One product does not include the technical configuration of “separately displaying a first message list and a second message list,” as recited in Element 8 of the Eighth Invention. ii) In the technical context arising from the foregoing differences, the Optimus One product further differs in that, rather than displaying all dates in an single aligned format, it displays receipt dates aligned vertically only with other receipt dates and transmission dates aligned vertically only with other transmission dates, and it also displays, in the first display area, not only content relating to the first message list (received messages) but also transmitted messages relating to the second message list intermixed therewith. In light of these features, the Optimus One product must likewise be regarded as not including the technical configurations set forth in Elements 9 through 11 of the Eighth Invention.

(b) Meanwhile, although the Plaintiff asserts that the Defendant’s “V20” and “Wing” products likewise constitute products that practice Invention No. 8 as claimed, the Plaintiff has failed to present any specific allegations or evidence sufficient to substantiate that assertion. Accordingly, the Plaintiff’s foregoing argument is rejected.

c) Evaluation of in-house practice of Employee Inventions as calculation data

(1) Grounds for Invalidating the Patent of Employee Invention No. 1

As discussed above, the Defendant practiced Invention No. 1, which constitutes the patented invention of Employee Invention No. 1. Below, the Court examines whether any grounds exist for invalidating Invention No. 1.

(a) Prior Art

As Prior Art to be compared with Invention No. 1 (Claim 1), ① there exists Prior Art 1, entitled “Display Control Apparatus and Method Using a Touch Screen in a Mobile Communication Terminal,” which was filed on December 6, 2004, by Pantech Corporation, a competitor of the Defendant, and published on June 12, 2006, prior to the patent application date of Invention No. 1, and the key contents of its specification (Defendant’s Exhibit 74) are set forth in Appendix 3. ② In addition, there exists Prior Art 2, entitled “Internet Advertising Apparatus and Method Using a Magnification Effect,” which was filed on June 10, 2000, by Samsung Electronics, a competitor of the Defendant, and published on December 17, 2001, prior to the filing date of Invention No. 1, and the principal contents of its specification (Defendant’s Exhibit 73) are set forth in Appendix 4.

(b) Grounds for Invalidity of Invention No. 1 based on Lack of an Inventive Step

① Invention No. 1 embodies a principal inventive concept directed to implementing a multitasking function on a mobile communication terminal having a screen of limited size, and more specifically, its technical features are understood to reside in a combination of a technical configuration in which playback of a video selected in a web browser is displayed in an area allocated to the web browser (Elements 1 through 3) and a technical configuration in which message input and video playback are displayed in a split-screen manner on a single touchscreen display (Element 4).

② Prior Art 1 is an invention that was filed by Pantech Corporation, a competitor of the Defendant, on December 6, 2004, and published on June 12, 2006, prior to the filing date of the patent application for Invention No. 1. The specification of Prior Art No. 1 suggests: “The display unit (13) is configured to divide a display area

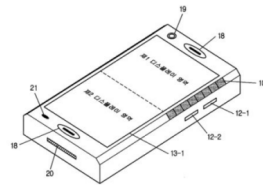


FIG. 3 of Prior Art 1

(13-1) into two portions and, depending on a display mode selected by the user, to display content by either dividing or integrating the display area (13-1).

한국어	영어
제1 디스플레이 영역	First display area
제2 디스플레이 영역	Second display area

For example, in a text message mode, a first display area displays characters assigned to a keypad and content input through selection of those characters; a second display area displays a background image set by the user; in a video call mode, the display area (13-1) is divided to display video of the calling party or the receiving party; or in a multimedia mode, the display area (13-1) is integrated to display video in a landscape display mode” (paragraph [0014]); “After the terminal is powered on, when a display mode other than a video call mode or a multimedia mode is selected, or when a text message mode is selected, the first display area is used to display content corresponding to the selected mode, and the second display area is used to display a background image set by the user.” (paragraph [0030]); and “When a video call mode is selected, as shown in FIG. 4(c), the main control unit (15) controls the display unit (13) so that video of the calling party or the receiving party is divided and displayed in the respective display areas within the display area (13-1) (S25, S26). When a multimedia mode is selected, as shown in FIG. 4(d), the display area (13-1) is integrated to display video in a landscape display mode (S27, S28).” (paragraph [0031]).

③ As described above, Prior Art 1 discloses an inventive concept in which a touchscreen display unit is divided into two areas, and the display areas are selectively divided or integrated depending on a display mode selected by the user,



FIG. 4c of Prior Art 1

thereby displaying text, images, videos, and the like in various manners. As a specific embodiment, Prior Art 1 discloses a technical configuration in which the display unit is divided into first and second display areas, with text message input displayed in the first display area and a background image displayed in the second display area, that is, a configuration in which two functions are simultaneously executed in a split-screen manner on a single display. In addition, combining this with a technical configuration in which playback of a video selected in a web browser is displayed in an area allocated to the web browser would, at the time of filing of Invention No. 1, have been no more than a matter of routine design choice that a skilled person could have readily adopted.

④ Moreover, Prior Art 2 likewise discloses technical content in which a mobile communication terminal accesses a web page through a web browser. Specifically, the specification of Prior Art 2 discloses, “After a user accesses, via a web browser, a website on the Internet constructed by an advertisement-providing web server (100), the advertisement-providing web server (100) transmits a web page requested by the user or a web page that must be passed through by default to the web browser of the user terminal through the Internet (140)” (paragraph [0019]). Accordingly, having reviewed the specification of Prior Art 1 and further taking into account the above-described disclosure of Prior Art 2, a skilled person would have been able to readily derive, without undue difficulty, all of the constituent elements forming the technical features of Invention 1.

⑤ In light of the foregoing, it is appropriate to conclude that Invention No. 1 could have been readily devised by a skilled person based on Prior Art 1 alone, or by a combination of Prior Art 1 and Prior Art 2, and that its inventive step is therefore lacking.

(2) Grounds for Invalidity of Employee Invention No. 2

As discussed above, the Defendant practiced Invention No. 6, which constitutes the patented invention of Employee Invention No. 2.

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Below, the Court examines whether there exist any grounds for invalidating Invention No. 6.

(a) Prior Art

As Prior Art to be compared with Invention No. 6 (Claim 13), there is Prior Art 3, entitled “Method for Managing Received Messages in a Mobile Communication Terminal,” which was filed on September 16, 2003, by Samsung Electronics, a competitor of the Defendant, and published on March 21, 2005, prior to the patent application date of Invention No. 6. The main contents of its specification (Plaintiff’s Exhibit 76) are set forth in Appendix 5.

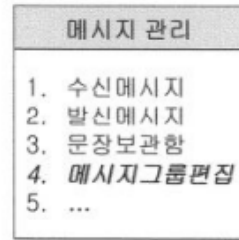
(b) Grounds for Invalidity of Invention No. 6 based on Lack of an Inventive Step

① Both Invention No. 6 and Prior Art 3 relate to methods for grouping, classifying, and displaying received text messages on a mobile communication terminal. In addition, the two inventions do not differ with respect to the feature that, in a mobile communication terminal, received messages are grouped and displayed based on the sender, which constitutes one item of receipt information.

② More specifically, the specification of Prior Art 3 discloses, “First, the control unit (100) checks whether a ‘message management’ menu item is selected by a user’s key operation. ... If the message management menu item is selected, the control unit (100) displays sub-menu items corresponding to the message management menu item. For example, it displays ‘1: Received Messages, 2: Sent Messages, 3: Message Storage, 4: Message Group Edit’ (FIG. 5a).” (paragraph [0024]).

③ In view of the above-described disclosure of a technical configuration in which messages are grouped as “1: Received Messages, 2: Sent Messages, 3: Message Storage, 4: Message Group Edit,” together with the description in the same specification that “a mobile communication terminal displays received messages on the screen in the order of receipt,” Prior Art 3 must be regarded as

expressly disclosing the characteristic configuration of Invention No. 6, namely, a configuration in which the mobile communication terminal displays transmitted or received text messages on the screen in the order of transmission or receipt, while controlling the display such that the list of displayed messages is grouped into one or more



(5a)

groups based on transmission or receipt information (As for the remaining constituent elements of Invention No. 6, namely, the message processing unit, display unit, memory unit, control unit, and the like, these are components that are plainly provided in Prior Art 3, a fact that would be readily understood by a skilled person).

④ In light of the foregoing, it is appropriate to conclude that Invention No. 6 could likewise have been readily devised by a skilled person based on Prior Art 3, and that it therefore lacks an inventive step.

(3) Practice of Employee Invention No. 1 by a Competitor

Based on the descriptions and drawings set forth in the specification of Invention No.1 (Plaintiff's Exhibit 3-1), together with the descriptions and images contained in Plaintiff's Exhibit 6-1 and the overall purport of the pleadings, it is found that Samsung Electronics' "Galaxy Note 2" product has a technical configuration that corresponds to all constituent elements of Invention No. 1, which is the patented invention of Employee Invention No. 1, and therefore practices Invention No. 1.

Claim 1 of Invention No. 1	Multi-window of Galaxy Note 2
[Element 1] a step of displaying, on a touchscreen, a web page providing at least one video upon execution of a web browser;	Displays, on a touchscreen, a Naver web page providing a video
[Element 2] a step of receiving an input selecting a specific video from among the at least one video displayed	Receives an input (touch) selecting a specific video (a camping car video) from among a plurality of videos

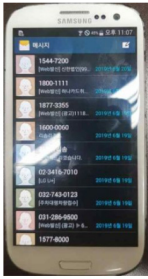
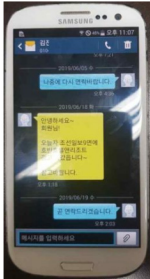
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Claim 1 of Invention No. 1	Multi-window of Galaxy Note 2
on the web page;	displayed on a Naver web page;
[Element 3] a step of displaying a playback screen of the selected video in a first region of the touchscreen allocated to the web browser; and	Displays a playback screen of the camping car video in a first region (an upper portion) of the touchscreen allocated to the YouTube web page;
[Element 4] A method of controlling a mobile communication terminal, comprising a step of displaying, while the selected video is being played, a message input screen in a second region of the touchscreen allocated to a messaging E-location.	Displays a message input screen in a second region (a lower portion) of the touchscreen while the camping car video is being played
	

(4) Practice of Employee Invention No. 2 by a Competitor

Based on the descriptions and drawings set forth in the specification of Invention No. 6 (Plaintiff's Exhibit 3-6), together with the descriptions and images contained in Plaintiff's Exhibit 7-2 and the overall purport of the pleadings, it may be found that Samsung Electronics' "Galaxy S3" product and Apple Inc.'s "iPhone 6S" product have technical configurations that correspond, without omission, to the constituent elements of Invention No. 6, which is the patented invention of Employee Invention No. 2, and therefore practice Invention No. 6.

(a) Galaxy S3 Product

Claim 13 of Invention No. 6	Galaxy S3 product
[Element 1] a message processing unit configured to transmit and receive messages;	Includes a message processing unit, a display unit, a memory unit, and a controller
[Element 2] at least one display unit;	
[Element 3] a memory unit for storing the transmitted or received message; and	
[Element 4] a controller configured to control the message processing unit, the display unit, and the memory unit;	
[Element 5] wherein the controller is configured to display, on the display unit, a list of messages stored in the memory unit in order of transmission or reception time; and control the display unit to group the displayed list of messages into one or more groups based on transmission or reception information and to display the grouped messages.	Displays a list of messages in order of most recently transmitted or received, arranged according to transmission or receipt time (FIG. 1), and, upon selecting one of the groups, displays the messages belonging to that group in chronological order (FIG. 2). [FIG. 1] [FIG. 2]

(b) iPhone 6S Product

Claim 13 of Invention No. 6	Galaxy S3 Product
[Element 1] a message processing unit configured to transmit and receive messages;	Includes a message processing unit, a display unit, a memory unit, and a controller
[Element 2] at least one display unit;	
[Element 3] a memory unit for storing the transmitted or received message; and	
[Element 4] a controller configured to control the message processing unit, the display unit, and the memory unit;	Displays a list of messages in order of most recently transmitted or received, arranged according to transmission or receipt time (FIG. 1), and, upon selecting one of the groups, displays the messages belonging to that group in chronological order (FIG. 2).
[Element 5] wherein the controller is configured to display, on the display unit, a list of messages stored in the memory unit in order of transmission or reception time; and control the display unit to group the displayed list of messages into one or more groups based on transmission or reception information and to display the grouped messages.	
	

(5) Summary of Specific Calculation Data

(a) Because both Invention No. 1 of Employee Invention No. 1 and Invention No. 6 of Employee Invention No. 2, for which

the Defendant obtained patent registrations by succession from the Plaintiff, are, as discussed above, inventions that could have been readily devised by a skilled person in view of Prior Art filed by the Defendant's competitors, and therefore are subject to patent invalidity based on lack of an inventive step, such invalidity grounds should be taken into account as factors in calculating the Defendant's exclusive and proprietary benefits, even if a third party in a competitive relationship with the Defendant could not readily have become aware of such circumstances.

(b) With respect to the profits obtained by the Defendant through practicing Invention No. 1 of Employee Invention No. 1 and Invention No. 6 of Employee Invention No. 2, the Plaintiff contends that such profits should be calculated on the basis of sixty percent of the Defendant's MC Division sales revenue, corresponding to the proportion of domestically produced sales. However, the business reports and operating reports submitted by the Plaintiff as evidence (Plaintiff's Exhibit 214) are insufficient to determine either the sales revenue of the products in which the Defendant practiced Invention No. 1 of Employee Invention No. 1 and Invention No. 6 of Employee Invention No. 2, or the Plaintiff's asserted figure of 60% as the proportion of domestically produced sales. Nor is there any other evidence from which such figures may reasonably be inferred. Accordingly, the Court finds it difficult to accept.

(c) Upon examination, as discussed above, the amount that may be used as a basis for calculating reasonable compensation corresponding to the portion attributable to Employee Invention No. 1 under the first MS Assignment Agreement is assessed at KRW 180,214,188, and the amount corresponding to the portion attributable to Employee Invention No. 2 under the second MS Assignment Agreement is assessed at KRW 193,232,560. Accordingly, it is reasonable to conclude that estimating the implementation profits accrued prior to the respective assignments by reference to such

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assignment proceeds derived from the Defendant's employee inventions constitutes the most appropriate method for evaluating the implementation of Employee Inventions Nos. 1 and 2 as calculation data for determining reasonable compensation.

(d) Furthermore, given that the first MS Assignment Agreement (executed around March 23, 2015) and the second MS Assignment Agreement (executed around September 30, 2015) were each concluded at a time when approximately one-half of the respective patent terms remained for Invention No. 1 of Employee Invention No. 1 (filed on March 7, 2007) and Invention No. 6 of Employee Invention No. 2 (filed on October 1, 2005), it may reasonably be inferred that the profits generated by the Defendant through practicing Employee Invention No. 1 and Employee Invention No. 2 during approximately one-half of the respective patent terms correspond to amounts equivalent to the respective calculation bases of KRW 180,214,188 and KRW 193,232,560 above.

However, when the following considerations are taken into account, it is appropriate to conclude that the portion of the profits obtained by the Defendant through the exclusive and proprietary practice of Employee Invention No. 1 and Employee Invention No. 2 is limited to thirty percent of the profits generated as described above.

① Although Invention No. 1, which is the patented invention of Employee Invention No. 1, was also practiced by the Defendant's competitor Samsung Electronics, i) there existed grounds for patent invalidity based on lack of an inventive step in view of Prior Art 1 filed by Pantech Corporation, another competitor of the Defendant, or by a combination of Prior Art 1 and Prior Art 2 filed by competitor Samsung Electronics, and ii) there was no indication that the Defendant took any technical defensive measures in response to the practice by competitor Samsung Electronics.

② Likewise, although Invention No. 6, which is the patented invention of Employee Invention No. 2, was also practiced by

the Defendant's competitors Samsung Electronics and Apple Inc., i) there were grounds for patent invalidity based on lack of an inventive step in view of Prior Art 3 filed by competitor Samsung Electronics, and (ii) there is no indication that the Defendant took any technical defensive measures in response to the practices by competitors Samsung Electronics and Apple Inc.

(e) Accordingly, ① the amount that may be used as a basis for calculating reasonable compensation attributable to the Defendant's practice of Employee Invention No. 1 is appropriately assessed at KRW 54,064,256 (i.e., $\text{KRW } 180,214,188 \times 30\%$), and ② the amount attributable to the Defendant's practice of Employee Invention No. 2 is appropriately assessed at KRW 57,969,768 (i.e., $\text{KRW } 193,232,560 \times 30\%$).

3) Third-Party Practice of Employee Inventions

a) Employee Invention No. 1

(1) Invention No. 1

(a) As discussed above, it is found that Samsung Electronics' "Galaxy Note 2" product practices Invention No. 1, which constitutes the patented invention of Employee Invention No. 1.

(b) Meanwhile, although the Plaintiff asserts that Samsung Electronics' "Galaxy S2," "Galaxy S3," and "Galaxy Note 3" products likewise constitute products that practice Invention No. 1 as claimed, the Plaintiff has failed to present any specific allegations or evidence sufficient to substantiate that assertion. Accordingly, the Plaintiff's foregoing argument is rejected.

(2) Invention No. 2

(a) The Plaintiff contends that Samsung Electronics' "Galaxy S3" product constitutes a product that practices, as claimed, Claim 1 of Invention No. 2, which is another patented invention of Employee Invention No. 1. However, the circumstances ascertainable from the descriptions and images contained in Plaintiff's Exhibit 3-2

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(the specification of Invention No. 2) and Plaintiff's Exhibit 6-2, namely, that the characteristic configuration of Invention No. 2 discussed above in Section 2)-a)-(2) is not present, apply equally to Samsung Electronics' "Galaxy S3" product.

(b) Meanwhile, although the Plaintiff asserts that Samsung Electronics' "Galaxy Note 3" product likewise constitutes a product that practices Invention No. 2 as claimed, the Plaintiff has failed to present any specific allegations or evidence sufficient to support that assertion. Accordingly, the Plaintiff's foregoing argument is also rejected.

(3) Invention No. 3

(a) The Plaintiff contends that Samsung Electronics' "Galaxy S3" product constitutes a product that practices, as claimed, Claim 1 of Invention No. 3, which is another patented invention of Employee Invention No. 1. However, the circumstances ascertainable from the descriptions and images contained in Plaintiff's Exhibits 3-3 (the specification of Invention No. 3), 6-3, 113-1, and 113-2, namely, that the characteristic configuration of Invention No. 3, that is, Elements 5 through 7 as discussed above in Section 2)-a)-(3), is not present, apply equally to Samsung Electronics' "Galaxy S3" product. Accordingly, the Plaintiff's foregoing argument cannot be accepted.

(b) Meanwhile, although the Plaintiff asserts that Samsung Electronics' "Galaxy S2," "Galaxy S5," and "Galaxy Note S3" products, as well as Apple Inc.'s "iPhone 4," "iPhone 5," "iPhone 4S," and "iPad" products, likewise constitute products that practice Invention No. 3 as claimed, the Plaintiff has failed to present any specific allegations or evidence sufficient to substantiate that assertion. Accordingly, the Plaintiff's foregoing argument is rejected.

b) Employee Invention No. 2

(1) Invention No. 6

(a) As discussed above, it may be found that Samsung

Electronics' "Galaxy S3" product and Apple Inc.'s "iPhone 6S" product practice Invention No. 6, which is the patented invention of Employee Invention No. 2.

(b) Meanwhile, although the Plaintiff asserts that Samsung Electronics' "Galaxy S2," "Galaxy S5," and "Galaxy Note S3" products, as well as Apple Inc.'s "iPhone 4," "iPhone 5," "iPhone 4S," and "iPad" products, likewise constitute products that practice Invention No. 6 as claimed, it has failed to present any specific allegations or evidence to support that assertion. Accordingly, the Plaintiff's foregoing argument is rejected.

(2) Invention No. 5

Meanwhile, although the Plaintiff asserts that Samsung Electronics' "Galaxy Note 4" product and Apple Inc.'s "iPhone 5S" product likewise practice Invention No. 5 as claimed, the Plaintiff has failed to present any specific allegations or evidence substantiating that assertion. Accordingly, the Plaintiff's argument is rejected.

(3) Invention No. 8

(a) The Plaintiff contends that Samsung Electronics' "Galaxy Note 1" product and Apple Inc.'s "iPhone 6" product fall within the scope of Claim 1 of Invention No. 8, another patented invention arising from Employee Invention No. 2, as claimed. However, the circumstances ascertainable from the descriptions and images contained in Plaintiff's Exhibit 3-8 (the specification of Invention No. 8) and Plaintiff's Exhibit 7-3, namely, that, as discussed above in Section 2)-b)-(3), no technical configuration substantially identical to the characteristic configuration of Invention No. 8, i.e., Elements 8 through 11, is present, apply equally to Samsung Electronics' "Galaxy Note 1" product and Apple Inc.'s "iPhone 6" product. Accordingly, the Plaintiff's argument cannot be accepted.

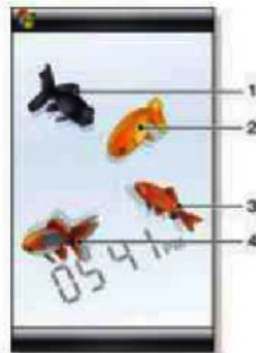
(b) Meanwhile, although the Plaintiff asserts that Samsung Electronics' "S3," "S4," and "S5" products, Samsung Electronics'

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“Galaxy Note 3” product, and Apple Inc.’s “iPhone 5” product likewise practice Invention No. 8 as claimed, the Plaintiff has failed to present any specific allegations or evidence to substantiate that assertion. Accordingly, the Plaintiff’s argument is also rejected.

c) Employee Invention No. 3

The Plaintiff contends that Sony Corporation’s “Xperia X1” product practices Claim 1 of Invention No. 12, a patented invention arising from Employee Invention No. 3, as claimed. However, in light of the circumstances set forth below, as evidenced by the descriptions and images contained in Plaintiff’s Exhibit 3-12 (the specification of Invention No. 12) and Plaintiff’s Exhibit 8, the Plaintiff’s foregoing contention cannot be accepted.



Xperia X1 product

(1) The Xperia X1 product displays mobile objects (fish) representing respective menu E-locations (e.g., messages, volume control, and incoming calls), detects signals indicating the occurrence of events that activate those menu E-locations (e.g., message arrival or missed calls), and, in response to the detected events, changes the display state of the mobile objects (for example, their color). Accordingly, the Xperia X1 product may be regarded as including Element 1 of Invention No. 12 (a step of displaying mobile objects representing respective menu E-locations) and Element 2 (a step of detecting a signal indicating the occurrence of an event that activates a menu E-lication).

(2) However, Element 3 of Invention No. 12 requires “displaying the mobile object corresponding to the detected event in a manner different from other mobile objects,” that is, a technical configuration in which the mobile objects are displayed identically prior to the occurrence of an event and, upon occurrence of the event, only the mobile object corresponding to that event is displayed

differently. By contrast, in the Xperia X1 product, the mobile objects have different forms from the outset and are therefore displayed differently from one another regardless of whether an event has occurred.

(3) The specification of Invention No. 12 states that the object of the invention is “to enhance the usability of a mobile communication terminal by creating a desired menu structure and enabling users to easily access it using a pointing device.” In light of this stated objective, the Xperia X1 product does not differ from Invention No. 12 with respect to the general effect of employing mobile objects and notifying the user of the occurrence of events through changes thereto, thereby imparting dynamism and enjoyment to the user and facilitating menu access to enhance usability. However, unlike Invention No. 12, the Xperia X1 product adopts a configuration in which the mobile objects are displayed differently from one another regardless of whether an event has occurred, and therefore, provides an enhanced effect in terms of ease of menu access and user convenience, which goes beyond the range that can be regarded as substantially identical to Invention No. 12.

d) Employee Invention No. 4

(1) Invention No. 14

When the following circumstances, as ascertainable from the descriptions and drawings in the specification of Invention No. 14 (Plaintiff’s Exhibit 3-14), together with the descriptions and images contained in Plaintiff’s Exhibits 8 and 115 and the overall purport of the pleadings, are taken into account, the technical configuration of Sony Company’s “Xperia X1” product, as presented by the Plaintiff, corresponds without omission to the constituent elements of Invention No. 14. Accordingly, the product may be found to practice Invention No. 14.

Specifically, the Xperia X1 product displays, on a standby screen, mobile objects (fish) representing respective menu E-locations (e.g.,

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messages, volume control, and incoming calls), and when an arbitrary point on the standby screen is designated using a touchscreen, which constitutes a pointing device, the mobile objects move to the designated location, from among which any one of the mobile objects that have moved to that location may be selected. Accordingly, the Xperia X1 product includes all of the constituent elements of Invention No. 14.

(2) Invention No. 15

Based on the circumstances ascertainable from the descriptions and images contained in Plaintiff's Exhibit 3-15 (the specification of Invention No. 15), together with the descriptions and images contained in Plaintiff's Exhibits 8 and 115 and the overall purport of the pleadings, it may be found that Sony Corporation's "Xperia X1" product, as presented by the Plaintiff, has a technical configuration that corresponds, without omission, to the constituent elements of Invention No. 15, and therefore practices Invention No. 15.

Specifically, the Xperia X1 product displays, on a standby screen, a plurality of fish objects swimming, each having a movement pattern different from the others; when a touch on the touchscreen is detected, the fish objects move toward the touched point; and, upon a subsequent touch at a point in the opposite direction, all moving fish objects rotate such that their heads face the touched point and their tails face the opposite direction. Accordingly, the Xperia X1 product includes all of the constituent elements of Invention No. 15.

e) Employee Invention No. 5

The Plaintiff contends that Apple Inc.'s "iPhone 5" product practices Claim 1 of Invention No. 18, a patented invention arising from Employee Invention No. 5, as claimed. However, in light of the circumstances discussed below, as ascertainable from the descriptions and drawings in the specification of Invention No. 18 (Plaintiff's Exhibit 3-18), together with the descriptions and images in Plaintiff's Exhibits 9 and 116 and the overall purport of the pleadings, the

Plaintiff's foregoing contention cannot be accepted.

(1) In Invention No. 18, a "drag input" refers to a dragging operation from a first position to a second position within a first display area, and based on the drag distance of such input, not only is the position display of a graphic object changed in the first display area, but the position display of a graphic object is also changed, by the same drag distance, in a second display area in which no touch input or drag input is performed.

(2) By contrast, the iPhone 5 product only has a function in which dragging is performed from a first position in a first display area to a second position in a second display area. In short, Invention No. 18 presupposes an upper folder display (a first display area) and a lower folder touchscreen (a second display area), detects a "drag distance" within the first display area, and moves a graphic object in the second display area in proportion to that detected distance while the iPhone 5 product lacks a corresponding technical configuration.

(3) In addition, Invention No. 18 presupposes a configuration in which the display areas are separated (for example, an upper-folder display and a lower-folder touchscreen in a folder-type phone) whereas the iPhone 5 product does not include two separate display areas.

f) Evaluation of Third-Party Practice of Employee Inventions
as Calculation Data

(1) As discussed above, Invention No. 1 of Employee Invention No. 1 was practiced by Samsung Electronics; Invention No. 2 of Employee Invention No. 6 was practiced by Samsung Electronics and Apple Inc.; and Inventions Nos. 14 and 15 of Employee Invention No. 4 were each practiced by Sony Corporation. In this regard, the Plaintiff contends that, in addition to the Defendant's own practice of Employee Inventions Nos. 1 and 2, the Defendant also derived benefits from third parties' practice of Employee Inventions Nos. 1, 2, and 4, as described above.

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(2) However, ① there is no allegation or evidence whatsoever of any contractual relationship from which it could be found that the Defendant authorized Samsung Electronics, Apple Inc., and Sony Corporation to practice Employee Inventions Nos. 1, 2, and 4 and, in return, derived benefits from such third-party practice, such as the receipt of royalties from Samsung Electronics, Apple Inc., and Sony Corporation. ② Damages recoverable in tort are limited to losses that are actual and definite. Accordingly, where a victim incurs a debt as a result of a tortious act, the victim may recover damages equivalent to the amount of that debt only if the debt constitutes a real and definite burden that must in fact be repaid, and whether damage has actually occurred must be determined objectively and reasonably in light of common social norms (Supreme Court Decision 2017Da278446, dated October 15, 2020, etc.). However, the Plaintiff has presented no allegation or evidence whatsoever of any circumstances from which it could be found that Companies Samsung Electronics, Apple Inc., and Sony Corporation, by practicing Employee Inventions Nos. 1, 2, and 4, incurred a real and definite obligation to pay damages to the Defendant.

(3) Accordingly, the Plaintiff's foregoing argument that third-party practice should be taken into account in calculating the Defendant's benefits arising from the employee inventions, is rejected without the need for further consideration.

4) Determination of the Plaintiff's Other Arguments Concerning the Defendant's Benefits

a) Portion of the Claim Asserting Benefits Arising from the Grant-back License Provision

(1) The Plaintiff asserts that, by virtue of the grant-back license provisions contained in the BT Assignment Agreement, the MS Assignment Agreement, and the OP Assignment Agreement, the Defendant obtained benefits exceeding those of a royalty-free, non-exclusive license.

(2) However, even assuming that the respective agreements include license-back or grant-back provisions, that fact alone does not support the conclusion that the Defendant separately obtained exclusive or proprietary benefits exceeding those of a royalty-free, non-exclusive license, apart from the benefits obtained through the assignment of the employee inventions. The Plaintiff further argues that the Defendant's affiliates obtained such exclusive and proprietary implementation benefits, but circumstances relating to affiliates that possess legal personalities separate from the Defendant cannot serve as a basis for calculating the Defendant's benefits arising from the employee inventions.

(3) Accordingly, the Plaintiff's foregoing argument is rejected without the need for further consideration.

b) Portion of the Claim Concerning Alleged Benefits during the Period of Non-Practice of Employee Inventions

(1) The Plaintiff asserts that, from the filing dates of the patents for Inventions Nos. 1, 2, and 3 of Employee Invention No. 1; Inventions Nos. 5, 6, and 8 of Employee Invention No. 2; Invention No. 12 of Employee Invention No. 3; Inventions Nos. 14 and 15 of Employee Invention No. 4; and Invention No. 18 of Employee Invention No. 5 until their actual implementation, the Defendant obtained exclusive and proprietary benefits by preventing competitors from practicing those inventions, even if the Defendant itself did not practice them during that period.

(2) Even where a product manufactured and sold by a user does not fall within the scope of the employee invention, if that product serves as a substitute for products practicing the employee invention and the user's sales increase as a result of excluding competitors from practicing the employee invention by virtue of the patent right, the resulting profits may nevertheless be evaluated as profits attributable to the employee invention (Supreme Court Decision

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2009Da75178, dated July 28, 2011). However, in the present case, the Plaintiff has presented no specific allegations or evidence regarding the existence of products capable of substituting for products practicing the First through Fifth Employee Inventions, nor any evidence of increased sales of such substitute products, and there is no other material from which such circumstances may be inferred.

(3) Accordingly, the Plaintiff's foregoing argument is rejected without the need for further consideration.

5) Comprehensive Calculation of the Benefits Obtained by the Defendant through Employee Inventions

a) As summarized above, the amounts forming the bases for calculating reasonable compensation as the Defendant's benefits are as follows: ① for Employee Invention No. 1, KRW 244,278,444 (comprising KRW 180,214,188 from the first MS assignment and KRW 54,064,256 from the Defendant's own practice); ② for Employee Invention No. 2, KRW 251,202,328 (comprising KRW 193,232,560 from the second MS assignment and KRW 57,969,768 from the Defendant's own practice); ③ for Employee Inventions Nos. 3 and 4, KRW 58,180,000 (from the BT assignment); ④ for Employee Invention No. 5, KRW 58,180,000 (from the BT assignment); and ⑤ for Employee Invention No. 6, KRW 106,520,151 (from the OP assignment).

b) Based on the respective calculation-base amounts set forth above, reflecting the circumstances of implementation, assignment, and other uses that occurred after the Defendant succeeded to each employee invention from the Plaintiff, it is reasonable to estimate that, as of the time of such succession, the benefits expected to be obtained by the Defendant would amount to at least: ① KRW 244,000,000 with respect to Employee Invention No. 1; ② KRW 251,000,000 with respect to Employee Invention No. 2; ③ KRW 58,000,000 with respect to Employee Inventions Nos. 3 and 4; ④ KRW 58,000,000

with respect to Employee Invention No. 5; and ⑤ KRW 106,000,000 with respect to Employee Invention No. 6.

D. Respective Degrees of Contribution of the Plaintiff and the Defendant to the Completion of Employee Inventions

1) Respective Contribution of the Defendant and the Inventor

In light of the circumstances ascertainable from the evidence and findings set forth above, it is appropriate to conclude that the Defendant, as the employer, contributed 70% to the completion of Employee Inventions Nos. 1 to 6 and that the inventors, including the Plaintiff, contributed the remaining 30% (= 1 - 70%).

a) Employee Inventions Nos. 1 to 6 relate to methods for playing web-page videos on a mobile communication terminal, displaying text messages, controlling display information, controlling menu operations, implementing interface methods using a pointing device, and processing data in a mobile communication terminal having multiple displays. Generally, employee inventions of this type do not, by their nature, require specialized experimental equipment or research facilities and may therefore be characterized as relying to a relatively high degree on the inventor's creative ideas and abilities.

b) The Defendant, as a company engaged in the manufacture of electronic products such as mobile communication terminals, possessed experience, technical capabilities, and know-how accumulated over a long period and, by the time Employee Inventions Nos. 1 through 6 were created, had established a personnel structure and working environment that enabled the responsible researchers to devote themselves to the relevant research. Until the completion of Employee Inventions Nos. 1 through 6, numerous research and development activities were carried out with human and material resources provided by the Defendant, and the costs of any research and development that failed, was suspended, or was abandoned were borne solely by the Defendant.

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c) In order to encourage employee inventions, the Defendant operated a system under which, once an inventor submitted a brief invention proposal at the idea stage, the patent department or external patent prosecution agents assumed responsibility for articulating and completing the invention for purposes of patent filing. In fact, the invention proposals submitted by the Plaintiff with respect to Employee Inventions Nos. 1, 3, and 4 consist of only two to three pages, and the record indicates that the Defendant's patent department and related personnel made substantial contributions to the concretization of those inventions.

2) Plaintiff's Contribution as an Inventor

a) Employee Inventions Nos. 1, 3, 4, and 6 were made solely by the Plaintiff. Accordingly, with respect to those inventions, it is appropriate to find that the Plaintiff's contribution as an inventor is 100%.

b) Where multiple inventors are entitled to receive compensation, such compensation must be apportioned and paid in accordance with each inventor's respective degree of contribution. The Court therefore turns to an examination of the extent of the Plaintiff's contribution to Employee Inventions Nos. 2 and 5.

(1) With respect to Employee Invention No. 2, Inventions Nos. 5 and 7 through 11 list seven inventors, including the Plaintiff, whereas Invention No. 6 lists three inventors, including the Plaintiff. According to the ownership ratios recorded in the Defendant's internal system for Invention No. 6, Ji-young CHUN holds a 34% share, and the remaining two inventors, namely, the Plaintiff and Sang-hyuk LEE, each hold a 33% share (Defendant's Exhibit 7-2). In light of these circumstances, it is reasonable to conclude that the Plaintiff's degree of contribution to Employee Invention No. 2 is approximately 30%.

(2) Employee Invention No. 5 identifies three inventors,

including the Plaintiff. According to the ownership ratios recorded in the Defendant's internal system with respect to Employee Invention No. 5, the three inventors, including the Plaintiff, each hold a 33% share (Defendant's Exhibit 10). In light of these circumstances, the Court finds that the Plaintiff's degree of contribution to Employee Invention No. 5 is 33%.

E. Specific Calculation of Reasonable Compensation

1) Principal Amount of Compensation

a) In light of the foregoing, the principal amount of reasonable compensation that the Defendant must pay to the Plaintiff with respect to Employee Inventions Nos. 1 through 6 is calculated as set forth in the table below.

Employee Invention	User's Benefits	Inventor's Contribution	Inventor's Contribution Ratio	Principal Amount of Compensation
1	KRW 244,000,000	30%	100%	KRW 73,200,000
2	KRW 251,000,000	30%	30%	KRW 22,590,000
3, 4	KRW 58,000,000	30%	100%	KRW 17,400,000
5	KRW 58,000,000	30%	33%	KRW 5,742,000
6	KRW 106,000,000	30%	100%	KRW 31,800,000
Total				KRW 150,732,000

b) Accordingly, the Defendant is obligated to pay the Plaintiff compensation in the total amount of KRW 138,932,000 (= KRW 73,200,000 for Employee Invention No. 1 + KRW 22,590,000 for Employee Invention No. 2 + KRW 17,400,000 for Employee Inventions Nos. 3 and 4 + KRW 5,742,000 for Employee Invention No. 5 + the partial amount of KRW 20,000,000 sought by the Plaintiff from the compensation of KRW 31,800,000 for Employee Invention No. 6) together with delay damages thereon.

2) Delay Damages

a) Under Article 40 of the former Patent Act and Article 13 of the former Invention Promotion Act, an employee's claim for compensation for an employee invention is a statutory claim that arises at the time the employer succeeds to the rights in the employee invention, and neither the former Patent Act nor the former Invention Promotion Act provides for any due date for performance of such claim. Nor do the Defendant's employee-invention compensation regulations (Defendant's Exhibit 21-1) or the employee-invention compensation review rules (Defendant's Exhibit 21-2) provide for any separate due date for performance. Accordingly, pursuant to Article 387(2) of the Civil Act, the Defendant is liable for delay from the time it received the Plaintiff's demand for performance. The Plaintiff's argument disputing the starting date for the accrual of delay damages, namely, the date indicated in the "Delay Damages Commencement Date" column of the Breakdown of Claimed Amount table in Appendix 1, is well founded to the extent recognized above.

b) The statutory commercial interest rate under Article 54 of the Commercial Act applies to obligations arising from commercial transactions or obligations having the same nature (Supreme Court Decisions 2003Da34045, dated March 26, 2004, and 2009Da44839, dated October 15, 2009, etc.). Although the Plaintiff seeks payment of delay damages calculated at the commercial statutory interest rate of 6% per annum, the Defendant's obligation to pay employee-invention compensation to the Plaintiff in this case is a statutory obligation arising under Article 40 of the former Patent Act and Article 13 of the former Invention Promotion Act, and therefore cannot be regarded as an obligation arising from a commercial transaction as contemplated by Article 54 of the Commercial Act.¹⁷⁾ The Plaintiff's foregoing

17) For reference, like ordinary claims, a claim for employee-invention compensation is extinguished by prescription if it is not exercised within ten years (Supreme Court Decision 2009Da75178, dated July 28, 2011). In other words, the

argument is well founded to the extent it seeks payment of delay damages calculated at the rate of five percent per annum as prescribed by the Civil Act.

3) Summary

The Defendant is obligated to pay the Plaintiff employee-invention compensation in the amount of KRW 138,932,000, together with ① with respect to the KRW 100,000,000 portion granted in the first-instance judgment, delay damages calculated at the rate of 5% per annum under the Civil Act from November 30, 2018, the day following service of the complaint including the Plaintiff's demand for performance, through February 15, 2023, the date of the first-instance judgment, during which it is deemed reasonable for the Defendant to have disputed the existence or scope of its obligation, and at the rate of 12% per annum under the Act On Special Cases Concerning Expedition Of Legal Proceedings from the following day until the date of full payment; and ② with respect to the remaining KRW 38,932,000 portion additionally awarded by this Court, delay damages calculated at the rate of 5% per annum under the Civil Act from October 13, 2023, the day following service of the amended complaint dated October 12, 2023, containing the Plaintiff's demand for performance, through June 12, 2024, the date of this Court's judgment, during which it is deemed reasonable for the Defendant to have disputed the existence or scope of its obligation, and at the rate of 12% per annum under the Act On Special Cases Concerning Expedition Of Legal Proceedings from the following day until the date of full payment.

4. Conclusion

The Plaintiff's claim against the Defendant, including the portion

commercial statute of limitations prescribed in Article 64 of the Commercial Act does not apply to claims for employee-invention compensation.

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expanded before this Court, is well founded within the scope recognized above and is therefore granted to that extent, and the remaining claims are dismissed as without merit. Because the first-instance judgment, which reached a different conclusion in part, is improper, the Plaintiff's appeal is granted in part, and the first-instance decision is modified as set forth in the order.

Presiding Judge	Hyejin LEE
Judge	Tacksoo JUNG
Judge	Young Gi KIM

[Appendix 1]

Breakdown of Claimed Amount

Serial No.	① Cause of Action (Patent at Issue)		② Claimed Amount (Unit: KRW)	③ Starting Date for Accrual of Delay Damages
1	MS First Assignment (First Patent Family)		50,000,000	Apr. 9, 2015
2	MS Second Assignment (Second Patent Family)		20,000,000	Oct. 12, 2015
3	BT Assignment	Third & Fourth Patent Families	100,000,000	Jul. 31, 2017
4		Fifth Patent Family	20,000,000	
5	OP Assignment (Sixth Patent Family)		20,000,000	Dec. 19, 2013
6	In-house Implementation	Invention No. 1	2,000,000	Jan. 2, 2014
7			2,000,000	Jan. 2, 2015
8			2,000,000	Jan. 2, 2016
9		Invention No. 2	2,000,000	Jan. 2, 2014
10			2,000,000	Jan. 2, 2015
11			2,000,000	Jan. 2, 2016
12		Invention No. 3	1,500,000	Jan. 2, 2013
13			1,500,000	Jan. 2, 2014
14			1,500,000	Jan. 2, 2015
15			1,500,000	Jan. 2, 2016
16		Invention No. 5	1,000,000	Jan. 2, 2012
17			1,000,000	Jan. 1, 2013
18			1,000,000	Jan. 2, 2014
19			1,000,000	Jan. 2, 2015
20			1,000,000	Jan. 2, 2016
21			1,000,000	Jan. 2, 2017
22		Invention No. 6	1,000,000	Jan. 2, 2012
23			1,000,000	Jan. 2, 2013

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Serial No.	① Cause of Action (Patent at Issue)		② Claimed Amount (Unit: KRW)	③ Starting Date for Accrual of Delay Damages
24			1,000,000	Jan. 2, 2014
25			1,000,000	Jan. 2, 2015
26			1,000,000	Jan. 2, 2016
27			1,000,000	Jan. 2, 2017
28		Invention No. 8	1,200,000	Jan. 2, 2012
29			1,200,000	Jan. 2, 2013
30			1,200,000	Jan. 2, 2014
31			1,200,000	Jan. 2, 2015
32			1,200,000	Jan. 2, 2016
33	Third-Party Implementation	Invention No. 1	2,000,000	Jan. 2, 2014
34			2,000,000	Jan. 2, 2015
35			2,000,000	Jan. 2, 2016
36		Invention No. 2	2,000,000	Jan. 2, 2014
37			2,000,000	Jan. 2, 2015
38			2,000,000	Jan. 2, 2016
39		Invention No. 3	1,500,000	Jan. 2, 2013
40			1,500,000	Jan. 2, 2014
41			1,500,000	Jan. 2, 2015
42			1,500,000	Jan. 2, 2016
43		Invention No. 5	1,000,000	Jan. 2, 2012
44			1,000,000	Jan. 2, 2013
45			1,000,000	Jan. 2, 2014
46			1,000,000	Jan. 2, 2015
47			1,000,000	Jan. 2, 2016
48			1,000,000	Jan. 2, 2017
49		Invention No. 6	1,000,000	Jan. 2, 2012
50			1,000,000	Jan. 2, 2013
51			1,000,000	Jan. 2, 2014
52			1,000,000	Jan. 2, 2015
53			1,000,000	Jan. 2, 2016
54			1,000,000	Jan. 2, 2017

Mobile Communication Terminal Case

Serial No.	① Cause of Action (Patent at Issue)	② Claimed Amount (Unit: KRW)	③ Starting Date for Accrual of Delay Damages
55	Invention No. 8	1,200,000	Jan. 2, 2012
56		1,200,000	Jan. 2, 2013
57		1,200,000	Jan. 2, 2014
58		1,200,000	Jan. 2, 2015
59		1,200,000	Jan. 2, 2016
60	Inventions Nos. 12, 14, and 15	700,000	Jan. 2, 2010
61		700,000	Jan. 2, 2011
62		700,000	Jan. 2, 2012
63		700,000	Jan. 2, 2013
64		700,000	Jan. 2, 2014
65		700,000	Jan. 2, 2015
66		600,000	Jan. 2, 2016
67		600,000	Jan. 2, 2017
68		600,000	Jan. 2, 2018
69		700,000	Jan. 2, 2013
1		700,000	Jan. 2, 2014
2		700,000	Jan. 2, 2015
3		700,000	Jan. 2, 2016
4		600,000	Jan. 2, 2017
5		600,000	Jan. 2, 2018
6	Compensation for the non-practicing period	Invention No. 1	150,000
7			150,000
8			150,000
9			150,000
10			150,000
11			150,000
12			100,000
13		Invention No. 2	200,000
14			200,000
15			200,000
16			200,000

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Serial No.	① Cause of Action (Patent at Issue)		② Claimed Amount (Unit: KRW)	③ Starting Date for Accrual of Delay Damages
17			100,000	Jan. 2, 2013
18			100,000	Jan. 2, 2014
19		Invention No. 3	200,000	Jan. 2, 2009
20			200,000	Jan. 2, 2010
21			200,000	Jan. 2, 2011
22			200,000	Jan. 2, 2012
23			200,000	Jan. 2, 2013
24		Invention No. 5	200,000	Jan. 2, 2006
25			200,000	Jan. 2, 2007
26			200,000	Jan. 2, 2008
27			200,000	Jan. 2, 2009
28			100,000	Jan. 2, 2010
29			100,000	Jan. 2, 2011
30		Invention No. 6	200,000	Jan. 2, 2006
31			200,000	Jan. 2, 2007
32			200,000	Jan. 2, 2008
33			200,000	Jan. 2, 2009
34			100,000	Jan. 2, 2010
35			100,000	Jan. 2, 2011
36		Invention No. 8	200,000	Jan. 2, 2007
37			200,000	Jan. 2, 2008
38			200,000	Jan. 2, 2009
39			200,000	Jan. 2, 2010
40			100,000	Jan. 2, 2011
41			100,000	Jan. 2, 2012

Mobile Communication Terminal Case

Serial No.	① Cause of Action (Patent at Issue)		② Claimed Amount (Unit: KRW)	③ Starting Date for Accrual of Delay Damages
42		Inventions Nos. 12, 14, and 15	200,000	Jan. 2, 2006
43			200,000	Jan. 2, 2007
44			200,000	Jan. 2, 2008
45			200,000	Jan. 2, 2009
46			200,000	Jan. 2, 2010
47		Invention No. 18	150,000	Jan. 2, 2007
48			150,000	Jan. 2, 2008
49			150,000	Jan. 2, 2009
50			150,000	Jan. 2, 2010
51			150,000	Jan. 2, 2011
52			150,000	Jan. 2, 2012
53			100,000	Jan. 2, 2013
Total			300,000,000	

[Appendix 2]

Compensation Details Table

A. Disposal-Based Compensation

Disposal-based compensation = Profit obtained through assignment of one patent × Inventor’s contribution × Inventor’s share

Cause of Occurrence (Patent at Issue)		Profit from Assignment of One Patent	Inve ntor’s Contrib ution	Inve ntor’s Share	Inventor Compensation (Principal)	Converted Amount*
MS First Assignment (First Patent Family)		\$2,133,735	0.4	1	\$853,493	\$775,902
MS Second Assignment (Second Patent Family)		\$2,166,665	0.4	1/7	\$123,809	\$112,553
BT Assignment (Third & Fourth Patent Families)	First Calculation Method	\$5,070,000	0.4	1	\$2,028,000	\$1,690,000
	Second Calculation Method	\$2,183,280			\$873,312	\$727,760
BT Assignment (Fifth Patent Family)	First Calculation Method	\$5,070,000	0.4	1/3	\$676,000	\$563,333
	Second Calculation Method	\$2,183,280			\$291,104	\$242,586
OP Assignment (Sixth Patent Family)		\$677,082.9	0.4	1	\$270,833	\$270,833

B. In-House Implementation Compensation

In-house implementation compensation = In-house sales × Exclusive contribution × Employee invention contribution × Industry implementation rate × Inventor's contribution × Inventor's share

[Invention No. 1]

Year	Defendant MC Division Sales (KRW million)	Domestic Production Sales Ratio	Applied Days (days)	Exclusive Contribution	Employee Invention Contribution	Industry Implementation Rate	Inventor's Contribution	Inventor's Share	In-House Compensation (KRW)	Converted Amount (USD)
2013	13,015,000	0.6	50	0.25	0.02	0.03	0.4	1	64,183,562	64,183,562
2014	15,105,300	0.6	365	0.25	0.02	0.03	0.4	1	543,790,800	517,896,000
2015	14,003,400	0.6	365	0.25	0.02	0.03	0.4	1	366,006,674	332,733,340
									Total	914,812,902

[Invention No. 2]

Year	Defendant MC Division Sales (KRW million)	Chinese Production Ratio	Applied Days (days)	Exclusive Contribution	Employee Invention Contribution	Industry Implementation Rate	Inventor's Contribution	Inventor's Share	In-House Compensation (KRW)	Converted Amount (USD)
2013	13,015,000	0.3	294	0.25	0.02	0.03	0.4	1	188,699,671	188,699,671
2014	15,105,300	0.3	365	0.25	0.02	0.03	0.4	1	271,895,400	258,948,000
2015	14,003,400	0.3	315	0.25	0.02	0.03	0.4	1	217,532,268	197,756,608
									Total	645,404,279

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[Invention No. 3]

Year	North America Sales (million)	LG Market Share	Applied Days (days)	Exclusive Contribution	Damages per Unit (USD)	Inventor's Contribution	Inventor's Share	In-House Compensation (USD)	Converted Amount (USD)
2012	114.3	0.071	95	0.25	0.93	0.4	1	196,435	206,256
2013	143.4	0.095	365	0.25	0.02	0.4	1	1,266,939	1,266,939
2014	173.4	0.108	365	0.25	0.02	0.4	1	1,741,630	1,658,695
2015	179.2	0.136	99	0.25	0.02	0.4	1	614,755	558,868
								Total	3,690,758

[Invention No. 5]

Year	Defendant MC Division Sales (KRW million)	Domestic Production Sales Ratio	Applied Days (days)	Exclusive Contribution	Employee Invention Contribution	Industry Implementation Rate	Inventor's Contribution	Inventor's Share	In-House Compensation (KRW)	Converted Amount (USD)
2011	11,692,500	0.6	365	0.25	0.02	0.03	0.4	1/7	60,132,857	66,146,143
2012	10,077,600	0.6	365	0.25	0.02	0.03	0.4	1/7	51,827,657	54,419,040
2013	13,015,000	0.6	365	0.25	0.02	0.03	0.4	1/7	66,934,286	66,934,286
2014	15,105,300	0.6	365	0.25	0.02	0.03	0.4	1/7	77,684,400	73,985,143
2015	14,003,400	0.6	365	0.25	0.02	0.03	0.4	1/7	72,017,486	65,470,442
2016	11,721,800	0.6	7	0.25	0.02	0.03	0.4	1/7	1,156,123	1,005,324
								Total	327,960,378	

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[Invention No. 6]

Year	Defendant MC Division Sales (KRW mil- lion)	Domestic Production Sales Ratio	Applied Days (days)	Exclusive Contribution	Employee Invention Contribution	Industry Implementa- tion Rate	Inventor's Contribution	Inventor's Share	In-House Compensa- tion (KRW)	Converted Amount (USD)
2011	11,692, 500	0.6	365	0.25	0.02	0.03	0.4	1/3	140,310, 000	154,341, 000
2012	10,077, 600	0.6	365	0.25	0.02	0.03	0.4	1/3	120,931, 200	126,977, 760
2013	13,015, 000	0.6	365	0.25	0.02	0.03	0.4	1/3	156,180, 000	156,180, 000
2014	15,105, 300	0.6	365	0.25	0.02	0.03	0.4	1/3	181,263, 600	172,632, 000
2015	14,003, 400	0.6	365	0.25	0.02	0.03	0.4	1/3	168,040, 800	184,844, 880
2016	11,721, 800	0.6	7	0.25	0.02	0.03	0.4	1/3	2,697, 620	2,345, 756
									Total	797,321, 396

[Invention No. 8]

Year	North America Sales (million)	LG Market Share	Applied Days (days)	Exclusive Contribution	Damages per Unit (USD)	Inventor's Contribution	Inventor's Share	In-House Compens- ation (USD)	Converted Amount (USD)
2011	93.2	0.082	215	0.5	0.93	0.4	1/7	59,808	65,789
2012	114.3	0.071	365	0.25	0.93	0.4	1/7	107,818	113,208
2013	143.4	0.095	365	0.25	0.02	0.4	1/7	180,991	180,991
2014	173.4	0.108	365	0.25	0.02	0.4	1/7	248,804	236,956
2015	179.2	0.136	286	0.25	0.02	0.4	1/7	253,708	230,644
								Total	827,588

C. Third-Party Implementation Compensation

Third-party implementation compensation = Third-party sales × Exclusive-right contribution × Employee invention contribution × Ordinary royalty rate × Inventor's contribution × Inventor's share

[Invention No. 1]

Year	Samsung Domestic Sales (KRW million)	Applied Days (days)	Employee Invention Contribution	Ordinary Royalty Rate	Inventor's Contribution	Inventor's Share	Third-Party Implementation Compensation (KRW)	Converted Amount (USD)
2013	13,829,545	50	0.02	0.03	0.4	1	454,669,973	454,669,973
2014	11,223,375	365	0.02	0.03	0.4	1	2,693,610,000	2,565,342,857
2015	10,736,821	265	0.02	0.03	0.4	1	1,870,854,289	1,700,776,627
							Total	4,720,789,457

[Invention No. 2]

Year	Samsung Domestic Sales (KRW million)	Chinese Production Ratio	Applied Days (days)	Employee Invention Contribution	Ordinary Royalty Rate	Inventor's Contribution	Inventor's Share	Third-Party Implementation Compensation (KRW)	Converted Amount (USD)
2013	138,817,218	0.25	294	0.02	0.03	0.4	1	6,708,865,001	6,708,865,001
2014	111,800,000	0.25	365	0.02	0.03	0.4	1	6,708,000,000	6,388,571,429
2015	103,600,000	0.25	315	0.02	0.03	0.4	1	5,364,493,151	4,876,811,955
								Total	17,974,248,385

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[Invention No. 3]

Year	North America Sales (million)	Samsung Share	Applied Days (days)	Damages per Unit (USD)	Inventor's Contribution	Inventor's Share	Third-Party Implementation Compensation (USD)	Converted Amount (USD)
2012	114.3	0.266	217	0.93	0.4	1	6,724,154	7,060,362
2013	143.4	0.306	365	0.93	0.4	1	16,323,509	16,323,509
2014	173.4	0.265	365	0.93	0.4	1	17,093,772	16,279,783
2015	179.2	0.231	99	0.93	0.4	1	4,176,719	3,797,017
							Total	43,460,671

[Invention No. 5]

Year	Samsung Domestic Sales (KRW/100 million)	Apple's Domestic Sales (KRW/100 million)	Other Company Sales (KRW/100 million)	Applied Days (days)	Employee Invention Contribution	Estimated Royalty Rate	Inventor's Contribution	Inventor's Share	Third-Party Implementation Compensation (KRW)	Converted Amount (KRW)
2011	139,482	31,733	171,215	365	0.02	0.03	0.4	1/7	587,022,857	645,725,143
2012	153,623	34,966	188,589	365	0.02	0.03	0.4	1/7	646,590,857	678,920,400
2013	138,375	31,496	169,871	365	0.02	0.03	0.4	1/7	582,414,857	582,414,857
2014	119,261	27,145	146,406	365	0.02	0.03	0.4	1/7	501,963,429	478,060,408
2015	107,368	42,049	149,417	365	0.02	0.03	0.4	1/7	512,286,857	465,715,325
2016	100,350	28,743	129,093	7	0.02	0.03	0.4	1/7	8,488,307	7,381,136
									Total	2,858,217,269

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[Invention No. 6]

Year	Samsung Domestic Sales (KRW 100 million)	Apple's Domestic Sales (KRW 100 million)	Applied Days (days)	Employee Invention Contribution	Estimated Royalty Rate	Inventor's Contribution	Inventor's Share	Third-Party Implementation Compensation (KRW)	Converted Amount (KRW)
2011	139,482	31,733	365	0.02	0.03	0.4	1/3	1,369,720,000	1,506,692,000
2012	153,623	34,966	365	0.02	0.03	0.4	1/3	1,508,712,000	1,584,147,600
2013	138,375	31,496	365	0.02	0.03	0.4	1/3	1,358,968,000	1,358,968,000
2014	119,261	27,145	365	0.02	0.03	0.4	1/3	1,171,248,000	1,115,474,286
2015	107,368	42,049	365	0.02	0.03	0.4	1/3	1,195,336,000	1,086,669,091
								Total	6,651,950,977

[Invention No. 8]

Year	North America Sales (million)	Other Company Share	Damages per Unit (USD)	Applied Days (days)	Inventor's Contribution	Inventor's Share	Third-Party Implementation Compensation (USD)	Converted Amount (USD)
2011	93.2	0.918	0.93	215	0.4	1/7	2,678,238	2,946,061
2012	114.3	0.929	0.93	365	0.4	1/7	5,642,958	5,925,106
2013	143.4	0.905	0.93	365	0.4	1/7	6,896,721	6,896,721
2014	173.4	0.892	0.93	365	0.4	1/7	8,219,755	7,828,338
2015	179.2	0.864	0.93	365	0.4	1/7	6,447,180	5,861,073
							Total	29,457,299

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[Inventions No. 12, 14, and 15]

Year	Defendant Global Sales (KRW million)	Applied Days (days)	Employee Invention Contribution	Ordinary Royalty Rate	Inventor's Contribution	Inventor's Share	Third-Party Implementation Compensation (KRW)	Converted Amount (KRW)
2009	15,548,000	282	0.02	0.03	0.4	1	2,882,982, 575	3,459,579, 090
2010	12,975,200	365	0.02	0.03	0.4	1	3,114,048, 000	3,581,155, 200
2011	11,692,500	365	0.02	0.03	0.4	1	2,806,200, 000	3,086,820, 000
2012	10,077,600	365	0.02	0.03	0.4	1	2,418,624, 000	2,539,555, 200
2013	13,015,000	365	0.02	0.03	0.4	1	3,123,600, 000	3,123,600, 000
2014	15,105,300	365	0.02	0.03	0.4	1	3,625,272, 000	3,452,640, 000
2015	14,003,400	365	0.02	0.03	0.4	1	3,360,816, 000	3,055,287, 273
2016	11,721,800	365	0.02	0.03	0.4	1	2,813,232, 000	2,446,288, 696
2017	11,158,300	261	0.02	0.03	0.4	1	1,914,947, 704	1,595,789, 753
							Total	26,340,715, 212

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[Invention No. 18]

Year	North America Sales	Apple's Share	Applied Days (days)	Damages per Unit (USD)	Inventor's Contribution	Inventor's Share	Third-Party Implementation Compensation (KRW)	Converted Amount (KRW)
2012	114,300,000	0.376	210	0.93	0.4	1/3	3,066,071	3,219,374
2013	143,400,000	0.393	365	0.93	0.4	1/3	6,988,169	6,988,169
2014	173,400,000	0.384	365	0.93	0.4	1/3	8,256,614	7,863,442
2015	179,200,000	0.393	365	0.93	0.4	1/3	8,732,774	7,938,886
2016	186,500,000	0.383	365	0.93	0.4	1/3	8,857,258	7,701,963
2017	187,500,000	0.387	212	0.93	0.4	1/3	5,226,090	4,355,075
							Total	38,066,909

D. Compensation for Non-Practicing Period

Compensation for non-practicing period = In-house sales × Employee invention contribution × Ordinary royalty rate × Inventor's contribution × Inventor's share × Non-practice factor (0.1).

[Employee Invention No. 1]

Year	Defendant Global Sales (KRW million)	Domestic Production Ratio	Applied Days (days)	Exclusive Contribution	Employee Invention Contribution	Ordinary Royalty Rate	Inventor's Contribution	Inventor's Share	Non-prac- tice Factor	Compensat ion for non-prac- tice (KRW)	Converted Amount (KRW)
2007	9,573, 000	0.6	299	0.25	0.02	0.03	0.4	1	0.1	28,231, 170	36,700, 522
2008	14,193, 141	0.6	365	0.25	0.02	0.03	0.4	1	0.1	51,095, 308	63,869, 135
2009	15,547, 998	0.6	365	0.25	0.02	0.03	0.4	1	0.1	55,972, 793	67,167, 351
2010	12,975, 200	0.6	365	0.25	0.02	0.03	0.4	1	0.1	46,710, 720	53,717, 328
2011	11,692, 500	0.6	365	0.25	0.02	0.03	0.4	1	0.1	42,093, 000	46,302, 300
2012	10,077, 500	0.6	365	0.25	0.02	0.03	0.4	1	0.1	36,279, 000	38,092, 950
2013	13,015, 000	0.6	220	0.25	0.02	0.03	0.4	1	0.1	28,240, 767	28,240, 767
										Total	334,090, 353

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[Employee Invention No. 2]

Year	LG MC Division Sales (KRW million)	Applied Days (days)	Exclusive Contribution	Employee Invention Contribution	Ordinary Royalty Rate	Inventor's Contribution	Inventor's Share	Non-practice Factor	Compensation for non-practice (KRW)	Converted Amount (KRW)
2005	9,459,000	99	0.25	0.02	0.03	0.4	1/7	0.1	2,199,079	3,078,710
2006	8,873,200	365	0.25	0.02	0.03	0.4	1/7	0.1	7,605,600	10,267,560
2007	9,573,000	365	0.25	0.02	0.03	0.4	1/7	0.1	8,205,429	10,667,057
2008	14,193,141	365	0.25	0.02	0.03	0.4	1/7	0.1	12,165,549	15,206,937
2009	15,547,998	365	0.25	0.02	0.03	0.4	1/7	0.1	13,326,855	15,992,227
2010	12,975,200	365	0.25	0.02	0.03	0.4	1/7	0.1	11,121,600	12,789,840
Total									68,002,331	

[Employee Inventions Nos. 3 and 4]

Year	Defendant Global Sales (KRW million)	Applied Days (days)	Employee Invention Contribution	Ordinary Royalty Rate	Inventor's Contribution	Inventor's Share	Non-practice Factor	Compensation for non-practice (KRW)	Converted Amount (KRW)
2005	9,459,000	246	0.02	0.03	0.4	1	0.1	153,002,564	214,203,590
2006	8,873,200	365	0.02	0.03	0.4	1	0.1	212,956,800	287,491,680
2007	9,573,000	365	0.02	0.03	0.4	1	0.1	229,752,000	287,190,000
2008	14,193,141	365	0.02	0.03	0.4	1	0.1	340,635,384	408,762,460
2009	15,547,998	84	0.02	0.03	0.4	1	0.1	85,876,066	98,757,475
Total									1,296,405,205

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[Employee Invention No. 5]

Year	LG MC Division Sales (KRW million)	Applied Days (days)	Employee Invention Contribution	Ordinary Royalty Rate	Inventor's Contribution	Inventor's Share	Non-practice Factor	Compensati on for non-prac- tice(KRW)	Converted Amount (KRW)
2006	8,873, 200	156	0.02	0.03	0.4	1/3	0.1	30,339, 051	40,957, 719
2007	9,573, 000	365	0.02	0.03	0.4	1/3	0.1	76,584, 000	99,559, 200
2008	14,193, 141	365	0.02	0.03	0.4	1/3	0.1	113,545,128	141,931, 410
2009	15,547, 998	365	0.02	0.03	0.4	1/3	0.1	124,383,984	149,260, 781
2010	12,975, 200	365	0.02	0.03	0.4	1/3	0.1	103,801,600	119,371, 840
2011	11,692, 500	365	0.02	0.03	0.4	1/3	0.1	93,540, 000	102,894, 000
2012	10,077, 500	156	0.02	0.03	0.4	1/3	0.1	34,456, 767	36,179, 605
								Total	690,154, 555

[Appendix 3]

Main Content of Prior Art 1

A. Technical Field, Related Art, and Technical Problem

[0002] The present invention relates to a mobile communication terminal, and more particularly to a display control apparatus and method using a touchscreen in a bar-type mobile communication terminal, such as a flip-type or slide-type terminal, where a keypad for receiving various key inputs is replaced with a touchscreen, and the space previously occupied by the keypad is utilized as an LCD display area depending on the display mode, thereby maximizing both the key input method and the spatial efficiency of the terminal body, while providing various display modes to enhance user convenience.

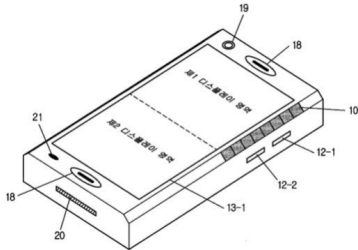
[0003] In general, the keypad of a mobile communication terminal is composed of a dome switch and keypad rubber while in bar-type terminals, such as flip-type or slide-type terminals, the keypad occupies approximately 50% of the overall size of the terminal, and therefore, it is difficult to install a larger LCD screen within a terminal of the same size, and it is also difficult to incorporate other necessary components or devices, thereby reducing the overall usability of the terminal.

[0006] Accordingly, the present invention has been proposed to address the above-described problems of the Prior Art, and aims to provide an apparatus and method which, in a bar-type mobile communication terminal such as a flip-type or slide-type terminal, replace a keypad that receives various key inputs with a touchscreen and utilize the space previously occupied by the keypad as an LCD screen according to the display mode.

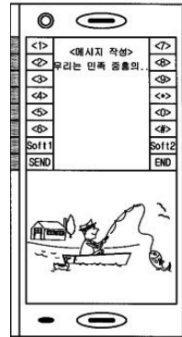
B. Configuration and Operation of the Invention

[0014] In the present invention, the display unit (13) divides a display area (13-1) into two portions and, depending on a display mode selected by the user, either splits or integrates the display area (13-1) for display. For example, in a text message mode, a first display area displays characters assigned to a keypad and content entered through selection of the keypad-assigned characters, while a second display area displays a background image set by the user; in a video call mode, the display area (13-1) is split to display video of the calling party or the receiving party; or in a multimedia mode, the display area (13-1) is integrated to display video in a landscape display mode.

[FIG. 3]



[FIG. 4b]



[0030] After the terminal is powered on, when a display mode other than a video call mode or a multimedia mode is selected, or when a text message mode is selected, the first display area is used to display content corresponding to the selected mode, and the second display area is used to display a background image set by the user.

[0031] When the video call mode is selected, as shown in c of FIG. 4, the main controller (15) controls the display unit (13) so that the display area (13-1) is divided, and video of a caller or a receiver is displayed in the respective display areas (S25, S26), and when the multimedia mode is selected, as shown in d of FIG. 4, the display area (13-1) is integrated, and video is displayed in a landscape display mode (S27, S28).

[FIG. 4c]



C. Effects of the Invention

[0033] In a bar-type mobile communication terminal, such as a flip-type or slide-type terminal, the present invention replaces the keypad that receives various key inputs with a touchscreen, and utilizes the space previously occupied by the keypad as an LCD screen according to the display mode to maximize the key input method and the spatial utilization of the terminal body, and provide various types of display modes, thereby enhancing user convenience.

[Appendix 4]

Main Content of Prior Art 2

[0018] FIG. 2 is a flowchart illustrating an Internet advertising method according to a preferred embodiment of the present invention.

[0019] After a user accesses a website on the Internet, which is established by an advertisement-providing web server (100), through a web browser, the advertisement-providing web server (100) transmits, via the Internet (140), a web page requested by the user or a web page that must be accessed by default to the web browser of the user's terminal. At this time, for example, a web page that includes an advertisement image in the form of a banner advertisement is transmitted to the web browser of the user's terminal (Step 200).

[0020] After Step 200, movement of a cursor on the web page displayed in the web browser is monitored based on manipulation of the user's input device (Step 202). It is then determined whether the cursor is positioned over the advertisement image (Step 204). In the course of moving the cursor over the web page with an input device to perform a desired task, the user will often pass the cursor over an advertisement image. In Step 204, if it is determined that the cursor is positioned over the advertisement image, an enlarged version of the advertisement image scaled by a predetermined factor (for example, two times, three times, etc.) is loaded in place of the default advertisement image and displayed for a predetermined period of time (Step 206).

[0021] As one embodiment, a web page transmitted from the web server to the user's web browser via the Internet may be configured such that, for a banner advertisement, it includes a first layer for a default advertisement image and a second layer for an enlarged advertisement image. Accordingly, in Step 200 described above, the first layer is initialized in a display (show) state, and the second layer is initialized in a hidden (hide) state, and in Step 206, the first layer is switched to the hidden state, and the second layer is switched to the display state. This layer technique is supported by the DHTML (Dynamic HTML) standard.

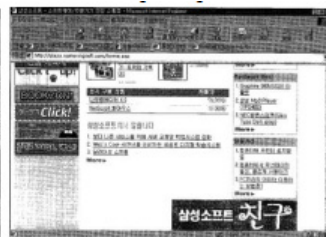
[0023] FIGs. 3a and 3b illustrate examples of a web page, displayed on a web browser, that includes an advertisement image in the form of a banner advertisement. Referring to FIG. 3a, for example, a banner advertisement bearing the phrase "SamsungSoft Friends" is displayed. The advertisement image may be provided in various forms, such as moving images or still

images, and may be retrieved from an advertisement information database managed by the web server and preloaded into the web page. In FIG. 3a, for example, when the cursor is positioned over “SamsungSoft Friends,” the banner advertisement is enlarged by a predetermined multiple, as shown in FIG. 3b, in accordance with the present invention.

[FIG. 3a]



[FIG. 3b]



[0024] Referring again to FIG. 2, after Step 206, it is determined whether the cursor has moved a predetermined distance away from the enlarged advertisement image (Step 208). If the cursor moves beyond the predetermined distance, the default advertisement image is displayed again (Step 210). As another example, after Step 206, the enlarged advertisement image may be displayed for a predetermined period of time and then automatically disappear without performing Step 208.

[0025] Meanwhile, if it is determined in Step 204 that the cursor is not positioned over the advertisement image, it is determined whether the user has clicked the advertisement image with a mouse (Step 212). If so, the user is directed, in the usual manner, to a web page of the advertiser's website hyperlinked to the advertisement image (Step 214). Alternatively, the web page of the advertiser's website may be displayed in a separate window.

[0026] Up to this point, an Internet advertising apparatus using an enlargement effect and a method thereof have been described in connection with a web-based environment in which a web browser and a web server are used to access the Internet. However, such environmental conditions are merely illustrative, and the present invention may be implemented through various communication networks, including optical cable networks, wireless Internet, intranets, and mobile communication networks. In addition, various types of information terminals capable of receiving web services may be used as the user terminal, including a personal computer, an Internet phone, a personal digital assistant (PDA), and an IMT-2000 terminal.

[Appendix 5]

Main Content of Prior Art 3

A. Technical Field, Related Art, and Technical Problem

[0002] The present invention relates to a method for managing received messages in a mobile communication terminal, and more particularly, to a method for managing received messages on a group basis in the mobile communication terminal.

[0004] In the Prior Art, a mobile communication terminal displays received messages on the screen in the order in which they are received. Accordingly, in order to find a specific message or to check only the messages received from a particular phone number (sender's number), the user is inconvenienced in that they must search sequentially from the first item in the message list.

[0007] Accordingly, an object of the present invention is to provide a method for managing received messages on a group basis in a mobile communication terminal.

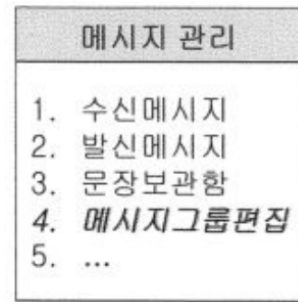
[0008] Another object of the present invention is to provide a method for classifying and displaying received messages in a mobile communication terminal according to user-designated message groups.

[0010] According to a preferred embodiment of the present invention for achieving the above objects, there is provided a method for managing received messages on a group basis in a mobile communication terminal, the method comprising: generating a plurality of message groups for storing received messages, and registering a telephone number for each of the plurality of message groups; upon receipt of a message, analyzing the received message to identify a sender number and storing the received message in a message group in which the sender number is registered; when a "Received Messages" item is selected in a message management window, displaying the names of the plurality of message groups together with the number of received messages; and when one of the plurality of message groups is selected and a confirmation key is input, displaying a list of received messages of the selected message group.

B. Configuration and Operation of the Invention

[0023] FIGs. 2a and 2b illustrate procedures for editing message groups in a mobile communication terminal according to an embodiment of the present invention.

[0024] Referring to FIGs. 2a and 2b, the controller (100) first determines, in Step 201, whether a “Message Management” menu item has been selected through a user’s key operation. If the message management menu item has not been selected, the controller (100) proceeds to Step 275 and executes the corresponding mode. If the message management menu item is selected, the controller (100) proceeds to Step 203 and displays the sub-menu



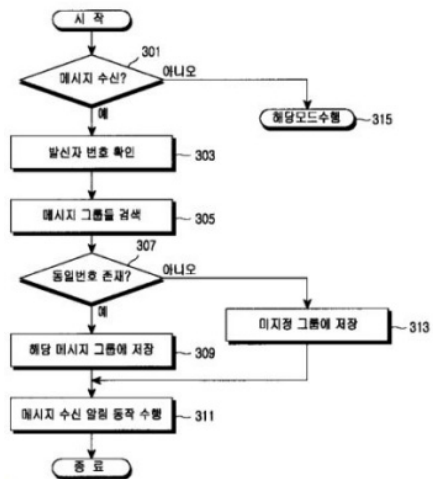
(5a)

items corresponding to the message management menu item. For example, the sub-menu items may be displayed as “1: Received Messages, 2: Sent Messages, 3: Message Storage, 4: Message Group Edit” (FIG. 5a).

[0036] FIG. 3 illustrates a procedure for classifying and storing received messages by group in a mobile communication terminal according to an embodiment of the present invention.

[FIG. 3]

[0037] Referring to FIG. 3, first, in Sstep 301, the controller (100) determines whether a message (a short message or text message) has been received. If the message has not been received, the controller (100) returns to Step 315 and performs the corresponding mode. Meanwhile, if a message is received, the controller



(100) proceeds to Step 303 and analyzes the message to identify the sender’s number. Then, in Step 305, the controller (100) searches the message groups using the sender’s number, and, in step 307, determines whether the same phone number exists in any of the message groups.

[0038] If the same phone number does not exist, the controller (100) proceeds to Step 313, stores the received message in an unassigned group, and then proceeds to Step 311. If the same phone number exists, the controller (100) proceeds to Step 309, stores the received message in the corresponding message group, and then proceeds to Step 311.

[0039] In this manner, a received message for which no group has been

designated is stored in the unassigned group. Likewise, a received message designated as belonging to the unassigned group is stored in the unassigned group.

[0041] Referring to FIG. 4, in Step 401, the controller (100) first determines, in response to a user key operation, whether the “Received Messages” menu item is selected in the message management window (FIG. 6a). Upon selection of the “Received Messages” item, the controller (100) proceeds to Step 403 to display a list of message groups. For example, the list may be displayed as “1: Unassigned (5) 2: Friends (7) 3: Kim Eun-ju (12) 4: Lee Sang-hoon (8)” (FIG. 6b), where the number in parentheses indicates the number of received messages.

[FIG. 6]



C. Effects of the Invention

[0048] As described above, the present invention enables a user to easily manage received messages on a group-by-group basis by employing the concept of message groups.

[Appendix 6]

Main Content of Gittins Patent

(Field of the Invention) This invention relates to a node for use in an intelligent communications network for providing a network-based information service, and to a method of operating an intelligent communications network to provide such a service.

(Summary of the Invention) An operator of an intelligent communications network incorporating a node of the present invention can make a single agreement with a customer for the provision of all the customer's information service needs, whereby the customer has a single bill for all his accesses and makes a single payment, the customer has a single network number to dial for access to all his information services, and the customer can readily manage his list of iteG, by adding to it or deleting from it.

8. A method of operating an intelligent communications network to provide a network-based information service, the method comprising the steps of:

(a) storing customer identities, respective customer associated lists of identities of information iteG(hereinafter referred to as iteG) for which the respective associated customer has access rights, and identities of item-associated information sources from which the respective iteG can be retrieved;

(b) receiving at the network a message requesting access to the information service and comprising at least a customer identity;

(c) reading the contents of the received message;

(d) retrieving from storage the list of information item identities associated with the received customer identity;

if no item identity is received in step (b),

(e) (i) sending said list to the customer; and (ii) reading an item identity from a further message received from the customer;

or, on the other hand, if an item identity is received in step (b),

(f) ascertaining whether or not that received item identity is in said list;

and for such item identity received in step (b), if it is ascertained in step (f) that said received item identity is in said list, or, alternatively, for the item identity received in step (e) (ii), as the case may be,

(g) ascertaining the identity of the information source associated with that received item identity;

(h) retrieving the requested item from that information source; and (i) sending at least the first page of the retrieved item to the customer.

[Appendix 7]

Main Content of Beddus Patent

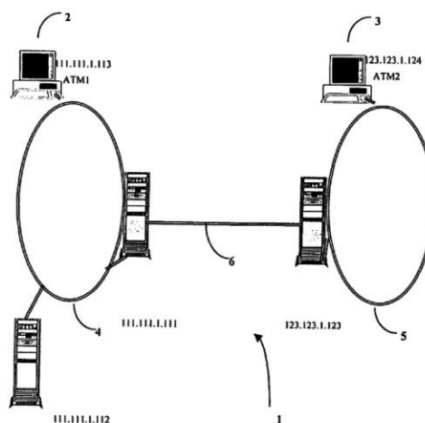
(Abstract) In a communications network, communications terminals exchange call control capability data which mutually identifies selected call control protocols and network address types. The terminals subsequently set up a call using protocols chosen from those identified. The terminals may continuously monitor for a request for the exchange of such data, allowing other parties to join a session subsequently, after the initial set up.

(Field of the Invention) The present invention relates to a communications system, and in particular to a heterogeneous system employing a number of different call control mechanisms and different address types.

A communications system 1 includes user terminals 2, 3 connected to different respective network domains 4, 5. In this example, the user

terminals 2, 3 are computer workstations. The network domains in this example are broadband networks which support both ATM (asynchronous transfer modes) and IP (Internet protocol) transmission protocols. The user terminal has both a user address (111.111.1.113) and an ATM address (ATM1). Similarly, the second user terminal has an Internet address (123.123.1.124) and an ATM address (ATM2). The network domains are linked

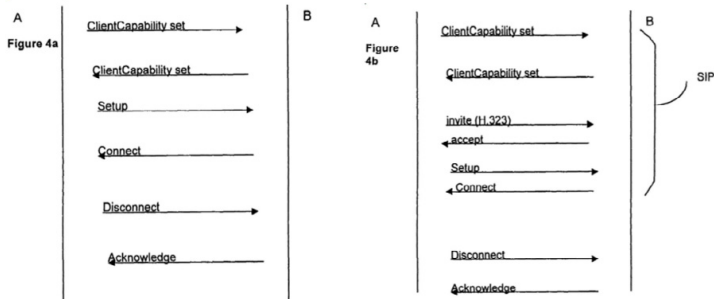
Fig. 1



by a connection 6 which also supports both of these protocols. Each of the terminals 2, 3 stores a respective client capability object which records the address types and call control types which the terminal is capable of handling. The client objects in the different terminals communicate with each other using a predetermined communication protocol (in the present example Internet protocol). The exchange of address and call control capabilities between two clients is carried out independently of the call or calls in progress between a session.

The client capability set data in the message as described above identify

which of a number of predetermined address types and call control types are supported. Examples of different address types which might be supported include e-mail, URL (uniform resource locator), IP multicase, IP unicast, E.164, AESA. Examples of different call control types include H.225.0, SDP, B-ISDN Q.2971, B-ISDN ATM-F UNI, N-ISDN Q.931, PSTN BTNR 315. FIGS. 4a and 4b show in further detail the sequence of message flows between terminals A and B in different implementations of the invention. In the sequence of FIG. 4a, the exchange of capability data takes place prior to a session being established. Immediately after the exchange of capability data, a call is set-up using, e.g., the sequence of messages defined for an ISDN protocol such as H.320, in the case where the capability data indicated that both parties had this call control capability. In the second example, illustrated in FIG. 4b, following the exchange of capability data, and prior to a call being set-up using, e.g., the H.323 call control protocol, Session Invitation Protocol (SIP) to establish the session.



Claim 11.

A method of operation a communications system comprising

(a) receiving at a first communications terminal call control capability data from at least another communications terminal,

which call control capability data identifies for the at least another communications terminal a plurality of different call control protocols and different network addresses; and

(b) setting up a call between the first and the at least another communications terminal using a call control protocol and network address selected from the plurality of different call control protocols and different network address identified in the call control capability data;

wherein the receiving of call control capability data is performed prior to initiating call set-up.

IP HIGH COURT OF KOREA
THIRD DIVISION
DECISION

Case No.	2013Heo11494 Invalidation of Registration (Patent)
Plaintiff	Viavi Solutions Inc. Representative B Counsel for Plaintiff Attorney in Charge Sanguk HAN, Gyeongtae GANG, Boyeong GONG Patent Attorney in Charge Geumuk LEE, Jonggwon KIM, Gyubin IM, Byeongsu GANG
Defendant	PTOT Korea Co., Ltd. Representative D Counsel for Defendants AIP Patent & Law Firm Patent Attorney in Charge Hyeonsu JEONG
Date of Closing Argument	March 7, 2024
Decision Date	May 21, 2024

ORDER

1. The decision rendered by the Korean Intellectual Property Trial and Appeal Board (hereinafter, "IPTAB") on February 28, 2023. in 2021Dang879 with respect to Claims 1, 3, 4, 7, 8, 15, 17, 18, 20, 21, 23 through 26, and 29 shall be reversed.

2. Costs shall be borne by the Defendant.

DEMAND FOR RELIEF

As Ordered.

OPINION

1. Background

A. The Plaintiff's Subject Invention at Issue (hereinafter, the "Subject Invention") (Plaintiff's Exhibit No. 1, 2)

1) Title of invention : Optical Filter and Sensor System

2) International filing date / Date of claimed priority / Date of registration / Registration number : July 16, 2013 / July 16, 2012 / March 18, 2019 / No. 10-1961297

3) Divisional application date / Application number : January 12, 2018 / No. 10-2018-7001077

4) Claims (as amended on August 26, 2021)¹⁾²⁾

【Claim 1】 An optical filter for a 3D image sensor, wherein said filter comprises: a first filter stack including a plurality of hydrogenated silicon layers; a plurality of lower refractive index layers having a refractive index lower than that of the plurality of hydrogenated silicon layers; the plurality of hydrogenated silicon layers having the refractive index greater than or equal to 3 in the wavelength range between 800 nm and 1,100 nm; the plurality of lower refractive index layers having

-
- 1) The underlined parts indicate those amended or added pursuant to the petition for correction.
- 2) Since the Plaintiff does not dispute the lawfulness of the correction, the invention at issue shall hereinafter be referred to as the "Subject Invention," collectively encompassing both the pre-correction and post-correction versions (see the trial record dated March 7, 2024).

the refractive index less than or equal to 3 and an extinction coefficient of 0.0004 or less in the wavelength range between 800 nm and 1,100 nm; and said plurality of lower refractive index layers are stacked in alternation with said plurality of hydrogenated silicon layers, and the plurality of lower refractive index layers include at least one oxide; and a substrate, wherein said first filter stack being disposed on a first surface of the substrate; and a second filter stack being disposed on a second surface of the substrate opposite to the first surface. The optical filter is an interference filter having a passband within the wavelength range between 800 nm and 1,100 nm, and the passband of the optical filter has the center wavelength that shifts by 13 nm or less in magnitude in response to a change in the angle of incidence varies between 0° and 30°, wherein the passband has a full width at half maximum (FWHM) of 50 nm or less, and the optical filter has a blocking level higher than or equal to Optical Density (OD)3 in a wavelength range of 300 nm to 1,100 nm outside the passband. (hereinafter, “the Invention of Claim 1 at Issue,” and the remaining claims shall be referred to in the same manner).

【Claim 2】 Deleted

【Claim 3】 The optical filter of Claim 1, wherein the passband has the center wavelength that shifts by 12.2 nm or less in magnitude in response to a change in the angle of incidence varies between 0° and 30°.

【Claim 4】 The optical filter of Claim 1, wherein the plurality of lower-refractive-index layers includes at least one selected from the group consisting of silicon dioxide (SiO₂), aluminum oxide (Al₂O₃), titanium dioxide (TiO₂), niobium pentoxide (Nb₂O₅), tantalum pentoxide (Ta₂O₅), or mixtures thereof.

【Claim 5】 The optical filter of Claim 1, comprising: at least one of the plurality of hydrogenated silicon layers thicker than at least one of the plurality of lower refractive index layers; the plurality of hydrogenated silicon layers having the refractive index of 3.5 or more in the wavelength range between 800 nm and 1,100 nm; having the

transmittance level of 90% or more in the wavelength range between 800 nm and 1,100 nm; the hydrogenated silicon having the extinction coefficient of 0.05 or more in the wavelength range of 650 nm or less; the passband having the center wavelength that shifts by 12.2 nm or more and 13 nm or less in magnitude in response to a change in the angle of incidence varies between 0° and 30°.

【Claim 6】 Deleted

【Claim 7】 The optical filter of Claim 1, wherein the second filter stack includes an antireflective (AR) coating.

【Claim 8】 An optical filter for a 3D image sensor, wherein said filter comprises: a first filter stack including a plurality of hydrogenated silicon layers and a plurality of layers having a lower refractive index than the plurality of hydrogenated silicon layers, wherein at least one of the plurality of hydrogenated silicon layers is thicker than at least one of the plurality of lower refractive index layers; the plurality of hydrogenated silicon layers having the refractive index of 3 or more in the wavelength range between 800 nm and 1,100 nm; the plurality of lower refractive index layers having the refractive index of 3 or less and an extinction coefficient of 0.0004 or less in the wavelength range between 800 nm and 1,100 nm; with said plurality of lower refractive index layers being stacked in alternation with said plurality of hydrogenated silicon layers, which including at least one oxide; and a substrate, wherein said first filter stack being disposed on a first surface of the substrate; and a second filter stack being disposed on a second surface of the substrate opposite to the first surface. The optical filter is an interference filter having a passband in the wavelength range between 800 nm and 1,100 nm, and the passband of the optical filter has the center wavelength that shifts by 13 or less nm in magnitude in response to a change in the angle of incidence varies between 0° and 30°, wherein the passband has a FWHM of 50 nm or less, and the optical filter has a blocking level higher than OD3 in the wavelength range between 300 nm and 1,100 nm, outside the passband.

【Claim 9-12】 Deleted

【Claim 13】 The optical filter of Claim 8, wherein the plurality of lower refractive index layers include at least one selected from the group consisting of silicon dioxide (SiO_2), aluminum oxide (Al_2O_3), titanium dioxide (TiO_2), niobium pentoxide (Nb_2O_5), tantalum pentoxide (Ta_2O_5), or mixtures thereof; the plurality of hydrogenated silicon layers having a refractive index of 3.5 or more in the wavelength range between 800 nm and 1,100 nm; a wavelength range exhibiting a transmittance level of 90% or more in the wavelength range between 800 nm and 1,100 nm; the hydrogenated silicon having an extinction coefficient of 0.05 or more in the wavelength range of 650 nm or less; and the passband having the center wavelength that shifts by 12.2 nm or more and 13 nm or less in magnitude in response to a change in the angle of incidence varies between 0° and 30° .

【Claim 14】 Deleted

【Claim 15】 The optical filter of Claim 8, wherein the plurality of hydrogenated silicon layers has a refractive index of 3.6 or more at the wavelength of 830 nm.

【Claim 16】 Deleted

【Claim 17】 The optical filter of Claim 8, wherein the second filter stack includes an antireflective (AR) coating.

【Claim 18】 An optical filter for a 3D image sensor, comprising: a first filter stack on a first side of a substrate and a second filter stack on a second side of the substrate opposite to the first side, wherein the first filter stack includes alternating multiple hydrogenated silicon layers and multiple lower refractive index layers; the plurality of hydrogenated silicon layers having a refractive index of 3 or more in the wavelength range between 800 nm and 1,100 nm; the plurality of lower refractive index layers having the refractive index of 3 or less in the wavelength range between 800 nm and 1,100 nm. The optical filter is an interference filter having a passband in the wavelength range between 800 nm and 1,100 nm, where the lower refractive index layers have the refractive index lower than that of the plurality of hydrogenated silicon layers and the plurality of lower refractive index layers includes

at least one oxide, wherein the passband of the optical filter has the center wavelength that shifts by 13 nm or less in magnitude in response to a change in the angle of incidence varies between 0° and 30°, having a FWHM of 50 nm or less; a blocking level higher than OD3 in the wavelength range between 300 nm and 1,100 nm outside the passband. The hydrogenated silicon has an extinction coefficient of 0.0004 or less in the wavelength range between 800 nm and 1,100 nm and the second filter stack includes at least one of silicon dioxide (SiO₂) or tantalum pentoxide (Ta₂O₅).

【Claim 19】 Deleted

【Claim 20】 The optical filter of Claim 18, wherein the second filter stack has a thickness ranges from 0.1 μm to 1 μm.

【Claim 21】 The optical filter of Claim 18, wherein the optical filter has a total coating thickness of 10 μm or less.

【Claim 22】 The optical filter of Claim 18, wherein the hydrogenated silicon layers have a refractive index of 3.6 or more at the wavelength of 830 nm, a wavelength range exhibiting a transmittance level of 90% or more in the wavelength range from 800 nm to 1,100 nm, the hydrogenated silicon having an extinction coefficient of 0.05 or more in the wavelength range of 650 nm or less, and the passband having the center wavelength that shifts by 12.2 nm or more and 13 nm or less in magnitude in response to a change in the angle of incidence varies between 0° and 30°.

【Claim 23】 The optical filter of Claim 18, wherein at least one of the hydrogenated silicon layers is thicker than at least one of the layers of the lower refractive index materials, and the second filter stack includes an antireflective (AR) coating.

【Claim 24】 An optical filter for a 3D image sensor, wherein said filter comprises: a first filter stack including a plurality of layers, which contains a plurality of hydrogenated silicon layers and a plurality of layers having a lower refractive index than the plurality of hydrogenated silicon layers; with said plurality of lower refractive index

layers being stacked in alternation and the plurality of hydrogenated silicon layers having a refractive index of 3 or more and has an extinction coefficient of 0.0004 or less in the wavelength range between 800 nm and 1,100 nm, whereas the plurality of lower refractive index layers has the refractive index of 3 or less in the wavelength range of 800 nm to 1,100 nm; and the plurality of lower refractive index layers include at least one selected from the group consisting of silicon dioxide (SiO₂), aluminum oxide (Al₂O₃), titanium dioxide (TiO₂), niobium pentoxide (Nb₂O₅), tantalum pentoxide (Ta₂O₅), or mixtures thereof; and a substrate, wherein said first filter stack being disposed on a first surface of the substrate; and the second filter stack including at least one selected from the group consisting of silicon dioxide (SiO₂) or tantalum pentoxide (Ta₂O₅), being disposed on a second surface of the substrate opposite to the first surface. The optical filter is an interference filter having a passband in the wavelength range between 800 nm to 1,100 nm, and the passband of the optical filter has the center wavelength that shifts by 13 or less nm in magnitude in response to a change in the angle of incidence varies between 0° and 30°, wherein the passband has a FWHM of 50 nm or less, and the optical filter has a blocking level higher than OD3 in the wavelength range between 300 nm and 1,100 nm outside the passband.

【Claim 25】 The optical filter of Claim 24, wherein the passband shifts by 12.5 nm or less in magnitude in response to a change in the angle of incidence.

【Claim 26】 The optical filter of Claim 24, wherein at least one of the hydrogenated silicon layers is thicker than at least one of the lower refractive index layers, and the second filter stack includes an antireflective (AR) coating.

【Claim 27】 The optical filter of Claim 24, comprising: the plurality of hydrogenated silicon layers having a refractive index of 3.5 or more in the wavelength range between 800 nm and 1,100 nm; the wavelength range exhibiting a transmittance level of 90% or more in the

wavelength range between 800 nm and 1,100 nm; the hydrogenated silicon having an extinction coefficient of 0.05 or more in the wavelength range of 650 nm or less; and the passband having the center wavelength that shifts by 12.2 nm or more and 13 nm or less in magnitude in response to a change in the angle of incidence that varies between 0° and 30°.

【Claim 28】 Deleted

【Claim 29】 The optical filter of Claim 1, wherein said filter is part of a sensor system comprising a light source and a sensor, the light source being configured to emit light at an emission wavelength within the passband, and wherein the optical filter is configured to receive light from the light source and transmit the received light to the sensor.

【Claim 30】 Deleted

5) Main Content and Drawing

◎ Technical field

[0001] The present invention relates to optical filters comprising hydrogenated silicon layers, and to sensor systems including such optical filters.

◎ Background art

[0003] An optical filter, more specifically, a bandpass filter, is used to transmit emitted light to a 3D image sensor, while substantially blocking ambient light. In other words, the optical filter serves to screen out ambient light. Therefore, an optical filter having a narrow passband in the near-infrared wavelength range, i.e., 800nm to 1,100nm, is required. Furthermore, the optical filter must exhibit high transmittance within the passband and a high level of blocking outside of the passband.

[0006] The first, second, and third conventional optical filters generally exhibit high transmittance within the passband and high blocking outside the passband. However, the center wavelength of the passband undergoes a relatively large shift as the angle of incidence changes. Consequently, the passband must be made relatively wide to accommodate light over the required range of incidence angles, which

increases the amount of ambient light transmitted and reduces the signal-to-noise ratio of systems incorporating these conventional optical filters. Furthermore, the large number of layers in the filter and blocking stacks increases both fabrication cost and coating time. The resulting large total coating thickness also makes these conventional optical filters difficult to pattern, for example, by photolithography.

[0007] To enhance the performance of the optical filter in a gesture-recognition system, it is desirable to reduce the number of layers, the total coating thickness, and the shift in center wavelength with changes in the angle of incidence. One approach is to employ, for the high-refractive-index layers, a material having a higher refractive index than conventional oxides over the wavelength range of 800nm to 1,100nm. In addition to a higher refractive index, the material must also exhibit a low extinction coefficient over the wavelength range of 800nm to 1,100nm in order to achieve high transmittance within the passband.

[0008] The use of hydrogenated silicon (Si:H) as a high-refractive-index material in optical filters is disclosed by Lairson, et al. in an article entitled “Reduced Angle-Shift Infrared Bandpass Filter Coatings” (Proceedings of the SPIE, 2007, Vol. 6545, pages 65451C-1-65451C-5), and by Gibbons, et al. in an article entitled “Development and Implementation of a Hydrogenated a-Si Reactive Sputter Deposition Process” (Proceedings of the Annual Technical Conference, Society of Vacuum Coaters, 2007, Vol. 50, pages 327-330). Lairson, et al. disclose a hydrogenated silicon material having a refractive index of 3.2 at a wavelength of 1,500nm and an extinction coefficient of less than 0.001 at wavelengths greater than 1,000nm. Gibbons, et al. disclose a hydrogenated silicon material, produced by alternating current(AC) sputtering, having the refractive index of 3.2 at a wavelength of 830nm and an extinction coefficient of 0.0005 at the wavelength of 830nm. However, these hydrogenated silicon materials do not exhibit a sufficiently low extinction coefficient over the wavelength range of 800nm to 1,100nm.

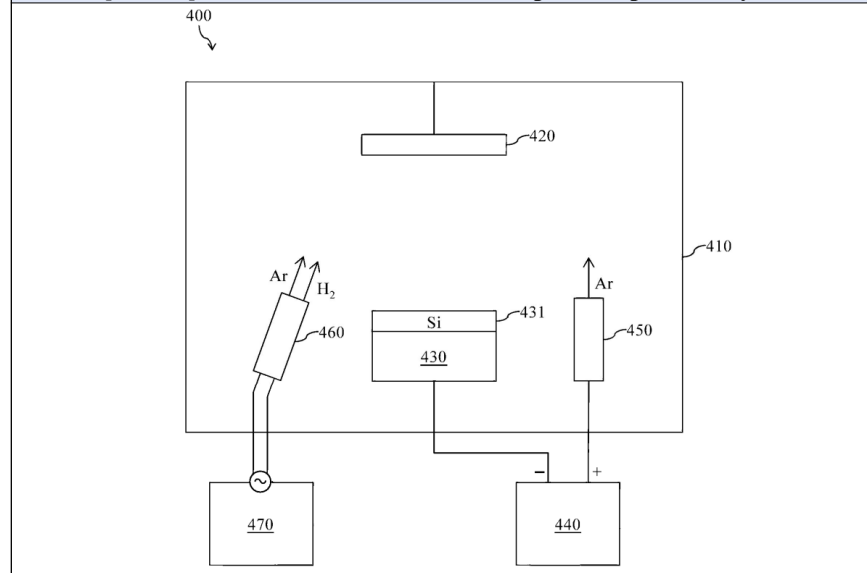
© **Details for Execution of an Invention**

[0013] The optical filter of the present invention employs an improved

hydrogenated silicon material having both a high refractive index³⁾ and a low absorption coefficient over the wavelength range of 800nm to 1,100nm, that is, within the near-infrared wavelength range. The hydrogenated silicon material is typically amorphous and is preferably produced by pulsed direct-current (DC) sputtering.

[0014] With reference to FIG. 4, a typical sputter-deposition system(400) used to produce the hydrogenated silicon material includes a cathode(430), a cathode power supply(440), an anode(450), a plasma activation source(PAS; 460), and a PAS power supply(470). The cathode(430) is powered by the cathode power supply(440), which is a pulsed DC power supply. The PAS(460) is powered by the PAS power supply(470), which is a radio frequency(RF) power supply.

[FIG. 4] Schematic illustration of a sputter-deposition system



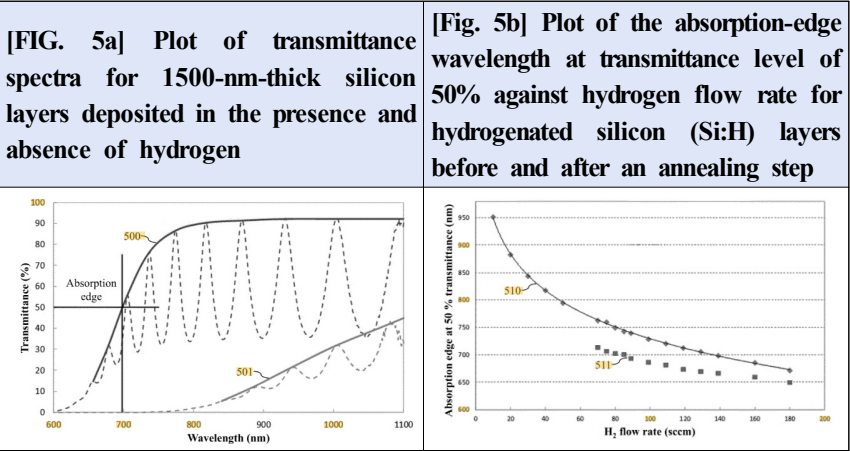
- 3) In the Subject Invention, the terms “absorption coefficient” and “extinction coefficient” are used interchangeably. In light of the context in which these terms are used in the specification, the Subject Invention does not appear to use these terms with any special or different meaning. Accordingly, except where it is necessary to directly quote the specification of the Subject Invention, the terms will hereinafter be collectively referred to as the “extinction coefficient.”

[0015] The cathode(430) includes a silicon target(431), which is sputtered in the presence of hydrogen(H₂), as well as an inert gas such as argon, to deposit the hydrogenated silicon material as a layer on the substrate(420). The inert gas is introduced into the vacuum chamber(410) through the anode (450) and the PAS(460). Alternatively, the walls of the vacuum chamber(410) may serve as the anode, and the inert gas may be introduced at a different location.

[0016] Hydrogen is introduced into the vacuum chamber(410) through the PAS (460), which serves to activate the hydrogen. Activated hydrogen is more chemically reactive and is, therefore, more likely to create Si-H bonds, which are thought to be responsible for the optical properties of the hydrogenated silicon material. The PAS(460) is located very close to the cathode(430), allowing the PAS plasma and the cathode plasma to overlap. Both atomic and molecular species of activated hydrogen are believed to be present in the plasmas. The use of the PAS(460) allows the hydrogenated silicon layer to be deposited at a relatively high deposition rate with a relatively low hydrogen content. Typically, the hydrogenated silicon layer is deposited at a deposition rate of 0.05 nm/s to 1.2 nm/s, preferably, at a deposition rate of about 0.8 nm/s. Alternatively, the cathode plasma alone may be used for hydrogen activation.

[0017] The optical properties of the hydrogenated silicon material depend primarily on the hydrogen content in the vacuum chamber and, therefore, on the hydrogen flow rate. However, the optical properties are also influenced by other parameters, including the flow rate of the inert gas, the PAS power level, the cathode power level, and the deposition rate.

[0018] FIG. 5a shows transmission spectra (500 and 501) for 1500-nm-thick silicon layers deposited in the presence of hydrogen, at a hydrogen flow rate of 139 sccm, and in the absence of hydrogen, respectively. The silicon layer deposited in the presence of hydrogen, that is, the hydrogenated silicon layer, exhibits a significantly higher transmittance level over the wavelength range of 800nm to 1,100nm.

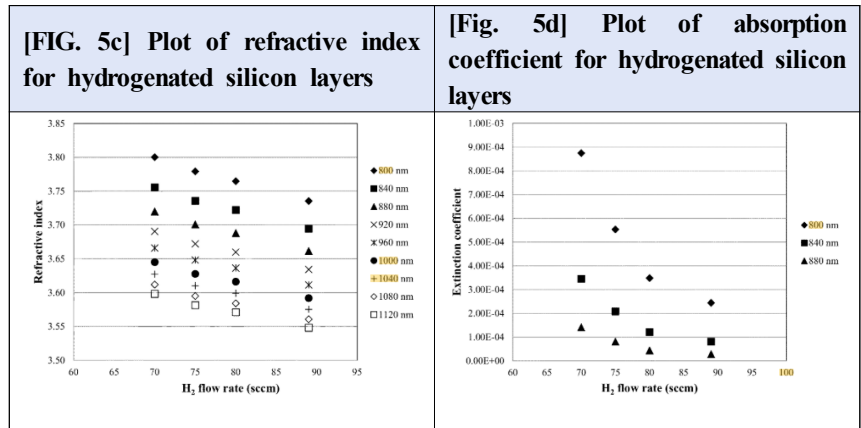


[0019] FIG. 5b shows curves (510 and 511) of the absorption-edge wavelength at a transmittance level of 50% as a function of hydrogen flow rate for hydrogenated silicon layers before and after an annealing step, respectively. For the as-deposited hydrogenated silicon layers, the absorption-edge wavelength decreases as the hydrogen flow rate increases. In general, the absorption-edge wavelength varies approximately logarithmically with the hydrogen flow rate. The absorption-edge wavelength is further reduced by the annealing step, which is carried out at a temperature of about 300°C for approximately 60 minutes. Typically, when an optional post-coating annealing step is performed, the hydrogenated silicon layers are annealed at a temperature of up to 350°C for up to 120 minutes, preferably, at a temperature of 250°C to 350°C for 30 to 90 minutes. In some instances, more than one annealing step may be performed.

[0020] Thus, the absorption-edge wavelength of the hydrogenated silicon material can be tuned by adjusting the hydrogen flow rate and, optionally, by annealing. Likewise, the refractive index and the absorption coefficient of the hydrogenated silicon material can also be tuned by adjusting the hydrogen flow rate and, optionally, by annealing. Typically, the hydrogenated silicon layers are deposited with a hydrogen flow rate of greater than 80sccm, preferably, about 80sccm. However, it should be noted that the hydrogen content corresponding to a given flow rate depends on the pumping speed of the vacuum system.

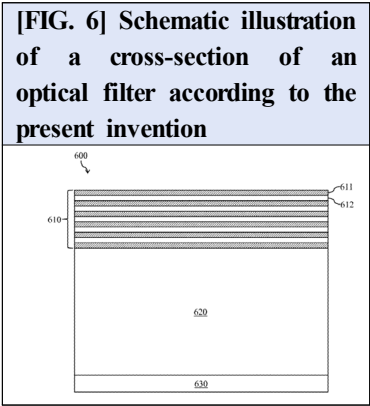
[0021] FIG. 5c shows a plot of refractive index at wavelengths of 800 nm

to 1,120nm, as a function of hydrogen flow rate for as-deposited hydrogenated silicon layers. The refractive index decreases as the hydrogen flow rate increases. In general, the refractive index varies approximately linearly with hydrogen flow rate. In particular, the refractive index of the hydrogenated silicon layer produced at a hydrogen flow rate of 80sccm is greater than 3.55 over the wavelength range of 800nm to 1120nm.



[0022] FIG. 5d shows a plot of absorption coefficient in the wavelength range of 800nm to 880nm, as a function of hydrogen flow rate for as-deposited hydrogenated silicon layers (The absorption coefficient is less than 0.0001 in the wavelength range of 920nm to 1,120nm). The absorption coefficient decreases as the hydrogen flow rate increases. In general, the absorption coefficient varies approximately exponentially with the hydrogen flow rate. In particular, the absorption coefficient of the hydrogenated silicon layer produced at a hydrogen flow rate of 80sccm is less than 0.0004 over the wavelength range of 800nm to 1,120nm.

[0023] The improved hydrogenated silicon material, tuned to exhibit suitable optical properties, is used in the optical filter of the present invention. With reference to FIG. 6, the optical filter includes a filter stack(610), which is disposed on a first surface of a substrate(620). In most instances, the substrate(620) is a free-standing substrate,



typically a glass substrate, e.g., a borofloat glass substrate. Alternatively, the substrate(620) may be a sensor or another device. When the substrate(620) is a free-standing substrate, an antireflective

(AR) coating(630) is often disposed on a second surface of the substrate(620) opposite the first surface. . .

[0024] The filter stack(610) includes a plurality of hydrogenated silicon layers(611), which serve as higher-refractive-index layers, and a plurality of lower-refractive-index layers(612) stacked alternatively. . . . Typically, the filter stack(610) includes a total of from 10 to 100 layers, i.e., $5 \leq n \leq 50$. Also typically, the hydrogenated silicon layers(611) and the lower-refractive-index layers(612) each have a thickness of 3nm to 300nm, and the filter stack(610) has an overall thickness in the range of 1 μm to 10 μm . In general, the number of layers and their respective thicknesses are selected according to a desired optical design. Preferably, the optical filter has a total coating thickness, i.e., the combined thickness of the filter stack(610) and the AR coating(630), of 10 μm or less.

[0025] The hydrogenated silicon layers(611) comprise an improved hydrogenated silicon material engineered to exhibit a refractive index greater than 3 and an extinction coefficient less than 0.0005 over a wavelength range of 800nm to 1,100nm. Preferably, the hydrogenated silicon material has a refractive index greater than 3.5 over the wavelength range of 800nm to 1,100nm, for example, a refractive index greater than 3.64 at a wavelength of 830nm, i.e., a refractive index of about 3.6. A higher refractive index is usually preferred. However, in general, the hydrogenated silicon material has a refractive index of less than 4.5 over the wavelength range of 800nm to 1,100nm.

[0026] Preferably, the hydrogenated silicon material has an extinction coefficient of 0.0004 or less over a wavelength range of 800nm to 1,100nm, and more preferably, an extinction coefficient of 0.0003 or less over that same wavelength range. Typically, the hydrogenated silicon material exhibits an extinction coefficient of 0.01 or greater at wavelengths below 600nm, preferably, an extinction coefficient of 0.05 or more at wavelengths below 650nm. Because the hydrogenated silicon material exhibits relatively strong absorption at wavelengths below 600nm, a separate blocking stack is not required in the optical filter(600).

[0027] The lower-refractive-index layers(612) are formed of a material having a refractive index lower than that of the hydrogenated silicon

layers(611) over a wavelength range of 800nm to 1,100nm. Typically, the lower-refractive-index material has a refractive index of 3 or less over the wavelength range of 800nm to 1,100nm. Preferably, the lower-refractive-index material has a refractive index of 2.5 or less over that wavelength range, and more preferably, a refractive index of 2 or less over the wavelength range of 800nm to 1,100nm.

[0029] In most instances, the lower-refractive-index material is a dielectric material, typically an oxide. Suitable lower-refractive-index materials include silicon dioxide(SiO₂), aluminum oxide(Al₂O₃), titanium dioxide(TiO₂), niobium pentoxide(Nb₂O₅), tantalum pentoxide(Ta₂O₅), and mixtures thereof, that is, mixed oxides.

[0031] The optical filter(600) is an interference filter having a passband that at least partially overlaps a wavelength range of 800nm to 1,100nm. . . . Preferably, the optical filter(600) exhibits a specified transmittance level, within the passband over the wavelength range of 800nm to 1,100nm.

[0032] The optical filter provides blocking outside of the passband, i.e., a stopband on one or both sides of the passband. Typically, the stopband extends over a wavelength range of 400nm to 1,100nm, and preferably, over a wavelength range of 300nm to 1,100nm. Preferably, the optical filter(600) exhibits a blocking level greater than OD2 outside the passband over the wavelength range of 400nm to 1,100nm, and more preferably, a blocking level greater than OD3 outside the passband over the wavelength range of 300nm to 1,100nm.

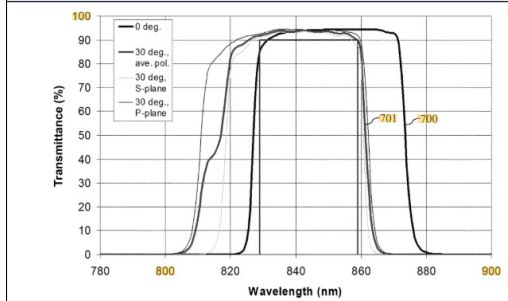
[0033] In some embodiments, the optical filter is a long-wavelength-pass edge filter, and the passband has an edge wavelength within a wavelength range of 800nm to 1,100nm. However, in most embodiments, the optical filter(600) is a bandpass filter, preferably a narrow bandpass filter. Typically, the passband has a center wavelength within the wavelength range of 800nm to 1,100nm. Preferably, the passband has a full width at half maximum(FWHM) of less than 50nm. . . .

[0034] Generally, the optical filter exhibits a low center-wavelength shift in response to changes in the angle of incidence. Preferably, the center wavelength of the passband shifts by less than 20 nm in magnitude as the angle of incidence changes from 0° to 30°. More preferably, the center wavelength shifts by 13 nm or less in magnitude over an incidence-angle range of 0° to 30°. More preferably, the center wavelength of the passband

shifts by 12.5 nm or less in magnitude in response to a change in the angle of incidence from 0° to 30° .⁴⁾ Accordingly, the optical filter(600) provides a wide incidence-angle acceptance range. The optical filter(600) may be implemented using a variety of optical designs. In general, the optical design of the optical filter(600) is optimized for a selected passband by appropriate selection of the number of layers, the materials, and/or the thicknesses of the layers forming the filter stack(610). Some exemplary optical filters, described hereafter, include a Si:H/SiO₂ filter stack and a Ta₂O₅/SiO₂ AR coating, coated on opposite surfaces of a borofloat glass substrate.

[0036] Transmission spectra (700 and 701) at the angle of incidence of 0° and 30° , respectively, for the first exemplary optical filter are plotted in FIG. 7d. The first exemplary optical filter has the transmittance level, within the passband, of greater than 90%, and a blocking level, falling

[FIG. 7d] Plot of transmittance spectra at the angle of incidence of 0° and 30° for the first exemplary optical filter



outside of the passband, of greater than OD3 over the wavelength range of 450nm to 1050nm. The passband has a center wavelength of about 850nm and a FWHM of about 46.5nm at the incidence angle of 0° . With a change in incidence angles from 0° to 30° , the center wavelength of the passband shifts by about -12.2nm .

[0037] Advantageously, the first exemplary optical filter of FIG. 7 includes fewer layers and has a smaller total coating thickness than the first conventional optical filter of FIG. 1. In particular, the total coating thickness of the first exemplary optical filter is about one quarter of the total coating thickness of the first conventional optical filter. Therefore, the first exemplary optical filter is less expensive to fabricate and is easier to pattern. Also advantageously, the first exemplary optical filter has a lower center-wavelength shift with a change in incidence angle. Therefore, the passband of the first exemplary optical filter can be significantly narrower while accepting light over the same incidence angle

range, improving the signal-to-noise ratio of systems incorporating the first exemplary optical filter.

B. Procedural History

1) On March 19, 2021, the Defendant filed a request for invalidation of the registration of the Subject Invention with the IPTAB, asserting the following grounds: (i) the Subject Invention lacks an inventive step because it could have been readily conceived by a person having ordinary skill in the art (hereinafter, a “skilled person”) based on prior art (Article 29(2) of the Patent Act); (ii) the specification fails to disclose the invention in a manner sufficiently clear and complete for a skilled person to carry out the invention (Article 42(3)1 of the Patent Act); (iii) the term “passband” as used in the claims lacks clarity (Article 42(4)2 of the Patent Act); and (iv) the numerical limitations of “13nm or less” and “12.5nm or less” in the Subject Invention were not described in the specification or drawings as originally attached to the application at the time of filing (hereinafter, the “Initial Specification, etc.”) (Article 52(1) of the Patent Act).

2) The IPTAB heard the above petition by the Defendant under 2021Dang879, and upheld the Plaintiff’s petition for correction, finding that the Plaintiff’s petition for correction dated August 26, 2021 is lawful since no grounds for invalidation exist with respect to the Subject Invention, considering (i) an inventive step under Article 29(2) of the Patent Act, (ii) clarity of the claims under Article 42(4)2 of the Patent Act, and (iv) the requirements for divisional applications under Article 52(1) of the Patent Act. However, with regards to (iii), the IPTAB found that the Subject Invention violates Article 42(3)1 of the Patent Act as a skilled person could readily carry out Claims 5, 13, 22, and 27, each of which specifies a numerical range for

4) This part was added in the divisional application.

center-wavelength shift of 12.2 nm or more and 13nm or less, based on the description in the specification of the Subject Invention and the technical level at the time of filing. By contrast, the IPTAB concluded that a skilled person could not readily carry out Claims 1, 3, 4, 7, 8, 15, 17, 18, 20, 21, 23 through 26, and 29, which limit the center-wavelength shift solely to “13nm or less” or “12.5nm or less.” The IPTAB therefore dismissed the portions of the Defendant’s petition relating to Claims 2, 6, 9 through 12, 14, 16, 19, 28, and 30, which had been deleted by the correction, upheld the petition regarding Claims 1, 3, 4, 7, 8, 15, 17, 18, 20, 21, 23 through 26, and 29 (hereinafter, collectively the “Inventions at Issue”), and dismissed the petition with respect to Claims 5, 13, 22, and 27 (hereinafter the “IPTAB Decision”).

【Factual basis】 Undisputed Facts; statements in Plaintiff’s Exhibits No. 1, 2, 3; and the purport of the overall argument.

2. Parties’ Arguments

A. Plaintiff

For the reasons set forth below, the registration of the Inventions at Issue shall not be rejected, and the IPTAB Decision concluding otherwise is erroneous.

1) The specification of the Subject Invention discloses the invention in a manner sufficiently clear and complete to enable a skilled person to readily practice the Invention at Issue.

a) A skilled person would be able to reproduce an optical filter satisfying all required optical properties, including refractive index and extinction coefficient, as illustrated in Figures 5b, 5c, and 5d of the specification of the Subject Invention, based on the essential process conditions described in the specification, together with the cited patents, and the background art, without any difficulty.

b) As the essential feature of the Inventions at Issue is maintaining the center-wavelength shift of incident light at no more than 13 nm as the angle of incidence varies from 0° to 30°, there is no technical necessity to define a separate lower limit in addition to the stated upper limit of 13nm. Even where only an upper bound of a numerical range is recited, as in the Inventions at Issue, the skilled person in the art of optics would easily predict the lower limit of the center wavelength associated with changes in the angle of incidence from 0° to 30° as an inherent limitation of the Subject Invention, based on the mathematical relationship between the refractive index and the center-wavelength shift set forth in the equation⁵⁾ and the description in the specification, and can easily practice the Inventions at Issue.

2) A skilled person can clearly understand the meaning of the term “passband” as recited in the claims of the Inventions at Issue. The term “passband,” as used in the Inventions at Issue, carries its ordinary and customary meaning in the relevant technical field and merely imposes additional limitations within that well-understood scope.

3) The numerical limitations on center-wavelength shift recited in the Inventions at Issue, namely “13nm or less” or “12.5nm or less,” fall squarely within the broader range of “20nm or less” disclosed in the Initial Specification, etc. These limitations merely further narrow the disclosed range by restricting the manner of execution and do not introduce any new technical matter. Such narrowing of a disclosed numerical range would have been readily apparent to a skilled person and therefore does not violate the requirements for a divisional application.

5) $\lambda_c = \lambda_0 \sqrt{1 - \frac{\sin^2 \theta}{n^{*2}}}$, λ_c : the center wavelength at an incidence angle θ , λ_0 :

the center wavelength at normal incidence ($\theta = 0^\circ$), n^* : the effective refractive index of the interference filter.

B. Defendant⁶⁾

For the reasons set below, the Inventions at Issue should be held invalid, and thus the IPTAB Decision reaching that conclusion should be affirmed.

1) The specification of the Subject Invention fails to disclose the invention in a manner sufficiently clear and complete to enable a skilled person to readily carry out the Inventions at Issue.

a) Based solely on the disclosure set forth in the specification of the Subject Invention, it is not possible to produce an optical filter that satisfies all of the optical properties, such as refractive index and extinction coefficient, depicted in Figures 5c and 5d. The specification fails to disclose critical process parameters necessary to achieve those properties, including, for example, the chamber size and the pumping speed of the vacuum pump used to evacuate gases from the chamber.

b) The disclosure of the specification of the Subject Invention is insufficient to practice an optical filter that satisfies all the numerical limitations recited in the Inventions at Issue, such as the lower limit of the center-wavelength shift of “13nm or less” or “12.5nm or less.”

2) The meaning of the term “passband,” as described in the claims of the Inventions at Issue, lacks clarity.

3) The Inventions at Issue fail to satisfy the requirements applicable to divisional applications. Specifically, the numerical limitations of “13nm or less” or “12.5nm or less” recited in the Inventions at Issue were not disclosed in the Initial Specification, etc.

6) The Defendant made it clear that, during the litigation, it does not dispute over whether the Inventions at Issue lack an inventive step (see the first record for trial).

3. Whether IPTAB's Decision is Erred

A. Whether the Subject Invention at Issue Violates Article 42(3)1 of the Patent Act

1) Whether an optical filter satisfying all requirements of the Subject Invention, including the refractive index and extinction coefficient, etc., can be readily carried out

a) Relevant Law

Article 42(3) of the Patent Act provides that “the description of an invention must be set forth in a clear and complete manner such that a skilled person can readily carry out the invention.” This requirement serves to clarify the technical content and scope of the invention sought to be protected by the patent by mandating disclosure of the invention in the specification in a manner that enables third parties to readily ascertain the invention's content based solely on the specification. Therefore, the provision requires the specification disclose the invention in sufficient detail to enable a skilled person, in light of the technical level at the time of filing, to accurately understand and practice the invention based solely on the disclosure, without undue experimentation or the need for specialized knowledge beyond that ordinarily possessed in the field (*see* Supreme Court Decision 2010Hu2582, decided October 13, 2011; Supreme Court Decision 2017Da231829, decided January 14, 2021, etc.).

In addition, the specification need not describe in detail technical means that had already become part of the common general knowledge at the time of filing and would have been readily understood by a person of ordinary skill in the art even without explicit description (*see* Supreme Court Decision 92Hu49, decided July 28, 1992, etc.). Furthermore, depending on the nature and technical content of the invention, even if no specific embodiments are described in the specification, the requirement of Article 42(3) of the former Patent Act

may be still be satisfied so long as a skilled person can readily understand and reproduce the invention based on the disclosure. Therefore, it is not necessary to state embodiments so as to satisfy the written description requirement (*see* Supreme Court Decision 2010Hu2582, decided October 13, 2011).

b) Disputed Issues

The principal optical properties of the optical filter disclosed in the Subject Invention that constitute the Inventions at Issue are as listed in the table below. Regarding the enablement, the issue comes down to whether the description of the Subject Invention is disclosed in such a manner that a skilled person can easily practice an optical filter having all of the optical properties 1-7 listed below.

Optical Properties	Conditions for Design
1. Use and Structure	▶ An optical filter for a 3D image sensor (Element 1) ▶ having a first filter stack including a plurality of hydrogenated silicon layers; a plurality of lower-refractive-index layers having a refractive index lower than that of the plurality of hydrogenated silicon layers, (Element 1) ▶ wherein the plurality of lower refractive index layers is stacked in alternation with said plurality of hydrogenated silicon layers. (Element 3)
2. Refractive Index	▶ The plurality of hydrogenated silicon layers having a refractive index greater than or equal to 3 in the wavelength range between 800nm and 1,100nm; the plurality of lower-refractive-index layers having the refractive index less than or equal to 3 in the wavelength range between 800nm to 1,100nm. (Element 2)
3. Materials	▶ The plurality of lower refractive index layers includes at least one oxide. (Element 4)
4. Wavelength Shift	▶ The center wavelength that shifts by 13nm or less (or 12.5nm) in magnitude in response to a change in the angle of incidence that varies between 0° and 30°. (Element 6)

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Optical Properties	Conditions for Design
5. Passband	▶ A passband within the wavelength range of 800nm to 1,100nm, (Element 5) ▶ having a full width at half maximum (FWHM) of 50nm or less (Element 7)
6. Blocking Level	▶ Said passband has a blocking level higher than Optical Density (OD) 3 in the wavelength range between 300nm and 1,100nm outside the passband. (Element 8)
7. Extinction Coefficient	▶ The hydrogenated silicon has an extinction coefficient lower than 0.0004 in the wavelength range of 800nm to 1,100nm. (Element 9)

c) Determination

It is deemed reasonable to conclude that the description of the Subject Invention discloses process conditions so that a skilled person can carry out all of the principal optical properties 1-8 for the following reasons.

(1) According to the specification of the Subject Invention as shown below, the Subject Invention directly specifies the optical properties 1-8, or discloses a technical means for achieving such optical properties, such as manufacturing processes (Description ①-④), materials (Description ⑤), and stacked structures (Description ⑥) and further discloses experimentations (Descriptions ⑥ and ⑦), including the experimental results of how the passband, the blocking level, the wavelength shift, etc., are embodied when the invention is carried out in consideration of all the above conditions.

- ▶ (Description ①) The fact that a sputter-deposition system(400) is used as equipment for forming hydrogenated silicon thin films in the manufacturing process of the optical filter (Plaintiff's Exhibit 2, Paragraph [0014], Figure 4).
- ▶ (Description ②) The fact that, by using the plasma activation source(PAS, 460) of the sputter-deposition system(400), the hydrogenated silicon layers are deposited with a relatively low hydrogen content and at a relatively high deposition rate (Plaintiff's Exhibit 2, Paragraphs [0016] to

[0018], Figure 5a).

► (Description ③) The fact that the absorption-edge wavelength of the hydrogenated silicon materials, as well as the refractive index and absorption coefficient thereof, can be tuned (adjusted) by controlling the hydrogen flow rate and by annealing (Plaintiff's Exhibit 2, Paragraphs [0019] to [0021], Figure 5c; related to optical properties 2 and 7).

► (Description ④) The fact that the absorption coefficient decreases exponentially as the hydrogen flow rate increases (Plaintiff's Exhibit 2, Paragraph [0022⑦], Figure 5d; related to optical property 7).

► (Description ⑤) The fact that the specification describes the materials, refractive indices, and stacked structures of the hydrogenated silicon layers(611) and the lower-refractive-index layers(612) in the wavelength range between 800nm and 1,100nm (Plaintiff's Exhibit 2, Paragraphs [0023] to [0027], [0029], Figure 5c; related to optical properties 1, 2, and 3).

► (Description ⑥) The specifications about the passband, the blocking level, and the bandwidth of the optical filter having such a stacked structure (Plaintiff's Exhibit 2, Paragraphs [0031]–[0033]; related to optical properties 5 and 6).

► (Description ⑦) Embodiments concerning transmission spectra corresponding to changes in the angle of incidence that vary between 0° and 30° (Plaintiff's Exhibit 2, Paragraphs [0034] to [0037], Figure 7d; related to optical property 4).

(2) It appears that, to carry out the optical filter of the Subject Invention, there may be other process conditions in addition to the matters discussed above, such as specific features of the sputtering machine and additional process parameters, including the temperature and pressure within the chamber during deposition. However, U.S. Patent No. 8,163,144, cited in the specification of the Subject Invention (Plaintiff's Exhibit No. 2, Paragraph [0013]), discloses process pressure conditions applied to the anode of a magnetron sputtering machine, process time, the size of six substrates, and the size of the target (Plaintiff's Exhibit No. 6, page 4; Plaintiff's Exhibit No. 11-1, pages 11 to 15) so as to deposit thin films on the substrate. The remaining detailed operational characteristics of the sputtering machine disclosed in the above U.S. patent are deemed to constitute

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technical common sense and commonly used process conditions described in the manuals of such equipment, and therefore, it does not appear necessary to describe all such details in the specification.

(3) Furthermore, the Plaintiff submitted an expert witness statement stating that a skilled person can, by referring to the specification of the Subject Invention, having appropriate deposition equipment, and analyzing the characteristics of thin films obtained under various process conditions, and continuously adjusting the process conditions, obtain the desired thin films without technical difficulties (Plaintiff's Exhibits No. 5 and 6). The above statement is based on the technical content disclosed by the Subject Invention for carrying out the invention, i.e., the plasma activation source (Plasma Activation Source; PAS), the annealing process, the relation between hydrogen content (a major experimental variable of the Subject Invention) and optical properties, and the disclosures of the aforementioned U.S. Patent, which do not appear to contain any self-contradiction, technically implausible parts or indications of undue experimentation or reliance on specialized knowledge. The Defendant likewise failed to present any specific grounds or counterevidence plausible enough to doubt the credibility of these statements. In this sense, the above statement is deemed to be a reliable source for determining whether a skilled person can practice the Subject Invention based on the specification and the technical level at the time of filing. According to the above findings, it is reasonable to conclude that a skilled person, at the time of filing of the Subject Invention, could repeat the filter stack by conducting experiments to implement a filter stack having the optical properties of the Subject Invention based on the specification of the Subject Invention and the process conditions disclosed in U.S. Patent No. 8,163,144 cited therein, and by appropriately adjusting the time and temperature profiles related to the postdepositional annealing process.

(4) In determining how specifically process conditions must

be disclosed to meet the enablement requirement, the degree of specificity customarily employed in disclosing process conditions in other patent inventions in the same technical field to which the Subject Invention belongs may also serve as a meaningful reference. In view of the claims and specifications of the inventions in the same technical field as discussed below, it appears that, in this field, it is common practice not to detail all the manufacturing processes in the specification. Rather, only those core process conditions or materials that technically contribute to achieving the optical properties of a target optical filter are specified, together with the optical properties of the optical filter produced by such processes, as reflected in the claims.

(Examples of Description 1) The claims and the description of the invention of Registered Patent Gazette No. 10-2187048
[Claim 1] The infrared bandpass filter comprises a first multilayer film, wherein the multilayer film is a plurality of Si:NH layers, in the wavelength range between 800 nm and 1,100 nm, the refractive index of each Si:NH layer is 3.5 or more, and the extinction coefficient of each Si:NH layer is 0.0002 or less; a plurality of low-refractive index layers, which are alternately stacked with the plurality of Si:NH layers, wherein each low-refractive index layer in the wavelength range between 800 nm and 1,100 nm has the refractive index of 3 or less, and the difference between the refractive index of each of the Si:NH layers and the low-refractive index layer is greater than or equal to 0.5; a passband that partially overlaps with the wavelength range between 800 nm and 1,100 nm; the center wavelength of the passband is in the wavelength range between 800 nm and 1,100 nm; the angle of incidence varies from 0° to 30°; the center wavelength of the passband is shifted by less than 12 nm; and the transmittance of the passband is greater than 90% at the wavelength between 800 nm and 1,100 nm.
[0035] In this embodiment, a method of manufacturing the infrared bandpass filter(1) is to form the Si:NH layer(111) and the low-refractive index layer(112) by sputter deposition. A process of sputter deposition is that an intermediate frequency sputter power source outputs a voltage of 50 kHz,

each applied to a pair of silicon targets through an inside electrical network in a sputtering machine. Argon is injected into the silicon target through the air duct to generate light and to emit and generate a stable plasma.

[0037] Argon ions selected from the ionization effect quickly collide with the silicon target in an electric field, and several silicon atoms are sputtered out, and an inductively coupled plasma (ICP) is mixed with ammonia, creating a Si:NH layer(111) having a refractive index of 3.5 or more in the wavelength range between 800 nm and 1,100 nm. The low-refractive index layer (112) is selected from the group consisting of SiO₂, SiOH, or SiNOH, and the ICP is mixed with oxygen/ammonia to form a low-refractive index layer having the refractive index of 3 or less in the wavelength range between 800 nm and 1,100 nm. If the low-refractive index layer(112) is Al₂O₃, TiO₂, Nb₂O₅, or Ta₂O₅, the silicon target of the sputtering machine is replaced with an aluminum target, a titanium target, or a tantalum target and is generated by the method therein.

(Examples of Description 2) The claims and the description of the invention of Registered Patent Gazette No. 10-2068516

[Claim 1] An optical filter configured to selectively transmit required wavelengths, comprising: a substrate supporting a plurality of filter layers; a first filter layer stacked on a first surface of the substrate; and a second filter layer stacked on a second surface of the substrate, wherein at least one of the first filter layer and the second filter layer including layers of carbon-added hydrogenated silicon (SiC:H) and layers of a dielectric material having a refractive index lower than that of the carbon-added hydrogenated silicon layers are being stacked in alternation; wherein the first filter layer exhibits a transmittance level of at least 80% in the first wavelength region; wherein the second filter layer exhibits the transmittance level of at least 80% in the second wavelength region; wherein the optical filter exhibits the transmittance level of at least 80% in the third wavelength region overlapping the first wavelength region and the second wavelength region; and wherein at least part of the light pass through the first filter layer and the substrate is reflected at the second filter layer, thereby exhibiting higher blocking properties in regions other than the third wavelength region.

[Claim 12] The optical filter of Claim 1, wherein at least one of the first filter layer and the second filter layer has an absorption coefficient of 0.0005 or less in the wavelength range between 750 nm and 1050 nm.

[Claim 13] The optical filter of Claim 1, wherein a blue shift of the center wavelength corresponding to the angle of incidence varies between 0° and 30° is 12 nm or less in the third wavelength region.

[0095] In this regard, as illustrated in Figure 6, the carbon-added hydrogenated silicon(a-SiC: H) has an absorption coefficient of 0.0005 or less over the wavelength range of 750 nm to 1050 nm. Since it exhibits an improved absorption coefficient(k) compared to carbon-free hydrogenated silicon(a-Si: H), the transmittance level in the desired wavelength region can be further enhanced.

[0181] Under conditions in which the absorption coefficient tends to decrease as the CH₄ flow rate increases, deposition conditions for SiC:H suitable for an optical filter can be established by adjusting process parameters such as the H₂ flow rate, the CH₄ flow rate, and the MF power, etc. The ratio of the H₂ flow rate to the CH₄ flow rate may, for example, fall within the range of 5:5 to 9:1.

(5) As discussed above, the Subject Invention discloses the minimum process conditions necessary to achieve the design specifications: a sputter-deposition process as part of the principal manufacturing processes for the optical filter; an annealing process as a tuning process for optimization; and the control of the hydrogen flow rate as a key variable for attaining the required optical properties, etc. Moreover, since the properties of the deposited thin films are affected not only by various process parameters but also by numerous state variables, including the structure and dimensions of the chamber, purity (of the gases injected into the chamber, targets, etc.), target thickness, and contamination level, and surface conditions, etc. Accordingly, it is deemed practically impossible to state all such variables and their respective values. Further, even if there are certain process conditions not explicitly explained in the description of the Subject Invention, such conditions are deemed merely those that can be easily conceived by a skilled person through ordinary and repeated experiments based on technical common sense. Yet, requiring all process conditions for simple and repetitive experiments to be detailed

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in the specification would essentially be placing the duty to disclose data to the public accumulated through experiments and know-how (trade secrets) obtained by significant effort. In light of the fundamental principles of the patent system, which seek to strike the balance between the public disclosure of technology and the grant of exclusive rights, such a requirement would impose an excessive disclosure obligation and would be difficult to reconcile with the principle of equity.

2) Whether All of the Numerical Range of the Inventions at Issue Can Be Easily Executed

For the following reasons, a skilled person can recognize an inherent lower limit that is not expressly stated in the Inventions at Issue from the specification of the Subject Invention and technical common sense. As discussed above, a skilled person would be able to carry out the Inventions at Issue by limiting the center-wavelength shift within the range between the specified upper limit and the inherent lower limit by referring to the process conditions disclosed in the Subject Invention. Therefore, it is difficult to assume that the description of the Subject Invention is insufficient to meet the enablement requirement only on the ground that the lower limit of the center-wavelength shift is not expressly described in the Inventions at Issue.

a) A 3D image sensor used for facial recognition and etc., recognizes the shape of a three-dimensional object, such as a face, by analyzing light emitted from a light source and reflected off the object. However, not only the light emitted from the light source (primarily near-infrared light⁷⁾) but also ambient light (primarily visible light⁸⁾) inevitably enters the 3D image sensor. As such, to minimize the influence of ambient light and selectively receive only the light emitted

7) The wavelength range of 720nm to 3000nm (Naver Doosan Encyclopedia).

8) The wavelength range of 380nm to 770nm (Naver Doosan Encyclopedia).

from the light source, a 3D image sensor uses an optical filter whose passband is the frequency band of the corresponding light source.

b) When light passes through media with varying refractive indices, the center-wavelength shift increases along with increasing optical path length through the media. In addition, there is an inevitable difference in the angle of incidence between the light reflected from the center part of the three-dimensional object and the light reflected from the left and right ends of the object. The larger the angle of incidence, the larger the center wavelength shift becomes compared to when passing through perpendicularly. If the frequency band of the light intended to be transmitted deviates from the passband of the optical filter due to such a center-wavelength shift, the 3D image sensor employing the optical filter cannot properly perform its function. Therefore, the optical filter used in the 3D image sensor needs to make the degree of the center-wavelength shift small enough so that at least a part of the frequency band of the light that needs to be transmitted can pass through the designed passband (in the Subject Invention, a passband in the wavelength range of 800nm to 1,100nm, having a FWHM of 50 nm or less). Accordingly, the core of the inventive concept of the Subject Invention lies in lowering the center-wavelength shift to a certain value or less within a certain range of the angle of incidence, that is, to lower the upper limit of the center-wavelength shift. As examined above, a lower limit specifying that the center-wavelength shift should be higher than a certain value is not deemed to have any particular technical significance as a lower center-wavelength shift is preferred as much as possible. Moreover, since a 3D image sensor can operate as long as at least a part of the reflected light passes through the passband within a certain range of the angle of incidence, there is less incentive to spend excessive cost and effort to significantly lower the center wavelength shift beyond lowering it to a certain standard value or less within a certain range of the angle of incidence.

c) As the effective refractive index of the medium increases, the center-wavelength shift of the light decreases⁹⁾, and the performance of the optical filter improves¹⁰⁾. The relationship between refractive index and center-wavelength shift is technical common sense in the relevant field. In the optical filter of the Subject Invention, a plurality of hydrogenated silicon layers (high-refractive-index layers) and a plurality of layers having the lower refractive index (low-refractive-index layers) are alternately stacked. As a result, the effective refractive index of the optical filter is necessarily lower than the refractive index of the high-refractive-index layers, and the hydrogenated silicon produced by the processes disclosed in the Subject Invention inevitably has the refractive index below a certain value¹¹⁾. Also, the IPTAB Decision predicted, based on the description of the specification of the Subject Invention and a well-known mathematical formula, that the lower limit of the center-wavelength shift of the Subject Invention would be approximately in the range of 7.07nm to 10.78nm, and it seems that a skilled person would easily infer the above range as well. A skilled person would also easily recognize that the refractive index can be increased to reduce the center wavelength shift, but at the same time, there is a certain limit to increasing the refractive index.

9) $\lambda_c = \lambda_0 \sqrt{1 - \frac{\sin^2 \theta}{n^{*2}}}$, λ_c : the center wavelength at an incidence angle θ , λ_0 :

the center wavelength at normal incidence ($\theta = 0^\circ$), n^* : the effective refractive index of the interference filter. According to this formula, at the same incidence angle, if the effective refractive index increases, the center wavelength λ_c approaches the center wavelength at normal incidence λ_0 , and the center-wavelength shift ($\lambda_0 - \lambda_c$) decreases.

- 10) A higher refractive index bends light more toward the vertical, which offsets differences in the optical path length through the medium caused by different incident angles.
- 11) According to the specification of the Subject Invention (paragraph [0025]) and Figures 5c and 5d, the refractive index is 4.5 or less in the wavelength range of 800nm to 1,100nm.

d) In determining whether the description requirement is met, the widespread description practice in the relevant technical field also serves as an important consideration. In view of the descriptions of the registered patents relating to optical filters in the same technical field¹²⁾, it is recognized that the common practice in this relevant field is to state only the upper or lower limit of a specific parameter when defining technical features with numerical values of various variables representing optical properties.

Patent Registration No.	Descriptions of Claims	Applicant
10-2187048	An infrared bandpass filter, wherein the angle of incidence varies between 0° and 30°, <u>the center wavelength of a passband is shifted by 12 nm or less</u> , and in the wavelength range between 800 nm and 1,100 nm, the transmittance level of the passband is greater than 90%, <u>comprising</u> : (Claim 1)	Defendant's parent company
10-1732197	<u>an optical density above 1.0</u> in the entire wavelength range from 430 nm to 650 nm (Claim 1);	BASF SE
10-1884254	having a <u>transmittance level of 30% or less</u> in the wavelength range of 450 nm to 800 nm and <u>the transmittance level of 70% or more</u> in the wavelength range between 900 nm and 1,100 nm (Claim 21);	Fujifilm Corp.
10-1204106	<u>an average optical density of 4.0</u> or higher and a minimum optical density of 3.0 or higher in the wavelength range between 400 nm and 750 nm (Claim 20);	Sungkyunkwan Univ.
10-1818902	an imaging device designed to project 3D images into bandwaves comprising light	Dolby

12) See Plaintiff's brief dated March 6, 2024, page 60. Although the registered patent gazette of the relevant patents were not submitted, the Defendant did not dispute over the claim of those patents as asserted by the Plaintiff.

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Patent Registration No.	Descriptions of Claims	Applicant
	bands of <u>25nm</u> or less; (Claim 3)	

e) As examined above, if a skilled person can recognize the existence and approximate value of the lower limit of the center-wavelength shift of the Subject Invention from its specification and technical common sense, and such a specification description is common in the relevant technical field, it is reasonable to view that the lower limit is inherent in the Subject Invention, even if it is not clearly specified. Therefore, it is unreasonable to invalidate the entire claims by assuming a lower limit of a numerical range that cannot be reached by ordinary methods due to limitations in the refractive index, etc., and that does not have great technical significance (for example, cases in which the center-wavelength shift is extremely small and approaches zero), and then concluding that the invention cannot be carried out up to that point, thereby finding a defective description under the enablement requirement of the Subject Invention.

f) In cases where some parts that are interpreted literally as being included in the claims are not supported by the description in the detailed description of the invention, or where the applicant is seen as having consciously excluded some of them from the scope of the patent right, etc., and thus interpreting the

claims literally is clearly unreasonable in light of other descriptions in the specification, it is possible to interpret the scope of the patent right restrictively by comprehensively considering the content of the filed technical idea, other descriptions in the specification, the applicant's intention, and the legal stability for third parties (*see* Supreme Court Decision 2001Hu2856, decided July 11, 2003, etc.). Even if, as a result of future technological developments, innovative processes, materials, or laminated structures, etc., are developed and a new technology is invented that achieves all other optical properties disclosed in the Subject Invention while lowering the center-wavelength

shift below the inherent lower limit of the Subject Invention, there seems to be room to reasonably adjust the relationship of rights between such a new technology and the Subject Invention by limiting the scope of rights of the Subject Invention to the inherent lower limit range predicted from the technical disclosure in the specification. It should also be taken into account that infringement has not been raised yet between the Subject Invention and any new technology achieving a center-wavelength shift below the inherent lower limit that can be predicted from the specification of the Subject Invention.

g) Meanwhile, the Defendant also argues that the mathematical formula cited in the IPTAB Decision cannot serve as a material for a skilled person to recognize the lower limit of the numerical range of the Subject Invention, on the ground that such a formula is not described in the specification of the Subject Invention. However, the relevant mathematical formula is widely known and is even described on internet sources, i.e., Wikipedia, explaining technical common sense regarding interference filters (Plaintiff's Exhibit No. 4). Therefore, this part of the Defendant's argument fails.

3) Sub-conclusion

The Subject Invention does not violate Article 42(3)1 of the Patent Act, as the description of the invention is written explicitly so that a skilled person can easily carry out the Inventions at Issue.

B. Whether the Subject Invention Violates Article 42(4)2 of the Patent Act

1) Relevant law

Article 42(4)2 of the Patent Act stipulates that each claim shall describe an invention clearly and concisely. Also, Article 97 of the Patent Act stipulates that the scope of protection of the patented invention shall be determined by the descriptions of the claims. Thus, only clear descriptions are allowed for claims, and a term that unclearly indicates the composition of an invention shall, in principle,

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not be allowed. Also, the clarity of an invention shall be assessed individually based on whether a skilled person can clearly understand the invention to be patented in light of statements in the descriptions of an invention, figures, etc., and technical common sense at the time of filing, rather than relying solely on the terms used in the claim (*see* Supreme Court Decision 2014Hul563, decided April 7, 2017, etc).

2) Determination

The meaning of the term “passband” recited in the Inventions at Issue cannot be deemed to be unclear for the following reasons:

a) It is technical common sense in the relevant field that the technical term “passband” refers to the range of frequencies (or wavelengths) transmitted between upper and lower blocked regions¹³⁾ of a bandpass filter and that the specific numerical ranges or conditions for this term are defined by various criteria depending on the specifications and performance of the optical filter.

b) The Subject Invention presents the FWHM as a benchmarking metric that limits the passband. The FWHM is a term that generally denotes the width of a function measured at half of its maximum value and appears to be widely used in the technical field to which the Subject Invention belongs. According to the relevant descriptions in the specification of the Subject Invention below, the “passband” in the Subject Invention can easily be understood as a passband whose center wavelength lies in the wavelength range between 800 nm and 1,100nm and whose width is less than 50nm, as measured by the FWHM at which the transmittance is reduced to one half (50%). The aforementioned part of the specification is consistent with the description in the Inventions at Issue stating that “the passband has a full width at half maximum (FWHM) of less than 50nm” as one of the optical properties of the optical filter.

13) *See* NAVER Encyclopedia of Earth Science.

[0033] The optical filter(600) is a long-wavelength-pass edge filter, and the passband has an edge wavelength in the wavelength range of 800nm to 1,100nm. However, in most instances, the optical filter(600) is a bandpass filter, preferably, a narrow bandpass filter. **Preferably, the passband has a full width at half maximum (FWHM) of less than 50 nm.** Typically, the passband has the center wavelength in the wavelength range of 800nm to 1,100nm.

[0036] Transmission spectra (700 and 701) at the angle of incidence of 0° and 30° , respectively, for the first exemplary optical filter are plotted in FIG. 7d. The first exemplary optical filter has a transmittance level, within the passband, of 90% or higher, and a blocking level, outside of the passband, of OD3 or higher in the wavelength range of 450nm to 1050nm. The passband has a center wavelength of about 850 nm and a FWHM of about 46.5 nm at an incidence angle of 0° . With change in the angle of incidence from 0° to 30° , the center wavelength of the passband shifts by about -12.2nm.

[0040] Transmission spectra (800 and 801) at the angle of incidence of 0° and 20° , respectively, for the second exemplary optical filter are plotted in FIG. 8c. The second exemplary optical filter has a transmittance level, within the passband, of 90% or higher, and a blocking level, outside of the passband, of OD2 or higher in the wavelength range of 400nm to 1,100nm. The passband has a center wavelength of about 829nm and a FWHM of about 29.6nm at the incidence angle of 0° . With a change in the angle of incidence from 0° to 20° , the center wavelength of the passband shifts by about -7.8nm.

c) Meanwhile, the Inventions at Issue further describe optical properties outside the passband by stating that “the optical filter has a blocking level higher than OD (Optical Density)3 in the wavelength range of 300nm to 1,100nm outside the passband.” It is sufficient to interpret such a description as specifying the following optical

properties: (i) a “passband” exists with a FWHM of less than 50nm in the wavelength range of 800nm to 1,100nm and (ii) the blocking level of incident light greater than OD3 in the remaining regions in the wavelength range of 300nm to 1,100nm outside the passband (that is, in the remaining wavelength regions other than the passband). Hence, it does not seem that the description redefined the edge of the “passband” itself, thereby obscuring the term’s clarity. [While the IPTAB Decision erred in interpreting the “OD3 blocking level” as a definition of the passband’s boundary rather than as a further limitation on optical properties outside the passband, its conclusion that the meaning of the “passband” is clear shall be upheld.].

3) Sub-conclusion

The term “passband” recited in the claims of the Inventions at Issue is clear in its meaning and therefore does not violate Article 42(4)2 of the Patent Act.

C. Whether the Subject Invention Violates Article 52(1) of the Patent Act

1) Relevant law

Article 52(1) of the Patent Act provides that an applicant who has filed a single patent application for two or more inventions may divide the application into two or more applications within the scope of the features described in the specification or figures accompanying the initial patent application. Here, the features disclosed in the specification or figures initially attached to the patent application shall be what is explicitly disclosed in the initial specification, etc., or what could be understood by a person skilled in the art as the features disclosed in the divisional application identical to those disclosed in the initial specification, etc., in light of common knowledge in the technological field at the time when the application was filed. (*see* Supreme Court Decisions 2005Hu3130, decided February 8, 2007; 2011Hu767, decided April 30, 2014.; and 2012Hu2999, decided January 15, 2015., etc.).

2) Disputed Issues

When comparing the specification of the Subject Invention with the initial specification of the Subject Invention, the initial specification stated that “the center wavelength of the passband shifts by 20nm or less in magnitude in response to a change in the angle of incidence from 0° to 30°,” whereas the specification of the Subject Invention additionally includes limitations specifying shifts of 13nm or less and 12.5nm (as underlined in the table below; hereinafter, the “**Additional Matters at Issue**”). If the addition of these Additional Matters at Issue is deemed lawful, the Inventions at Issue falling within the scope of such Additional Matters at Issue are likewise lawful.

The Original Patent Application (Defendant’s Exhibit No. 2)	The Divisional Patent Application (The Subject Invention, Plaintiff’s Exhibit No. 2)
[0034] Generally, the optical filter has a low center-wavelength shift with a change in the angle of incidence. Preferably, a center wavelength of the passband shifts by 20 nm or less in magnitude with a change in the angle of incidence from 0° to 30°. (Omitted)	[0034] Generally, the optical filter has a low center-wavelength shift with a change in the angle of incidence. Preferably, a center wavelength of the passband shifts by 20nm or less in magnitude with a change in the incidence angle from 0° to 30°. <u>Preferably, the center wavelength of the passband shifts by 13nm or less in magnitude in response to a change in the angle of incidence from 0° to 30°.</u> <u>More preferably, the center wavelength of the passband shifts by 12.5nm or less in magnitude in response to a change in the angle of incidence from 0° to 30°.</u> (Omitted)

3) Determination

For the following reasons, it is reasonable to conclude that a skilled person can understand the Additional Matters at Issue in the same manner as those described in the initial specification, etc.

a) The original patent application presented, as a problem to be solved, lowering the center-wavelength shift resulting from changes in the angle of incidence in order to improve the performance of an optical filter in a gesture-recognition system (Plaintiff's Exhibit No. 2, Paragraph [0007]). The Additional Matters at Issue further specify the scope of the "center-wavelength shift less than 20nm" described in the original patent application and thus have a common subject with the problem presented and the effects achieved in the original patent application.

b) In determining whether specifying numerical limitations of a divisional application based on an original patent application can be allowed, in principle, it shall not be allowed if such numerical limitations have critical significance since it would constitute adding a new technical idea. However, the specification of the Subject Invention has no description that has any critical significance in specifying the numerical range from 20nm or less to 13nm or less or 12.5nm or less.

c) Moreover, narrowing numerical limitations within a range that a skilled person can easily practice should not be viewed as causing an unforeseeable harm to third parties. Rather, it simply narrows the scope of the rights of the Invention at Issue by further specifying performance requirements for the optical filter.

d) In addition, the initial specification, etc., already disclosed an embodiment in which the actual center-wavelength shift was 12.2nm (Plaintiff's Exhibit No. 2, Paragraph [0036], Figure 7d), and this embodiment satisfies the conditions of "13nm or less" and "12.5nm or less" added as the Additional Matters at Issue. Accordingly, it is difficult to view that the Defendant completed a new invention and filed it as divisional application at the time of filing.

4) Sub-conclusion

The Subject Invention was lawfully filed as a divisional application within the scope of the original patent application and therefore does

not violate Article 52(1) of the Patent Act.

D. Overall Conclusion

The Inventions at Issue are not subject to any grounds for invalidation and therefore should not be held invalid. Nevertheless, the IPTAB Decision concluded otherwise, is erroneous.

4. Conclusion

The Plaintiff's petition seeking to reverse the IPTAB Decision is therefore well-grounded and shall be granted as ordered.

Presiding Judge	Sook Yeon LEE
Judge	Jaepil YUN
Judge	Hyunjung SONG

**IP HIGH COURT OF KOREA
FOURTH DIVISION
DECISION**

Case No.	2023Heo12169 Scope of Rights Confirmation (Patent)
Plaintiff	Actelion Pharmaceuticals Ltd. Representatives B (B), C (C) Counsel for Plaintiff, Attorney Hyeonjin JANG Patent Attorneys Hoseop YEO, Jinhee LIM, Hyein JEONG
Defendant	Samjin Pharmaceutical Co., Ltd Chief Executive Officer E Counsel for Defendant, Patent Attorney Soyeong AHN
Date of Closing Argument	May 29, 2024
Decision Date	July 25, 2024

ORDER

1. The Plaintiff's claim is dismissed.
2. Costs shall be borne by the Plaintiff.

DEMAND FOR RELIEF

The IPTAB Decision 2022Dang1498, dated April 19, 2023, shall be reversed.

OPINION

1. Basic Facts

A. Patented Invention (Plaintiff's Exhibits 1 and 2)¹⁾

1) Title of invention: Stable Pharmaceutical Composition Containing Pyrimidine-Sulfonamide

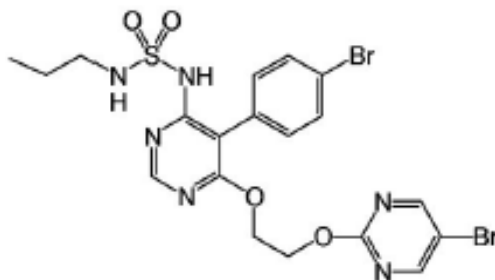
2) International filing date / Date of claimed priority / Date of registration / Registration number: September 11, 2006 / September 12, 2005 / September 24, 2013 / No. 1313395

3) Claims

【Claim 1】 A stable pharmaceutical composition for use in the treatment of pulmonary arterial hypertension, comprising:

a) a compound of Chemical Formula I²⁾, or a pharmaceutically acceptable salt, solvate, or hydrate thereof;

[Chemical Formula I]



b) a filler composed of microcrystalline cellulose and lactose monohydrate;

1) As a general rule, the claims and the description of the Patented Invention and the prior art inventions are set forth as described in the specifications, without taking into account spelling or spacing. With respect to foreign-language documents, the submitted translations are used as the basis; however, certain expressions are restated in a manner faithful to the original text.

2) Referred to by the generic name “macitentan” (hereinafter, “**macitentan**”).

c) a disintegrant³⁾ composed of sodium starch glycolate or a combination of sodium starch glycolate and polyvinylpyrrolidone;

d) a surfactant composed of polysorbate in an amount of up to 0.1 to 3% by weight based on the total weight of the pharmaceutical composition;

f) a lubricant composed of magnesium stearate (hereinafter “Claim 1,” and the remaining claims shall be referred to in the same manner).

【Claims 2 to 5】 : Deleted

【Claim 6】 The pharmaceutical composition according to Claim 1, wherein the polysorbate is present in an amount of 0.1% to 1% by weight based on the total weight of the pharmaceutical composition.

【Claim 7】 The pharmaceutical composition according to Claim 1 or 6, wherein the polysorbate is Polysorbate 80.

【Claim 8】 : Deleted

【Claim 9】 The pharmaceutical composition according to Claim 1 or 6, wherein the composition is in capsule form.

【Claim 10】 The pharmaceutical composition according to Claim 1 or 6, wherein the composition is in tablet form.

【Claims 11 to 17】 : Deleted

4) Main Content and Drawings of the Invention

A. Technical Field

[0001] The present invention relates to a stable pharmaceutical composition comprising propylsulfamic acid [5-(4-bromo-phenyl)-6-[2-(5-bromo-pyrimidin-2-yloxy)-ethoxy]-pyrimidin-4-yl]-amide or a pharmaceutically acceptable salt,

3) The Korean term “분해제(Bunhaeje)” is a clerical error referring to “붕해제(Bunghaeje),” which is one type of excipient commonly used in the technical field to which the Patented Invention belongs. With respect to “붕해제(Bunghaeje),” the specification of the Patented Invention uses the terms “분해제(Bunhaeje)” (Claim 1) and “붕괴제(Bungoeje)” (paragraphs [0012], [0017], [0053], etc.) interchangeably; however, in this judgment, the term “붕해제(Bunghaeje)” is used consistently.

solvate, hydrate, or polymorphic form thereof, which compound is hereinafter referred to as the compound of Chemical Formula I. The compound of Chemical Formula I has the following chemical structure: Chemical Formula I (omitted)

B. Background Art

[0003] The compound of Chemical Formula I is an endothelin receptor inhibitor and is useful as an endothelin receptor antagonist. The compound of Chemical Formula I, as well as methods for preparing the same are disclosed in WO 02/053557.

[0005] The compound of Chemical Formula I of the present invention is currently under evaluation in clinical trials, and therefore requires the development of a stable formulation. Accordingly, the present invention relates to a stable pharmaceutical composition comprising propylsulfamic acid [5-(4-bromo-phenyl)-6-[2-(5-bromo-pyrimidin-2-yloxy)-ethoxy]-pyrimidin-4-yl]-amide, or a pharmaceutically acceptable salt, solvate, hydrate, or polymorphic form thereof.

C. Detailed Description of the Invention

[0007] The stable pharmaceutical composition of the present invention may comprise the following components:

[0008] a) a compound of Chemical Formula I shown below, or a pharmaceutically acceptable salt, solvate, hydrate, or polymorphic form thereof;

[0011] b) a filler;

[0012] c) a disintegrant;

[0013] d) a surfactant; and

[0014] e) a lubricant.

[0017] Preferably, in the stable pharmaceutical composition of the present invention, the filler is selected from one or more of lactose, maize starch, pregelatinized starch, dibasic calcium phosphate dihydrate ($\text{CaHPO}_4 \cdot 2\text{H}_2\text{O}$), microcrystalline cellulose, maltodextrin, and mannitol; the disintegrant is selected from one or more of croscarmellose sodium, sodium starch glycolate, calcium carboxymethylcellulose, sodium carboxymethylcellulose, cross-linked polyvinylpyrrolidone, polyvinylpyrrolidone, alginic acid, sodium alginate, pregelatinized starch, guar gum, clay, and ion exchange resins; the surfactant is selected from sodium lauryl sulfate⁴⁾, polysorbate, polyethylene

4) In this case, the terms “sodium lauryl sulfate,” “lauryl sulfate sodium,” and other similar expressions are used interchangeably; however, they all refer to the same substance as “sodium lauryl sulfate” described in the specification of the

polyoxypropylene polymers, polyoxyethylene stearate, dioctyl sodium sulfosuccinate, polyoxyethylene sorbitan fatty acid esters, polyoxyethylene C1-4 alkyl ethers, sucrose monoesters, lanolin esters and ethers; and the lubricant is selected from magnesium, aluminum or calcium stearates, stearic acid, sodium stearyl fumarate, talc, sodium benzoate, glyceryl mono-fatty acids, polyethylene glycol, hydrogenated cotton seed oil, castor seed oil, and sucrose esters.

[0018] In particular, the stable pharmaceutical composition of the present invention may comprise:

[0019] a) the compound of Chemical Formula I as defined above, or a pharmaceutically acceptable salt, solvate, hydrate, or polymorphic form thereof;

[0020] b) one or more excipients selected from lactose, maize starch, pregelatinized starch, calcium hydrogen phosphate, and microcrystalline cellulose;

[0021] c) polyvinylpyrrolidone;

[0022] d) sodium starch glycolate;

[0023] e) a surfactant; and

[0024] f) a lubricant.

[0025] More specifically, the stable pharmaceutical composition according to the present invention may comprise:

[0026] a) the compound of Chemical Formula I as defined above, or a pharmaceutically acceptable salt, solvate, hydrate, or polymorphic form thereof, in a total amount of up to 50% by weight based on the total weight of the pharmaceutical composition (for example, 1 to 50% by weight, preferably 5 to 30% by weight, particularly preferably 10 to 20% by weight);

[0027] b) one or more excipients selected from lactose, maize starch, pregelatinized starch, calcium hydrogen phosphate, and microcrystalline cellulose, in a total amount of 10 to 95% by weight based on the total weight of the pharmaceutical composition (for example, 30 to 90% by weight, preferably 50 to 80% by weight, particularly preferably 60 to 75% by weight);

[0028] c) polyvinylpyrrolidone in a total amount of up to 20% by weight based on the total weight of the pharmaceutical composition (for example, 0.5 to 10% by weight, preferably 1 to 5% by weight, particularly preferably 2 to 4% by weight);

[0029] d) sodium starch glycolate in a total amount of up to 30% by weight

based on the total weight of the pharmaceutical composition (for example, 0.5 to 20% by weight, preferably 1 to 10% by weight, particularly preferably 2 to 6% by weight);

[0030] e) a surfactant in a total amount of up to 7% by weight based on the total weight of the pharmaceutical composition (for example, 0.01 to 5% by weight, preferably 0.05 to 1% by weight, particularly preferably 0.1 to 0.5% by weight);

[0031] f) a lubricant in a total amount of up to 10% by weight based on the total weight of the pharmaceutical composition (for example, 0.05 to 5% by weight, preferably 0.1 to 2% by weight, particularly preferably 0.25 to 1.5% by weight).

[0149] The capsules and tablets of the present invention are useful for the treatment of pulmonary arterial hypertension (PAH) and exhibit an excellent pharmacokinetic profile.

D. Examples

[0176] Example 1:

[0177] Batch size: 20 g

[0178]

Substance	% w/w
Compound of Chemical Formula I	40.0
Pharmatose DCL11	28.7
Starch 1500	25.0
Sodium starch glycolate	4.0
Sodium lauryl sulfate	1.0
Colloidal Silicon Dioxide	0.3
Magnesium Stearate	1.0
Total	100.0

[0192] Examples 16-20:

[0193] Batch size: 1 kg

[0194]

Tablet of Compound of Chemical Formula I (70 mg)			
Substance (Chemical Name)		Composition Ratio (% w/w)	Unit Dose (mg)
Intragranular	Compound of Chemical	14.29	10.00

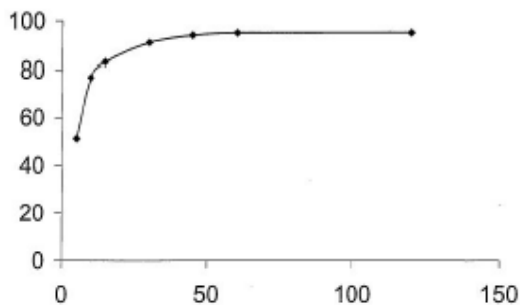
Tablet of Compound of Chemical Formula I (70 mg)			
	Formula I		
	Pharmatose 200M	56.51	39.56
	Avicel PH101	5.00	3.50
	Povidone K30	3.00	2.10
	Sodium starch glycolate	2.00	1.40
	Tween 80V	0.20	0.14
	Water	qs	qs
Extragranual	Avicel PH101	17.50	12.25
	Sodium starch glycolate	2.00	1.40
	Magnesium stearate	0.50	0.35
Total		100.00	70.00

[0276] Results for the pharmaceutical compositions according to the present invention:

[0277] The compositions of Examples 16–20 investigated using the protocol described above exhibit the dissolution profile shown in Figure 1 (where the percentage dissolution (Y-axis) is plotted as a function of time (min) (X-axis)).

E. Drawings

Figure 1



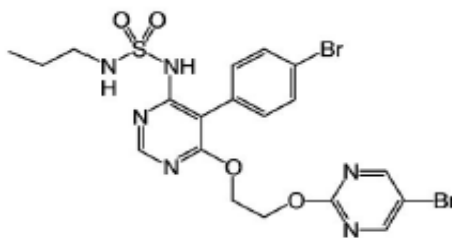
B. Challenged Invention (Plaintiff's Exhibit 3)

The Challenged Invention concerns a “tablet comprising, as an active ingredient, a compound represented by Chemical Formula I or a pharmaceutically acceptable salt, solvate, or hydrate thereof,” and its contents are set forth below.

1. Title of the Challenged Invention

A. The Challenged Invention is a tablet comprising, as an active ingredient, a compound represented by Chemical Formula I below, or a pharmaceutically acceptable salt, solvate, or hydrate thereof.

[Chemical Formula I]



B. The compound of Chemical Formula I is propylsulfamic acid [5-(4-bromo-phenyl)-6-[2-(5-bromo-pyrimidin-2-yloxy)-ethoxy]-pyrimidin-4-yl]-amide, referred to by its generic name “macitentan.”

2. Configuration

A. The Challenged Invention is a coated tablet in which a coating layer is formed on a tablet core, and the tablet core may comprise the following components.

B. Macitentan, microcrystalline cellulose, lactose monohydrate, croscarmellose sodium, hypromellose, poloxamer⁵⁾, and magnesium stearate: the purposes of blending each component may be as follows.

Purpose of Blending	Component
Active Ingredient	Macitentan or a pharmaceutically acceptable salt, solvate, or hydrate thereof
Filler	Microcrystalline cellulose
	Lactose monohydrate

Purpose of Blending	Component
Disintegrant	Croscarmellose sodium
Binder	Hypromellose
Surfactant	Poloxamer (Kolliphor, BASF pharma)
Lubricant	Magnesium stearate

3. Description of the Challenged Invention

A. The tablet core of the Challenged Invention contains poloxamer in an amount of 0.1 to 3% by weight based on the weight of the tablet core, and the tablet core of the Challenged Invention does not contain any additional surfactant other than poloxamer.

B. The Challenged Invention does not contain polysorbate, sodium starch glycolate, or polyvinylpyrrolidone.

C. The coating layer of the Challenged Invention may be formed using Opadry AMB II (for example, Opadry AMB II White (88A180040)), and the coating layer may be present in an amount of 1 to 8% by weight based on the weight of the tablet core of the Challenged Invention.

D. The manufacturing method of the Challenged Invention is as follows:

Step	Component(s)
1	Mixing of granulation components in a high-shear mixer
2	Granulating the mixture of Step 1 together with a binder in a high-shear mixer
3	Drying of the granules
4	Sizing
5	Blending the sized granules with a lubricant
6	Tableting (Compression)
7	Coating of the tablet core

C. Prior Art

Prior Art 1 is Korean Patent Publication No. 2003-0066713, published on August 9, 2003, which discloses pyrimidine-sulfonamide

5) “Poloxamer” refers to the “polyethylene polyoxypropylene polymers (Pluronic F65)” described in paragraphs [0017] and [0059] of the specification of the Patented Invention (Plaintiff’s Exhibit 3, page 17).

compounds useful as endothelin receptor antagonists, including macitentan (Defendant's Exhibit 1).⁶⁾ Prior Art 2 is Korean Patent Publication No. 2003-0041577, published on May 27, 2003, which discloses a method for producing a solid dispersion containing a poorly soluble drug and a substituted cyclodextrin using an organic solvent that contains no water, as well as a pharmaceutical composition comprising the solid dispersion produced by such method (Defendant's Exhibit 2).⁷⁾ Prior Art 3 is the *Handbook of Pharmaceutical Excipients (2nd Edition)*, which was published prior to the priority date of the Patented Invention, and discloses the excipients b), c), d), and f) recited in Claim 1 and in Prior Art 2 (Defendant's Exhibit 3). The principal contents of Prior Arts 1 to 3 are as set forth in the Appendix.

D. Procedural History

1) On May 25, 2022, the Defendant filed a request for a defensive confirmation for the scope of the patent right with the Korean Intellectual Property Trial and Appeal Board (hereinafter, "IPTAB") against the Plaintiff, claiming that "the Challenged Invention does not fall within the scope of Claims 1, 6, 7, 9, and 10" (hereinafter the "Trial Request").

2) The IPTAB reviewed the Petition for Trial under the case numbered 2022Dang1498 and, on April 19, 2023, rendered a decision (hereinafter, the "IPTAB Decision") granting the Defendant's Trial Request on the grounds that "the Challenged Invention is not literally

6) Korean Patent Publication No. 2003-0066713 (Defendant's Exhibit 1) is the Korean counterpart of International Patent Publication No. WO02/053557 (Plaintiff's Exhibit 8). In the IPTAB Decision, the contents of Prior Art 1 were examined based on Defendant's Exhibit 1 (Plaintiff's Exhibit 3, page 9). Accordingly, this Court likewise relies on Defendant's Exhibit 1.

7) Although the same patent publication was also submitted as Plaintiff's Exhibit 9, for ease of reference to the cited portions, the Court refers to Defendant's Exhibit 2, in which the specification paragraphs are indicated.

identical to Claim 1 due to differences in the configurations of the disintegrant and the surfactant, and is not equivalent thereto because it does not include the specific combination of excipients b), c), d), and f) of Claim 1 (hereinafter “b) to f”), among other clear differences; and that, since the remaining claims are dependent claims on Claim 1, the Challenged Invention does not fall within the scope of the rights conferred by any of the remaining claims insofar as it does not fall within the scope of the rights conferred by Claim 1.”

【Factual basis】 Undisputed facts, statements in Plaintiff’s Exhibits 1 to 3, 8 and 9, Defendant’s Exhibits 1 to 3, and the purport of the overall arguments.

2. Summary of the Parties’ Arguments

A. Plaintiff

1) The problem-solving principle of the Patented Invention is, first, to stabilize a macitentan-containing formulation by including a surfactant at a specific weight percentage, as exemplified by polysorbate, and, second, to further stabilize the formulation by including a non-ionic surfactant at a specific weight percentage likewise exemplified by polysorbate.

The Challenged Invention achieves stability of a macitentan-containing formulation by using poloxamer, the most commonly used substitute for polysorbate that is classified as the same type of non-ionic surfactant, at the same weight percentage, and therefore, the problem-solving principle is identical.

2) The Challenged Invention directly exploits the core of the inventive step of the Patented Invention, while achieving the stability of a macitentan formulation by using poloxamer, the most common substitute for polysorbate, and thus exhibits substantially identical effects. Moreover, a person having ordinary skill in the art

(hereinafter, a “skilled person”) would readily have replaced the surfactant polysorbate and the disintegrant sodium starch glycolate of the Patented Invention with poloxamer and croscarmellose sodium, respectively, as employed in the Challenged Invention.

3) During prosecution of the Patented Invention, the Plaintiff did not submit any amendment reducing the surfactant or disintegrant components in response to the examiner’s rejection based on lack of inventive step, and Cited Inventions 1 and 2⁸⁾ cited in that rejection do not disclose or suggest that specific excipient components or combinations thereof can stabilize a macitentan formulation. Accordingly, the Plaintiff had no reason to limit the scope of the Patented Invention solely to the specific excipient combination of b) to f), and the prosecution history including the opinions and appeal briefs submitted in response to the rejection emphasizes that the Patented Invention cannot be readily derived from a combination of Cited Inventions 1 and 2 and underscores the superior stability achieved by the Patented Invention, as opposed to any intent to disclaim or exclude excipient combinations that achieve the same effect as those used in the Challenged Invention.

B. Defendant

1) In light of the claims as allowed, the specification, the prior art, and the prosecution history, the problem-solving principle of the Patented Invention is to achieve stability of macitentan by combining macitentan with the specific excipient combination of b) to f), including polysorbate at the defined content as component d). By contrast, the Challenged Invention does not include the excipient components c) and d), and therefore operates according to a different

8) This corresponds to Prior Arts 1 and 2 in the present action. More specifically, the domestic patent corresponding to Cited Invention 1 (International Patent Publication No. WO 02/053557, Plaintiff’s Exhibit 8) constitutes Prior Art 1 (Defendant’s Exhibit 1).

problem-solving principle.

2) The Patented Invention achieves stability through the organic combination of macitentan and the specific excipient combination of b) to f). Even if those excipients were replaced with other commonly used excipients disclosed in the specification, it would not be possible to predict whether stability would be achieved without conducting empirical testing. Accordingly, the excipient components c) and d) of the Challenged Invention would not be readily replaceable with different components.

3) During prosecution of the Patented Invention, the Plaintiff demonstrated stabilization of a macitentan-containing pharmaceutical composition through the combination of macitentan and the specific excipient combination of b) to f). In particular, the Plaintiff asserted and supported with experimental data that if even one of the excipient components b) to f) were omitted or replaced with other commonly used components, the desired effect could not be obtained. Accordingly, the Plaintiff deliberately excluded from the scope of the Patented Invention all configurations other than the excipient combination of “(b) to (f)”, including, inter alia, the Challenged Invention.

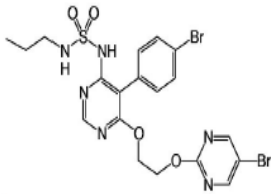
3. Whether IPTAB Erred

A. Whether the Challenged Invention Falls Within the Literal Scope of Claim 1 of the Patented Invention

1) Element-by-Element Comparison

Elements	Claim 1 of the Patented Invention	Challenged Invention	Comparison
1	A stable pharmaceutical composition for use in the treatment of pulmonary arterial hypertension,	A tablet for the treatment of pulmonary arterial hypertension	Identical

Stable Pharmaceutical Composition Containing Pyrimidine-Sulfonamide Case

Elements	Claim 1 of the Patented Invention	Challenged Invention	Comparison
	comprising the following components		
2	a) a compound of Chemical Formula I, or a pharmaceutically acceptable salt, solvate, or hydrate thereof; [Chemical Formula I] 	Macitentan, or a pharmaceutically acceptable salt, solvate, or hydrate thereof	Identical
3	b) a filler composed of microcrystalline cellulose and lactose monohydrate	Microcrystalline cellulose and lactose monohydrate (as a filler)	Identical
4	c) a disintegrant composed of sodium starch glycolate or a combination of sodium starch glycolate and polyvinylpyrrolidone	Croscarmellose sodium (as a disintegrant)	Different
5	d) a surfactant composed of polysorbate in an amount of up to 0.1 to 3% by weight based on the total weight of the pharmaceutical composition	Poloxamer in an amount of 0.1 to 3% by weight (as a surfactant)	Different
6	f) a lubricant composed of magnesium stearate	Magnesium stearate (as a lubricant)	Identical

2) Commonalities and Differences

Constituent Elements 1 to 3 and 6 of Claim 1 of the Patented Invention are substantially identical to the corresponding constituent elements of the Challenged Invention. However, Constituent Element 4

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of Claim 1 of the Patented Invention specifies a disintegrant composed of sodium starch glycolate or a combination of sodium starch glycolate and polyvinylpyrrolidone, whereas the corresponding constituent element of the Challenged Invention is croscarmellose sodium, which constitutes a difference between the two. Furthermore, Constituent Element 5 of Claim 1 of the Patented Invention specifies a surfactant composed of polysorbate in an amount of up to 0.1 to 3% by weight based on the total weight of the pharmaceutical composition, whereas the Challenged Invention contains poloxamer in an amount of 0.1 to 3% by weight, which also constitutes a difference between the two (hereinafter, the “Differences”).

3) Analysis

Since Constituent Elements 4 and 5 of Claim 1 of the Patented Invention do not literally match the respective constituent elements of the Challenged Invention, the Challenged Invention does not fall within the literal scope of Claim 1 of the Patented Invention. The Court therefore will next examine whether, notwithstanding the Differences, the Challenged Invention is equivalent to Claim 1 of the Patented Invention.

B. Whether the Challenged Invention is Equivalent to Claim 1 of the Patented Invention

1) Relevant Law

In order for a Challenged Invention to fall within the scope of the patented invention, each of the elements specified in the claims of the patented invention and the organic relationship among those elements must be included in the Challenged Invention. Even where there is a modified portion among the constituent elements described in the claims of the patented invention, if the problem-solving principle is identical to that of the patented invention, the effects are substantially identical to those of the patented invention, and such modification would have been obvious to a person having ordinary skill in the art,

then, unless there are special circumstances, the Challenged Invention should still be regarded as equivalent to the configuration described in the claims of the Patented Invention and thus fall within the scope of the patent right. When determining whether the “problem-solving principle is identical,” the court should not merely extract part of the configuration described in the claims in a formalistic manner, but should substantially examine what constitutes the core of the inventive concept underlying the solution unique to the patented invention, in comparison with the prior art, by taking into account the detailed description of the invention in the specification and the publicly known technology as of the filing date. When determining whether the problem-solving principle of the Challenged Invention is identical to that of the patented invention, the court must not exclude the core of the inventive concept identified from the detailed description of the invention and replace it with another technical idea on the basis of publicly known technology not described in the specification. If a third party who relied on the detailed description of the invention did not use the core of the inventive concept identified therein, but is nevertheless found to have an identical problem-solving principle based on such substituted technical idea, unforeseeable harm may be imposed on that third party (Supreme Court Decision 2017Hu424, rendered on January 31, 2019).

2) Whether the Problem-Solving Principle is Identical

(a) Core of the Inventive Concept of Claim 1 of the Patented Invention

(1) Content of the Invention

Claim 1 of the Patented Invention relates to a pharmaceutical composition comprising a compound of Chemical Formula I and the following components:

b) a filler composed of microcrystalline cellulose and lactose monohydrate;

c) a disintegrant composed of sodium starch glycolate or a combination of sodium starch glycolate and polyvinylpyrrolidone;

d) a surfactant composed of polysorbate in an amount of up to 0.1 to 3% by weight based on the total weight of the pharmaceutical composition; and

f) a lubricant composed of magnesium stearate.

(2) Description in the Specification, etc.

The specification of the Patented Invention contains the following descriptions and purport relating to the technical characteristics of the invention:

① The compound of Chemical Formula I of the Patented Invention is currently under evaluation in clinical trials, and therefore a stable formulation must be developed. For this reason, the invention relates to a stable pharmaceutical composition containing the compound of Chemical Formula I (paragraph [0005]).

② In the description of the invention, fillers, disintegrants, surfactants, and lubricants are disclosed as excipients⁹⁾ that may be included for the purpose of manufacturing a stable pharmaceutical composition containing macitentan as the main ingredient (paragraphs [0007] to [0014]). The specification simply enumerates substances that may be used as each excipient (paragraphs [0017], [0057] to [0060], [0062]). The specification further states that the invention is not limited to the substances so enumerated (paragraphs [0057] to [0059], [0062]), and also refers to the existing literature, *Handbook of Pharmaceutical Excipients (3rd Edition)*, with respect to the excipients mentioned in the specification (paragraph [0123]).

③ As for combinations of excipients constituting the

9) The specification of the Patented Invention states that “any given excipient may, by way of example, perform one or more functions as a filler, disintegrant, surfactant, glidant and/or lubricant (paragraph [0063]).” Accordingly, in the present action, the term “excipient” is used to encompass all of the foregoing additives.

stable pharmaceutical composition according to the Patented Invention, the specification discloses: compositions in which the filler and disintegrant components are appropriately selected from the substances previously enumerated (paragraphs [0018] to [0024]); compositions in which the amount of each component is specified in terms of a range (paragraphs [0025] to [0039]); compositions in which excipient components are appropriately selected from among the previously enumerated substances (paragraphs [0040] to [0049]); and pharmaceutical formulation compositions in which components selected from among the previously enumerated excipients are included in specified amounts, as set forth in Examples 1 to 35.

Among these, Examples 16 to 30 disclose formulation compositions corresponding to Claim 1 of the Patented Invention (paragraphs [0192] to [0204]).¹⁰⁾ However, the remaining examples include compositions in which some of the excipients of Claim 1 of the Patented Invention are omitted or replaced with different substances.¹¹⁾ Accordingly, the specification simply enumerates fillers, disintegrants, surfactants, and lubricants, and it is difficult to find any description indicating that a

10) In the specification of the Patented Invention, Pharmatose 200M, Avicel PH101, Povidone K30, and Tween 80V described in Examples 16 to 30 correspond respectively to lactose monohydrate (filler), microcrystalline cellulose (filler), polyvinylpyrrolidone (disintegrant), and polysorbate (surfactant), as recited in Claim 1 of the Patented Invention (footnote 4 on page 4 of the Plaintiff's brief).

11) In Example 1, pregelatinized starch (Starch 1500) is included as a filler instead of microcrystalline cellulose, and sodium lauryl sulfate is included as a surfactant instead of polysorbate (paragraphs [0067], [0178]). In Examples 2 to 14, sodium lauryl sulfate is included as a surfactant instead of polysorbate (paragraphs [0179] to [0191]). In Example 31, pregelatinized starch (Starch 1500) is included as a filler instead of lactose monohydrate, and no surfactant is included as an excipient (paragraph [0210]). In Example 32, maize starch is included as a filler instead of microcrystalline cellulose (paragraphs [0079], [0214]). In Example 34, anhydrous lactose is included as a filler instead of lactose monohydrate, and no surfactant is included as an excipient (paragraph [0221]). In Example 35, mannitol is included as a filler instead of lactose monohydrate, and no surfactant is included as an excipient.

specific excipient is essential to the technical implementation of the Patented Invention or has particular technical significance.

④ The specification explicitly states that a “stable” pharmaceutical composition refers to a composition in which, over a certain period of time, 70%, preferably 80%, and most preferably 95% of the initial content of the compound of Chemical Formula I, or a pharmaceutically acceptable salt, solvate, hydrate, or polymorphic form thereof, is retained during such period (paragraph [0133]).

With respect to the method of evaluating stability, the specification states that stability may be examined in a conventional manner by measuring the compound of Chemical Formula I and its degradation products, dissolution, friability, disintegration time, appearance and/or microscopy after storage for a certain period of time at 25°C and 60% relative humidity, and/or at 40°C and 75% relative humidity (paragraph [0134]). However, the specification does not disclose any experimental results demonstrating the stability of a pharmaceutical composition containing macitentan in accordance with the above evaluation criteria or methods.

⑤ Furthermore, the specification does not contain any description from which the principle or mechanism by which the excipients of the Patented Invention contribute to the stability of a pharmaceutical composition containing macitentan can be identified.

⑥ The Patented Invention addresses the technical problem of manufacturing a stable pharmaceutical composition in order to develop a formulation containing macitentan. However, as examined above, while the specification merely lists substances commonly used as excipients in the relevant technical field, it does not disclose any experimental results or other content confirming the stability of a pharmaceutical composition containing macitentan, which is the technical problem to be solved by the Patented Invention. Accordingly, it is difficult to clearly identify the core of the inventive concept of the invention solely from the descriptions in the specification, as it cannot

be determined whether the technical problem of the Patented Invention can be achieved by the listed excipients and their possible combinations.

(3) Subsequent Experimental Data, etc.

After the examiner rejected the application for the Patented Invention on the ground that it lacked inventive step in view of Cited Inventions 1 and 2, the Plaintiff submitted additional experimental data including experimental results evaluating the stability of pharmaceutical compositions containing macitentan (hereinafter, the “Subsequent Experimental Results”) in order to overcome the examiner’s rejection (Plaintiff’s Exhibit 7, Defendant’s Exhibit 6).

The Subsequent Experimental Results evaluate the stability of each example by measuring the level of degradation products observed in Additional Examples I, K, and M, and Reference Examples RE1 to RE4.

Among these, Additional Examples I, K, and M correspond to Claim 1 of the Patented Invention, whereas Reference Examples RE1 to RE4 differ from Claim 1 of the Patented Invention with respect to the type and content of the surfactant.

		Filler	Disinte-grant	Surfactant		Lubri-cant	Degradation Products Generated after Storage at 40°C and 75% Relative Humidity			Effect
							3 Months	15 Weeks	6 Months	
Claim 1 of the Patented Invention		b)	c)	d) Polysorbate	0.1 to 3% by weight	f)				Stable
Additional Examples	I	b)	c)	Polysorbate	0.2% by weight	f)	0.14%			Stable
	K	b)	c)	Polysorbate	0.2% by weight	f)	0.07%		0.10%	Stable

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		Filler	Disinte-grant	Surfactant		Lubri-cant	Degradation Products Generated after Storage at 40°C and 75% Relative Humidity			Effect
							3 Months	15 Weeks	6 Months	
	M	b)	c)	Polysorbate	0.2% by weight	f)	0.08%		0.23%	Stable
Reference Examples	RE 1	b)	c)	Sodium lauryl sulfate	0.01% by weight	f)		5.76%		Unstable
	RE 2	b)	c)	Sodium lauryl sulfate	1.0% by weight	f)		6.20%		Unstable
	RE 3	b)	c)	Contains no surfactant		f)		8.48%		Unstable
	RE 4	b)	c)	Polysorbate	0.05% by weight	f)		5.14%		Unstable

According to the Subsequent Experimental Results, after storage for 15 weeks at 75% relative humidity and 40°C, the levels of degradation products were measured as follows: 5.76% in **Reference Example RE1**, which contained sodium lauryl sulfate at 0.01% as the surfactant; 6.20% in **Reference Example RE2**, which contained sodium lauryl sulfate at 1.0%; 8.48% in **Reference Example RE3**, which contained no surfactant; and 5.14% in **Reference Example RE4**, which contained polysorbate at 0.05%.

By contrast, in Additional Examples I, K, and M, the levels of degradation products after storage for three months at 75% relative humidity and 40°C were 0.14%, 0.07%, and 0.08%, respectively.

However, Reference Examples RE1 to RE4 are configured such that at least one of the specific excipients b) to f) of Claim 1 of the

Patented Invention is omitted or replaced, or only the content of component d) differs. In light of the above experimental results, such configurations appear unable to achieve a stable formulation containing macitentan, which is the technical problem addressed by the Patented Invention. As discussed below, the Plaintiff acknowledged, in an opinion submitted on August 4, 2011, that Reference Examples RE1 to RE4 failed to achieve stability.

By contrast, Additional Examples I, K, and M, which satisfy all elements of Claim 1 of the Patented Invention, are considered to have been “stable,” thereby meeting the objective pursued by the invention.

Defendant’s Exhibit 6

[Page 16] As you have noted, excipients b) to f) are indeed components that are conventionally used; however, the specific combination of excipients b) to f) cannot be readily arrived at through mere routine or repetitive experimentation. It is well known that, where a person having ordinary skill in the art omits a particular component or substitutes it with a component regarded as equivalent, the resulting pharmaceutical composition may be less stable or may exhibit altered properties that are unsuitable for certain types of formulations (such as tablets or granules).

[Page 22] Moreover, many of the compositions attempted by a person skilled in the art were either unusable (for example, reference example 0) or unstable (for example, reference examples 1 to 4). In other words, as explained above, it is evident that obtaining the stable composition of Claim 1 clearly requires efforts that go beyond mere routine or repetitive experimentation.

(4) Technical Common Sense, etc.

① It is a matter of common technical knowledge that excipients added to a drug may affect the stability of the drug through various mechanisms of action, as confirmed, for example, by “Stability of Drugs and Dosage Forms” published prior to the priority date of the Patented Invention. However, depending on factors such as the physicochemical properties of the substances used as excipients and

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their mechanisms of action, such substances may either improve the stability of the drug or, conversely, impair it, and accordingly, it is difficult to evaluate such effects in a uniform manner (Defendant’s Exhibit 17, pp. 34, 113–116, 121–122).¹²⁾

Prior Art 1 discloses that excipients may be included, and substances for improving stability may be added, in the formulation of a drug containing macitentan. However, Prior Art 1 does not disclose an excipient combination identical to the configuration recited in Claim 1 of the Patented Invention.

Prior Art 1 (Defendant’s Exhibit 1)
[0027] Appropriate routes of administration include intravenous, intramuscular, or oral administration, as well as ophthalmic administration. The dosage may vary depending on the particular active ingredient, the age and needs of the patient, and the route of administration. In general, a daily dose of 0.1 to 50 mg per kg of body weight may be administered. Formulations containing the compound may include inert or pharmacokinetically active excipients. <u>For example, tablets or granules may</u>

12) The Plaintiff also argued that “depending on which excipients among various known excipients are used or not used, it may be possible to provide a stable formulation, or it may not be possible. ... Considering even the fact that the same excipient may have various functions or uses (Plaintiff’s Exhibit 25, pp. 70–71), developing a compound into a stable formulation after discovering its utility is definitely not an easy task” (Plaintiff’s brief dated February 6, 2024, p. 5), and further asserted that “Defendant’s Exhibit 17: Stability of Drugs and Dosage Forms (2002) states to the effect that excipients, including surfactants, may either promote or inhibit the degradation of drugs” (Plaintiff’s oral argument materials dated May 29, 2024, p. 10). The Defendant also argued that “according to the foregoing materials, even the same surfactant, depending on the drug, may inhibit drug degradation and exhibit a stability effect, or may promote drug degradation and interfere with stability, so that it appears difficult to uniformly determine the presence or absence of a stability effect prior to conducting experiments on each drug. However, it is clearly evident that excipients, such as surfactants, have long been considered for the purpose of enhancing the stability of pharmaceutical formulations” (Defendant’s brief dated May 24, 2024, p. 4). Accordingly, with respect to this issue, it appears that there is no factual dispute between the parties.

include one or more binders, fillers, carriers, or diluents.

[0053] Such compositions may further comprise preservatives, stability-improving agents, viscosity-improving or viscosity-regulating agents, solubility-enhancing agents, sweeteners, colorants, palatability-improving compounds, osmotic pressure-modifying salts, buffers, antioxidants, and the like.

The specification of Prior Art 2 further discloses that, in formulating a drug, conventional formulation methods are employed using binders, fillers, lubricants, and disintegrants as excipients, and that surfactants such as polysorbate 80 may be added as suspending agents (paragraphs [0047], [0056]). However, unlike the Patented Invention, which relates to the formulation of a pharmaceutical composition having macitentan as a main ingredient, Prior Art 2 merely concerns the formulation of a solid dispersion composed of a poorly soluble drug and substituted cyclodextrin, and Prior Art 3 merely discloses excipient components without further specification.

Accordingly, even in view of the publicly known art, including Prior Arts 1 to 3, there is no disclosure addressing the selection and combination of appropriate excipient components for developing a stable formulation as a pharmaceutical composition containing macitentan.

Prior Art 2 (Defendant's Exhibit 2)

[0047] Oral dosage forms such as tablets and capsules may be prepared by conventional methods using pharmaceutically acceptable excipients, including binders (e.g., pregelatinized corn starch, polyvinylpyrrolidone, or hydroxypropyl methylcellulose); fillers (e.g., spray-dried lactose, anhydrous lactose, microcrystalline cellulose, or dibasic calcium phosphate); lubricants (e.g., magnesium stearate, talc, or silica); disintegrants (e.g., potato starch or sodium starch glycolate); and wetting agents (e.g., sodium lauryl sulfate). Tablets may be coated using methods well known in the art.

[0056] For ophthalmic administration, clear liquid formulations are preferred over suspensions, and the formulation process may include any suitable method, such as pre-solubilizing a solid dispersion or, preferably, dissolving the solid dispersion in an appropriate aqueous solution prior to

administration in the form of a powder or tablet. Examples of suitable buffers for use in the present invention include phosphates, boric acid, sodium borate, and organic acids such as acetic acid and citric acid, as well as salts thereof. Examples of suitable tonicity agents include salts such as boric acid, sodium chloride, and potassium chloride, as well as glycerol. Examples of suitable thickening agents include hydroxyethyl cellulose and salts thereof. Examples of suitable suspending agents include surfactants such as polysorbate 80, as well as water-soluble polymers such as sodium carboxymethylcellulose, hydroxypropyl methylcellulose, methylcellulose, and polyvinyl alcohol. Examples of suitable solubilizers include non-ionic surfactants such as polyoxyethylene hydrogenated castor oil, polyoxyethylene sorbitan monooleate, polyoxyethylene stearate, triglycerides, and polyethylene glycol. ... (omitted)

② Achieving stability in the formulation design of a pharmaceutical compound is a widely pursued objective in the technical field to which the Patented Invention belongs. In addition, adding excipients for this purpose represents only one of several methods commonly employed. However, as of the priority date of the Patented Invention, it was well known in the art that the stability of a formulation may vary depending on a number of factors, including not only the active ingredient, but also the type of excipients selected, their mechanisms of action, and the interactions between the active ingredient and the excipients. When these circumstances are considered collectively in light of the disclosures of the prior art discussed above, it is evident that, as of the priority date of the Patented Invention, macitentan, like other pharmaceutical compounds, could readily be subjected to attempts to improve stability by adding excipients during formulation. However, no known art or prior art discloses any excipient components or combinations that are suitable for improving the stability of a macitentan-containing formulation.

(b) Summary of Analysis

Based on the specification of the invention, the experimental data subsequently submitted during prosecution, and the relevant technical

common sense, and in light of the facts and circumstances set forth in items ① through ④ below, Claim 1 of the Patented Invention is based on the confirmation that, in formulating a stable pharmaceutical composition containing macitentan as an active ingredient, the stability of macitentan is improved when a specific combination of widely used excipients, namely, fillers, disintegrants, surfactants, and lubricants as recited in b) to f), is employed, and in particular, when the surfactant polysorbate is present in an amount of 0.1 to 3% by weight. Beyond this, it cannot be concluded that a stability-enhancing effect is established merely by including a specified percentage by weight of surfactants in general or a specified percentage by weight of non-ionic surfactants.

Accordingly, it is reasonable to conclude that the problem-solving principle of the Patented Invention resides in achieving a stability effect through the use of a specific excipient combination of b) to f) in the manufacture of a pharmaceutical composition containing macitentan as an active ingredient, and in particular in limiting the surfactant polysorbate to a content of 0.1 to 3% by weight.

① The specification of the Patented Invention merely lists excipients widely used in the relevant technical field without describing the mechanisms of action or the specific effects by which each excipient forming the pharmaceutical composition contributes to its stability.

② The subsequent experimental results at issue, which constitute the sole evidence supporting the asserted stability effect of the Patented Invention, confirm stability only for a formulation comprising macitentan as recited in Claim 1 of the Patented Invention and the specific excipient combination of b) to f). By contrast, those same experimental results demonstrate that sodium lauryl sulfate, although identified in the specification of the Patented Invention as an appropriate surfactant alongside polysorbate, is unsuitable for solving the technical problem addressed by the invention.

③ According to publicly known art, even the same excipient may exhibit different stability-enhancing effects depending on the combination in which it is used. In addition, the Plaintiff has consistently and affirmatively argued throughout the prosecution history of the Patented Invention that the technical features distinguishing Claim 1 from the prior art reside in the specific excipient combination of b) to f), and in particular, in the use of polysorbate as the surfactant at a content of 0.1 to 3% by weight.

④ In the field of chemical and pharmaceutical inventions, unless actual experiments are conducted, the predictability or feasibility of the effects is significantly limited. With respect to Claim 1, there are no experimental results demonstrating that the stability effect sought by the invention can be achieved by configurations other than the specific excipient combination of b) to f), nor is there any data from which such an effect can reasonably be inferred.

(c) Judgment on the Plaintiff's Additional Arguments

The Plaintiff further argues in the alternative that the problem-solving principle of the Patented Invention lies in stabilizing a macitentan-containing formulation by including a specific % by weight of non-ionic surfactants. This argument is understood as asserting that, in contrast to the problem-solving principle previously asserted by the Plaintiff on a primary basis, namely a “specific % by weight of surfactants as a whole,” an additional core of the inventive concept resides in the attribute that the surfactant is non-ionic.

However, even in view of the specification and the subsequent experimental results at issue, it has not been confirmed that stability is improved in a macitentan-containing formulation through the use of non-ionic surfactants other than polysorbate, which represents only a narrow subset of the substances classified as non-ionic surfactants. Nor is there any data from which such an effect can reasonably be inferred. Moreover, the specification contains no disclosure establishing any correlation between the non-ionic character of a surfactant and an

improvement in the stability of a macitentan-containing formulation, and does not even employ the term “non-ionic.” The mere fact that polysorbate is widely used as a non-ionic surfactant does not justify the conclusion that the properties of polysorbate are shared by all non-ionic surfactants, nor is there any evidence supporting the attribution of the formulation stability effect of polysorbate to non-ionic surfactants in general. Accordingly, the Plaintiff’s foregoing argument lacks merit.

3) Whether the Challenged Invention Implements the Core of the Inventive Concept of Claim 1

The Challenged Invention includes croscarmellose sodium as a disintegrant corresponding to Element 4 of Claim 1 of the Patented Invention, and poloxamer as a surfactant corresponding to Element 5 thereof. Unlike Claim 1, however, the Challenged Invention does not include the technical configuration that limits the surfactant to polysorbate within the specific excipient combination of b) to f) and limits its content to 0.1 to 3% by weight. Accordingly, since the Challenged Invention does not incorporate the core of the inventive concept underlying the distinctive solution of the Patented Invention, namely, “achieving a stability effect through a specific excipient combination of b) to f) in the formulation of a pharmaceutical composition containing macitentan as an active ingredient, and in particular, limiting the surfactant polysorbate to a content of 0.1 to 3% by weight,” the problem-solving principle of the two inventions are not identical.

4) Summary of Discussion

Since Claim 1 of the Patented Invention and the Challenged Invention are based on different problem-solving principles, there is no need to further examine the remaining requirements for equivalence, and thus Claim 1 and the Challenged Invention cannot be deemed to be in an equivalent relationship. Accordingly, the Challenged Invention does not fall within the scope of rights of Claim 1.

C. Whether Deliberate Exclusion Applies

Even assuming, as alleged by the Plaintiff, that the Patented Invention and the Challenged Invention share the same problem-solving principle and achieve the same effects, and further assuming that modification from the Patented Invention to the Challenged Invention would have been easy, it is nevertheless reasonable to conclude that the Challenged Invention was deliberately excluded from the claim, for the reasons set forth below.

1) Relevant Law

In determining whether a Challenged Invention falls within the scope of protection of a Patented Invention under the doctrine of equivalents, if the patent applicant or patentee is deemed to have deliberately excluded the Challenged Invention from the claims during prosecution, any allegation that the Challenged Invention falls within the scope of protection of the Patented Invention would be barred by prosecution history estoppel and therefore is not permissible. Whether the Challenged Invention was deliberately excluded from the claims during the prosecution of the Patented Invention should be determined by considering not only the specification, but also the positions taken by the examiner of the Korean Intellectual Property Office (hereinafter the “KIPO”) from the filing of the application through the issuance of the patent, as well as the applicant’s intent as reflected in the amendments and written submissions made during examination. Accordingly, the mere fact that the claims were narrowed during prosecution does not by itself warrant the conclusion that all configurations falling between the pre-amendment scope and the post-amendment scope were deliberately excluded from the claims. Rather, such exclusion may be found only where, based on a comprehensive consideration of the circumstances revealed in the prosecution history, including the reasons for amendment, such as amendments made to avoid prior art cited in a Notice of Reasons for Rejection by excluding configurations disclosed in the Prior Art, it can be determined that the applicant

clearly intended to exclude certain configurations from the scope of the patent rights. These legal principles apply equally even in cases where the applicant submitted arguments through written submissions, such as written opinions, without any claim narrowing (Supreme Court Decision 2014Hu638, dated April 26, 2017, etc.).

2) Established Facts

Upon comprehensive consideration of the evidence set forth above, including the statements contained in Defendant's Exhibits 4 through 9, 11, 13, and 15, as well as the overall purport of the parties' arguments, the following facts are established.

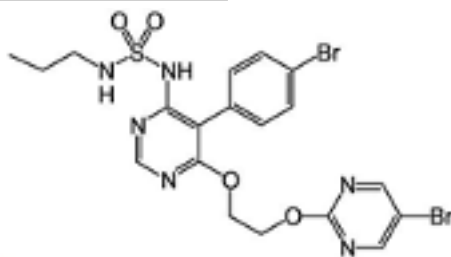
(a) The Plaintiff filed an international patent application for the Patented Invention on September 11, 2006, and subsequently submitted a Korean translation thereof on April 8, 2008, together with the claims set forth below (Defendant's Exhibit 13).

Written Submission Pursuant to Article 203 of the Patent Act (Defendant's Exhibit 13)

【Claim 1】 A pharmaceutical composition comprising:

a) a compound of Formula I having the chemical structure shown below, or a pharmaceutically acceptable salt, solvate, hydrate, or polymorphic form thereof;

Chemical Formula I



b) a filler;

c) a disintegrant;

d) a surfactant;

e) a lubricant.

【Claims 2 to 17】 (omitted)

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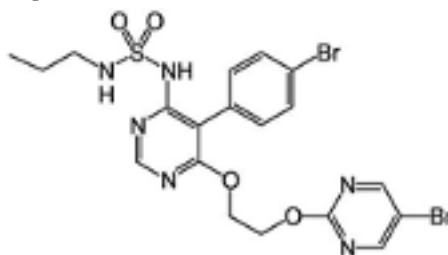
(b) On May 19, 2008, the Plaintiff submitted a voluntary amendment (Defendant's Exhibit 15), set forth below, in which independent Claim 1 was amended to limit each excipient previously recited in the claims to specific chemical identities and specified contents.

Amendment (Defendant's Exhibit 15)

【Claim 1】 A pharmaceutical composition for use in the treatment of pulmonary arterial hypertension, comprising:

a) a compound of Formula I having the chemical structure shown below, or a pharmaceutically acceptable salt, solvate, hydrate, or polymorphic form thereof, in an amount of up to 50% by weight, based on the total weight of the pharmaceutical composition;

[Chemical Formula I]



b) one or more excipients selected from lactose, corn starch, pregelatinized starch, calcium hydrogen phosphate, or microcrystalline cellulose, in an amount of 10 to 95% by weight, based on the total weight of the pharmaceutical composition;

c) polyvinylpyrrolidone in an amount of up to 20% by weight, based on the total weight of the pharmaceutical composition;

d) sodium starch glycolate in an amount of up to 30% by weight, based on the total weight of the pharmaceutical composition;

e) polysorbate in an amount of up to 7% by weight, based on the total weight of the pharmaceutical composition; and

f) magnesium stearate in an amount of up to 10% by weight based on the total weight of the pharmaceutical composition.

(c) After the voluntary amendment, the Plaintiff further amended Claim 1 on October 28, 2010, as set forth below

(Defendant's Exhibit 11). On May 12, 2011, a patent examiner of the KIPO issued a Notice of Reasons for Rejection stating that all claims lacked an inventive step, and with respect to Claim 1, the examiner asserted that "macitentan, which is used to treat pulmonary arterial hypertension, is disclosed in Cited Invention 1, and that, as described in Cited Invention 2, components b, c, d, e, and f are components customarily used in formulating drugs into oral dosage forms, and therefore Claim 1 was rejected for lack of inventive step in view of Cited Inventions 1 and 2" (Defendant's Exhibit 4).

(d) On August 4, 2011, in an effort to overcome the foregoing grounds for rejection and secure allowance of the patent, the Plaintiff submitted an amendment, including an amendment to Claim 1, as set forth below (Defendant's Exhibit 5). In the written opinion submitted together therewith (Defendant's Exhibit 6), the Plaintiff advanced, inter alia, the argument that the claimed invention is technically characterized by a composition comprising macitentan and a specific combination of excipients in order to achieve the objective of providing a stable pharmaceutical composition containing macitentan (pp. 5-6); **that Cited Invention 1 does not disclose or suggest that any specific excipient combination, in particular, polysorbate in an amount of up to 0.1 to 3% by weight, provides the most stable formulation (pp. 15-16); that although the b-f excipients are components customarily used in pharmaceutical formulations, the specific combination of those excipients cannot be readily derived through simple routine experimentation (p. 16);** that omission of any of the specified components or substitution with components deemed equivalent may result in reduced stability or altered properties rendering the formulation unsuitable for certain dosage forms (p. 16); that Cited Invention 2 contains no disclosure whatsoever concerning a formulation combining macitentan with preferred excipients (p. 17); that, according to the subsequent experimental results, formulations prepared using various excipient combinations failed to achieve adequate stability until an appropriate excipient combination with precise ratios was identified (p. 18); and

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that although surfactants were present in both Reference Examples RE1 and RE2, those formulations remained unstable, which, in other words, indicates that obtaining the stable composition recited in Claim 1 requires efforts beyond mere routine experimentation (p. 22). In light of these circumstances, the Plaintiff asserted that the claimed invention could not be easily derived by a person having ordinary skill in the art from a combination of Cited Inventions 1 and 2.

Elements	Amendment dated October 28, 2010 (Defendant's Exhibit 11)	Amendment dated August 4, 2011 (Defendant's Exhibit 5)
1	A pharmaceutical composition for use in the treatment of pulmonary arterial hypertension, comprising the following components:	A stable pharmaceutical composition for use in the treatment of pulmonary arterial hypertension, comprising the following components:
2	a) a compound of Formula I having the chemical structure shown below, or a pharmaceutically acceptable salt, solvate, or hydrate thereof, in an amount of up to 50% by weight based on the total weight of the pharmaceutical composition, [Formula I] (omitted)	a) a compound of Formula I, or a pharmaceutically acceptable salt, solvate, or hydrate thereof, [Formula I] (omitted)
3	b) one or more excipients selected from lactose, corn starch, pregelatinized starch, calcium hydrogen phosphate, or microcrystalline cellulose, in an amount of 10 to 95% by weight based on the total weight of the pharmaceutical composition,	b) a filler composed of microcrystalline cellulose and lactose monohydrate,
4	c) polyvinylpyrrolidone in an amount of up to 20% by weight based on the total weight of the pharmaceutical composition, d) sodium starch glycolate in an amount of up to 30% by weight	c) a disintegrant composed of sodium starch glycolate or a combination of sodium starch glycolate and polyvinylpyrrolidone,

Stable Pharmaceutical Composition Containing Pyrimidine-Sulfonamide Case

Elements	Amendment dated October 28, 2010 (Defendant's Exhibit 11)	Amendment dated August 4, 2011 (Defendant's Exhibit 5)
	based on the total weight of the pharmaceutical composition,	
5	e) polysorbate in an amount of up to 7% by weight based on the total weight of the pharmaceutical composition, and	d) a surfactant composed of polysorbate in an amount of 0.1 to 3% by weight based on the total weight of the pharmaceutical composition, and
6	f) magnesium stearate in an amount of up to 10% by weight based on the total weight of the pharmaceutical composition.	f) a lubricant composed of magnesium stearate.

(e) On February 29, 2012, notwithstanding the Plaintiff's submission of the amendment and written opinion dated August 4, 2011, the patent examiner of the KIPO, issued a decision maintaining the rejection of the claimed invention, stating that "although the applicant asserts in the written opinion that an inventive step should be recognized because the specific excipient combination of b) to f) is not explicitly disclosed in the Cited Inventions, those components are customarily used in pharmaceutical formulation and can be readily derived and optimized by a skilled person through routine experimentation, and therefore the grounds for rejection set forth on May 12, 2011 have not been overcome" (Defendant's Exhibit 7).

(f) On May 22, 2012, in a Request for Trial challenging the Examiner's Decision of Rejection (Defendant's Exhibit 8), the Plaintiff asserted that "the claimed invention is technically characterized by the discovery that the stability of a pharmaceutical composition containing macitentan is improved **when a specific excipient combination consisting of b), c), and d) as set forth in Claim 1 is used (p. 4)**; that according to the subsequently submitted experimental results, Reference Examples RE0 through RE4, although similar to the composition of Claim 1, were inferior in stability, and that when sodium lauryl sulfate

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was used as a surfactant (Reference Examples RE1 and RE2) as compared with polysorbate (Reference Example RE4), the effect of increasing the surfactant content on stability varied depending on the type of surfactant, such that the desired effects cannot be achieved merely by interchanging excipients or adjusting their amounts (pp. 6-7); and that, in contrast to the results obtained from the reference examples, the pharmaceutical compositions of Additional Examples I, K, and M, which correspond to the composition of Claim 1, exhibited significantly improved stability (p. 7). In light of these circumstances, the Plaintiff asserted that, among the numerous formulation options available as of the filing date, a skilled person could not readily have identified the specific excipient combination of b), c), d), and f) of the claimed invention, particularly the inclusion of polysorbate in an amount of 0.1 to 3% by weight based on the total composition, as providing the most stable formulation, and that the inventive step of the claimed invention therefore should be recognized.

3) Discussion

In light of the facts established above and the legal principles previously discussed, and based on the circumstances set forth below, it is reasonable to conclude that the excipient combination in the Challenged Invention was deliberately excluded by the Plaintiff during prosecution of the Patented Invention.

(a) At the time of filing the Patented Invention, the Plaintiff described Claim 1 as encompassing macitentan and excipients defined only by four functional categories, and thereafter, through a voluntary amendment, narrowed the claim by specifying particular excipient components. With respect to the intent underlying the voluntary amendment, the Defendant contends that, because International Patent Publication No. WO02/053557 (corresponding to Prior Art 1) was cited as an “X” category in the International Search Report, the claims were narrowed by reciting specific chemical identities and contents in order to overcome a rejection for lack of inventive step. In contrast,

the Plaintiff contends that the opinions presented by the examiner in the International Search Report are not binding, that the Plaintiff did not advance any position regarding the patentability of the Patented Invention at the time of the voluntary amendment, and that even if the voluntary amendment were made with the International Search Report in mind, neither Prior Art 1 cited therein nor the reference entitled “ROEMPP Online” (Plaintiff’s Exhibit 48) discloses the configuration of the Challenged Invention, and therefore the Plaintiff argues that there was no reason to deliberately exclude the Challenged Invention from the scope of the patent rights for the purpose of avoiding prior art.

Whether deliberate exclusion occurred must be determined based on a comprehensive consideration of the circumstances reflected in the prosecution history, including the applicant’s intent and the reasons for amendment as evidenced by the amendments and written submissions during prosecution, and therefore, it cannot be readily concluded that voluntary amendments fall outside the scope of such consideration. In addition, an International Search Report may serve as reference material to inform the applicant in advance of the existence of prior art, thereby enabling the applicant to assess the likelihood of obtaining patent protection in the designated States and to prepare accordingly. Accordingly, the mere fact that the International Search Report lacks binding effect in the examination conducted by the designated States does not, by itself, justify excluding it from consideration when determining whether deliberate exclusion occurred.

(b) At the time of filing the Patented Invention, the Plaintiff described Claim 1 as comprising macitentan and excipients serving four functional categories, and thereafter, through a voluntary amendment, limited each excipient to specific components. However, even under the Plaintiff’s own arguments, such an amendment confines the materials to a predetermined range within which the stability effect of the formulation has been confirmed. As discussed above, following the voluntary amendment, the Plaintiff has consistently argued that

“the specific excipient combination of b) to f) of Claim 1 of the Patented Invention promotes the stability of a macitentan-containing formulation,” in an effort to avoid a finding of lack of inventive step. When these circumstances are considered as a whole, it is reasonable to conclude that, at the time of the voluntary amendment, the Plaintiff limited the excipients of the prior claims in view of the stability effect of the formulation and, in doing so, excluded other components from the scope of the claimed rights.

(c) As discussed above, after the KIPO examiner issued a Notice of Grounds for Rejection dated October 28, 2010, stating that Claim 1, as amended, lacked inventive step in view of a combination of Cited Inventions 1 and 2, the Plaintiff submitted a further amendment that limited the types of fillers and disintegrants, deleted the description of content amounts, and restricted the surfactant content to 0.1 to 3% by weight.¹³⁾ Through this amendment, among the subsequent experimental results relied upon, both Reference Example RE0, which employed pregelatinized starch as a filler and was evaluated as unsuitable for solving the technical problem of the Patented Invention¹⁴⁾, and Reference Example RE4, which employed polysorbate as a surfactant in an amount of 0.05 % by weight, were

13) Although the technical features of b) to f) of Claim 1 as amended on October 28, 2010 do not explicitly recite terms such as filler, disintegrant, surfactant, or lubricant, in view of the overall amendment history described above and the circumstances in which the Plaintiff, through the amendment dated August 4, 2011, additionally indicated that the existing excipient components correspond respectively to a filler, a disintegrant, a surfactant, and a lubricant, and further asserted that the type of filler among the excipients had been limited (Plaintiff’s brief dated February 6, 2024, pages. 7 and 11), it is reasonable to interpret the claim in the manner described above.

14) The specification of the Patented Invention states that “pregelatinized starch commercially available from suppliers, preferably Starch 1500 (Colorcon), is used in the present invention” (paragraph [0067]). Accordingly, the starch 1500 contained in Reference Example RE0 appears to correspond to pregelatinized starch.

deleted. The configuration as thus amended exactly corresponds to the “combination of excipient materials (Additional Examples I, K, and M)” presented by the Plaintiff in the written opinion submitted together with the amendment for the purpose of overcoming the rejection based on lack of inventive step. Furthermore, throughout the prosecution history, the formulation stability effect was confirmed only for Additional Examples I, K, and M, all of which constitute combinations that were demonstrated, through the subsequent experimental results relied upon, to form a stable pharmaceutical composition together with macitentan.

4) Discussion on the Plaintiff’s Remaining Allegations

The Plaintiff alleges that, because Cited Inventions 1 and 2, which were cited by the KIPO examiner in the Notice of Grounds for Rejection dated May 12, 2011 as grounds for denying the inventive step of the Patented Invention, neither disclose nor suggest which excipient components or combinations are capable of stabilizing a macitentan-containing formulation, there was no reason for the Plaintiff to limit the scope of patent protection solely to a specific excipient combination or to exclude configurations falling within the scope of equivalents.

The Plaintiff’s foregoing argument is tenable only on the premise that the cited grounds for rejection could be overcome by avoiding the prior art through a narrowing amendment that excludes the configurations disclosed in the prior art cited in the Notice of Grounds for Rejection. However, in the prosecution history of the Patented Invention, the grounds for rejection based on lack of inventive step identified by the patent examiner of the KIPO were premised on the view that the components b) to f) were merely components customarily used in pharmaceutical formulation, and that a person having ordinary skill in the art could readily derive and optimize, through repetitive experimentation, a combination composed of the components b) to f) of Claim 1 of the Patented Invention. This is

different from the situation asserted by the Plaintiff. The Plaintiff, also on the premise that it understood the examiner's grounds for rejection in the same manner, argued to the effect that "deriving a combination composed of b) to f) of Claim 1 of the Patented Invention is not easy for a person having ordinary skill in the art," and, in support thereof, asserted that Reference Examples RE1 through RE4 are unstable, even though they are compositions similar to the composition of Claim 1¹⁵). When these circumstances are comprehensively considered, it is determined that the Plaintiff had sufficient motivation to limit the scope of rights to only the specific excipient combination of b) to f) in order to overcome the grounds for rejection based on inventive step. Given that, during the prosecution history, the Plaintiff's intent appears to have been to obtain a patent even at the cost of excluding, from the scope of rights, formulation compositions having excipient combinations similar to Claim 1 of the Patented Invention, including the Challenged Invention, the Plaintiff's above argument, which adopts a contrary position, is difficult to accept.

5) Summary of Discussion

Even if, as argued by the Plaintiff, Claim 1 of the Patented Invention and the Challenged Invention share the same problem-solving principle and technical effects, and even if the modification of the differing features is readily achievable, thereby establishing an equivalent

15) In the request for a trial against the rejection decision concerning the Patented Invention, the Plaintiff argued that "Reference Examples RE0, RE1, RE2, RE3, and RE4 are similar to the composition of Claim 1 but are not as excellent as the composition of Claim 1, and in particular, RE0 failed to form granules, making it impossible to continue the experiment" (Defendant's Exhibit 8, p. 6). Reference Examples RE1 and RE2 appear to correspond to cases in which certain components among the excipient combination of b) to f) were substituted with other components considered to be equivalent, Reference Example RE3 appears to correspond to a case in which a certain component among the excipient combination of b) to f) was omitted, and Reference Example RE4 appears to correspond to a case in which the content of a certain component among the excipient combination of b) to f) was adjusted.

relationship, it is reasonable to conclude that the surfactant “poloxamer” of the Challenged Invention was consciously excluded by the Plaintiff during the prosecution of the Patented Invention. Accordingly, it is reasonable to conclude that the Challenged Invention does not fall within the scope of rights of Claim 1 of the Patented Invention.

D. Whether the Challenged Invention Falls within the Scope of Rights of Claims 6, 7, 9, and 10 of the Patented Invention

Claims 6, 7, 9, and 10 of the Patented Invention are dependent claims that refer to Claim 1 of the Patented Invention, and thus fully incorporate the technical features of Claim 1 of the Patented Invention while further limiting them. As long as the Challenged Invention does not fall within the scope of rights of Claim 1 of the Patented Invention, the remaining dependent claims likewise do not fall within the scope of rights.

4. Conclusion

The Challenged Invention does not fall within the scope of rights of the Patented Invention. The IPTAB Decision, which reached the same conclusion, is lawful. The Plaintiff’s claim requesting the reversal of the IPTAB Decision is without merit. Therefore, the decision is rendered as ordered.

Presiding Judge	Sungyop WOO
Judge	Jiyoung YI
Judge	Jiyul AHN

[Appendix]

Prior Arts

1. Prior Art 1 (Defendant's Exhibit 1)

Korean Patent Publication No. 2003-0066713, published on August 9, 2003, relates to pyrimidine-sulfamide compounds useful as endothelin receptor antagonists that include a macitentan compound (Abstract and paragraphs [0028], [0029]). It is disclosed that the above compounds may be administered in dosage forms such as capsules and tablets, and may include numerous binders, fillers, carriers, or diluents (paragraph [0027]), and may include excipients such as lactose, talc, and stearic acid, and may further include preservatives, stability enhancers, solubility enhancers, and sweeteners (paragraphs [0051], [0053]). In this regard, the main contents described in the above published patent application are as follows.

[Abstract] The present invention relates to novel pyrimidine-sulfamides of Formula I and their use as active ingredients in the preparation of pharmaceutical compositions. The present invention also relates to the process for preparing the above compounds, pharmaceutical compositions comprising one or more compounds of Formula I, and related aspects, including in particular their use as endothelin receptor antagonists.

[0004] ET-1 has been shown to play a pathophysiological role, as evidenced by increased plasma and tissue levels, in several diseases such as hypertension, pulmonary hypertension, sepsis, atherosclerosis, acute myocardial infarction, congestive heart failure, renal failure, migraine, and asthma. Accordingly, endothelin receptor antagonists have been extensively studied as potential therapeutic agents. Endothelin receptor antagonists have demonstrated preclinical and/or clinical efficacy in various diseases such as subarachnoid hemorrhage after cerebral vasospasm, heart failure, pulmonary and systemic hypertension, neurogenic inflammation, renal failure, and myocardial infarction.

[0005] At present, endothelin receptor antagonists are not commercially available, and only a few antagonists are at the clinical trial stage. However,

these molecules have many drawbacks, such as difficulty in synthesis, low solubility, high molecular weight, poor pharmacokinetics, or stability problems (e.g., elevated liver enzymes). Moreover, the respective contributions of ETA/ETB receptor blockade to clinical outcomes have not been clarified. Therefore, tailoring of physicochemical and pharmacokinetic properties and the selectivity profile of each antagonist for a given clinical indication are essential. To date, endothelin receptor antagonists having a pyrimidine core structure bearing a sulfamide unit have not been reported [2, 3, 5, 6, 8]. The Applicant discovered a new group of substituted pyrimidines having the structures set forth below, which are capable of such specific tailoring, and further identified compounds exhibiting a mixed ETA-selective binding profile.

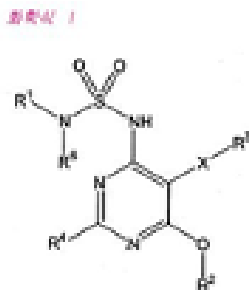
[0026] Such compounds may be administered by oral, rectal, or parenteral routes (e.g., intravenous, intramuscular, subcutaneous, intrathecal, transdermal, or sublingual), or may be administered as ophthalmic formulations or aerosols. Examples of applications include capsules, tablets, orally administered suspensions or solutions, suppositories, injectables, eye drops, ointments, or aerosols/nebulizers.

[0027] Suitable applications include intravenous, intramuscular, or oral administration, and eye drops. The dosage depends on the specific active ingredient, the age and requirements of the patient, and the route of administration. In general, a daily dose of 0.1–50 mg per kg of body weight is prescribed. Formulations containing the compound may include inert or pharmacokinetically active excipients. For example, tablets or granules may contain a number of binders, fillers, carriers, or diluents.

[0028] The present invention relates to pyrimidine-sulfamides of Formula I, optically pure enantiomers, mixtures of enantiomers such as racemates, optically pure diastereomers, mixtures of diastereomers, diastereomeric racemates, mixtures of diastereomeric racemates and meso-forms, and pharmaceutically acceptable salts thereof.

[0029]

Chemical Formula I



[0050] These compositions may be administered in oral or enteral forms (e.g., tablets, sugar-coated tablets, gelatin capsules, emulsions, solutions, or suspensions); nasal forms (e.g., sprays); or suppository forms. These compounds may also be administered in intramuscular, parenteral, or intravenous forms, for example, in the form of injectable solutions.

[0051] These pharmaceutical compositions may contain lactose, corn or derivatives thereof, talc, stearic acid, or salts thereof, mixed with a compound of Formula I or a pharmaceutically acceptable salt thereof.

[0052] In gelatin capsules, vegetable oils, waxes, fats, lipids, or semi-lipoid polyols may be used. In the preparation of solutions and syrups, water, polyols, sucrose, glucose, and the like may be used as examples. Injectable preparations may be prepared using water, polyols, alcohols, glycerin, vegetable oils, lecithin, liposomes, and the like. Suppositories are prepared using natural or hydrogenated oils, waxes, fatty acids (fats), liquid or semi-liquid polyols, and the like.

[0053] Such compositions may further contain preservatives, stability-enhancing agents, viscosity-improving or regulating agents, solubility-enhancing agents, sweeteners, colorants, taste-improving compounds, salts that alter osmotic pressure, buffers, antioxidants, and the like.

2. Prior Art 2 (Defendant's Exhibit 2)

Korean Patent Publication No. 2003-0041577, published on May 27, 2003, relates to a method for preparing a solid dispersion containing a poorly soluble drug and a substituted cyclodextrin using only organic solvents that do not contain water, and to a pharmaceutical composition

containing a solid dispersion prepared by such a method (Abstract and paragraph [0002]).

As drugs suitable for Prior Art 2, examples include poorly soluble drugs that are difficult to handle under aqueous conditions, such as piroxicam, tretinoin, danazol, ibuprofen, ketoprofen, ketoconazole, and domperidone (paragraph [0040]). It is disclosed that the solid dispersion composed of the poorly soluble drug and the substituted cyclodextrin may be formulated into oral dosage forms such as tablets and capsules by ordinary methods using pharmaceutically acceptable excipients such as binders (e.g., polyvinylpyrrolidone), fillers (e.g., lactose, microcrystalline cellulose), lubricants (e.g., magnesium stearate), disintegrants (e.g., sodium starch glycolate), or wetting agents (e.g., sodium lauryl sulfate) (paragraph [0047]). It is further disclosed that, when prepared as an ophthalmic formulation, surfactants such as polysorbate 80 are included as suspending agents (paragraph [0056]).

In this regard, the main contents described in the above published patent application are as follows.

[Abstract] The present invention relates to a pharmaceutical solid dispersion containing a substituted cyclodextrin and to a method for preparing the same, and more particularly, to a solid dispersion prepared by using only an organic solvent that does not contain water with a poorly soluble drug and a substituted cyclodextrin, and to a method for preparing the same.

[0002] The present invention relates to a method for preparing a solid dispersion by dissolving a poorly soluble drug and a substituted cyclodextrin as a carrier using only organic solvents that do not contain water, followed by vacuum drying or spray drying, and to a pharmaceutical composition containing the solid dispersion thus prepared.

[0015] The present invention relates to a method for preparing a solid dispersion that provides improved drug release and absorption by using, as a carrier, a substituted cyclodextrin that is pharmaceutically stable and exhibits rapid dissolution in an aqueous medium, thereby accelerating the dissolution rate and dissolution ratio, in formulating active drugs that are disadvantageous to handle in aqueous systems, and to a pharmaceutical composition containing the solid dispersion thus prepared.

[0040] Among poorly soluble compounds that may be used in the composition of the present invention, drugs most suitable for illustrating the present technology include drugs that are practically insoluble in water and are extremely poorly soluble even in water/polar solvent mixed solvents of water-miscible polar solvents, and are therefore difficult to handle in aqueous systems, such as piroxicam, tretinoin, danazol, isotretinoin, and glibencamide. Because such drugs exhibit extremely low solubility with respect to combinations of water and polar solvents when handled in aqueous systems, inclusion complexation proceeds very slowly, and the inclusion ratio of the drug and cyclodextrin increases. In addition, drugs that are solubilized only at a specific pH, such as ketoconazole or domperidone, exhibit pH-dependent solubility and are practically insoluble in water or physiological saline, making it commercially disadvantageous to obtain inclusion complexes in large quantities in aqueous systems.

[0047] Oral compositions such as tablets and capsules may be prepared by ordinary methods using pharmaceutically acceptable excipients, such as binders (e.g., pregelatinized corn starch, polyvinylpyrrolidone, or hydroxypropyl methylcellulose); fillers (e.g., spray-dried or anhydrous lactose, microcrystalline cellulose, or dibasic calcium phosphate); lubricants (e.g., magnesium stearate, talc, or silica); disintegrants (e.g., potato starch or sodium starch glycolate); or wetting agents (e.g., sodium lauryl sulfate). Tablets may be coated by methods well known in the art.

[0056] As ophthalmic administration formulations, clear liquid formulations are more preferable than suspensions, and the formulation process includes all methods such as pre-solubilizing a solid dispersion, or, preferably, dissolving it in an appropriate aqueous solution prior to use in the form of a powder or tablet. Examples of suitable buffers for the present invention include phosphates, boric acid, sodium borate, and organic acids such as acetic acid and citric acid, and salts thereof. Examples of suitable tonicity agents include salts such as boric acid, sodium chloride, and potassium chloride, and glycerol. Examples of suitable thickening agents include hydroxyethyl cellulose and salts thereof. Examples of suitable suspending agents include surfactants such as polysorbate 80, and water-soluble polymers such as sodium carboxymethylcellulose, hydroxypropyl methylcellulose, methylcellulose, and polyvinyl alcohol. Examples of suitable solubilizers include non-ionic surfactants such as polyoxyethylene hydrogenated castor oil, polyoxyethylene sorbitan monooleate, polyoxyethylene stearate, triglycerides, and polyethylene glycol. Examples of suitable pH

adjusting agents include alkaline compounds such as sodium hydroxide, boric acid, and sodium dihydrogen phosphate, or acids such as hydrochloric acid, boric acid, phosphoric acid, and acetic acid. Examples of suitable chelating agents include disodium edetate, sodium citrate, and sodium condensed phosphate.

[0101] The present invention relates to a method for preparing a solid dispersion that provides improved drug release and absorption by using, as a carrier, a substituted cyclodextrin that is pharmaceutically stable and exhibits rapid dissolution upon in vivo administration, in formulating poorly water-soluble drugs, and to a pharmaceutical composition containing the same.

[0102] The present invention provides, as a method for preparing a solid dispersion containing a substituted cyclodextrin, advantages in that a poorly soluble drug and a substituted cyclodextrin can be easily solubilized using only organic solvents, without heating to high temperatures or using an aqueous system containing water, and that a solid dispersion can be obtained in large quantities through simple operations such as vacuum drying and spray drying. The pharmaceutical composition according to the present invention has the effect of enhancing the dissolution rate and dissolution ratio of poorly water-soluble drugs, thereby maximizing bioavailability.

3. Prior Art 3 (Defendant's Exhibit 3)

Prior Art 3 is the "Handbook of Pharmaceutical Excipients (Second Edition)", which was published prior to the priority date of the Patented Invention, and discloses excipient components b), c), d), and f) set forth in Claim 1 of the Patented Invention and Prior Art 2. The main contents described in the above reference are as follows. End.

[Page 84, left column]

Microcrystalline cellulose ... (omitted)

6. Functional classification

Adsorbent; suspending agent; tablet and capsule diluent; tablet disintegrant

[Page 252, left column]

Lactose ... (omitted)

6. Functional classification

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Tablet and capsule diluent

[Page 280, left column]

Magnesium stearate ... (omitted)

6. Functional classification

Tablet and capsule lubricant

[Pages 375, right column; 376, left column]

Polyoxyethylene sorbitan fatty acid esters

1. Official name (USP–NF): Polysorbate 20, 60, and 80 ... (omitted)

6. Functional classification

Emulsifier; non-ionic surfactant; solubilizer; wetting agent

[Page 392]

Povidone ... (omitted)

2. Synonyms

... polyvinylpyrrolidone

6. Functional classification

Suspending agent; tablet binder

[Page 462, left column]

Sodium starch glycolate ... (omitted)

6. Functional classification

Tablet and capsule disintegrant

IP HIGH COURT OF KOREA
FIRST DIVISION
DECISION

Case No.	2023Heo13360 Invalidity of Registration (Patent)
Plaintiff	Flownix Co., Ltd. CEO B Counsel for Plaintiff Lee&Ko Attorneys in Charge Buhan KIM, Hayoon JEON, Seungeun YOO
Defendnat	Yumin ST Co., Ltd. CEO D Counsel for Defendnat Attorney Hyunjin JANG Counsel for Defendnat Patent Attorney in Charge Hyewon KANG
Date of Closing Argument	April 11, 2024
Decision Date	May 23, 2024

ORDER

1. The Plaintiff's appeal is dismissed.
2. Costs shall be borne by the Plaintiff.

DEMAND FOR RELIEF

The IPTAB Decision 2022Dang3132, dated July 24, 2023 (hereinafter,

the “Decision“), shall be reversed.

OPINION

1. Background

A. Defendnat’s Patented Invention (hereinafter, Defendnat’s Exhibit 1)¹⁾

1) Title of Invention: Acid Solution Leakage Detection Device

2) Filing Date, etc.

Filing Date	August 26, 2014
Registration Date	November 4, 2014
Registration No.	1460020

3) Scope of Claims (as amended on February 20, 2020, in Invalidity Decision 2019Dang2463)

【Claim 1】 An acid-solution leakage detection device comprising: a pair of conductive lines disposed on an upper surface of a base film layer formed of a film material, the conductive lines being arranged parallel to each other in a longitudinal direction (hereinafter, Element 1); an upper protective film layer laminated on the upper surface of the base film layer, the upper protective film layer having sensing holes formed at predetermined intervals so as to expose the conductive lines (hereinafter, Element 2); a material that is dissolvable by an acidic solution, the material filling only the sensing holes of the upper protective film layer (hereinafter, Element 3); and wherein, when an acidic solution leaks, the acidic solution dissolves the material filling the sensing holes, thereby electrically connecting the pair of conductive lines to detect the leakage (Element 4).

1) As a general rule, the claims and disclosures of the Defendnat’s patented invention and the prior-art references are reproduced verbatim as set forth in the specifications and related documents, without correction of spelling, spacing, or other typographical matters.

4) Main Contents and the Drawing

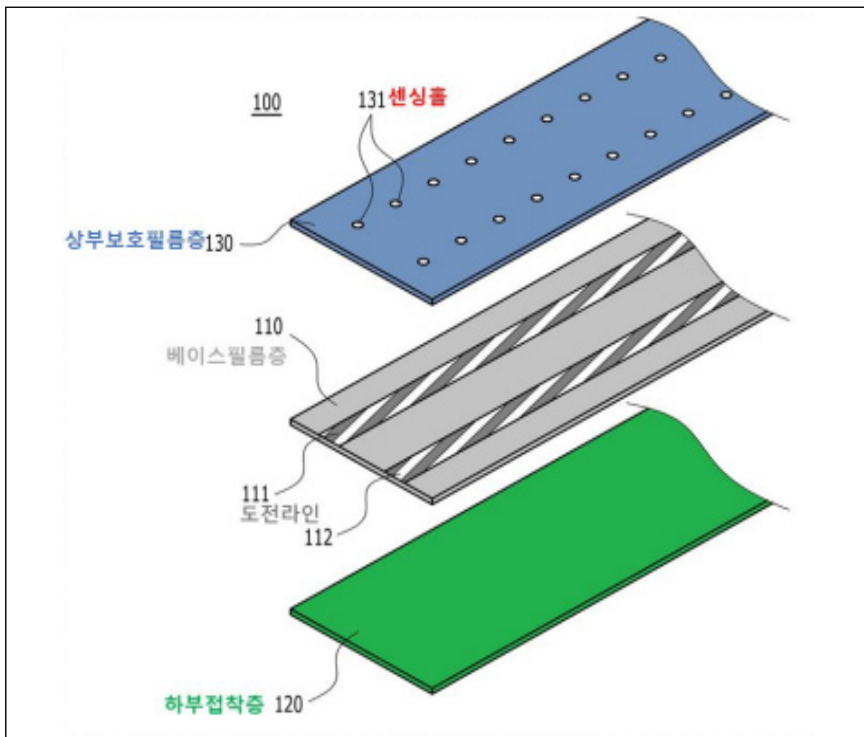
A. Technical Field

[0001] The present invention relates to an acid-solution leakage detection device, and more particularly to a device for detecting leakage of highly acidic and toxic chemical solutions such as sulfuric acid, hydrochloric acid, nitric acid, and hydrofluoric acid.

B. Background Art and Problems to Be Solved

[0002] The present applicant has previously proposed tape-type leakage detection sensors in several registered patents (e.g., Korean Patent Nos. 10-909242 and 10-827385), which are configured in a tape form and installed at locations prone to leakage to facilitate easy detection of leaked material.

[0003] As shown in Figures 1 and 2, such a leakage detection sensor (100) is constructed by sequentially laminating, from bottom to top, a lower adhesive layer (120), a base film layer (110), and an upper protective film layer (130).



[Figure 1] Structure of a Conventional Leakage Detection Device

Name of the Number
131: Sensing Hole
130: Upper protective Film Layer
110: Base Film Layer
111: Conductive Line
120: Lower Adhesive Layer

[0004] The lower adhesive layer (120) is configured in the form of an adhesive tape and is intended to be attached to a location where leakage may occur. The base film layer (110) serves as a layer on which the conductive lines (111, 112) are formed on its upper surface, and is made of a PET, PE, PTFE, PVC, or other Teflon-based film material so that the pattern of the conductive lines (111, 112) can be formed by a printing process.

[0005] The conductive lines (111, 112) are arranged on the upper surface of the base film layer (110) in a strip form, are spaced apart from each other, and extend parallel to one another in the longitudinal direction. The conductive lines are printed using a conductive ink or a silver (Ag) compound.

[0006] The upper protective film layer (130) is laminated on the upper side of the base film layer (110) and serves to protect the conductive lines (111, 112) from external stimuli. Similar to the base film layer (110), the upper protective film layer is made of PET, PE, PTFE, PVC, or other Teflon-based materials. Sensing holes (131) are formed so as to penetrate the upper protective film layer at predetermined intervals at positions corresponding to the conductive lines (111, 112).

[0007] Accordingly, when leakage occurs, moisture enters through the sensing hole (131) at the leakage location, thereby electrically connecting the two conductive lines (111, 112) through the moisture. A remote controller detects the leakage by identifying this electrically conductive state, i.e., the formation of a closed circuit, and generates an alarm accordingly.

C. Problems to Be Solved and Effects of the Invention

[0009] The present invention has been devised to address the above-described problems of the prior art, and an objective of the invention is to provide an acid-solution leakage detection device that operates by

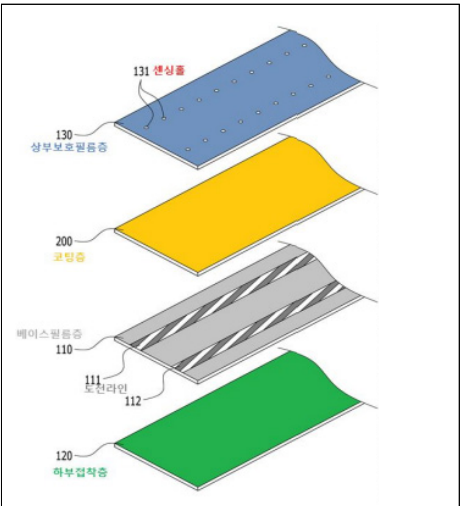
allowing the conductive lines to become electrically connected only when a highly acidic²⁾ liquid is leaked, thereby ensuring proper detection.

[0014] Because the present invention permits electrical conduction to occur only in response to a highly acidic solution, it can accurately detect only acidic components when installed in facilities for storing or transporting highly acidic toxic substances, thereby enabling rapid detection without malfunction. In addition, because the device is formed in a tape shape, it can be easily installed on pipelines and similar structures, and its manufacturing cost is low, providing excellent price competitiveness.

D. Detailed Description for Carrying Out the Invention

[0017] Figure 3 illustrates the structure of the present invention, and Figure 4 provides a side cross-sectional view thereof. Because the structures of the base film layer (110), the adhesive layer (120), and the upper protective film layer (130) are the same as those of the prior art, the following description will focus on the coating layer (200) applied in the present invention.

[0019] Accordingly, leakage of such acidic solutions must be detected quickly and at low cost. To this end, the present invention forms a coating layer (200) on the upper surface of the base film layer (110) on which the conductive lines (111, 112) are formed, the coating layer being dissolvable by highly acidic and toxic chemical solutions, such as sulfuric acid, hydrochloric acid, nitric acid, and hydrofluoric acid, that is, by acidic solutions. The coating layer (200) may be applied over the entire upper surface of the base film layer (110), or it may be applied only to the areas where the conductive lines (111, 112) are formed so as to isolate the conductive lines from external exposure.

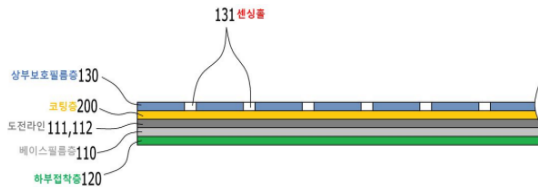


[Figure 3]

Name of the Number
131: Sensing Hole
130: Upper protective Film Layer
200: Coating Layer

[0020] The coating layer (200) may be formed by spraying enamel, melamine, urethane, or other synthetic resins that can be readily melted or dissolved by an acidic solution, thereby creating a thin film coating.

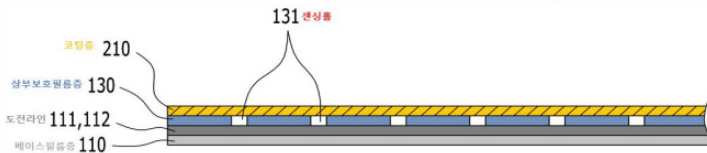
Name of the Number
110: Base Film Layer
111: Conductive Line
120: Lower Adhesive Layer



[Figure 4]

Name of the Number
131: Sensing Hole
130: Upper protective Film Layer
200: Coating Layer
110: Base Film Layer
111, 112: Conductive Line
120: Lower Adhesive Layer

[0026] Figure 7 is a view illustrating another embodiment of the present invention, in which the coating layer (210) is applied to the upper surface of the upper protective film layer (130).

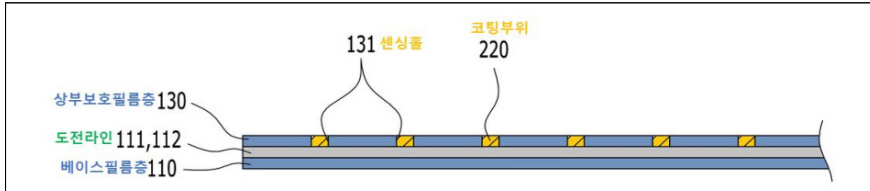


[Figure 7]

2) The term “강산성아” in the specification has been corrected to “강산성의.”

Name of the Number
210: Coating Layer
130: Upper protective Film Layer
131: Sensing Hole
111, 112: Conductive Line
110: Base Film Layer
110: Base Film Layer

[0027] Accordingly, when an acidic solution leaks, it first dissolves the coating layer (210), which is the uppermost layer, and then enters through the sensing hole (131), thereby electrically connecting the conductive lines (111, 112) to one another so that the leakage can be detected.



[Figure 8]

Name of the Number
131: Sensing Hole
220: Coated Part
130: Upper protective Film Layer
111, 112: Conductive Line
110: Base Film Layer

[0028] Figure 8 is a view illustrating yet another embodiment, in which the coated region (220) is formed not by applying the coating over the entire surface of the base film layer (110) or the upper protective film layer (130), but by filling only the sensing holes (131). In this configuration, when an acidic solution leaks, it dissolves the coated region (220), thereby causing electrical conduction between the conductive lines (111, 112).

[0029] The structures shown in Figures 7 and 8 enable an acid-solution leakage detection device to be easily manufactured by using an existing

leakage detection sensor (100), in which lamination has already been completed as in the prior art, and simply adding a process of applying a coating liquid to the upper surface of the upper protective film layer (130) or filling only the sensing holes (131) with the coating liquid.

B. Prior Art³⁾

The principal contents of Prior Arts 2 through 5⁴⁾ are as set forth in the attached Appendix.

C. Procedural History

1) First Final Dismissal on the Merits

a) On July 2, 2015, Auto Sensor Korea Co., Ltd. (hereinafter “Auto Sensor Korea”) filed a petition for a trial for invalidation with the IPTAB against the Defendnat, etc.⁵⁾ the patentee of the patented invention (the “patented invention”). Auto Sensor Korea asserted that the patented invention lacked inventive step on the grounds that a person having ordinary skill in the art (hereinafter a “skilled person”) could have easily conceived the invention in view of (i) Korean Laid-Open Patent Publication No. 2011-53704, published on May 24, 2011; (ii) Japanese Laid-Open Patent Publication No. 2004-93246, published on March 25, 2004; and (iii) U.S. Patent No. 4,896,527, issued on January 30, 1990.

b) While the invalidation trial was pending, on September 7,

3) Although utility models are also encompassed, the term “invention” is used herein for convenience.

4) Prior Arts 1 through 4 correspond to Comparative Inventions 1 through 4 that were submitted during the trial proceedings, and Prior Art 5 was newly submitted in the present litigation. Because the Plaintiff raises no specific arguments regarding Prior Art 1, a description thereof is omitted.

5) The patented invention was registered in the names of the Defendnat and F as joint patentees, but F relinquished its share of the patent right on August 31, 2018.

2015, the Defendant filed a request for correction of the claims of the patented invention, seeking to amend the claims as set forth in the table below.

Original Claim	Corrected Claim (as requested in the correction)
... configured such that the sensing holes of the upper protective film layer are closed by a material that is dissolvable by an acidic solution.	... configured such that only the sensing holes of the upper protective film layer are filled with a material that is dissolvable by an acidic solution.

c) After examining the above invalidation petition under 2015Dang3769, the IPTAB rendered a decision on October 20, 2015, dismissing Auto Sensor Korea's petition on the following grounds: although the request for correction was lawful and Elements 1 and 2 of the patented invention were identical to the primary prior art disclosed in Korean Laid-Open Patent Publication No. 2011-53704, Element 3 (configured such that only the sensing holes are filled) was structurally and functionally different from the coating layer and mask layer disclosed in Japanese Laid-Open Patent Publication No. 2004-93246 and U.S. Patent No. 4,896,527, which are applied directly over the first and second conductive bodies without a separate upper protective film layer or sensing holes. Accordingly, inventive step could not be denied.

d) Auto Sensor Korea, dissatisfied with the above decision, filed an action with the Patent Court under 2015Heo8059 seeking reversal of that trial decision. The Patent Court, on January 26, 2017, rendered a judgment dismissing the claim on the ground that the patented invention did not lack inventive step even in view of Korean Laid-Open Patent Publication No. 2011-0053704, Japanese Laid-Open Patent Publication No. 2004-93246, and Korean Registered Patent Publication No. 814193. That judgment became final and conclusive on February 15, 2017, and, accordingly, the IPTAB's Trial Decision

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No. 2015Dang3769 also became final (hereinafter the “First Final Dismissal on the Merits”).

2) Final Dismissal Decision

a) On January 19, 2018, the Plaintiff filed a petition for a trial for invalidation with the IPTAB against the Defendant, asserting that the patented invention lacked inventive step in view of (i) U.S. Patent No. 5,381,097, issued on January 20, 1995; (ii) Korean Registered Patent Publication No. 10-909242, issued on July 27, 2009; (iii) Japanese Laid-Open Patent Publication No. 2004-95224, published on March 25, 2004; and (iv) Korean Registered Patent Publication No. 10-1022015, issued on March 16, 2011.

b) On February 20, 2018, Auto Sensor Korea filed a petition for a trial for invalidation with the IPTAB against the Defendant, asserting that the patented invention lacked inventive step in view of (i) U.S. Patent No. 5,381,097, issued on January 20, 1995; (ii) Korean Laid-Open Patent Publication No. 2011-0053704, published on May 24, 2011; (iii) Japanese Laid-Open Patent Publication No. Hei 1-131447, published on May 24, 1989; and (iv) U.S. Patent No. 4,896,527, issued on January 30, 1990.

c) The Intellectual Property Trial and Appeal Board consolidated the above invalidation petitions and examined them under Case Nos. 2018Dang201 and 2018Dang473. On September 20, 2018, it rendered a decision dismissing the petitions on procedural grounds, reasoning as follows: the newly submitted prior art (i) U.S. Patent No. 5,381,097; (ii) Korean Registered Patent Publication No. 10-909242; (iii) Japanese Laid-Open Patent Publication No. 2004-95224; (iv) Korean Registered Patent Publication No. 10-1022015; and (v) Japanese Laid-Open Patent Publication No. Hei 1-131447 could not be regarded as sufficiently material to overturn the First Final Dismissal on the Merits and therefore constituted “the same evidence” under Article 163 of the Patent Act. Therefore, as the present invalidation

petitions were based on the same facts and the same evidence as the First Final Dismissal on the Merits, they violated the rule of non bis in idem prescribed in Article 163 of the Patent Act and were thus procedurally defective.

d) Dissatisfied with the above decision, Auto Sensor Korea filed an action with the Patent Court under 2018Heo8517 seeking its reversal. On May 24, 2019, the Patent Court rendered a judgment dismissing Auto Sensor Korea's claim on the following grounds: Korean Laid-Open Patent Publication No. 2011-53704 and U.S. Patent No. 4,896,527 had already been submitted and examined in the proceedings leading to the First Final Dismissal on the Merits and therefore constituted the same evidence; and the newly submitted Japanese Laid-Open Patent Publication No. Hei 1-131447 could not be regarded as sufficiently material to overturn the prior decision and thus constituted substantially the same evidence as that considered in the First Final Dismissal on the Merits. Accordingly, the petition for trial constituted a petition based on the same facts and the same evidence as the prior final dismissal and was therefore procedurally defective under the rule of non bis in idem set forth in Article 163 of the Patent Act. The judgment was affirmed as final on June 13, 2019, and, consequently, the IPTAB's Trial Decisions No. 2018Dang201 and No. 2018Dang473 also became final (hereinafter the "Final Procedural Dismissal Decision").

3) Second Final Dismissal on the Merits

a) On July 31, 2019, the Plaintiff again filed a petition for a trial for invalidation with the IPTAB against the Defendant, asserting that the patented invention (as amended by the correction request filed on September 7, 2015) lacked inventive step in view of the combination of (i) Korean Registered Patent Publication No. 10-909242, (ii) Prior Art 2, and (iii) Japanese Laid-Open Patent Publication No. 2002-313353, published on October 25, 2002.

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b) On October 14, 2019, the Defendnat filed a request for correction of the specification of the patented invention. In response, on February 10, 2020, the IPTAB issued a notice of opinion stating that the requested correction was unlawful because it constituted an expansion of the scope of claims. Thereafter, on February 20, 2020, the Defendnat submitted an amendment to the requested correction.

Element 3 before Correction and Amendment	Elements 3 and 4 before Correction and Amendment
An acid solution leakage detection device characterized in that only the sensing holes of the upper protective film layer are filled with a material that is dissolvable by an acidic solution.	An acid solution leakage detection device characterized in that only the sensing holes of the upper protective film layer are filled with a material that is dissolvable by an acidic solution, and that, when an acidic solution leaks, the acidic solution dissolves the material filling the sensing holes, thereby electrically connecting the pair of conductive lines so that the leakage is detected.

c) The IPTAB examined the above petition under 2019Dang2463 and, on February 28, 2020, rendered a decision upholding the petition. The Board found that the request for correction, as well as the subsequent amendment thereto, was lawful, and that the patented invention lacked inventive step in view of Korean Registered Patent Publication No. 10-909242 and Prior Art 2, and accordingly, the Board held that the patented invention should be invalidated.

d) The Defendnat, dissatisfied with the above decision, filed an action with the Patent Court under 2020Heo3584 seeking its reversal. On December 10, 2020, the Patent Court rendered a judgment in favor of the Defendnat, holding that the prior final procedural dismissal rendered on the basis of the same facts and the same evidence constitutes a “prior final decision” under Article 163 of the

Patent Act, and even when Prior Art 2, newly submitted in the present proceedings, is combined with Registered Patent Publication No. 10-909242, which had already been submitted in the prior final procedural dismissal, the inventive step of the patented invention cannot be deemed to have been negated. Accordingly, Prior Art 2 cannot be regarded as material evidence capable of overturning the prior final procedural dismissal. Because the petition for trial was therefore procedurally defective for violating the rule of non bis in idem under Article 163 of the Patent Act, the IPTAB's failure to dismiss the petition on procedural grounds and its rendering of a decision on different grounds were unlawful, and the decision must be reversed.

e) The Plaintiff appealed, and on June 3, 2021, the Supreme Court rendered a judgment (2021Hu10077) reversing the pre-remand judgment and remanding the case to the Patent Court, holding that, where the prior final decision is a procedural dismissal, it does not have non bis in dem effect under the proviso to Article 163 of the Patent Act; therefore, the lower court erred in law by treating the prior final procedural dismissal as a final decision having non bis in dem effect and by determining the IPTAB's decision to be unlawful on that basis.

f) On November 25, 2021, the Patent Court rendered a judgment (2021Heo3680) reversing Administrative Decision No. 2019Dang2463, holding that the patented invention did not lack inventive step either in view of the combination of Registered Patent Publication No. 10-909242 and Prior Art 2, or in view of the combination of Prior Art 2 and Korean Laid-Open Patent Publication No. 2011-0053704. Although the Plaintiff again appealed to the Supreme Court, on April 14, 2022, the Supreme Court dismissed the appeal without further review (2021Hu11537). Accordingly, the Patent Court's judgment in 2021Heo3680 became final and conclusive.

g) In accordance with the Patent Court's judgment in 2021Heo3680, which reversed the prior trial decision, the Intellectual

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Property Trial and Appeal Board re-examined the Plaintiff's petition under 2022Dang (Cancellation)⁵⁴. On August 29, 2022, the Board ultimately rendered a decision dismissing the petition on the merits, and that decision became final and conclusive on October 12, 2022 (hereinafter, the "Second Final Dismissal on the Merits").

D. Posture of the Decision at Issue

1) On November 15, 2022, the Plaintiff again filed a petition for a trial for invalidation (hereinafter "the administrative decision at issue") with the IPTAB against the Defendant, asserting that the patented invention lacked inventive step because a skilled person could easily have derived it by (i) combining Prior Art Reference 3, which discloses a protective film layer having holes formed at predetermined intervals, with Prior Art 4, which includes a configuration in which a coating agent that decomposes only in response to acid is applied over a metal film; (ii) combining Prior Arts 3 and 4 with Prior Art 2, which discloses filling through-holes of a transparent film with a water-soluble resin; or (iii) combining Prior Art 2 with Prior Art 1, disclosed in Japanese Patent Publication Sho 62-12460 on March 18, 1987.

2) The IPTAB examined the petition in this case under 2022Dang3132 and, on July 24, 2023, rendered the administrative decision at issue, dismissing the petition on procedural grounds. The Board held that the patented invention did not lack inventive step, as it could not be readily conceived by a skilled person through a combination of Prior Arts 3 and 4, a combination of Prior Arts 3, 4, and 2, or a combination of Prior Arts 1 and 2. The Board further determined that the petition was based on the same facts and the same evidence as the Second Final Dismissal on the Merits, and therefore was procedurally improper for violating the rule of non bis in idem.

【Factual basis】 Undisputed facts; facts well-known to this Court; the statements in Plaintiff's Exhibits 1 through 9, 11, and 15 (including

exhibits with branching numbers); the statements in Defendnat's Exhibit 1; and the purport of the overall argument.

2. Parties' Arguments and Issues

A. Plaintiff

Although the patented invention differs in certain respects from Prior Art 3, such differences can be readily overcome by a skilled person by combining Prior Art 3 with Prior Arts 2 and 4, or with Prior Arts 2 and 5, or by further combining commonly known and conventional techniques with each of these combinations. Accordingly, the patented invention lacks inventive step and should have been invalidated. The administrative decision at issue, which instead dismissed the petition on the ground of violating the rule of non bis in idem, is therefore unlawful.

B. Defendnat

Prior Art 3 does not differ in any material respect from the primary prior art considered in the Second Final Dismissal on the Merits and therefore constitutes the same evidence. Prior Arts 2, 4, and 5 are not sufficiently probative to overturn the conclusion reached in that decision. Accordingly, the petition for trial in this case is based on the same facts and the same evidence as the Second Final Dismissal on the Merits and must be dismissed for violating the rule of non bis in idem. The administrative decision at issue is therefore lawful.

3. Determination

A. Whether the Rule of Non Bis in Idem Was Violated

1) Relevant Law

Article 163 of the Patent Act (the rule of non bis in idem) provides that "once an administrative decision rendered under this Act has

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become final and conclusive, no person may file another petition for trial based on the same facts and the same evidence.” In this context, “same facts” means that the dispositive factual circumstances to be finally determined with respect to the patent right at issue are identical. “Same evidence” encompasses not only evidence that is literally the same as that relied upon in the prior final decision, but also any newly submitted evidence that is insufficiently probative to alter the conclusion reached in that earlier decision (*see* Supreme Court Decision 2004Hu42, dated March 11, 2005.).

2) Whether the Petition Is Based on the Same Facts

Both the petition in this case and the claim adjudicated in the Second Final Dismissal on the Merits assert the same cause of action, namely, that the patented invention lacks inventive step and therefore should be invalidated. Because the asserted right and the underlying cause of action are identical to those previously adjudicated, the present petition is based on the “same facts.”

3) Whether the Evidence Overlaps with the Prior Decision

The Plaintiff submitted Plaintiff’s Exhibits 7, 8, and 9 (Prior Arts 2 to 5) and Plaintiff’s Exhibits 10, 12, and 13 (well-known and commonly used art) as evidence to challenge the inventive step of the patented invention. Whether this evidence is the same as that considered in the Second Final Dismissal on the Merits, or, although newly submitted, lacks sufficient probative value to alter the prior conclusion, will be addressed in detail below.

a) Prior Art 3 (Plaintiff’s Exhibit 7)

Although Prior Art 3, the Plaintiff’s primary reference for asserting a lack of inventive step, was not submitted in the proceedings that led to the Second Final Dismissal on the Merits, its components and technical disclosures are substantially identical to those of Comparative Invention 1 (Registered Patent Publication No. 10-909242), which was considered in that decision (*see* (i) Administrative Decision No.

2022Dang(Cancellation)54 submitted by the Plaintiff as reference material, and (ii) Registered Patent Publication No. 10-909242). According to the statements in Plaintiff's Exhibit 2, both Prior Art 3 and Comparative Invention 1 are inventions described as background art of the patented invention at issue (*see* paragraph [0002]).⁶⁾ There is no dispute between the parties that Prior Art 3 and Comparative Invention 1 are substantially identical.

b) Prior Art 2 (Plaintiff's Exhibit 9)

Prior Art 2 (Plaintiff's Exhibit 9) was presented as Comparative Invention 2 in the proceedings leading to the Second Final Dismissal on the Merits.

c) Prior Arts 4 and 5 and Well-known and commonly used Art (Plaintiff's Exhibits 8, 10, 12, 13, and 15)

Prior Arts 4 (Plaintiff's Exhibit 8) and 5 (Plaintiff's Exhibit 15), as well as the well-known and commonly used art (Plaintiff's Exhibits 10, 12, and 13), were not submitted in the proceedings leading to the Second Final Dismissal on the Merits. To determine whether these materials are sufficiently probative to disturb that prior decision, it is necessary to assess whether a person of ordinary skill in the art could have readily derived the patented invention by combining Prior Arts 3 and 2 with either Prior Art 4 or 5, or with such commonly known art. In other words, the analysis ultimately turns on whether the patented invention lacks inventive step.

(1) Element-by-Element Comparison of the Patented Invention at Issue and Prior Art 3

Element	Patented Invention at Issue	Prior Art 3
1	A pair of conductive lines is formed on the upper surface of a base film layer made of a film material, the two lines being	A conductive line layer is formed on the upper surface of the base film layer, arranged parallel in the longitudinal direction (<i>see</i>

6) The applicants of the patented invention, Prior Art 3, and Comparative Invention 1 are the same.

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Element	Patented Invention at Issue	Prior Art 3
	arranged parallel to each other in the longitudinal direction.	paragraphs [0032], [0033]).
2	An upper protective film layer, in which sensing holes are formed at predetermined intervals to expose the conductive lines, is laminated on the upper surface of the base film layer.	A protective film layer, in which holes are formed so as to detect leakage at the conductive line layer upon the occurrence of leakage, is laminated on the upper surface of the conductive line layer (<i>see</i> paragraphs. [0034], [0044], [0045]).
3	Only the sensing holes of the upper protective film layer are filled with a material that is dissolvable by an acidic solution.	(None)
4	A device for detecting leakage of an acidic solution, wherein, when an acidic solution leaks, the solution dissolves the material filling the sensing holes, thereby electrically connecting the pair of conductive lines so that the leakage is detected.	a physical-property leak sensor device in which a closed circuit is formed in the conductive line layer upon the occurrence of a leak, thereby detecting the leak (<i>see</i> paragraph [0050])

(2) Commonalities and Differences

The patented invention and Prior Art 3 share a common structure: a pair of conductive lines [a conductive line layer]⁷⁾ is formed on the upper surface of a base film layer made of a film material, arranged parallel to each other in the longitudinal direction; and an upper protective film layer [a protective film layer], in which sensing holes are formed at predetermined intervals to expose the conductive lines, is laminated on top of the base film layer. Accordingly, Elements 1 and 2 of the patented invention and the corresponding elements of Prior Art 3 are substantially identical.

7) The elements of Prior Art 3 corresponding to the constituent elements of the patent at issue are indicated in brackets. The same applies hereinafter.

However, while the patented invention fills its sensing holes with a material that dissolves upon contact with an acidic solution. When an acidic solution leaks, it dissolves this fill material, allowing current to pass through the pair of conductive lines and thereby enabling leak detection, the sensing holes in Prior Art 3 are left unfilled, and any leaked liquid, regardless of its chemical properties, simply enters the holes and conducts the conductive line layer, triggering detection. Thus, Elements 3 and 4 of the patented invention differ from their counterparts in Prior Art 3.

(3) Whether the Differences can be easily Overcome

Where a patent claim consists of multiple elements, the inventive-step inquiry focuses on the technical concept embodied in the integrated combination of those components, rather than on each element considered in isolation. Thus, in assessing whether the patented invention lacks inventive step, the analysis does not end with a showing that each discrete element can be found in the prior art after decomposing the claim into individual components. Instead, the proper inquiry is whether a person of ordinary skill in the art could have arrived at the claimed invention as a whole, that is, the organically combined structure reflecting a particular problem-solving principle, without undue difficulty. In this analysis, any unique effects produced by the invention as an integrated whole must also be considered (*see* Supreme Court Decision 2006Hu2097, dated November 29, 2007, etc.).

Based on the facts and circumstances discussed below and the foregoing legal principles, it cannot be readily concluded that a skilled person would have overcome the above differences by combining Prior Art 3 with Prior Arts 2 and 4, or with Prior Arts 2 and 5, or by further incorporating commonly known and conventional techniques into those combinations.

(a) Comparison of the Technical Concepts of Prior Art 3 and the Patented Invention

① According to the description set forth in Plaintiff's Exhibit 7, Prior Art 3 relates to a sensor for detecting leakage of conductive liquids in general, such as water or oil, and the sensor is fabricated in a tape-type configuration to facilitate ease of installation and use, and the core inventive concept of Prior Art 3 lies in addressing the difficulties associated with installation, the high costs, and the lack of flexibility in use inherent in conventional leak-detection devices, including cable-type leak sensors, band-type leak sensors, and modular leak sensors.

By contrast, as set forth in Plaintiff's Exhibit 2, the patented invention addresses a problem in the prior art in which leak-detection devices, such as those disclosed in Prior Art 3, erroneously respond not only to acidic solutions leaking from an installation site such as a storage tank or piping, but also to rainwater, condensation, snow, or water vapor, thereby causing malfunctions. To resolve this problem, the patented invention is configured such that only the sensing holes formed in the upper protective film layer are filled with a material that is soluble in an acidic solution, thereby enabling the leak detection sensor to accurately detect only the target acidic solution without malfunctioning due to moisture introduced from the external environment (*see* paragraphs [0002], [0008], [0009], [0014], [0019], and [0028]). In other words, the patented invention's core inventive concept is to fill only the sensing holes of the upper protective film layer with an acid-soluble material, thereby preventing the sensor from responding to moisture while accurately detecting acidic solutions alone.

② Prior Art 3 discloses a structure in which an adhesive layer, a base film layer, a conductive line layer, and a protective film layer are sequentially stacked from bottom to top (*see* paragraph [0030]). The protective film layer is disposed over the conductive line layer to protect the conductive line pattern from external stimuli (*see* paragraph [0034]). However, if the protective film layer completely isolates the conductive line layer from the external

environment, the conductive line layer is incapable of detecting a leak upon the occurrence of leakage. Accordingly, Prior Art reference 3 forms holes at predetermined intervals in the protective film layer to permit leak detection (*see* paragraph [0044]). Thus, in Prior Art 3, the formation of open holes is an essential feature required by its operating principle, as it necessarily exposes the conductive line layer to the external environment in order to detect leakage of conductive liquids.

Prior Art 3 discloses a device capable of detecting not only water, but also chemical solutions and other substances having conductive properties (*see* paragraph [0050]). Because it does not distinguish among conductive liquids as detection targets, Prior Art 3 contains no teaching or suggestion of the patented invention's core inventive concept, namely, selectively detecting only acidic solutions while remaining unresponsive to moisture, i.e., selectively detecting a specific solution.

(b) Analysis of Technical Features of Prior Art 4

Prior Art 4 discloses a diaper waste detection device in which conductive metal plates (13a, 13b), arranged in a linear configuration, are coated with a material that decomposes only in response to acidic substances. Two linear openings (14a, 14b) are formed at predetermined intervals on an upper surface (12a) disposed above the conductive metal plates. Through this configuration, Prior Art 4 discloses a technical concept of selectively detecting acidic feces while excluding alkaline urine.

However, unlike the patented invention, Prior Art 4 installs the detection device within a diaper, where the device is inherently shielded from the external environment. As a result, there is no need to provide sensing holes or an upper protective film layer to protect the sensor from external environmental exposure in Prior Art 4. Moreover, because Prior Art 4 employs a configuration in which a specialized coating material covers the entirety of the conductive metal plates, this structure is not materially different from conventional

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technologies in which the entire conductive portion is coated with a material that dissolves only in a specific solution, thereby selectively permitting only that solution to pass. Moreover, the configuration disclosed in Prior Art 4 would not readily enable achievement of the objective of the patented invention, namely, facilitating manufacture of an acidic-solution leakage detection device by merely adding a process of filling sensing holes with a coating solution to an existing leak-detection sensor of the type disclosed in Prior Art 3, which includes sensing holes formed at predetermined intervals (*see* paragraph [0029]).

(c) Analysis of Technical Features of Prior Art 5

Prior Art 5 discloses an outer insulating film (12a) having a through-hole (13a), beneath which two electrodes (11a, 11b), formed as thin aluminum sheets that dissolve in a corrosive solution, are vertically arranged. An intermediate film (12c) having a through-hole (13c) is disposed between the two electrodes. With this structure, when a corrosive solution (i.e., an acidic solution) leaks and passes through the through-hole (13a) of the outer insulating film (12a), it dissolves the upper thin electrode (11a). After the corrosive solution passes through the through-hole (13c) of the intermediate film (12c) and reaches the lower electrode (11b), electrical conduction occurs, thereby enabling detection of the leakage. Accordingly, Prior Art 5 discloses a configuration in which an aluminum sheet that dissolves in a corrosive solution is disposed in an upper position to selectively detect a corrosive solution.

However, Prior Art 5 employs a detection method in which the electrodes (11a, 11b) themselves dissolve to establish electrical conduction, and positions those electrodes, formed as sheets that dissolve in a corrosive solution, beneath the outer insulating film (12a). Accordingly, Prior Art 5 does not adopt a configuration in which a material dissolvable in a corrosive solution fills only the sensing holes [through-holes]. For this reason, the configuration of Prior Art 5 is materially different from that of the patented invention.

In addition, Prior Art 5 uses the electrodes themselves as a barrier for selectively permitting passage of a solution, whereas in Prior Art 3, the electrodes [conductive lines] serve solely an electrical conduction function, with a protective film layer (39) disposed thereover to shield the conductive lines from external stimuli. In view of these substantial structural and functional differences between the two devices, a skilled person would have had difficulty combining the teachings of Prior Art 5 with those of Prior Art 3.

(d) Analysis of Technical Features of Prior Art 2

Prior Art 2 is characterized by a technical feature in which a detection sheet is covered with a covering member to prevent false detection caused by moisture reacting with the detection sheet. When a liquid leaks, the covering member dissolves upon contact with the leaked liquid so that the liquid can contact the detection sheet and cause a visually observable change in the pattern or dots of the detection sheet. Accordingly, Prior Art 2 reflects an awareness of false detection due to moisture and discloses a technical means for addressing that problem.

However, for the reasons set forth below, Prior Art 2 contains no teaching or suggestion of selectively detecting a specific solution.

① Throughout its specification, Prior Art 2 describes detection of “leakage” in general and, with respect to the liquid-soluble member used to block the through-hole, identifies only a water-soluble resin as the dissolvable material. Moreover, all disclosed embodiments are directed solely to devices for detecting leakage, without distinguishing among different types of liquids. Accordingly, because Prior Art 2 is properly understood as relating to a leakage detection device, its discussion of false detection due to moisture and the technical means for addressing such false detection are likewise premised on a leakage detection device.

② Because the detection device of Prior Art 2 detects leakage by visually observing a change in color or pattern of a

detection sheet caused by water, the detection sheet must necessarily be formed of a material capable of readily absorbing water. However, due to its inherent material properties, if the detection sheet is exposed to a humid environment without an intervening barrier, such as the transparent film (34), ambient moisture, rather than actual leakage, is likely to permeate the detection sheet and cause malfunction (*see* paragraphs [0023] and [0040]). Furthermore, the water-soluble resin used as the liquid-soluble member in Prior Art Reference 2 appears to be a material that readily dissolves not only in water, but also in alkaline or acidic liquids containing water. Ultimately, although Prior Art 2 is directed to leakage detection and employs a configuration in which a through-hole is blocked by a liquid-soluble member, that configuration is intended to prevent low-density moisture from unnecessarily wetting the detection sheet while permitting passage of water having a density above a predetermined threshold indicative of leakage. It is not intended to selectively determine detection targets based on the chemical or physical properties of the liquid.

③ Prior Art 2 comprises a detection sheet, a covering member for the detection sheet, and a viewing window portion, which is structurally distinct from Prior Art 3, which includes a protective film layer having holes formed therein, a conductive line layer, a base film layer, and an adhesive layer. In addition, Prior Art 2 employs a detection method in which leakage is identified by visually observing changes in the pattern or dots of a detection sheet, whereas Prior Art 3 adopts a detection method in which leakage is confirmed by an electrical signal indicating whether electrical conduction has occurred. Accordingly, because Prior Art 2 and Prior Art 3 differ substantially in both structure and detection method, combining the two references would not have been straightforward, nor is there any teaching, suggestion, or motivation to do so.

(e) Examination of Well-known and commonly used Art
The Plaintiff contends that selectively opening a passage by filling a

passage through which a specific solution passes with a material that dissolves in that solution constitutes nothing more than a well-known and commonly used art that has been widely employed across various technical fields. On that basis, the Plaintiff asserts that a skilled person could have readily arrived at the patented invention by combining the cited prior arts with such well-known art.

Upon review, the descriptions set forth in Plaintiff's Exhibits 10, 12, and 13 indicate that, in various technical fields including hydrogen peroxide detection devices and battery electrolyte detection sheets materials dissolvable in the corresponding solution have been used, for example, as coating materials in devices for detecting solution leakage.

However, the technologies cited by the Plaintiff disclose only configurations in which a material dissolvable solely in an acidic solution blocks the entirety of the conductive line, including the sensing holes. They do not disclose a configuration in which a material dissolvable solely in an acidic solution fills only the sensing holes. Accordingly, even in view of those technologies, it would have been difficult to achieve the objective of the patented invention, namely, readily manufacturing an acidic-solution leakage detection device by merely adding a process of filling the sensing holes with a coating solution to an existing leak-detection sensor having sensing holes formed at predetermined intervals.

d) Summary of the Examination Results

Ultimately, it cannot be concluded that a skilled person would have readily derived the patented invention by combining Prior Art 3 with Prior Arts 2 and 4, by combining Prior Art 3 with Prior Arts 2 and 5, or by further incorporating well-known and commonly used techniques into any of those combinations. Accordingly, the evidence newly submitted in the present litigation cannot be regarded as probative evidence capable of overturning the conclusion reached in the second final decision of dismissal, and therefore constitutes evidence that is substantially the same as that previously considered in the second final

IP HIGH COURT DECISIONS

decision of dismissal.

B. Sub-conclusion

The petition at issue is identical to the petition previously dismissed on the Second Final Dismissal on the Merits, relying on the same facts and evidence. As such, it violates non bis in dem under Article 163 of the Patent Act, and is therefore improper. Accordingly, the IPTAB Decision does not suffer from the unlawfulness alleged by the Plaintiff.

5. Conclusion

The Plaintiff's claim to reverse the IPTAB Decision is without merit and therefore shall be dismissed. It is decided as ordered.

Presiding Judge	Jaheun KU
Judge	Bowon KWON
Judge	Jihwan NOH

Main Contents of Prior Arts

1. Prior Art 3 (Plaintiff's Exhibit 7)

This invention relates to a “Physical Property Detection Leak Sensor Device,” which was published as Registered Patent Publication No. 10-827385 on May 6, 2008. Its principal features are summarized below.

A. Technical field and background art

[0001] This invention relates to physical property detection leak sensor device that can be directly attached to locations where leakages occur, such as walls, pipes, and facilities. Because the device does not require mounting brackets, it is easy to install, and the sensor tape can be cut to a desired length according to the user's needs.

[0002] Various types of leak sensors are used to detect water and/or oil leakage.

[0003] For example, known leak sensors include cable-type leak sensors, band-type leak sensors, and module-type leak sensors.

[0006] Cable-type leak sensors are costly to install, and users have limited flexibility because the sensor cable lengths are predefined (e.g., 7 m, 15 m, and 30 m). In addition, because installation requires the use of mounting brackets, installation is complicated and incurs additional costs. Further, after the sensor detects a physical property, removal of the sensor is time-consuming, and the sensor is difficult to interface with external equipment.

[0009] Although band-type leak sensors are capable of detecting leakage over a wide surface area at relatively low cost and are easy to install, they are highly susceptible to errors caused by high humidity or external impacts, make it difficult to readily identify the precise location of leakage, lack installation continuity resulting in inconsistent installation quality, and require substantial additional investment to enable connection to a network or a personal computer (PC). In addition, the cable length of the physical property sensor is predefined and offered in only limited options (e.g., 1 m, 2 m, 5 m, 10 m, and 20 m), which restricts installation flexibility for users. Further, installation is difficult and entails additional costs because a separate bracket must be installed to secure the cable to the floor. Moreover, when interfacing with external devices, the sensor supports only a simple relay-based connection, without providing connecting device options.

[0010] A module-type leak sensor houses a photo sensor, including a

light-emitting unit and a light-receiving unit, within a plastic case. In a state in which no liquid is present, a beam emitted from the light-emitting unit is received by the light-receiving unit. However, when the emitted beam encounters liquid, a change in refractive index prevents the beam from reaching the light-receiving unit.

[0012] Module-type leak sensors are capable of detecting leakage risk areas at relatively low cost, are easy to install, can independently generate alarms and warning lights without reliance on peripheral devices, and are not susceptible to errors caused by humidity. However, unlike cable-type sensors, they can detect leakage only at discrete locations, are difficult to interface with peripheral equipment, and require separate planning for sensor fixation, thereby increasing installation time. Moreover, because they are capable of detecting leakage only at limited portions of a leakage risk area, detection becomes difficult if the leakage location changes.

B. Problems to be solved

[0013] The purpose of the present invention is to solve the problems of the prior art and to provide a physical property leak sensor device that is easy to install by being directly attachable, via tape, to locations where leakage may occur, such as walls, pipes, and facilities, and the device does not require additional mounting brackets during installation, and the sensor tape can be cut to a desired length according to installation requirements.

C. Solution to the problem

[0015] A physical-property detection leak sensor device formed in a tape shape for detecting physical properties caused by leakage:

[0016 to 0020] which includes a base film layer, a conductive line layer, and a protective film layer sequentially stacked in an upward direction; The conductive line layer includes a resistive line extending in a longitudinal direction and having a predetermined resistance per unit length, and a conductive line formed parallel to and spaced apart from the resistive line; and The protective film layer is configured such that holes are formed at predetermined intervals to expose the resistive line and the conductive line of the conductive line layer to an external environment. In addition, the resistive line and the conductive line of the conductive line layer are arranged in a mirrored configuration in a plurality of sets, and two additional conductive lines extend in the longitudinal direction, such that resistive elements are formed at predetermined intervals between the conductive lines.

[0021] In addition, the resistive line and the conductive line of the

conductive line layer are arranged in a mirrored configuration in a plurality of sets, and two additional conductive lines extend in the longitudinal direction, such that resistive elements are formed at predetermined intervals between the conductive lines.

D. Effect

[0022] As described above, the physical property detection leak sensor device according to the present invention is formed in a tape shape and can therefore be directly attached to locations where leakage may occur, such as walls, pipes, and facilities, thereby facilitating easy installation.

[0023] In addition, the device allows simple installation without the need for a separate mounting bracket. Further, the sensor tape can be cut to a desired length according to the user's needs.

[0024] Also, because the tape film is formed of materials such as PET, PTFE, and PVC, the device exhibits strong resistance to chemical solutions, including strong acids, strong alkalis, and organic liquids.

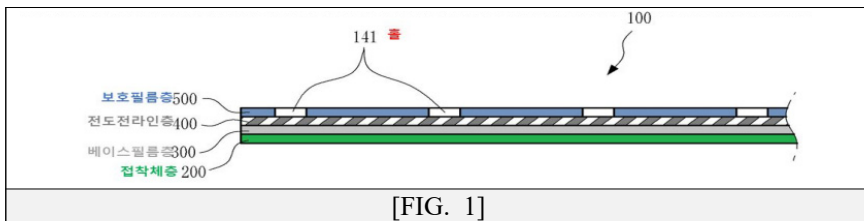
[0025] Further, when installed on a floor, the thin film thickness and tape-based adhesive configuration allow people, equipment, carts, and the like to pass over the device without interference, thereby enabling convenient installation and use.

[0026] In addition, the sensor tape can be cut into shorter segments, allowing multiple tape segments to be mounted on and connected to a single controller (AMP).

[0027] In addition, the time required to remove the detected physical property after detection is minimal. Because the device is implemented as a tape film, removal of the detected physical property is straightforward.

E. Detailed description to execute the invention

FIG. 1 is a cross-sectional view illustrating a physical-property detection tape (100) according to the present invention. As shown in FIG. 1, the tape is formed by sequentially stacking, from a bottom side upward, an adhesive layer (200), a base film layer (300), a conductive line layer (400), and a protective film layer (500).



[FIG. 1]

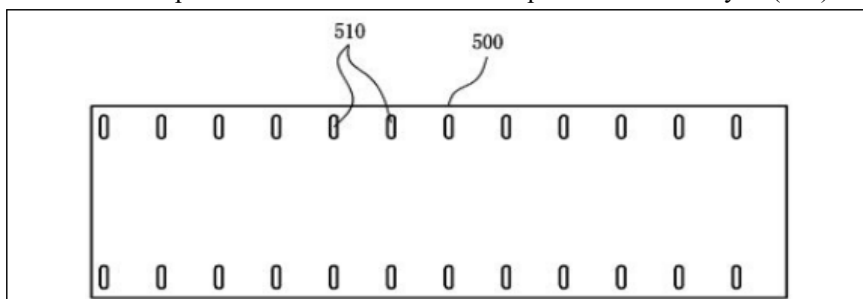
[0031] The adhesive layer (200) is provided for attachment to a location where leakage may occur and is configured in the form of an adhesive tape.

[0032] The base film layer (300) serves as a substrate on which the conductive line layer (400) is formed, and is formed of PET, PE, PTFE, PVC, or other Teflon-based materials to provide electrical insulation and to form the conductive line layer (400) pattern by a printing process.

[0033] The conductive line layer (400) is a layer in which multiple conductive lines and resistive elements are formed in a patterned configuration, and are arranged as parallel strips on an upper surface of the base film layer (300), spaced apart from one another along a longitudinal direction of the physical-property detection tape (100).

[0034] The protective film layer (39) is stacked on the conductive line layer (400) to protect the pattern of the conductive line layer (400) from external stimuli, and is formed of PET, PE, PVC, or Teflon-based materials.

[0044] FIG. 5 illustrates the configuration of the protective film layer (500), in which when the protective film layer (500) is stacked on the conductive line layer (400), the conductive line layer (400) is completely isolated from the external environment, thereby preventing detection of leakage at the conductive line layer (400) when leakage occurs, and therefore, holes (510) are formed at predetermined intervals in the protective film layer (500).



[FIG. 5]

[0045] The holes (510) are formed as elongated slots, circular openings, or other shapes extending in a width direction of the physical-property detection tape (100) so as to expose two resistive lines. Preferably, a spacing between adjacent holes (510) is in a range of 0.5 cm to 1.5 cm.

[0050] When leakage occurs and water, a chemical solution, or another conductive substance falls onto a predetermined location on an upper portion of the physical-property detection tape (100), a closed circuit is formed by the leaked substance (440) between the resistive line (401) and the resistive

line (402), as illustrated in FIG. 3.

2. Prior Art 4 (Plaintiff's Exhibit 8)

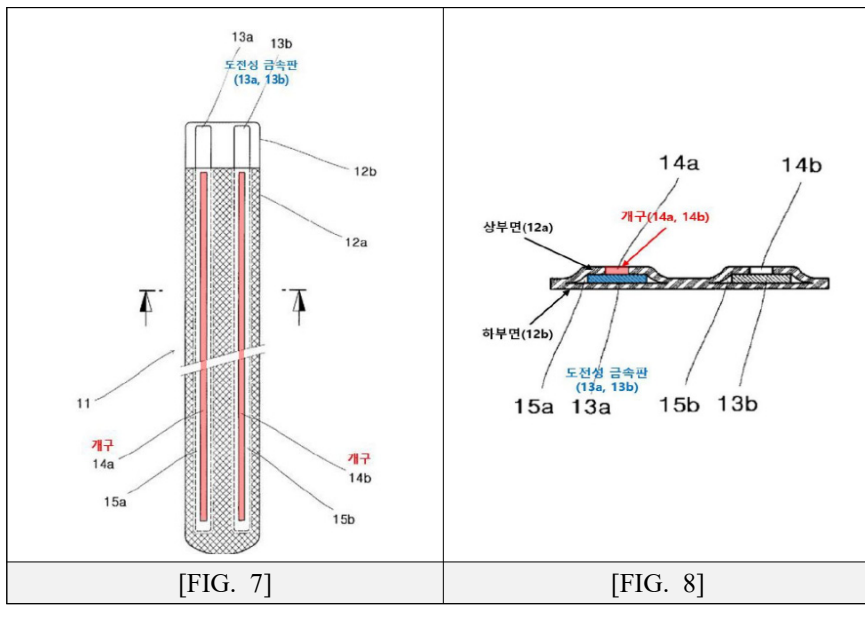
This utility model relates to a “Waste Detection Device for Diapers,” which was published as Registered Utility Model Publication No. 20-0265651 on February 21, 2002. Its principal features are summarized below.

The device is configured in a pad form and includes an absorbent layer (2) configured to contact an infant's skin and absorb moisture from waste; a conductive layer (3) disposed beneath the absorbent layer (2), in which two metal films (3a, 3b) are spaced apart by a predetermined distance and become electrically conductive in response to absorbed moisture; an adhesive layer (4) having one surface adhered to a lower surface of the conductive layer (3) and an opposite surface adhered to an inner surface of a diaper or a diaper cover; and a removable release layer (5) configured to protect the adhesive layer (4). In addition, the device includes a signal generation unit (40) having a time-delay circuit (42) that includes a time-counting counter and an oscillation unit composed of a capacitor and a resistor. A signal detected by a signal detection unit (1) is delayed for a predetermined period by the time-delay circuit (42) and is thereafter output as an audible signal through a sound output unit (48).

The conductive layer (3) has a structure in which two metal films (3a, 3b) are adsorbed in a linear arrangement on an upper surface of a thin absorbent vinyl sheet, with a predetermined spacing therebetween to prevent electrical short-circuiting, and the metal films (3a, 3b) are formed of an aluminum oxide film. The conductive layer (3) is fixed to a lower surface of the absorbent layer (2) by an adhesive, but in order to permit electrical conduction, no adhesive is applied to the upper surfaces of the two metal films (3a, 3b). As described above, in the present utility model, the signal detection unit is configured in a pad form having a multilayer structure, as illustrated in FIG. 2, and is detachably attached to an inner surface of a diaper or a diaper cover. However, the order of the layers may be modified. For example, the conductive layer (3) may be arranged as an uppermost layer configured to contact an infant's skin, with an absorbent layer (4) for absorbing moisture from waste disposed beneath the conductive layer. In

addition, if necessary, the signal detection unit may be integrally embedded and installed within the diaper during manufacture of the diaper.

In the signal detection unit (1) described above, two metal films (3a, 3b) having the same structure are exemplified as conductors to detect both feces and urine, but by coating a special coating agent on one of the two metal films (3a, 3b), it is possible to selectively detect feces while preventing detection of urine. That is, in view of the fact that feces generally exhibit acidic properties with a pH of approximately 5 to 7, whereas urine exhibits basic properties, a coating material is used that does not react to the basic nature of urine but decomposes only in response to the acidic nature of feces. In this case, when the infant urinates without defecating, the metal film (3a) or (3b) coated with the coating material maintains insulating properties, such that the coating material does not react with urine and remains on the metal film (3a) or (3b). As a result, because the two metal films (3a, 3b) have different properties, electrical conductivity is not established therebetween. However, when defecation occurs in this state, the coating material decomposes in response to the acidic nature of the feces and is removed from the metal film (3a) or (3b), whereby electrical conductivity is established between the two metal films (3a, 3b) due to moisture absorbed thereon.



3. Prior Art 2 (Plaintiff's Exhibit 9)

This invention relates to a “Liquid Leakage Detection Thread and Liquid Leakage Detection Device” disclosed in Japanese Patent Application Publication No. JP 2011-215076, published on October 27, 2011, and its principal features are summarized below.

A. Technical field

[0001] The present invention relates to a liquid leakage detection seal and a liquid leakage detection device used at a joint of a pipe through which a liquid flows.

B. Background art

[0002] Patent Document 1 discloses a configuration in which an outer periphery of a fitting is covered and sealed by a cover member, and a permeation member is provided that permits a liquid to permeate from an interior of the cover member to an exterior thereof and flow outward. In addition, a display means is provided within the permeation member that protrudes outward from the cover member, the display means being configured to react with liquid flowing through the permeation member to produce a color indication, such that leakage from the fitting can be detected by visually observing the color of the display means.⁸⁾

[0004] However, in Patent Document 1, an absorbent member formed of a white fiber rod is inserted into a liquid-receiving tube made of transparent plastic, and a water-soluble capsule containing a reagent composed of litmus powder is attached to an upper end of the absorbent member. In addition, the display member is configured such that a permeation member formed of a rigid fiber rod protrudes from an upper opening of a liquid-receiving tube, and an upper end of the permeation member is mounted in contact with a small hole positioned at a lower side among a plurality of small holes formed in the cover member. As a result, the overall structure is complex, making it difficult to easily install the device on a fitting.

C. Problem to be solved

[0005] In view of the foregoing, the purpose of the present invention is to provide a liquid leakage detection seal and a liquid leakage detection device having a simple structure that can prevent erroneous detection caused by moisture.

D. Solution to the problem

[0013] In the liquid leakage detection device according to Claim 4, since

the liquid-soluble member is a water-soluble resin, it is possible to reliably prevent the detection sheet from reacting to moisture while reliably detecting leakage.

[0016] In Claim 6, the detection sheet covering member includes a transparent film that covers a periphery of the detection sheet, and a liquid-soluble portion is formed in the detection sheet covering member. It includes a through-hole and a liquid-soluble member that blocks the through-hole and dissolves upon contact with a liquid.

[0022] The invention according to Claim 9 is the liquid leakage detection device according to any one of Claims 6 to 8, wherein the liquid-soluble member is a water-soluble resin.

[0023] In the liquid leakage detection device according to Claim 9, because the liquid-soluble member is formed of a water-soluble resin, the detection sheet is reliably prevented from reacting to moisture while still reliably detecting liquid leakage.

E. Effect

[0029] The liquid leakage detection device of the present invention according to Claim 6 has a simple structure and is capable of preventing erroneous detection caused by moisture.

F. Configuration

[0040] Next, the leakage detection seal (18) will be described. As illustrated in FIGS. 5 and 6, the leakage detection seal (18) includes a film-shaped detection sheet (30). The detection sheet (30) is configured such that at least one of a color or a pattern thereof changes upon contact with water (W).⁹⁾ For example, the detection sheet (30) may be dot-processed using a water-based ink, such that, upon contact with water, the pattern (dots) changes (disappears and becomes colored). Alternatively, a moisture-sensitive paper may be used as the detection sheet (30).

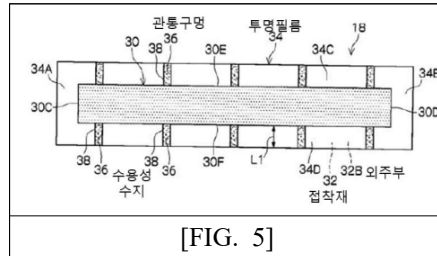
[0045] The water-soluble resin (38) is preferably a hydrophilic resin or a material that has sealing properties and is soluble in water. For example, polyvinyl alcohol [film-type materials include Hyselon manufactured by Mitsubishi Chemical Corporation / Nippon Synthetic Chemical Industry Co., Ltd., and modified polyvinyl acetate (such as Boval and Exceval

8) The term “함 (doing)” in the specification has been corrected to “봄 (seeing).”

9) Although the specification originally recited “만지면 (upon touching),” it has been amended to “만나면 (upon contact).”

manufactured by Kuraray Co., Ltd.)), or water-soluble polysilane having an alkyl group, may be used. Examples of the liquid-soluble member other than the water-soluble resin (38) include starch (paste), Oblato (gelatin), agar, and carrageenan.

[0047] Next, the operation and effects of the present embodiment will be described. In the present embodiment, as illustrated in FIGS. 1 and 2, the leakage detection seal (18) installed inside the pipe joint (16) can be visually observed through the window portion (16D) of the pipe joint (16), which is disposed at a coupling portion between the first



[FIG. 5]

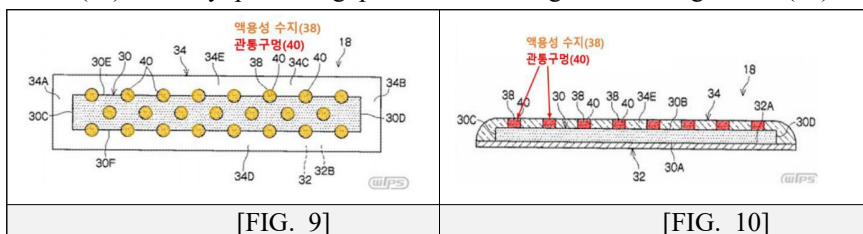
pipe (12) and the second pipe (14). Further, as illustrated in FIGS. 5 and 6, the detection sheet (30) of the leakage detection seal (18) has a lower surface (30A) covered with an adhesive (32), and all other portions except for the lower surface (30A) are covered with a transparent film (34). A through-hole (36) of the transparent film (34) is blocked by a water-soluble resin (38), and the water-soluble resin (38) maintains the through-hole (36) in a blocked state by moisture. Accordingly, when no leakage occurs at the coupling portion between the first pipe (12) and the second pipe (14), the pattern of the detection sheet (30) does not change in response to moisture, and the pattern of the detection sheet (30) remains visually observable through the window portion (16D) of the fitting (16).

[0051] (Second Embodiment) Next, a second embodiment of the present invention will be described with reference to FIGS. 9 to 12. Components that are the same as those of the first embodiment are denoted by the same reference numerals, and descriptions thereof are omitted.

[0052] As illustrated in FIGS. 9 and 10, in the present embodiment, a plurality of through-holes (40), serving as liquid-soluble portions, are formed in an upper wall portion (34E) of the transparent film (34) that covers an upper surface (30B) of the detection sheet (30) of the leakage detection seal (19). These through-holes (40) connect an exterior of the transparent film (34) with an interior of the transparent film (34) in which the detection sheet (30) is disposed.

[0053] Each of the through-holes (40) is sealed by a water-soluble resin (38). The water-soluble resin (38) maintains the through-hole (40) in a sealed state in the presence of moisture, but dissolves when immersed in

water (W), thereby permitting penetration through the through-hole (40).¹⁰⁾



[0054] Accordingly, when the transparent film (34) is immersed in water, the water-soluble resin (38) that blocks the through hole (40) dissolves. Accordingly, as illustrated in FIGS. 11 and 12, water (W) flows from outside the transparent film (34) into the transparent film (34) through the through hole (40). As a result, the detection sheet (30) inside the transparent film (34) comes into contact with water (W), and the pattern (dots) changes (disappears and becomes colored).

4. Prior Art 5 (Plaintiff's Exhibit 15)

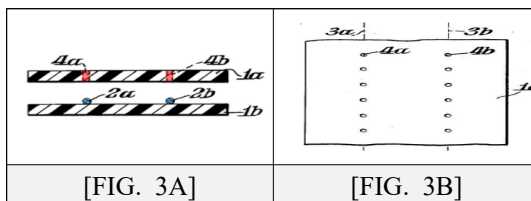
This invention relates to “SENSOR FOR DETECTING LEAKS OF CORROSIVE LIQUID,” which is disclosed in U.S. Patent No. 4,677,373, published on June 30, 1987, and the main contents thereof are as follows.

A. Background

The present invention relates to a sensor for detecting leaks of corrosive liquids. When a corrosive liquid, such as hydrochloric acid, leaks from a storage tank in an industrial plant, etc., widespread environmental contamination may occur. Accordingly, such leakage shall be detected at an early stage. To address this need, a corrosive liquid sensor as illustrated in FIGS. 3(A) and 3(B) has previously been proposed. FIG. 3(A) is an exploded schematic cross-sectional view of the sensor. FIG. 3(B) is a partial plan view of the sensor. The sensor includes a pair of insulating films (1a,

10) The term “구멍이” in the specification has been amended to “구멍을” (The grammatical particle following “hole” has been corrected from the subject form to the object form).

1b) and a pair of metal wirings, that is, electrodes (2a, 2b). The insulating films (1a, 1b) are formed of an insulating material that is resistant to



corrosion by the corrosive liquid to be detected, such as Teflon® polytetrafluoroethylene (PTFE). The electrodes (2a, 2b) are formed of a metal, such as aluminum, that is corrodible by the corrosive liquid, and each has a circular cross section. In FIG. 3(A), these components are illustrated in an exploded manner, as described above, for convenience of illustration. As shown in FIG. 3(B), one of the insulating films (1a) is provided with a plurality of through holes (4a, 4b) arranged in two rows (3a, 3b) extending along the electrodes (2a, 2b), the through holes being spaced at predetermined intervals along each row such that the electrodes (2a, 2b) are exposed through the through holes.

To detect leakage of a corrosive liquid, the sensor is disposed at a location where leakage is expected to occur, and the electrodes (2a, 2b) are connected to a detection circuit (not shown). When leakage occurs, the leaked corrosive liquid passes through at least some of the through holes (4a, 4b) and enters into the sensor. The detection circuit is configured to detect leakage of the corrosive liquid by opening when at least one of the electrodes (2a, 2b) is dissolved.

In this type of sensor, the metal wires (2a, 2b) functioning as electrodes generally have a small diameter, for example about 0.6 mm, and thus a relatively small surface area that is susceptible to dissolution by the corrosive liquid. Accordingly, a relatively long time is required for the electrodes to dissolve. Moreover, even if the electrodes dissolve, the corrosive liquid may cause the two electrodes to be short-circuited. Because the intrinsic resistivity of the corrosive liquid is low, the circuit may not fully transition to an open state, thereby making accurate detection of leakage difficult. FIG. 4 illustrates changes over time in resistance detected by the above-described detection circuit when Samples 1 and 2, obtained by dividing the sensor of FIGS. 3(A) and 3(B) into halves in a longitudinal direction, are immersed in approximately 100 cc of hydrochloric acid having a concentration of 36 wt%. As shown in the drawing, the resistance increases from approximately 10 ohms prior to immersion of the samples to approximately 70 ohms after 100 minutes of immersion. Accordingly, the

sensor illustrated in FIGS. 3(A) and 3(B) has difficulty in rapidly and accurately detecting leakage.

Therefore, an object of the present invention is to provide a sensor for detecting leakage of corrosive liquids that is capable of rapidly and accurately detecting leakage.

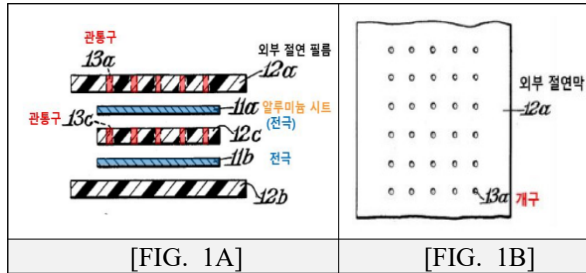
B. Summary of the invention

There is provided a sensor for detecting leakage of a corrosive liquid, including a pair of plate electrodes connected to a resistance measuring means in a circuit, wherein the electrodes are formed of an electrically conductive metal that is corrodible by a liquid to be detected, wherein the electrodes are spaced apart and electrically insulated from each other by an inner sheet formed of an electrically insulating material that is inert to the liquid to be detected, wherein the inner sheet has a plurality of through holes, wherein the above-described structure is sealed and enclosed between a pair of outer insulating sheets that are inert to the liquid to be detected, wherein at least one of the outer insulating sheets has a plurality of through holes, and wherein, when leakage occurs adjacent to the sensor during use, the liquid passes through the through holes of the outer insulating sheet, dissolves a portion of one of the electrodes, and is conducted to the second electrode through the through holes of the inner sheet so as to cause a short circuit, thereby resulting in a rapid and accurately measurable decrease in resistance in the circuit, i.e., detection of the leakage. The plate electrodes are preferably formed of aluminum foil, and the inner and outer sheets are preferably formed of films of polytetrafluoroethylene.

Because the sensor according to the present invention employs flat electrodes in the form of films or foils that are corrodible by a corrosive liquid, leakage of the corrosive liquid causes a short circuit between the electrodes through the liquid even when corrosion forms an opening in only a portion of one of the electrodes, thereby enabling detection of the leaked liquid. Accordingly, detection can be performed rapidly. In such a detection method based on short-circuiting between the electrodes, a large change in resistance is produced between a state before and after the short circuit, so rapid and accurate detection is possible.

The sensor includes, for example, a pair of flat electrodes (11a, 11b) formed of aluminum sheets having a thickness of approximately 0.1 mm, and an intermediate insulating film (12c) disposed between the flat electrodes, and the intermediate insulating film is formed of Teflon® polytetrafluoroethylene. The intermediate insulating film (12c) is provided with a plurality of

through holes (13c) for purposes described below. The pair of electrodes (11a, 11b) and the intermediate insulating film (12c) arranged in this



manner are covered by a pair of outer insulating films (12a, 12b) formed of polytetrafluoroethylene, similar to the intermediate insulating film (12c), and the outer insulating films (12a, 12b) are bonded or fused to each other to seal the structure. As described above, these components are illustrated in an exploded manner in FIG. 1(A). As illustrated in FIG. 1(B), the outer insulating film (12a) includes multiple through holes (13a) formed substantially over an entire surface thereof, and the through holes (13a), together with through holes (13c) formed in the intermediate insulating film (12c), make passages to detect corrosive liquid. In this case, the flat electrode (11a) is exposed through multiple through holes (13a) formed in the outer insulating film (12a).

As will be understood from the foregoing description, in the present invention, an opening is formed, for example, by dissolution of a sheet-type flat electrode having a thickness of approximately 0.1 mm. Accordingly, compared with a conventional sensor in which a metal wire having a circular cross section is dissolved, the time required for dissolution of the electrode is reduced. In the above-described known sensor configured such that the circuit is opened upon dissolution of a metal wire, the circuit may instead be short-circuited by the corrosive liquid, and thus, it is difficult to accurately detect opening of the circuit. In contrast, the sensor of the present invention detects leakage by forming an opening in one electrode and then detecting a change in capacitance or impedance caused by the presence of the leaked liquid between the two electrodes, or by short-circuiting the circuit through the liquid and then detecting, in the detection circuit, a change in resistance caused by the short circuit. Accordingly, rapid and accurate detection can be achieved.

**IP HIGH COURT OF KOREA
SECOND-SECOND DIVISION
DECISION**

Case No.	2023Heo14578 Scope of Rights Confirmation (Utility Model)
Plaintiff	A Counsel for Plaintiff Patent Attorney Gyeonghyun YOON
Defendant	B Counsel for Defendant Patent Attorney Youngjin KIM
Date of Closing Argument	June 14, 2024
Decision Date	August 28, 2024

ORDER

1. The Plaintiff's appeal is dismissed.
2. Costs shall be borne by the Plaintiff.

DEMAND FOR RELIEF

The IPTAB Decision 2022Dang3605, decided November 22, 2023, shall be reversed.

OPINION

1. Background

A. Plaintiff's Subject Utility Model

1) Title of the Utility Model: Candle-Type Lamp

2) Filing date of application / Date of registration / Registration number: February 20, 2018 / May 7, 2019 / No. 489181

3) Right Holder: Plaintiff

4) Claims

【Claim 1】 A body (310) having a hollow portion (312) open at the upper side, a stepped portion (311) formed on the inner side thereof, and a center-of-gravity plate (313) provided on the lower bottom surface (hereinafter “Element 1”); a lamp (320) in which a lower portion of a fuel container (321) is supported by the stepped portion (311) of the body (310), a wick holder (322) having a wick (327) is provided at an opening (321a) of the fuel container (321), the wick holder (322) is fixed to the opening (321a) of the fuel container (321) by a wick holder fixing cap (328), and the wick holder (322) comprises a stopper portion (323) that blocks the opening (321a) of the fuel container (321), and a protrusion (324) projecting upward from a center of the stopper portion (323), a wick hole (325) being formed at a center of an upper surface of the protrusion (324), the wick hole (325) having a plurality of teeth (325a) formed by cutting in three directions and bending upward, and the wick holder fixing cap (328) having an insertion hole (328a) formed at a central portion thereof through which the protrusion (324) of the wick holder (322) centrally passes, and including a fixing protrusion (328b) that moves along a spiral (321b) formed on an outer side of the opening (321a) of the fuel container (321) (hereinafter “Element 2”); and a water container (330) made of ceramic material, the lamp (320) passing

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through a central portion thereof, and the water container (330) being supported and fixed at an upper end of the body (310) (hereinafter “Element 3”); wherein the candle-type lamp (hereinafter the “Subject Utility Model”) comprises the above elements.

5) Main Content of the Subject Utility Model

The main content of the specification and drawings of the Subject Utility Model is set forth in [Appendix 1].

B. Challenged Utility Model

The specification and drawings of the Challenged Utility Model, as identified by the Plaintiff during the trial proceedings, are set forth in [Appendix 2].

C. Prior Utility Models

Prior Utility Model 1 (Defendant’s Exhibit 2), presented by the Defendant, is titled “Refillable Candle-Type Paraffin Lighting Apparatus,” as disclosed in a subject utility model publication (Registration No. 20-0474485), published on September 18, 2014; Prior Utility Model 2 (Defendant’s Exhibit 3) is titled “Lamp,” as disclosed in a published utility model application (Publication No. 20-1999-0019060), published on June 5, 1999; and Prior Utility Model 3 (Defendant’s Exhibits 4-1 and 4-2) is titled “Burner Assembly for an Oil Lamp Using a Plastic Fuel Container,” as disclosed in a United States patent (Patent No. US 5,127,825), issued on July 7, 1992 (Because these references are not adopted for detailed comparison, a more detailed description is omitted).

D. Procedural History

1) On December 27, 2022, the Plaintiff filed a petition for an affirmative trial to confirm the scope of rights against the Defendant with respect to the Subject Utility Model (Case No. 2022Dang3605), and during the course of the trial proceedings, specified the

Challenged Utility Model as set forth in [Appendix 2] through an amendment to the trial request on November 1, 2023.

2) On November 22, 2023, the Intellectual Property Trial and Appeal Board (hereinafter, the “IPTAB”) rendered a decision rejecting the Plaintiff’s trial request (hereinafter, the “IPTAB Decision”), claiming that the Challenged Utility Model differed from the Subject Utility Model in certain elements and therefore could not be deemed to literally or equivalently include the technical configuration of the Subject Utility Model and that those differing elements had been consciously excluded from the scope of the Subject Utility Model’s claims.

【Factual basis】 Undisputed facts, statements of Plaintiff’s Exhibits 1, 2, 3, and 10 and Defendant’s Exhibits 1, 2, 3, 4-1, and 4-2, the overall purport of the arguments

2. Whether IPTAB Erred

A. Summary of the Parties’ Arguments

1) Plaintiff

a) The Subject Utility Model and the Subject Utility Model differ in certain elements. Specifically, ① the wick holder fixing cap of the Subject Utility Model includes a fixing protrusion on the inner side thereof, whereas the wick holder fixing cap of the Challenged Utility Model includes a threaded protrusion on an inner side thereof. ② In addition, the water container of the Subject Utility Model is made of a ceramic material, whereas the water container of the Challenged Utility Model is made of metal.

b) However, the Challenged Utility Model having the above technical configuration should be regarded as equivalent to the technical configuration of the Subject Utility Model (The Plaintiff expressly stated that it asserts only infringement by equivalents, and

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does not assert literal infringement, in arguing that the Challenged Utility Model falls within the scope of the Subject Utility Model’s rights).¹⁾ The IPTAB Decision is therefore unlawful because it reaches a different conclusion.

3) Defendant

a) In addition to the technical differences identified by the Plaintiff itself, the Subject Utility Model and the Challenged Utility Model differ in numerous other technical features. In particular, among the technical features of the Challenged Utility Model, ① the wick holder fixing cap having a threaded protrusion on an inner side thereof and ② the water container made of metal, both of which were specifically identified by the Plaintiff, were consciously excluded from the scope of the right of the Subject Utility Model.

b) Moreover, the Challenged Utility Model could have been easily implemented by a person having ordinary skill in the art (hereinafter a “skilled person”) in light of Prior Utility Models 1, 2, and 3, and therefore falls within the public domain.

B. Whether the Challenged Utility Model is Equivalent to the Technical Configuration of the Subject Utility Model and Falls Within the Scope of Its Rights

1) Element-by-Element Comparison

Both the Subject Utility Model and the Challenged Utility Model comprise a body (Element 1), a lamp (Element 2), and a water container (Element 3).

Subject Utility Model	Challenged Utility Model
[Element 1] A body (310) having a hollow portion (312) open at an upper side, a stepped	a body (10) having a hollow portion (12) open at an upper side, a plurality of seating steps (11) formed on an

1) See the record of the first hearing date.

Subject Utility Model	Challenged Utility Model
portion (311) formed on an inner side thereof, and a center-of-gravity plate (313) provided on a lower bottom surface	inner side thereof, and a support plate (13) coupled to a lower portion thereof, the support plate including a weight (m) and being configured to form a gentle incline
[Element 2] A lamp (320) in which a lower portion of a fuel container (321) is supported by the stepped portion (311) of the body (310), a wick holder (322) having a wick (327) is provided at an opening (321a) of the fuel container (321), the wick holder (322) is fixed to the opening (321a) of the fuel container (321) by a wick holder fixing cap (328), and the wick holder (322) comprises a stopper portion (323) that blocks the opening (321a) of the fuel container (321), and a protrusion (324) projecting upward from a center of the stopper portion (323), a wick hole (325) being formed at a center of an upper surface of the protrusion (324), the wick hole (325) having a plurality of teeth (325a) formed by cutting in three directions and bending upward, and the wick holder fixing cap (328) having an insertion hole (328a) formed at a central portion thereof through which the protrusion (324) of the wick holder (322) centrally passes, and including a fixing protrusion (328b) that moves along a spiral (321b) formed on an outer side of the opening (321a) of the fuel container (321)	A lamp (20) in which a lower portion of a paraffin oil storage container (21) is supported by a seating step (11) of the body (10), a wick holder (22) having a wick (27) being provided at an opening (21a) of the paraffin oil storage container (21), the wick holder (22) being fixed to the opening (21a) of the paraffin oil storage container (21) by a wick holder fixing cap (28) made of synthetic resin, the wick holder (22) comprising a stopper portion (23) that blocks the opening (21a) of the paraffin oil storage container (21) and a rod-shaped protruding tube (24) projecting upward from a center of the stopper portion (23), a wick hole (25) being formed at a center of an upper surface of the rod-shaped protruding tube (24), the wick hole (25) having a plurality of teeth (25a) formed by cutting in three directions and bending upward, the synthetic-resin wick holder fixing cap (28) having an insertion hole (28a) formed at a central portion thereof through which the rod-shaped protruding tube (24) of the wick holder (22) passes, and having, on an inner side thereof, a threaded protrusion (28b) configured to engage with a spiral (21b) formed on an outer side of the opening (21a) of the

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Subject Utility Model	Challenged Utility Model
	paraffin oil storage container (21)
[Element 3] A water container (330) made of ceramic material, the lamp (320) passing through a central portion thereof, and the water container (330) being supported and fixed at an upper end of the body (310)	A water container (30) made of metal, the lamp (20) passing through a central through-hole (30a) thereof, the water container (30) being supported and fixed at an upper end of the body (10)

2) Element 1

a) Element 1 of the Subject Utility Model and the corresponding element of the Challenged Utility Model are identical in that both are bodies having a space configured to receive the lamp and allow the lamp to be inserted and removed from the upper side [hollow portion (312) / hollow portion (12)]²⁾; a step configured to support a lower end of the lamp received in the internal space [stepped portion (311) / seating step (11)]; and a bottom mass portion configured to position the center of gravity at the lower side [center-of-gravity plate (313) / support plate (13) including a weight]. Accordingly, the Challenged Utility Model includes, without modification, Element 1 of the Subject Utility Model.

b) In response, the Defendant argues that the stepped portion (311) of the Subject Utility Model is a circular step provided to form a level difference within the interior of the body (310), whereas the seating step (11) of the Challenged Utility Model is a vertical protrusion extending upward from the bottom surface to a predetermined height, and that the two therefore differ in their constituent elements.

2) The terms and reference numerals set forth in brackets, separated by “/,” indicate the technical configuration of the Subject Utility Model and the corresponding technical configuration of the Challenged Utility Model. The same applies hereinafter.

However, the claims of the Subject Utility Model recite “A body (310) having ... a stepped portion (311) formed on an inner side thereof” and that “a lower portion of a fuel container (321) is supported by the stepped portion (311) of the body (310)” while the seating step (11) of the Challenged Utility Model likewise forms a step within the interior of the body and supports the lower portion of the fuel container, and thus, there is no material difference between the two in this respect. In contrast, the claims of the Subject Utility Model do not include any specific limitation regarding the shape of the stepped portion (311), such as a requirement that it be a “circular” step, and they cannot be so narrowly construed based solely on the illustration shown in FIG. 9 of the Subject Utility Model as the Defendant contends. Accordingly, the Defendant’s argument, which is based on a different assumption, cannot be accepted.

c) The Defendant further argues that the center-of-gravity plate (313) of the Subject Utility Model is integrally provided on the lower bottom of the body (310), whereas the support plate (13) of the Challenged Utility Model is detachably coupled beneath the body (10) and allows the weight of the lamp to be adjusted by changing the number of metal members (44) accommodated therein, and thus differs in both configuration and effect.

However, the claims of the Subject Utility Model merely recite “A body (310) having ... a center-of-gravity plate (313) provided on the lower bottom surface,” which limits the configuration only to the extent that the center-of-gravity plate (313) is provided on the lower bottom of the body, and do not impose any further limitation requiring that the center-of-gravity plate be “integrally” formed with the lower bottom of the body (310). Considering the statement in the specification of the Subject Utility Model that “the body is prevented from easily tipping over due to external contact, thereby ensuring safety in use, by the center-of-gravity plate provided on the bottom surface of the body” (paragraph [0022]), the center-of-gravity plate

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(313) should be understood as a mass portion disposed on the bottom surface to prevent the body from easily tipping over. Since the support plate (13) of the Challenged Utility Model likewise includes a weight (m) and is coupled to the bottom of the body so as to lower the center of gravity of the body and prevent it from easily tipping over, there is no material difference in the technical configuration. Accordingly, the Defendant's argument on this point cannot be accepted.

3) Element 2

a) Element 2 of the Subject Utility Model and the corresponding element of the Challenged Utility Model are identical in that both are lamps having a fuel storage container [fuel container (321) / paraffin oil storage container (21)]; a wick holder comprising a stopper portion that blocks the opening of the fuel storage container and a protrusion having a wick hole with a plurality of teeth; and a wick holder fixing cap through which the protrusion of the wick holder passes and that fixes the wick holder to the opening of the fuel storage container.

b) In response, the Defendant argues that the two differ in both configuration and effect because the stopper portion (323) of the Subject Utility Model is configured to surround an upper outer circumferential portion of the opening (321a) of the fuel container (321), such that the wick holder (322) must be precisely positioned on the upper portion of the opening (321a) before the wick holder fixing cap (328) can apply pressure while the stopper portion (23) of the Challenged Utility Model is formed in a planar shape, such that when the wick holder (22) is simply placed on the upper surface of the opening (21a) of the oil storage container and the wick holder fixing cap (28) is rotated, the wick holder (22) naturally centers itself and accurately blocks the opening (21a) of the oil storage container.

However, the claims of the Subject Utility Model merely recite, with

respect to the stopper portion (323) constituting the wick holder (322), “a stopper portion (323) that blocks the opening (321a) of the fuel container (321),” and do not include any additional limitation regarding the specific coupling relationship between the stopper portion and the opening of the fuel container, as the Defendant contends. Nor can the claims be so narrowly construed based solely on the illustration shown in FIG. 7 of the Subject Utility Model, as the Defendant contends. Accordingly, the Defendant’s argument, which is premised on a different assumption, cannot be accepted.

c) However, the wick holder fixing cap of Element 2 includes a fixing protrusion (328b) on the inner side thereof, whereas the wick holder fixing cap of the Challenged Utility Model includes a threaded protrusion (28b) on the inner side thereof. Accordingly, the Challenged Utility Model cannot be regarded as literally including Element 2 of the Subject Utility Model (The technical configuration in which a “threaded protrusion” is formed on an inner side of the wick holder fixing cap of the Challenged Utility Model, as described above, will hereinafter be referred to as “Modified Element 1”).

4) Element 3

a) Element 3 of the Subject Utility Model and the corresponding element of the Challenged Utility Model are identical in that both are water containers through which the lamp passes through a central portion and that are supported and fixed at an upper end of the body. However, the water container of Element 3 is made of a ceramic material, whereas the water container of the Challenged Utility Model is made of metal; thus, the two differ in this respect. Accordingly, the Challenged Utility Model cannot be regarded as literally including Element 3 of the Subject Utility Model (The technical configuration in which the water container of the Challenged Utility Model is made of metal, as described above, will hereinafter be referred to as “Modified Element 2”).

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b) In response, the Plaintiff argues that the above limitation regarding the material of the water container, as recited in the claims of the Subject Utility Model, should not be considered in determining the scope of rights. However, for the following reasons, the Plaintiff's argument cannot be accepted.

(1) Under the Utility Model Act, a "utility model" refers to the creation of an inventive concept utilizing laws of nature (Article 2(1) of the Utility Model Act). A utility model eligible for registration must relate to the shape, structure, or combination of an article that is industrially applicable (Article 4(1) of the Act). In the specification attached to a utility model registration application, the claims must set forth the shape, structure, or combination thereof, as necessary to specify the utility model, so as to clearly define the matters for which protection is sought (Articles 8(6), 8(2), and 8(1) of the Act). A utility model right holder has the exclusive right to commercially work the Subject Utility Model (main clause of Article 23 of the Act). The scope of protection of the Subject Utility Model is determined by the matters stated in the claims (Article 28 of the Utility Model Act; Article 97 of the Patent Act). In view of the foregoing provisions, the legal principles applicable to whether a limitation concerning the material of an article, as recited in the claims of a Subject Utility Model, must be considered in determining the scope of its rights are set forth in the following section.

(2) The claims of a utility model for which registration is sought must be drafted so as to specify the shape, structure, or combination thereof (hereinafter, the "shape or structure, etc.") of the article that is the subject of the utility model. Where the claims, taken as a whole, are directed to the shape or structure, etc., of the article, even if the claims additionally include a recitation concerning the material of the article, the subject matter of the utility model is not the material itself but rather the shape or structure, etc., of the article as ultimately produced, and the recited material of the article may be

understood as having significance only as a means for specifying the shape or structure, etc., of the final article. Accordingly, where the claims of a Subject Utility Model are directed, as a whole, to the shape or structure, etc., of an article and additionally include a recitation concerning the material of the article, whether a product falls within the scope of rights should not be determined by limiting the technical configuration to the material of the article itself. Rather, the product should be understood as an article having the shape or structure, etc., specified by all recitations of the claims, including the recitation concerning the material of the article, and the Challenged Utility Model should be compared on that basis. In contrast, disregarding a portion of the recitations in the claims of a Subject Utility Model at the enforcement stage, merely on the ground that they pertain to the material of the article, would in effect amount to a post hoc expansion of the scope of the claims and therefore cannot be permitted.

(3) In light of the Foregoing Legal Principles

In the claims of the Subject Utility Model, Element 3, the water container, is described in terms of its overall shape and structure, etc. as one “the lamp (320) passing through a central portion thereof, and ... being supported and fixed at an upper end of the body (310),” and the element further recites that it is “made of ceramic material,” which corresponds to the difference identified as Modified Element 2 of the Challenged Utility Model.

The water container of Element 3 is positioned around the flame and is therefore continuously exposed to heat, which may cause thermal deformation of the water container itself or transfer heat to surrounding components, thereby causing their thermal deformation, and accordingly, the material or composition of the water container may serve as a technical means having an organic, functional relationship with the utility model as a whole for the purpose of preventing heat-induced deformation or maintaining its shape, as is readily understood from the following passages of the specification.

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Specifically, the specification states that, in a conventional candle-type lamp, the water container is “made of metal, and heat generated from the flame causes thermal deformation of the opening of the body formed of plastic material,” (paragraph [0005]), and that the water container (330) of the Subject Utility Model at issue is “of ceramic material and ... heat generated from the flame of the wick (327) is prevented from being transmitted to the body (310) formed of plastic material” (paragraph [0018]).

Accordingly, the recitation of “ceramic material” in the claims of the Subject Utility Model, which corresponds to Modified Element 2 of the Challenged Utility Model, cannot be entirely disregarded in construing the scope of rights merely because it relates to the material of the water container, and rather, the comparison with the Challenged Utility Model must be conducted by understanding the claimed subject matter as an article having the shape or structure, etc. specified by all recitations of the claims, including the technical content of preventing thermal deformation of the body’s opening and maintaining its shape in accordance with the above limitation concerning the material of the article.

5) Whether the Modified Elements were Consciously Excluded

a) Relevant Law

(1) Where it is found that the applicant or the utility model right holder, during prosecution of the Subject Utility Model, consciously excluded from the claims an article to be compared with the Subject Utility Model (hereinafter, the “Article in Question”), the utility model right holder is not permitted, in an action against a party manufacturing or selling the Article in Question, to assert that the Article in Question falls within the scope of protection of the Subject Utility Model, as such an assertion would violate the doctrine of estoppel. Whether an article was consciously excluded from the claims during the prosecution of a Subject Utility Model must be determined in light of not only the specification, but also the views presented by

the patent examiner from the time of filing through registration, as well as the applicant's intent and reasons for amendment as reflected in amendment papers and written opinions submitted during prosecution (Supreme Court Decision 2015Da244517, dated Aug. 1, 2018, etc.).

(2) As stated above, taking into account the applicant's intent as reflected therein, even from the description in the specification alone, it may be found that the Article in Question was consciously excluded from the claims during prosecution of the Subject Utility Model. In particular, where the description of the utility model identifies problems associated with a modified element of the Article in Question that could substitute for the technical configuration of the Subject Utility Model and discloses the claimed technical configuration as a means for solving those problems, and where the modified element of the Article in Question is excluded by the literal scope of the claims, it is reasonable to conclude that the applicant or the utility model right holder consciously excluded the Article in Question having such modified element from the claims during prosecution of the Subject Utility Model.

b) Detailed Review on the Present Case

(1) The Specification of the Subject Utility Model includes the Following Disclosures³⁾

[0001] The present utility model relates to a candle-type lamp, and more particularly, to a candle-type lamp in which the water container can be easily separated from the body, heat generated from the flame is prevented from being transmitted to the body through the water container, the body is prevented from easily tipping over due to external contact, the wick is prevented from falling into and becoming detached within the fuel container, and the wick holder fixing cap can be threadably coupled to the opening of the fuel container without forming a spiral on an inner side of the wick holder fixing cap.

[0005] ... In a conventional candle-type lamp, ... the water container is

3) Underlining and boldface have been added solely for ease of understanding.

made of metal, and heat generated from the flame causes thermal deformation of the opening of the body formed of plastic material, and the body can easily tip over due to external contact, resulting in a lack of safety in use. Further, the wick protruding from the opening of the fuel bottle often slips into the interior of the fuel bottle and becomes detached, causing the inconvenience and difficulty of repeatedly pulling the wick back out through the wick hole of the wick holder.

[0008] Accordingly, the present utility model was devised to solve the various problems of the prior art described above, and aims to provide a candle-type lamp in which the water container can be easily separated from the body, heat generated from the flame is prevented from being transmitted to the body through the water container, the body is prevented from easily tipping over due to external contact, the wick is prevented from falling into and becoming detached within the fuel container, and the wick holder fixing cap can be threadably coupled to the opening of the fuel container without forming a spiral on an inner side of the wick holder fixing cap.

[0012] As described above, in the present utility model, the water container is simply hung on an upper portion of the body and can be easily separated therefrom, thereby facilitating assembly and disassembly, and because the water container is formed of ceramic material, heat generated from the flame is not transmitted to the body through the water container. Further, the center-of-gravity plate provided on the bottom surface of the body prevents the body from easily tipping over due to external contact, thereby ensuring safety in use. ... Moreover, when the wick holder fixing cap is threadably coupled to the opening of the fuel bottle, only a pair of left and right fixing protrusions are formed on an inner side of the wick holder fixing cap to move along the spiral formed on an outer side of the opening of the fuel bottle, thereby allowing the wick holder fixing cap to be coupled to the spiral at the opening of the fuel bottle, and so, the process of forming a spiral on an inner side of the wick holder fixing cap becomes unnecessary, thereby achieving economic efficiency through reduced manufacturing costs.

[0018] More specifically, as shown in FIG. 4, the water container (330) is formed of ceramic material and has a through-hole (330a) at its center through which the lamp (320) passes, and is configured to be supported and fixed at an upper end of the body (310). ... In addition, by forming the water container (330) of ceramic material and providing the body (310) with a center-of-gravity plate (313) on a bottom surface thereof, as shown in

FIG. 10, heat generated from the flame of the wick (327) is prevented from being transmitted to the body (310) formed of plastic material, and the body (310) is prevented from easily tipping over due to external contact, thereby ensuring safety in use.

[0020] ... In addition, the wick holder fixing cap (328) has an insertion hole (328a) formed at a central portion thereof through which the protrusion (324) of the wick holder (322) passes, and includes fixing protrusions (328b) on an inner side thereof that move along a spiral (321b) formed on an outer side of the opening (321a) of the fuel container (321). That is, when the wick holder fixing cap (328) is threadably coupled to the opening of the fuel container (321), only a pair of left and right fixing protrusions (328b), which move along the spiral (321b) formed on the outer side of the opening (321a) of the fuel container (321), are formed on the inner side of the wick holder fixing cap (328), thereby allowing the wick holder fixing cap (328) to be coupled to the spiral (321b) at the opening of the fuel container (321). As a result, the process of forming a spiral on the inner side of the wick holder fixing cap (328) becomes unnecessary, thereby achieving economic efficiency through reduced manufacturing costs.

[0022] Thus, in the present utility model, the water container is simply hung on an upper portion of the body and can be easily separated therefrom, thereby facilitating assembly and disassembly. In addition, because the water container is formed of ceramic material, heat generated from the flame is not transmitted to the body through the water container. Further, the center-of-gravity plate provided on a bottom surface of the body prevents the body from easily tipping over due to external contact, thereby ensuring safety in use. Moreover, by passing the wick through the center of the wick holder and forming a plurality of upward teeth through three-directional cuts to grip and fix the wick, the wick is prevented from falling into and becoming detached within the fuel container, thereby improving convenience and safety in use. In addition, when the wick holder fixing cap is threadably coupled to the opening of the fuel bottle, only a pair of left and right fixing protrusions, which move along the spiral formed on an outer side of the opening of the fuel bottle, are formed on an inner side of the wick holder fixing cap, thereby allowing the wick holder fixing cap to be coupled to the spiral at the opening of the fuel bottle. As a result, the process of forming a spiral on an inner side of the wick holder fixing cap becomes unnecessary, thereby achieving economic efficiency through reduced manufacturing costs.

(2) As discussed in the preceding section, the specification of the Subject Utility Model includes disclosures identifying problems associated with modified elements of the Challenged Utility Model that could replace the technical configuration of the Subject Utility Model. Specifically, the specification includes ① statements to the effect that the technical configuration in which a “threaded protrusion” is formed on the inner side of the wick holder fixing cap of the Challenged Utility Model (Modified Element 1) is uneconomical because the unnecessary process of forming the spiral increases manufacturing costs; and ② statements to the effect that the technical configuration in which the water container of the Challenged Utility Model is made of “metal” (Modified Element 2) has the problem that heat generated from the flame is transmitted, causing thermal deformation of the opening of the body formed of plastic material.

Furthermore, as discussed in the preceding section, the specification of the Subject Utility Model includes disclosures presenting the technical configuration of the Subject Utility Model as a means for solving the above problems associated with modified elements of the Challenged Utility Model that could replace the technical configuration of the Subject Utility Model. Specifically, the specification includes ① statements to the effect that, unlike Modified Element 1, the technical configuration in which the wick holder fixing cap of Element 2 of the Subject Utility Model includes a fixing protrusion on the inner side thereof enables the wick holder fixing cap to be threadably coupled to the opening of the fuel container without forming a spiral on the inner side of the cap, thereby eliminating the need for the process of forming such a spiral and achieving economic efficiency through reduced manufacturing costs; and ② statements to the effect that, unlike Modified Element 2, the technical configuration in which the water container of Element 3 of the Subject Utility Model is made of ceramic material prevents heat generated from the flame from being transmitted to the body through the water container, thereby solving the problem of thermal deformation of the opening of the body.

(3) In light of the circumstances described above, together with the fact that the claims of the Subject Utility Model are drafted so as to exclude the modified configurations of the Challenged Utility Model within the scope of their recited language, it is reasonable to conclude that the Plaintiff, as the applicant and utility model right holder, consciously excluded during prosecution Modified Element 1 of the Challenged Utility Model, namely, the technical configuration in which a threaded protrusion is formed on the inner side of the wick holder fixing cap and Modified Element 2, namely, the technical configuration in which the water container is made of metal, from the claims of the Subject Utility Model. Accordingly, the Plaintiff's assertion that the Challenged Utility Model having Modified Elements 1 and 2 falls within the scope of the rights of the Subject Utility Model is not permissible, as it would violate the doctrine of estoppel.

6) Summary of Discussion

As discussed above, because the modified configurations of the Challenged Utility Model were consciously excluded from the claims of the Subject Utility Model, the Challenged Utility Model cannot be regarded as equivalent to the technical configuration of the Subject Utility Model or as falling within the scope of its rights with no need to further examine the requirements for infringement under the doctrine of equivalents. (The Court further notes that, according to the specification of the Subject Utility Model, the Subject Utility Model embodies multiple problem-solving principles, including ① facilitating separation of the water container from the body through the stepped structure of the body and the through-hole structure of the water container; ② using a water container made of ceramic material to prevent heat from the flame from being transmitted to the body more effectively than a metal water container; ③ ensuring stability in use by forming a low center of gravity through a weight; ④ preventing the wick from slipping out by employing a toothed wick-hole structure; and ⑤ achieving economic efficiency through reduced

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manufacturing costs by using a cap that can be coupled with the spiral of the fuel container through fixing protrusions on the inner side thereof. The Challenged Utility Model does not embody the technical concept described in items ② and ⑤ above.)

C. Whether IPTAB Erred

As discussed above, as the Challenged Utility Model cannot be regarded as equivalent to the technical configuration of the Subject Utility Model and therefore does not fall within the scope of its rights, the IPTAB Decision that reached the same conclusion and rejected the Plaintiff's request for trial is lawful without any need to further examine the Defendant's remaining arguments, and none of the grounds for illegality asserted by the Plaintiff warrants reversal of the IPTAB Decision.

3. Conclusion

The Plaintiff's claim seeking reversal of the IPTAB Decision is without merit. Therefore, it is dismissed.

Presiding Judge	Hyejin LEE
Judge	Tacksoo JUNG
Judge	Young Gi KIM

[Appendix 1]

Main Content of the Specification and Drawings of the Subject Utility Model

1. Technical Field

[0001] The present utility model relates to a candle-type lamp, and more particularly, to a candle-type lamp in which the water container can be easily separated from the body, heat generated from the flame is prevented from being transmitted to the body through the water container, the body is prevented from easily tipping over due to external contact, the wick is prevented from falling into and becoming detached within the fuel container, and the wick holder fixing cap can be threadably coupled to the opening of the fuel container without forming a spiral on an inner side of the wick holder fixing cap.

2. Background Art and Problem to be Solved

[0003] The candle-type lamp previously filed and registered by the applicant, disclosed in Utility Model Publication No. 2010-0005897 (published June 10, 2010) and titled “Candle-Type Lamp,” is a lamp that uses liquid fuel to produce light and can be used in place of candles employed in religious rites and various ceremonial observances, and it reduces the generation of soot caused by incomplete combustion during use, while also helping to prevent fires. The configuration thereof is described in detail below.

[0005] That is, the candle-type lamp (1) is ... a lamp (10) that produces light by burning liquid fuel, and includes a fuel bottle (110) in which liquid fuel is stored in an internal space and which has a spiral (113) provided on an outer portion of an upper opening; a wick holder (120) installed to cover the opening of the fuel bottle (110); and a wick (130) having one end exposed at an upper portion of the wick holder (120) and the other end inserted into the interior of the fuel bottle (110); and a housing (20) formed in the shape of a cylindrical candle, the housing having a hollow portion (26) formed therein, a water container (210) formed in a concave hemispherical shape at an upper portion thereof, and, within the water container (210), a protrusion (220) projecting adjacent to an upper stepped portion (24) and having a through-hole (221) at a center thereof, the protrusion (220) having, within an interior thereof, a spiral (223) configured to be coupled with the spiral (113) provided on the fuel bottle (110) of the

lamp (10). In addition, in the lamp (10), the wick holder (120) is made of metal, and the wick holder (120) comprises a stopper portion (121) that blocks the opening of the fuel bottle (110) and a protrusion (123) projecting from the stopper portion (121) on which the wick (130) is installed while the protrusion (123) is further provided with vapor discharge holes (127) around the wick (130). However, in such a conventional candle-type lamp, as the opening of the fuel bottle is directly threadably coupled to the water container, when the water container is separated from the body, the fuel bottle is also separated while coupled to the water container, thereby causing the inconvenience and difficulty of separating the fuel bottle from the water container each time during assembly and disassembly. In addition, because the water container is made of metal, heat generated from the flame causes thermal deformation of the opening of the body formed of plastic material, and the body can easily tip over due to external contact, resulting in a lack of safety in use. Further, the wick protruding from the opening of the fuel bottle often slips into the interior of the fuel bottle and becomes detached, causing the inconvenience and difficulty of repeatedly pulling the wick back out through the wick hole of the wick holder.

[0008] Accordingly, the present utility model was devised to solve the various problems of the prior art described above, and aims to provide a candle-type lamp in which the water container can be easily separated from the body, heat generated from the flame is prevented from being transmitted to the body through the water container, the body is prevented from easily tipping over due to external contact, the wick is prevented from falling into and becoming detached within the fuel container, and the wick holder fixing cap can be threadably coupled to the opening of the fuel container without forming a spiral on an inner side of the wick holder fixing cap.

3. Means for Solving the Problem and Detailed Description of the Utility Model

[0010] One form of the candle-type lamp according to the present utility model, for achieving the above object, comprises a body having a hollow portion open at an upper side, a stepped portion formed on an inner side thereof, and a center-of-gravity plate provided on a lower bottom surface; a lamp in which a lower portion of a fuel container is supported by the stepped portion of the body, a wick holder having a wick is provided at an opening of the fuel container, the wick holder is fixed to the opening of the fuel container by a wick holder fixing cap, the wick holder comprising a stopper portion that blocks the opening of the fuel container and a

protrusion projecting upward from a center of the stopper portion, a wick hole being formed at a center of an upper surface of the protrusion, the wick hole having a plurality of teeth formed by cutting in three directions and bending upward, and the wick holder fixing cap having an insertion hole formed at a central portion thereof through which the protrusion of the wick holder centrally passes, and including a fixing protrusion on an inner side thereof that moves along a spiral formed on an outer side of the opening of the fuel container; and a water container made of ceramic material, the lamp passing through a central portion thereof, and the water container being supported and fixed at an upper end of the body.

[0016] FIG. 4 is a photograph showing the overall external appearance of the candle-type lamp according to the present utility model, FIG. 5 is a photograph showing the water container of FIG. 4, FIG. 6 is a photograph showing the lamp of FIG. 4, and FIG. 7 is a photograph showing a state in which the wick holder fixing cap has been removed from the configuration of FIG. 6. As illustrated, the present utility model includes, as shown in FIG. 9, a body (310) having a hollow portion (312) open at an upper side, a stepped portion (311) formed on an inner side thereof, and a center-of-gravity plate (313) provided on a lower bottom surface. A lamp (320) is provided within the body (310), and a water container (330) made of ceramic material is provided such that the lamp (320) passes through a central portion thereof, the water container being supported and fixed at an upper end of the body (310). A distinguishing feature is that the water container (330) and the fuel container (321) are not directly coupled to each other and are instead separately detachable, thereby facilitating ease of assembly and disassembly.

[0018] More specifically, as shown in FIG. 4, the water container (330) is formed of ceramic material and has a through-hole (330a) at its center through which the lamp (320) passes, and is configured to be supported and fixed at an upper end of the body (310). The lamp (320) is supported at a lower portion of the fuel container (321) by the stepped portion (311) formed within the body (310), so that when the water container (330) is separated from the body (310), the lamp (320) is not removed together while in a coupled state, and only the water container (330) is removed from the body (310), thereby eliminating the inconvenience and difficulty of detaching the lamp (320) from the water container (330) after the lamp has been removed together with the water container from the body (310), as in the conventional configuration. In addition, by forming the water container

(330) of ceramic material and providing the body (310) with a center-of-gravity plate (313) on a bottom surface thereof, as shown in FIG. 10, heat generated from the flame of the wick (327) is prevented from being transmitted to the body (310) formed of plastic material, and the body (310) is prevented from easily tipping over due to external contact, thereby ensuring safety in use.

[0020] Meanwhile, the lamp (320) is provided with a wick holder (322) having a wick (327) at the opening (321a) of the fuel container (321), the wick holder (322) fixed to the opening (321a) of the fuel container (321) by a wick holder fixing cap (328), and comprising a stopper portion (323) that blocks the opening (321a) of the fuel container (321) and a protrusion (324) projecting upward from a center of the stopper portion (323). At this time, a wick hole (325) through which the wick (327) passes is formed at a center of an upper surface of the protrusion (324), and as shown in FIG. 8, the wick hole (325) is formed to have a plurality of teeth (325a) created by cutting in three directions and bending upward. Accordingly, because the wick (327) is gripped and fixed by the plurality of teeth (325a), the wick (327) is prevented from slipping into the interior of the fuel container (321) and becoming detached during use. In addition, the wick holder fixing cap (328) has an insertion hole (328a) formed at a central portion thereof through which the protrusion (324) of the wick holder (322) centrally passes, and includes a fixing protrusion (328b) on an inner side thereof that moves along a spiral (321b) formed on an outer side of the opening (321a) of the fuel container (321). That is, when the wick holder fixing cap (328) is threadably coupled to the opening of the fuel container (321), only a pair of left and right fixing protrusions (328b), which move along the spiral (321b) formed on an outer side of the opening (321a) of the fuel container (321), are formed on an inner side of the wick holder fixing cap (328) so that the wick holder fixing cap (328) is coupled to the spiral (321b) at the opening of the fuel container (321), thereby eliminating the need for the process of forming a spiral on an inner side of the wick holder fixing cap (328) and achieving economic efficiency through reduced manufacturing costs.

[0022] Thus, in the present utility model, the water container is simply hung on an upper portion of the body and can be easily separated therefrom, thereby facilitating assembly and disassembly; because the water container is formed of ceramic material, heat generated from the flame is not transmitted to the body through the water container; the center-of-gravity plate provided

on a bottom surface of the body prevents the body from easily tipping over due to external contact, thereby ensuring safety in use; by passing the wick through the center of the wick holder and forming a plurality of upward teeth through three-directional cuts to grip and fix the wick, the wick is prevented from slipping into and becoming detached within the fuel container, thereby improving convenience and safety in use; and when the wick holder fixing cap is threadably coupled to the opening of the fuel bottle, only a pair of left and right fixing protrusions, which move along the spiral formed on an outer side of the opening of the fuel bottle, are formed on an inner side of the wick holder fixing cap, thereby allowing the wick holder fixing cap to be coupled to the spiral at the opening of the fuel bottle and as a result, the process of forming a spiral on an inner side of the wick holder fixing cap becomes unnecessary, thereby achieving economic efficiency through reduced manufacturing costs.

4. Effects of the Utility Model

[0012] In the present utility model, the water container is simply hung on an upper portion of the body and can be easily separated therefrom, thereby facilitating assembly and disassembly; because the water container is formed of ceramic material, heat generated from the flame is not transmitted to the body through the water container; the center-of-gravity plate provided on a bottom surface of the body prevents the body from easily tipping over due to external contact, thereby ensuring safety in use; by passing the wick through the center of the wick holder and forming a plurality of upward teeth through three-directional cuts to grip and fix the wick, the wick is prevented from slipping into and becoming detached within the fuel container, thereby improving convenience and safety in use; and when the wick holder fixing cap is threadably coupled to the opening of the fuel bottle, only a pair of left and right fixing protrusions, which move along the spiral formed on an outer side of the opening of the fuel bottle, are formed on an inner side of the wick holder fixing cap, thereby allowing the wick holder fixing cap to be coupled to the spiral at the opening of the fuel bottle, and as a result, the process of forming a spiral on an inner side of the wick holder fixing cap becomes unnecessary, thereby achieving economic efficiency through reduced manufacturing costs.

[Appendix 2]

the Challenged Utility Model

1. Title of the Utility Model

Replaceable Paraffin Oil Lamp in the Shape of a Candle with a Candlestick Function

2. Brief Description of the Drawings

FIG. 1 is a photograph showing the overall external appearance of the Challenged Utility Model;

FIG. 2 is a photograph showing the water container of the Challenged Utility Model;

FIG. 3 is a photograph showing the lamp of the Challenged Utility Model;

FIG. 4 is a photograph showing the wick holder fixing cap of the Challenged Utility Model removed;

FIG. 5 is an enlarged photograph showing the wick holder of the Challenged Utility Model;

FIG. 6 is a plan-view photograph showing the body of the Challenged Utility Model; and

FIG. 7 is a bottom-view photograph showing the body of the Challenged Utility Model.

3. Detailed Description of the Utility Model

The Challenged Utility Model relates to a candle-type lamp that can be used in place of candles employed in various religious and ceremonial rites, and falls within the technical field of candle-type lamps that use liquid fuel to produce light.

The accused utility model, titled “Replaceable Paraffin Oil Lamp in

the Shape of a Candle with a Candlestick Function,” comprises a body (10) having an overall cylindrical exterior resembling a candlestick; a lamp (20) disposed within the body (10) and configured to emit light; and a water container (30) supported on and fixed to an upper end of the body (10). The technical concept of the accused utility model is summarized in greater detail below.

The Challenged Utility Model comprises a body (10) having a hollow portion (12) open at an upper side, a plurality of seating steps (11) formed on an inner side thereof, and a support plate (13) coupled to a lower portion thereof, the support plate including a weight (m) and forming a gentle incline; a lamp (20) in which a lower portion of a paraffin oil storage container (21) is supported by the seating steps (11) of the body (10), a wick holder (22) having a wick (27) being provided at an opening (21a) of the paraffin oil storage container (21), the wick holder (22) being fixed to the opening (21a) of the paraffin oil storage container (21) by a wick holder fixing cap (28) made of synthetic resin, the wick holder (22) comprising a stopper portion (23) that blocks the opening (21a) of the paraffin oil storage container (21) and a rod-shaped protruding tube (24) projecting upward from a center of the stopper portion (23), a wick hole (25) being formed at a center of an upper surface of the rod-shaped protruding tube (24), the wick hole (25) having a plurality of teeth (25a) formed by cutting in three directions and bending upward, the synthetic-resin wick holder fixing cap (28) having an insertion hole (28a) formed at a central portion thereof through which the rod-shaped protruding tube (24) of the wick holder (22) passes, and having, on an inner side thereof, a threaded protrusion (28b) configured to form a threaded engagement with a spiral (21b) formed on an outer side of the opening (21a) of the paraffin oil storage container (21); and a water container (30) made of metal, the lamp (20) passing through a central through-hole (30a) thereof, the water container being supported and fixed at an upper end of the body (10). The Challenged Utility Model is described in further detail below. The Challenged Utility Model includes a body (10)

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having a hollow portion (12) open at an upper side, a plurality of seating steps (11) formed on an inner side thereof, and a support plate (13) coupled to a lower portion thereof, the support plate including a weight (m) and forming a gentle incline.

The body (10) houses the lamp (20) and maintains the accused utility model in a stable state to prevent it from easily tipping over. In this regard, the hollow portion (12) serves as a passage through which the lamp (20) is inserted into or removed from the interior of the body, and the seating steps (11) support a lower portion of the paraffin oil storage container (21) of the lamp (20) installed within the body, and the support plate (13) stabilizes the body to prevent it from easily tipping over due to external force. The Challenged Utility Model includes a lamp (20) configured to continuously emit light to the outside through the wick. The lamp (20) includes a paraffin oil storage container (21) for containing liquid fuel; a wick holder (22) coupled to an upper portion of the paraffin oil storage container and configured to support a wick; and a synthetic-resin wick holder fixing cap (28) configured to detachably couple the wick holder (22) to the paraffin oil storage container (21). In this regard, the wick holder (22) includes a stopper portion (23) at a lower end thereof, a rod-shaped protruding tube (24) formed at a central portion thereof, and a wick hole (25) formed at an upper end thereof, the wick hole (25) receiving a wick (27) at its center. The wick hole (25) is formed by cutting a central portion thereof and bending it upward to form a plurality of teeth (25a) that firmly grip the wick (27). Although the wick (27) is not inserted into the wick hole (25) in the photographs of the Challenged Utility Model and instead appears placed inside the paraffin oil storage container (21), in actual use it must be inserted into the wick hole (25). The wick holder (22) is not directly coupled to the paraffin oil storage container (21), but is instead coupled thereto by means of a wick holder fixing cap (28) made of synthetic resin. The wick holder (22) is coupled to the paraffin oil storage container (21) such that the stopper portion (23) at the lower end of the wick

holder is placed on an upper portion of the paraffin oil storage container (21), and the wick holder fixing cap (28) made of synthetic resin presses downward from above, thereby securing the wick holder to the paraffin oil storage container (21). Meanwhile, the wick holder fixing cap (28) made of synthetic resin has an insertion hole (28a) formed at a central portion thereof, through which the rod-shaped protruding tube (24) of the wick holder passes and is coupled, and on an inner side of a rounded lower rim thereof, a threaded protrusion (28b) is formed, the threaded protrusion (28b) being configured to threadably engage a spiral (21b) formed on an outer side of the opening (21a) of the paraffin oil storage container. The Challenged Utility Model includes a water container (30) configured to prevent heat generated from the lamp (20) from being directly transmitted to the body (10). The water container (30) has a disk-like shape, a through-hole (30a) formed at a central portion thereof, and is made of metal. The water container (30) is configured such that the wick holder (22) passes through the central through-hole (30a), and the disk-shaped water container is supported and fixed while seated on the upper end of the body (10). At this time, because light and heat are generated from the wick (27) positioned in the wick hole (25) at an upper central portion of the wick holder (22), the heat is blocked by the water container (30) and is not directly transmitted to the body (10) or the paraffin oil storage container (21). Meanwhile, because the lamp (20) passes through the through-hole (30a) of the water container (30), the water container is not directly fastened or coupled to the lamp (20), but instead is fitted thereto in an engaged state. In addition, the water container (30) is not directly fastened or coupled to the body (10), but is instead seated on the circular rim of the body (10) in a supported state. In this state, the body (10) and the water container (30) remain fixed relative to each other. Accordingly, when the water container (30) is lifted upward, it is separated from the body (10) and raised as is, while the body (10) remains in its original position. Meanwhile, although the water container (30) is made of metal, it is

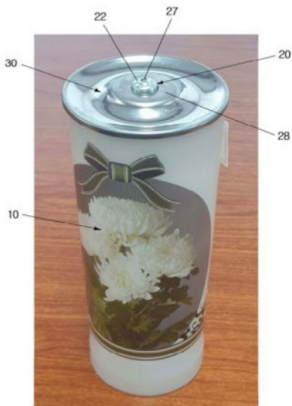
configured to block heat generated from the lamp (20) so that the heat is not directly transmitted to the body (10) or the paraffin oil storage container (21).

4. Effects of the Utility Model

The Challenged Utility Model has the advantage that the water container (30) and the body (10) can be easily disassembled or assembled. This is made possible because the water container (30) is simply seated on and supported by the circular rim of the body (10). In addition, the Challenged Utility Model has the advantage that heat generated from the lamp (20) is blocked so as not to be directly transmitted to the body (10) or the paraffin oil storage container (21). This is made possible by disposing the water container (30) between the wick (27) and the body (10), or between the wick (27) and the paraffin oil storage container (21). In addition, the Challenged Utility Model has the advantage that it can be used in a stable state. This is made possible by coupling a bottom plate (13), capable of providing a substantial amount of weight, to a lower portion of the body (10). In addition, the Challenged Utility Model has the advantage that the wick holder (22) and the paraffin oil reservoir (21) can be coupled to or separated from each other by means of the wick holder fixing cap (28). In addition, because the Challenged Utility Model forms a plurality of teeth (25a) by cutting a central portion of the wick hole (25) and bending the cut portions upward, it has the advantage of firmly holding the wick (27) in place.

5. Attached Drawings

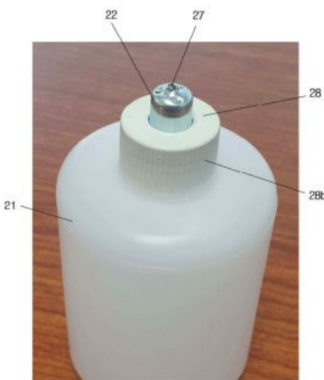
[FIG. 1]



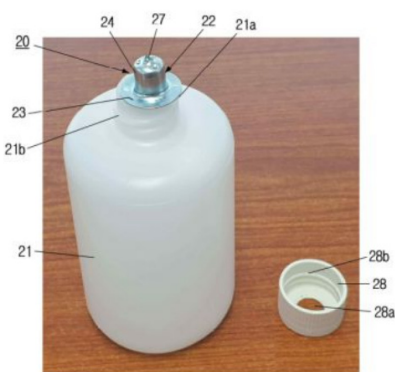
[FIG. 2]



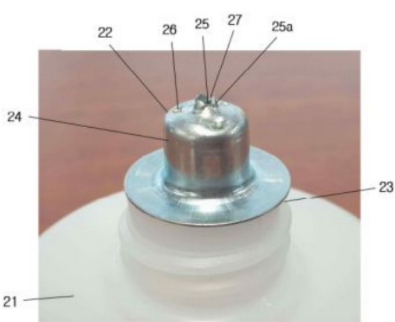
[FIG. 3]



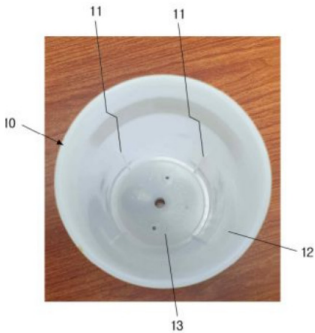
[FIG. 4]



[FIG. 5]



[FIG. 6]



**IP HIGH COURT OF KOREA
TWENTY-THIRD DIVISION
DECISION**

Case No.	2024Na10010 Damages (IP)
Plaintiff, Appellant	Global Seller Startup Research Institute Co., Ltd. Counsel for Plaintiff Changrae JEONG
Defendant, Appellee	1. B Co., Ltd. Representative C 2. C Counsel for Defendants Nara Law Firm Attorney in Charge Wooseok LEE
District Court's Decision	Seoul Central District Court Decision 2022GaHap525400, decided December 7, 2023
Date of Closing Argument	August 27, 2024
Decision Date	September 12, 2024

ORDER

1. The Plaintiff's appeal is dismissed.
2. Costs shall be borne by the Plaintiff.

DEMAND FOR RELIEF

1. Plaintiff's Demand

The Defendants and the co-Defendants at the lower court's decision, Chai Mall Co., Ltd. and E shall jointly pay the Plaintiff the following amounts: KRW 30,000,100; an amount calculated at an annual rate of 12% for a period from the date after a duplicate of the complaint was served to the date when the Defendant repays in full.

2. Appellant's Demand

The portion of the lower court's decision that ruled against the Plaintiff and ordered the amount set out below shall be reversed. The Defendants, jointly with co-Defendants of the lower court's decision, Chai Mall Co., Ltd. and E shall pay the Plaintiff the following amounts: KRW 3,000,000; an amount calculated at an annual rate of 5% for KRW 3,000,000 for a period from June 29, 2022 to December 7, 2023; and at an annual rate of 12% from December 8, 2023, to the date when they repays in full.¹⁾

OPINION

1. Scope of the Adjudication of this Court

The first instance dismissed all of the Plaintiff's claims for compensation for loss that amounts to KRW 30,000,100 and the delay damages thereon, on account of the Defendants' aiding and abetting of infringement of the Plaintiff's trademark right or copyright. With respect thereto, the Plaintiff appealed only as to the part of the claims for the compensation that amounts to KRW 3,000,000 and delay damages thereon, as stated in the appellants's demand for relief. Hence, the scope of the subject matter of adjudication for this court shall be limited to the portion relating to the amount of compensation and damages stated above.

1) As the co-Defendants Chai Mall and E who lost in the lower court's decision did not appeal, the portion of the judgment of the lower court decision concerning these coDefendants is severed and confirmed.

2. Background

A. The Plaintiff's Trademark Rights and Copyright

The Plaintiff, who sells accessories such as earphone cases and keyrings under the trade name “Dainotaeng,” is the owner of the trademark rights to Trademarks No. 1 and 2 listed below, and created Copyrighted Works No. 1 and 2 listed below, for which the Plaintiff had registered copyright with the Korea Copyright Commission.

1) Trademark No. 1

a) Filing date of application / Date of registration /
Registration number: January 16, 2020 / January 18, 2021 / No.
40-1683555

b) Mark:



c) Designated Goods: Goods under Class 9 of the classification of the category of goods, including cases for digital music players; cases for storing electronic audio and visual apparatus and instruments; etc.

2) Trademark No. 2

a) Filing date of application / Date of registration /
Registration number: January 16, 2020 / January 18, 2021 / No.
40-1683554

b) Mark:



c) Designated Goods: Goods under Class 18 of the classification of the category of goods, including leather cases for keys; key wallets; etc.

3) Copyrighted Work No. 1

a) Date of creation / Date of first publication / Date of registration: July 15, 2018 / July 15, 2018 / July 31, 2020

b) Title of the Work: DAINOTAENG MARSH, MARSH

c) Category of the Work: Artistic Works > Applied Art > Character

d) Content:



4) Copyrighted Work 2

a) Date of creation / Date of first publication / Date of registration: August 7, 2018 / August 8, 2018 / September 11, 2018

b) Title of the Work: DINOTAENG QUOKKA

c) Category of the Work: Artistic Work > Applied Art > Character

d) Content:



B. Company Chai Mall’s Automated Purchase Agency Service and Exclusive Sales Agency Agreement with the Defendant

1) Company Chai Mall (hereinafter “Chai Mall”) is engaged in an automated purchasing agency service, “H” (hereinafter the “Business”), which is to fully automate the entire series of procedures by using computer programs, including the collection of product information, creation of sales pages, setting of sales prices, receipt of purchase orders, and the placement of orders using the buyer’s information. The business is operated after Chai Mall collected information on products sold on Chinese online shopping platforms, and advertised them on the Korean open market such as Coupang and Wemakeprice under the names of domestic sellers in the Republic of Korea, and upon receipt of a purchase order, Chai Mall would place a corresponding order with Chinese online shopping mall to facilitate direct delivery to the buyers.

2) Around July 6, 2021, Chai Mall entered into an exclusive sales agency agreement as set forth below (hereinafter the “Sales Agency Agreement at Issue”) with the Defendant Global Seller Startup Research Institute Co., Ltd. (hereinafter the “Defendant Company”) in relation to the Sales Service at Issue, and Defendant C is the CEO of the Defendant Company.

Article 1 (Purpose of the Agreement)

Chai Mall (Party A) has agreed to grant the Defendant Company (Party B) the right to conduct business operations using the Solution of the Purchase Agency Service from China provided by D, as set forth in this Agreement. This Agreement is made and entered into by and between Chai Mall and the Defendant Company in consideration of the mutual rights and obligations herein contained. The parties hereto agree as follows:

Article 2 (Major Conditions)

Classification	Details	Remarks
1. The Solution of the Purchase Agency Service	A system that enables sale with product data syndication	

Classification	Details	Remarks
from China		
2. The Exclusive Sales Agency (Party B)	A company that recruits and manages sellers	
3. The Seller (Party C)	A seller of products	
4. Authority to Enter into the Contract	Authority to enter into the contract granted to Party B	
5. Profit Sharing	Commission amounts paid by Party B to Chai Mall (Party A) at the rate of 11.3%	
6. Customer Deposit	The amount of payment paid by the Seller (Party C) to pay for the products	
7. Escrow System	A system designed to protect the Seller's (Party C) payment for the products	

Article 3 (Definition)

The definitions of the terms used in this Agreement are as follows:

1) The Solution of the Purchase Agency Service from China means the entire system that allows approved sellers to access the website on which products offered in China are listed and to sell such products via product data syndication. The current system website offering such products is www.xiangwaikan.com, which can be changed at any time upon consultation between Chai Mall and the Defendant Company.

7) “Escrow System” means the system agreed upon between Chai Mall and the Defendant Company to safely protect a Customer Deposit paid by the Seller.

Article 6 (Obligations of D)

1. Chai Mall agrees to provide technical assistance through the Solution of the Purchase Agency Service from China, ranging from product registration, product discontinuation management, collection of purchase orders, placement of orders, and customer service (CS). Chai Mall shall not request any additional fees other than the Customer Deposit and shipping fees.

3. Personal information and data of the Seller provided by the Defendant Company to Chai Mall shall be used solely for the sale of products, and upon termination of this Agreement, Chai Mall shall destroy all personal

information of the Seller provided by the Defendant Company.

5. If there occurs copyright dispute or other types of disputes with a third party regarding the products or services provided by Chai Mall, all matters related thereto shall be transferred to Chai Mall, who shall take the leading role in resolving the matter, while the Defendant Company and the seller provide support. Provided, however, that the Defendant Company shall pay 50% of the expenses incurred for or in connection with Chai Mall's performance to resolve the issues raised by the Seller.

6. (Omitted) Chai Mall is responsible for returning the seller's product deposit. To ensure safe management of the deposit, in the event that the fluctuation of the deposit amount exceeds KRW 5,000, Chai Mall and the Defendant company shall consult each other on a monthly basis to increase the guaranteed insurance coverage once a month, based on KRW 50 million thread. Provided, however, that if the limit cannot be adjusted upward due to the company's circumstances, the matter shall be determined through mutual consultation.

Article 7 (Obligations of the Defendant Company)

1. The Defendant Company shall recruit the Seller who will use the services provided by Chai Mall.

2. The Defendant Company shall fulfill all of its obligations to promote the sale of products on the Seller's account created by the Seller.

3. The Defendant Company shall provide the guidance to the Seller so that the Customer Deposit and shipping fees are deposited into the account designated by Chai Mall, and shall manage and notify the Seller to maintain the agreed minimum Customer Deposit balance.

5. The Defendant Company shall be liable for any disadvantages or damages incurred by Chai Mall or the Defendant Company due to the causes attributable to the Seller. To prevent such occurrences, the Defendant Company has a duty to manage and notify the Seller of such a fact.

3) Pursuant to the Sales Agency Agreement at Issue, the Defendant Company promoted the Service at Issue, recruited the sellers who will use "H," obtained the accounts of sellers J and K (hereinafter the "Domestic Sellers") on the domestic online shopping mall "Coupang" and provided those accounts to the Defendant Company.

4) Having received the accounts of the Domestic Sellers on the

Coupang (hereinafter “Coupang accounts”) from the Defendant Company, Chai Mall proceeded to upload product information corresponding to various items sold on Chinese online shopping platforms and began selling on Coupang using “H.” Around August 2021, postings for sale of the products below (hereinafter “Respective Products at Issue”) were published on the Domestic Sellers’ Coupang accounts.

Domestic Seller	J		K	
Products	Earphone Case		Keyring	

【Factual basis】 Undisputed facts; statements and videos in Plaintiff’s Exhibit 1-1, 1-3, 2-1, 3-3, 3-6, 4-1, 8-1 through 8-5, and 10-4 through 10-7; statements and videos in Defendant’s Exhibit 6; and the purport of the overall argument.

3. Determination on the Grounds for Claim

A. Summary of Plaintiff’s Arguments

The Plaintiff asserts that the Respective Products at Issue are counterfeit products sold on Chinese online shopping platforms, bearing marks identical or similar to the Plaintiff’s Trademarks Nos. 1 and 2 on the designated goods, or using characters identical or similar to the Plaintiff’s Copyrighted Works Nos. 1 and 2. Nevertheless, Chai Mall and its CEO E allegedly infringed the Plaintiff’s trademark rights or copyright by reproducing images of Respective Products at Issue through an automated purchasing agency service program and uploading them to the Domestic Sellers’ Coupang accounts, and eventually selling these products.

In light of the content of the Sales Agency Agreement at Issue

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entered into by and between the Defendant Company and Chai Mall[Article 2; Article 3(1)1), and 7); Article 6(3), (5), (6) and Article 7(3), (5)]²⁾, the Defendants are deemed to have engaged in or been complicit with Chai Mall in uploading the images to the sellers' accounts on the domestic online shopping mall, resulting in the infringement of the Plaintiff's trademark rights and other rights. Hence, the Defendants bear a joint tort liability.

The Plaintiff further argues that the Defendants, despite knowing or being able to know that the use of Chai Mall's automated purchasing agency service program could result in the infringement of another person's intellectual property (IP) rights, nonetheless comprehensively consented to the use of such service and provided Chai Mall with the Domestic Sellers' information, thereby aiding and abetting Chai Mall's infringement of IP rights. Further, the Defendants allegedly owed the following affirmative duties, but did not take any measures: ① the duty to review, either before or after, that whether the product images uploaded by Chai Mall infringe another person's IP rights; ② upon an injunction request from the right holder, the duty to notify Chai Mall of such a request or to take measures to halt the infringement to the Domestic Seller; and ③ the duty to check intermittently whether any infringement of another person's IP rights occurs on the Domestic Sellers' product pages on online platforms. Therefore, the Defendants aided and abetted Chai Mall's infringement of IP rights.

Accordingly, the Defendants, along with co-Defendants Chai Mall and E in the decision of the first instance, shall be held jointly liable to compensate the Plaintiff for damages with KRW 3,000,000 under

2) The Plaintiff organized and asserted the contractual provisions based on the Sales Agency Agreement at Issue dated December 1, 2021 (Defendant's Exhibit Da No. 3). However, the assertions are hereby amended in accordance with the Sales Agreement at Issue (Defendant's Exhibit No. 6—which was submitted to the appellate court) that was in effect around August 2021, when Respective Products at Issue was published on the online shopping mall webpages through the Domestic Sellers' Coupang accounts.

Article 109 of the Trademark Act or Article 125 of the Copyright Act.

B. Discussion

1) Relevant Law

Under Article 760 of the Civil Act governing joint torts, where multiple persons jointly cause harm to another, it is not necessary that the tort-feasors have conspired with one another or even shared a common intent. It is sufficient that the respective acts are objectively correlated in their commission, and, once damage is caused by such related and jointly connected conduct, a joint tort is established, and the tort-feasors are liable for damages accordingly (*see* Supreme Court Decision 99Da41749, decided April 11, 2000, etc.).

Under Article 760(3) of the Civil Act, aider and abettor of tortious acts are deemed as joint tort-feasors, thereby imposing joint tort liability on the aider and abettor. An act of aiding and abetting refers to all direct and indirect acts that facilitate tortious acts. In the realm of civil law, which aims at the compensation for the loss, reparation of damage and therefore negligence is in principle treated equally with intent, aiding and abetting by negligence is also permissible. In such cases, the negligence consists in breaching a duty of care not to assist the tortious acts, premised upon the existence of such a duty. In order to impose joint tort liability for negligent aiding and abetting of another's tortious act, however, there must be proximate causation between the aiding act and the victim's resulting loss. In determining whether such proximate causation exists, the court must exercise caution so that liability is not expanded excessively, taking into comprehensive account the foreseeability that the negligent act would facilitate the underlying tort, the extent to which the negligent act contributed to the occurrence of harm, the degree to which it contributed to the formation of the victim's reliance, whether the victim could readily have prevented the harm on their own, and the purpose and legally protected interests underlying the statutes or other

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norms of act that impose the relevant duty of care (*see* Supreme Court Decision 2005Da21821, decided July 13, 2007; Supreme Court Decision 2015Da234985, decided May 12, 2016).

2) Whether Liability for Joint Tort is Constituted in the Narrow Sense

Even if the Defendant Company and its CEO, Defendant C, promoted the business under the Sales Agency Agreement at Issue and recruited and managed the Domestic Sellers, and even if the postings for sale of the Respective Products at Issue that infringed the Plaintiff's trademark rights and copyright were published on the Domestic Sellers' Coupang accounts in around August 2021, it is deemed that the primary party responsible for such postings that infringe upon trademark rights or copyright is the one who published the postings directly. It cannot be deemed, based solely on the aforementioned circumstances, that the Defendants bear direct liability for the joint tort against trademark rights, etc.

The Plaintiff alleges that the Defendants have engaged in or have colluded in publishing postings for sale of the Respective Products at Issue that infringe the Plaintiff's trademark rights, etc. on the Domestic Sellers' Coupang accounts. However, the evidence submitted by the Plaintiff is insufficient to prove the argument, and there is no other evidence which supports for it to be acknowledged. Thus, the Defendants cannot be deemed to bear joint tort liability in the narrow sense.

3) Whether Liability for Joint Tort by Aiding and Abetting is Constituted

a) The Plaintiff further argues that even though the Defendants recognized that if the Service at Issue is carried out using Chai Mall's automated purchasing agency service program, there is a possibility that it could infringe other persons' IP rights, the Defendants acquiesced or gave comprehensive consent to it, and they aided and

abetted by facilitating unlawful acts of Chai Mall by providing the Domestic Sellers' information to Chai Mall.

However, the facts acknowledged above and the statements in the Plaintiff's Exhibit Nos. 28 through 30 are insufficient to acknowledge the Plaintiff's arguments, and there is no other evidence to support the Plaintiff's arguments. Moreover, given the nature of the Service at Issue, where Chai Mall's automated purchasing agency service program copies product images directly from Chinese online shopping platforms and publish them on the sellers' accounts on domestic online shopping malls, even if it is deemed that there is a possibility of infringement of IP rights of others because the Domestic Sellers which are recruited and managed by the Defendant Company publish postings on their accounts that infringe IP rights of others (The Sales Agency Agreement at Issue also anticipates such disputes in Article 6(5)), unless the business model at issue inherently contemplates infringement of IP rights of others, the Defendant Company's recruitment and management of the Domestic Sellers and offering their information to Chai Mall under the Sales Agency Agreement at Issue cannot be deemed to have facilitated acts that infringed the Plaintiff's IP rights by the use of Chai Mall's automated purchasing agency service program. Even if deemed otherwise, it is difficult to determine that there is a significant causal relation between the Defendant Company's act of recruiting sellers and the occurrence of harm to the Plaintiff.

Accordingly, the Plaintiff's argument that the Defendants bear joint tort liability to the Plaintiff, on the premise that the Defendant Company aided and abetted Chai Mall's unlawful activities by providing information of domestic sellers to Chai Mall, cannot be accepted.

b) In order to prove that the Defendants bear joint tort liability due to aiding and abetting by negligence with respect to the postings which infringe Plaintiff's trademark rights, etc., at least, with the premise that the Defendants owe an affirmative duty to not assist

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such unlawful acts, it must be acknowledged that they breached such a duty. However, for the following grounds, neither the Defendant Company nor its CEO, Defendant C, can be deemed to have owed affirmative duties that the Plaintiff argues that they have. Therefore, the Defendants cannot be held liable for the joint tort resulting from aiding and abetting by nonfeasance or negligence. The court do not accept the Plaintiff's arguments which is based on the different premise.

(1) The Sales Agency Agreement at Issue provides that Chai Mall shall take responsibility for the actions ranging from publishing products on the sellers' accounts to handling customer service, etc., using the automated purchasing agency service program (Article 6(1)), while the Defendant Company is obligated to recruit and manage sellers who will use Chai Mall's services (Article 7(1), (3), (5)). Although Article 7(2) under the Sales Agency Agreement at Issue states that "the Defendant Company shall use its best efforts to promote the sale of products on the Seller's account created by the Seller," such general and comprehensive articles shall not be deemed to induce a specific affirmative duty at an individual level to supervise and manage an infringement of IP rights such as trademark rights of others with foresight and hindsight and to prevent or halt such infringement as the Plaintiff argues. Furthermore, there are no other legal grounds to suggest that the Defendant Company bears such a contractual obligation.

(2) As examined earlier, although the nature of the Business at Issue entails the possibility of infringement of another person's trademark rights or other IP rights, unless the business model inherently contemplates such infringement, from a sound reasoning, it is difficult to deem that the Defendants owe an affirmative duty to examine whether the product images posted on the Domestic Sellers' accounts on the online shopping platforms by Chai Mall infringe another person's IP rights before and after the posting, and to have an

obligation to intermittently check the infringement and manage the Domestic Sellers' accounts even if the Defendants recruited and managed the Domestic Sellers while promoting the Service at Issue.

(3) The Plaintiff also argues that, when the Domestic Sellers receive a request for an injunction against infringement from trademark owners or other right holders, the Defendants are obligated to notify Chai Mall of such a fact or take measures to halt the infringement.

However, the statements in the Plaintiff's Exhibits Nos. 11 through 27 and 31 through 35 are insufficient to acknowledge that the Defendant Company was in a position to immediately perceive that Domestic Sellers had been notified of the right holder's demand for an injunction against infringement, nor that it had the requisite authority and technical means to take corrective actions, such as deleting the postings related to the infringement, based on its assumed competence to manage and control the relevant materials. There is no evidence to otherwise support such a finding.

On the contrary, the evidence examined above establishes the following facts: (1) All actions in the Business at issue from registering product on the sellers' accounts, collecting data of the products, to writing of sales pages were conducted by "H", a purchasing agency service program, provided by Chai Mall. (2) The Defendant Company merely entered into a marketing agency agreement with Chai Mall for the recruitment and management of the Domestic Sellers, and the obligation in connection with the operation of the purchasing agency service program was not a part of the Defendant Company's duty. Therefore, neither the Defendant Company nor its CEO, Defendant C, shall be deemed to owe an affirmative duty asserted by the Plaintiff.

4. Conclusion

The Plaintiff's claim against the Defendants are without merit and shall be dismissed. Inasmuch as the judgment of the court below is consistent with this conclusion and is proper in its determination, the Plaintiff's appeals against the Defendants lack merit and are hereby affirmed.

Presiding Judge	Taeksoo JUNG
Judge	Jaepil YUN
Judge	Hyunjung SONG