PATENT COURT DECISIONS

2015

Patent Court of Korea

PATENT COURT DECISIONS

Homepage“http://patent.scourt.go.kr”

Court Publications Registration Number
32-9740146-000864-10
ISBN 977-24-68044-00-3-65

FOREWORD

The Patent Court of Korea was established on March 1, 1998 to review appeals against the Intellectual Property Tribunal's decisions on patent, utility model, design and trademark registrations. Previously, the Korean Intellectual Property Office was in charge of decisions allowing or invalidating patent, utility model, design and trademark registrations, and the Korean Intellectual Property Office's decisions were reviewed only once by the Supreme Court which would only review legal issues and conclusions. The establishment of the Patent Court brought a meaningful development of the rule of law by involving the court from the factual review stage in respect of intellectual property registrations.

During the 17 years after the Patent Court's establishment, it has gained a reputation for having greatly contributed to the improvement of Korea's intellectual property system. The specialized judges knowledgeable in the intellectual property system issued numerous important decisions that set the standards in the intellectual property field.

Meanwhile, patent and intellectual property cases are no longer limited to the geographic scope of one country but are arising simultaneously in multiple countries. About 30% of the cases reviewed by the Patent Court involved foreign parties, and the Patent Court is endeavoring to review the cases according to internationally acceptable standards.

As a part of such effort, the Patent court hosted the 2013 Korea-US IP Judicial Conference in October 2013, and the 2015 International IP Court conference on October 14, 2015, where judges from five most active countries in the intellectual property field discussed generally acceptable standards and procedures for intellectual property litigation.

This collection of patent court decisions is published with the objective of widely spreading and sharing the Korean Patent Court's meaningful and advanced decisions. Thirteen cases were selected, including the leading case selected by the Patent Court, the case representing the Patent Court's current position on the issue of inventive step, etc. This will provide helpful, although not fully informative, insight into how patent litigations are conducted in Korea.

Due to the limited volume, we could only include a small portion of the Patent Court's voluminous achievements but will continue to supplement the collection through future publications. We sincerely hope that this book will help intellectual property experts, researchers and practitioners of the global community to gain a better understanding of the Korean Patent Court's decisions, and promote the development of Korea's intellectual property system.

I thank our editors, intellectual property law experts for their translation and review work, and Sungmun Publishing Company for publishing this book.

December 2015
Chief Judge of the Patent Court of Korea
Youngho KANG

TABLE OF CONTENTS

PATENT COURT
THE THIRD DEPARTMENT
DECISION

Case No.: 2001Heo1006 Final Rejection (Patent)

Plaintiff: Institut National De La Recherche Agronomique
Counsel for the Plaintiff: Seungho KIM,
Jinhee KIM, Patent Attorney
Younghee KIM, Patent Attorney

Defendant: Commissioner of the Korean Intellectual Property Office ("KIPO")
KIPO Litigator: Heesoo KIM

Closure of Hearing: April 11, 2002

Order

1. The Plaintiff's claim is dismissed.
2. The trial costs shall be borne by the Plaintiff.

Tenor of Claim

The decision by the Intellectual Property Tribunal ("IPT") in Case No. 99Won1918 issued on December 30, 2000 shall be cancelled.

Reasoning

1. Background facts

According to Exhibit Nos. K1, K26, and E1 to E3, the following

facts are acknowledged.

A. The patent application of the present case ("Subject Application")

1) Title: DNA sequence imparting cytoplasmic male sterility, mitochondrial genome, nuclear genome, mitochondria and plant containing said sequence, and process for the preparation of hybrids

2) Application Date/Application No.: March 22, 1993 / 1993-700857 Priority Date: September 21, 1990 / French Patent Application No. 90-11670

3) Applicant: Plaintiff

4) Claims (as amended on June 30, 1999)

1. An Ogura sterility DNA sequence which comprises:
   a) a DNA sequence bounded by the nucleotides numbered 928 and 2273 in FIG. 1, or
   b) a sequence having at least 90% homology with said sequence, wherein said sequence confers cytoplasmic male sterility on a plant when it is present in the mitochondrial genome of said plant.

2. The DNA sequence according to claim 1, which comprises a DNA sequence bounded by the nucleotides numbered 928 and 1569 in FIG. 1 or a sequence having at least 90% homology with said sequence, wherein said sequence is transcribed to RNA in the mitochondria of a male sterile plant.

3. A recombinant plant mitochondrial genome which contains an Ogura sterility DNA sequence which consists
   a) of a sequence bounded by the nucleotides numbered 928 and

1569 in FIG. 1, or

b) of a sequence having at least 90% homology with said sequence mentioned in a), and confers cytoplasmic male sterility on a plant when it is present in the cytoplasm of said plant.

4. The recombinant plant mitochondrial genome according to claim 3, containing an Ogura sterility DNA sequence which comprises a sequence bounded by the nucleotides numbered 928 and 1569 in FIG. 1 or a sequence having at least 90% homology with said sequence.

5. The mitochondrial genome according to claim 3 or 4, wherein, in the recombinant genome, the Raphanus sequences of two formylmethionine transfer RNA genes used for translation initiation and a Cox1 gene coding for subunit No. 1 of cytochrome oxidase have been substituted with the corresponding Brassica sequences.

6. ~ 7.7. (Deleted)

8. The mitochondrial genome according to claim 5, wherein said genome contains a sequence which gives a 2.5-kb fragment after NcoI digestion, gives a 6.8-kb fragment after NruI digestion and a 4.4-kb fragment after SalI digestion.

9. ~ 10. (Deleted)

11. A mitochondrion comprising the genome according to claim 3 or 4.

12. ~ 27. (Deleted)

28. A nucleic acid probe comprising a first sequence of at least 10 bases of a sequence bounded by the nucleotides numbered 928 and 1569 shown in FIG. 1, said second sequence conferring

cytoplasmic male sterility character, labelled by a radioactive or non-radioactive means.

29. ~ 32. (Deleted)

33. A mitochondrion comprising the genome according to claim 5.

34. A mitochondrion comprising the genome according to claim 8.

35. ~ 38. (Deleted)

B. Procedural history

1) Final rejection

KIPO issued a final rejection in the Subject Application on February 27, 1999 on the grounds that the specification fails to meet the description requirements because a broad limitation "having at least ~ homology" is used to describe the claimed invention, rendering its constitution unclear.

2) Plaintiff's petition before the IPT (Case No. 99 Won 1918)

a) IPT decision: Dismissal of petition (December 30, 2000)

b) Gist of the grounds of the IPT decision

A claim directed to a gene should in principle be defined by a nucleotide sequence. In the Subject Application, while claims 1 to 4 (hereinafter, "Claims 1 to 4 Invention") use limitations such as "a sequence having at least 90% homology with a DNA sequence bounded by the nucleotides numbered 928 and 2273 or 928 and 1569 in FIG. 1" to define the subject gene, the basis for limiting the degree of homology as such cannot be found anywhere in the specification. Moreover, the detailed description of the invention, unlike the claims, recites "a DNA sequence having at least 50% homology."

Thus, the claims of the Subject Application are not clearly described or supported by the detailed description of the invention. Accordingly, the Subject Application fails to meet the requirements prescribed by Article 42(4) of the Korean Patent Act, and therefore, the final rejection issued in the Subject Application is proper.

2. Appeal Grounds Submitted by the Plaintiff

A. Claims 1 to 4 are not unclear given that they are limited to DNA sequences having the function of "conferring male sterility" in addition to having at least 90% homology with a specific reference sequence.

B. In DNA-related inventions, due to the characteristics of "codon degeneracy" in DNA and "flexibility in amino acid substitution," sequences that are homologous to a DNA specified with its sequence and retain the same function as the original DNA should also be included in the scope of the invention in order to effectively protect inventors. Therefore, it is inevitable that claims be drafted using the expression "having at least ~% homology with a nucleic acid sequence…" in such a case. Regarding Claim 1 of the Subject Application, for example, a person having ordinary skill in the art ("PHOSITA") could easily understand that the phrase "a sequence having at least 90% homology to a sequence bounded by nucleotides numbered 928 and 2273 (1346 bp) in FIG. 1" denotes "a sequence which is identical to the specified sequence in at least 1211 out of 1346 nucleotides (i.e., 90%)." Further, since a change in sequence can occur by mutation, etc. at any position among the 1346 nucleotides, it would be impossible to describe in the detailed description of the invention the specific parts where a sequence change may occur by conducting experiments with respect to every possible sequence change.

C. The U.S. and Japanese counterpart applications to the Subject Application were granted as patents with claims defined by the expression "a DNA sequence shown in FIG. 1 or a DNA sequence encoding a protein translation product identical to that encoded by the DNA sequence shown in FIG. 1," which are broader than the claims of the Subject Application reciting "a sequence having at least 90% homology." In view of the above, the Subject Application should also be granted a patent.

3. Determination regarding the propriety of the IPT decision

A. Whether Claims 1 to 4 of the Subject Application fail to meet the description requirements

1) Article 42(4) of the Korean Patent Act prescribes that claims shall be supported by the detailed description of the invention, describe the claimed invention clearly and concisely, and be described only with indispensable elements of the claimed invention. Thus, expressions rendering the constitution of the claimed invention unclear cannot be used in the claims (see Supreme Court Decision No. 97 Hu 1337 rendered on October 2, 1998). In gene-related inventions, which are characterized by having the potential to produce a protein with a different functional profile by a single point mutation in the DNA sequence, genes should be specified with their nucleotide sequence and, in principle, using vague expressions in a claim such as "a nucleotide sequence having ~% homology" with a certain reference sequence is not allowed. However, in a case where a DNA sequence having a new utility has been discovered, if the detailed description of invention provides the concrete bases for determining what degree of homology with the specific DNA sequence is required for the variant to have the same function as the original sequence, claims with a broader scope that use the expression "a nucleotide sequence having ~% homology" with a specific sequence cannot be said to be unclear.

2) Claims 1 to 4 are directed to Ogura sterility DNA sequences which comprise a DNA sequence bounded by the nucleotides numbered 928 and 2273 (1346 bp) or 928 and 1569 (642 bp) in FIG. 1 and confer cytoplasmic male sterility on a plant, as well as "a sequence having at least 90% homology" with the above sequences, and recombinant plant mitochondrial genomes containing such sequences. Although it could be known that "a sequence having at least 90% homology" means that the sequence is identical to the above specified sequence in at least 90% of the nucleotides out of 1346 (or 642) bp, it is unclear as to which specific nucleotides should be identical or what are the grounds for limiting the degree of homology to 90%. Accordingly, the claims of the Subject Application can be deemed to be clearly described only when the grounds for limiting the degree of homology to 90% are presented, for example, by illustrating different variants having the same function as the original sequence while satisfying the homology degree. However, Exhibit No. E3 mentioned above merely establishes the fact that the detailed description of the invention of the Subject Application describes the following: "the present invention relates to a DNA sequence, which we shall refer to as Ogura sterility DNA sequence, characterized in that: a) it is carried by a DNA sequence bounded by nucleotides numbered 928 and 2273 in FIG. 1, or b) it possesses an at least 50% homology with the said sequence mentioned in a), and confers, when it is present in the mitochondrial genome of a plant, a cytoplasmic male sterility on the said plant. In particular, the subject of the present invention is an Ogura sterility DNA sequence, characterized in that: c) it is carried by the sequence bounded by nucleotides numbered 928 and 1569 in FIG. 1, or d) it possesses an at least 50% homology with the said sequence mentioned in c), and in that it is transcribed to RNA in the mitochondria of male-sterile plants."; "a cytoplasm containing a DNA sequence possessing an at least 50% homology with the sequence bounded by nucleotides numbered 928 and 2273 in FIG. 1, or a cytoplasm containing a DNA sequence possessing an at least 50%

homology with the sequence bounded by nucleotides numbered 928 and 1569 in FIG. 1, and transcribed to RNA, conferring the CMS character"; "the invention relates to a recombinant plant nuclear or mitochondrial genome, characterized in that it contains an Ogura sterility DNA sequence: a) which is carried by a DNA sequence bounded by nucleotides numbered 928 and 2273 of the sequence shown in FIG. 1, or b) which possesses an at least 50% homology with the said sequence mentioned in a), and confers, when it is present in the cytoplasm of a plant, a cytoplasmic male sterility on the said plant. In particular, one of the subjects of the present invention is a recombinant plant nuclear or mitochondrial genome, characterized in that it contains an Ogura sterility DNA sequence, c) which is carried by a sequence bounded by the nucleotides numbered 928 and 1569 in FIG. 1, or d) which possesses an at least 50% homology with the said sequence mentioned in c), and confers, when it is present in the cytoplasm of a plant and is transcribed to RNA, a cytoplasmic male sterility on the said plant." The detailed description of the invention does not present any grounds for limiting the degree of homology to 90%, such as illustrative examples of variants having 90% or higher homology with the specified sequence while retaining the same function. Furthermore, nowhere in the detailed description of the invention can the description "at least 90% homology" can even be found. Therefore, Claims 1 to 4 of the Subject Application cannot be deemed to be clearly described, nor are they supported by the detailed description of the invention.

3) Determination regarding the Plaintiff's arguments

The Plaintiff argues that Claims 1 to 4 are not unclear because even when a DNA sequence has at least 90% homology with a DNA sequence bounded by the nucleotides numbered 928 and 2273 (1346 bp) or 928 and 1569 (642 bp) in FIG. 1, it is excluded from the claimed scope if it does not have the function of conferring male sterility, and "a sequence having at least 90% homology" indicates that

at least 90% of the nucleotides, i.e., 1211 or 578 nucleotides out of 1346 or 642 nucleotides, respectively, are identical to those in the specified sequence, which could be clearly understood by PHOSITA. As discussed earlier, however, homologous nucleotide sequences encompass variants, fused genes, and the like, and there would be numerous sequence combinations exhibiting 90% homology with the above 1346 bp or 642 bp nucleotide sequences. Thus, it would be difficult for PHOSITA to clearly understand and reproduce the subject matter of Claims 1 to 4 in the absence of descriptions regarding the representative variants indicating which of the above combinations may result in male sterility. Therefore, the above Plaintiff's arguments have no merit.

Regarding, for example, “a sequence having at least 90% homology” to a sequence bounded by nucleotides numbered 928 and 2273 (1346 bp) in FIG. 1 in Claim 1, the Plaintiff argues that since a sequence change can occur by mutation, etc. at any position among the 1346 nucleotides, it would be unreasonable to require specific descriptions in the detailed description of the parts where a sequence change may occur by conducting experiments with respect to every possible sequence change. Although it is not required that the specification describe every working example of nucleotide sequences having at least 90% homology to the 1346 bp sequence while conferring male sterility, at least some representative examples of variants showing the critical significance of the claimed limitation of 90% homology should be described. Therefore, the Plaintiff's above arguments also have no merit.

The Plaintiff also argues that the Subject Application should be granted a patent as its U.S. and Japanese counterparts were granted as patents with claims broader than those of the Subject Application. However, whether or not a patent should be granted for a Korean patent application should not be influenced by the patent examination status in other countries. Moreover, even the U.S. and Japanese counterpart patents (Exhibit Nos. K7 and E4) show that they claim “a DNA sequence encoding a protein translation product identical to that encoded by the DNA sequence shown in FIG. 1” instead of “a

sequence having at least 90% homology with said sequence." Thus, these counterpart patents claim a DNA sequence encoding only the same protein with the identical amino acid sequence, the scope of which is clear, unlike Claims 1 to 4 of the Subject Application. Therefore, the Plaintiff's above arguments also have no merit.

B. Sub-conclusion

Thus, Claims 1 to 4 of the Subject Application are not clearly described and are not supported by the detailed description of the invention. Accordingly, the Subject Application cannot be patented under Article 42(4) of the Korean Patent Act, and therefore, the IPT decision affirming the final rejection issued in the Subject Application is proper.

4. Conclusion

Therefore, since the Plaintiff's claim seeking cancellation of the IPT decision is without merit, the Court dismisses the claim and issues a decision as stated in the Order.

May 30, 2002

Presiding Judge Chijoong KIM
Judge Jeongyul CHOI
Judge Youngsun CHO

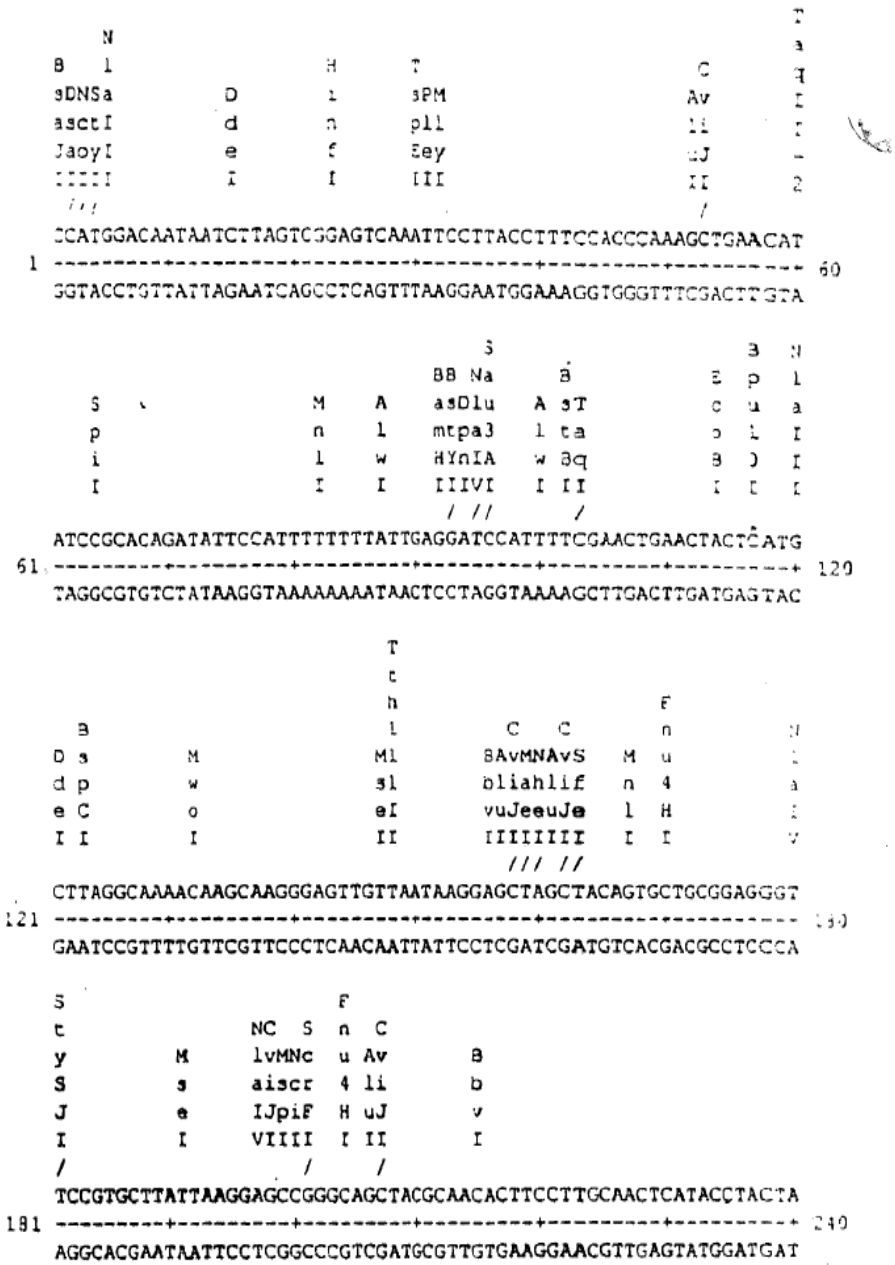


Fig. 1

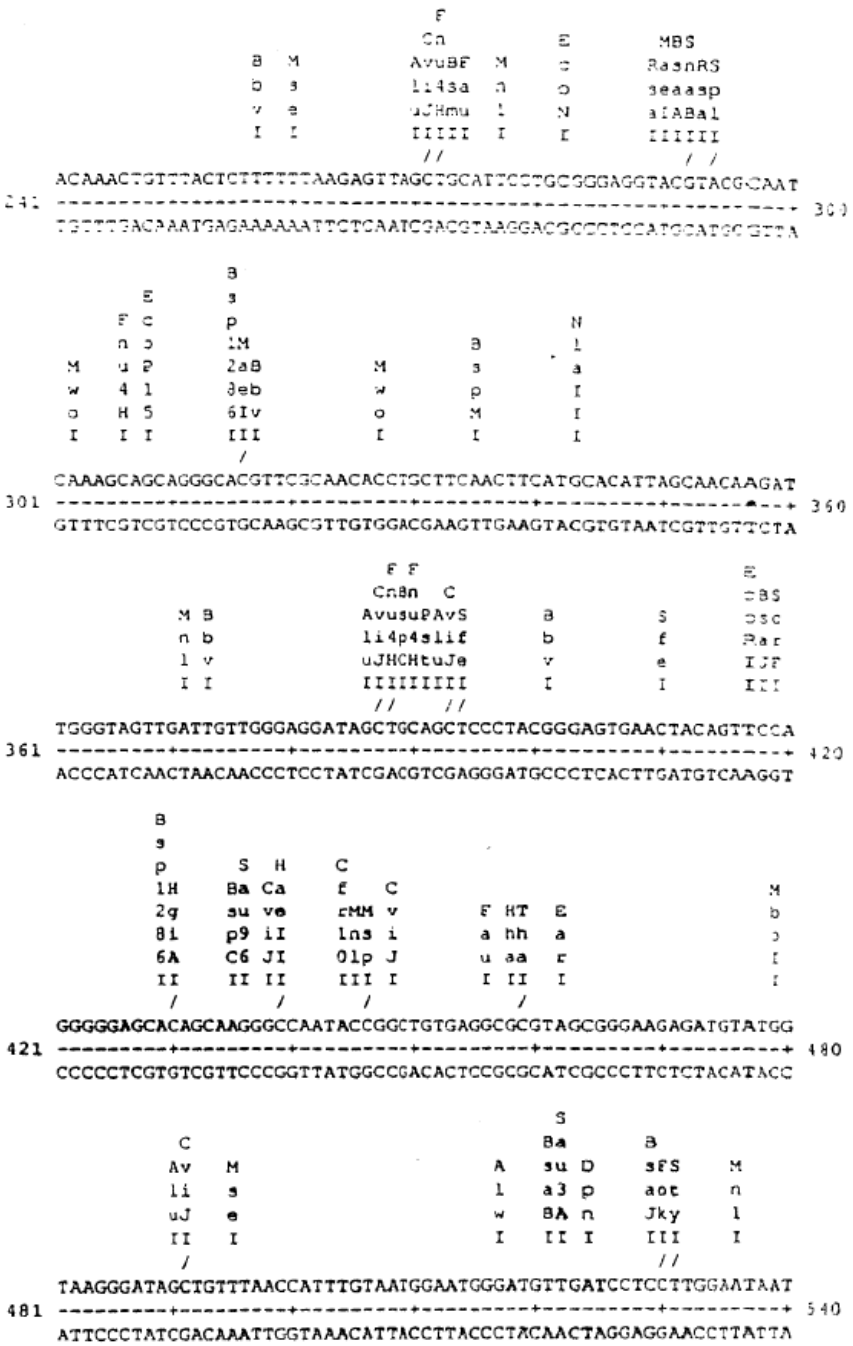


Fig. 1

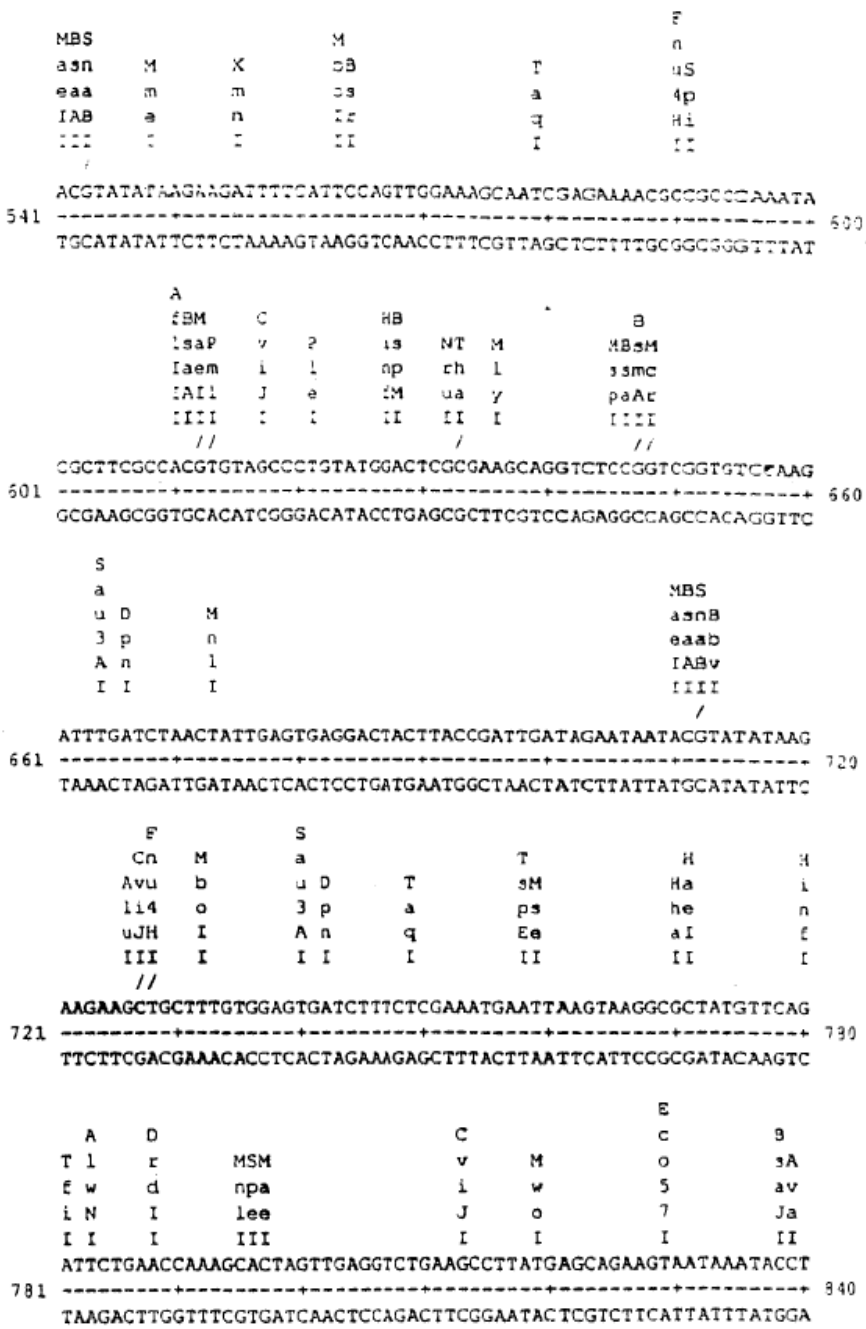


Fig. 1

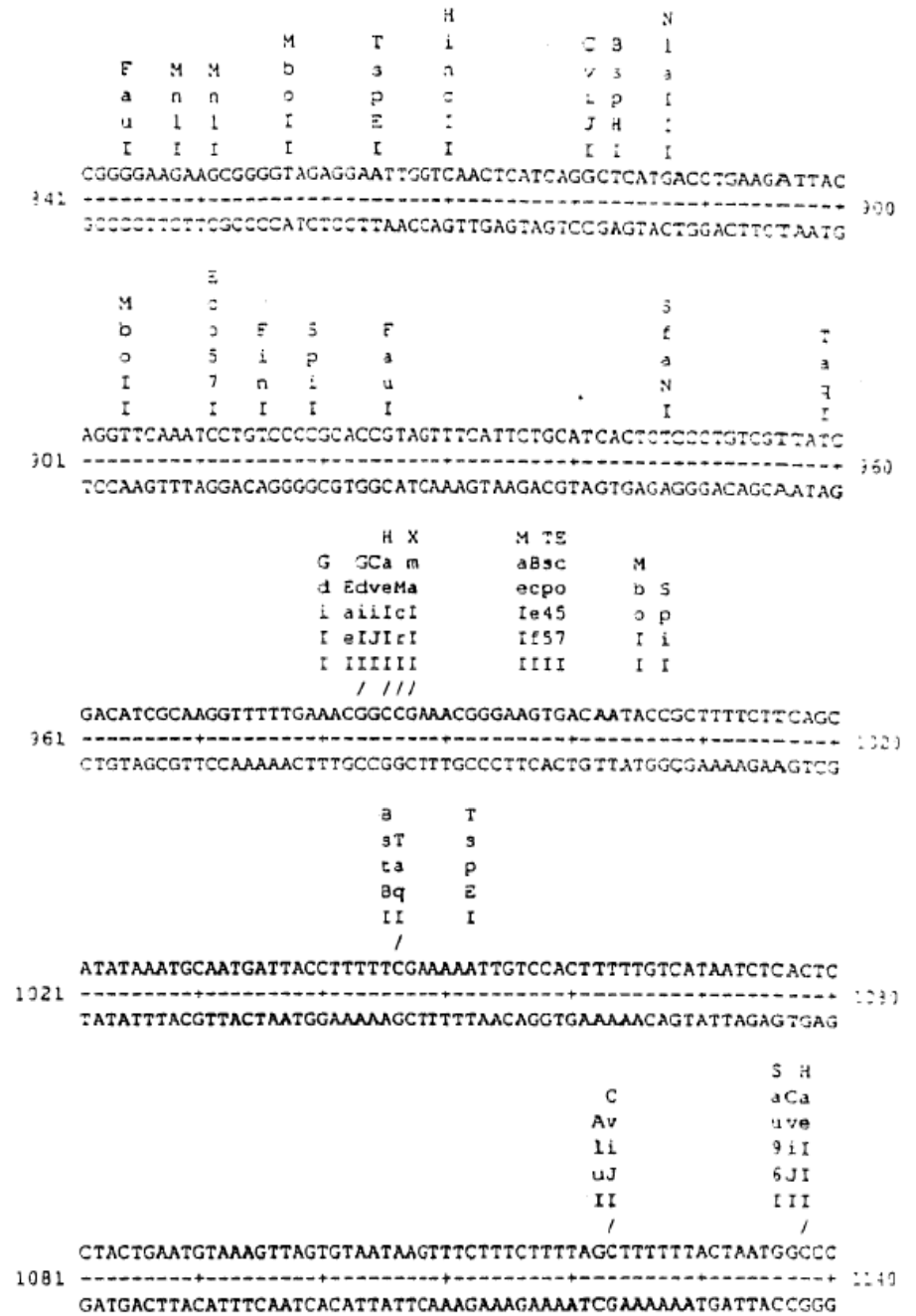


Fig. 1

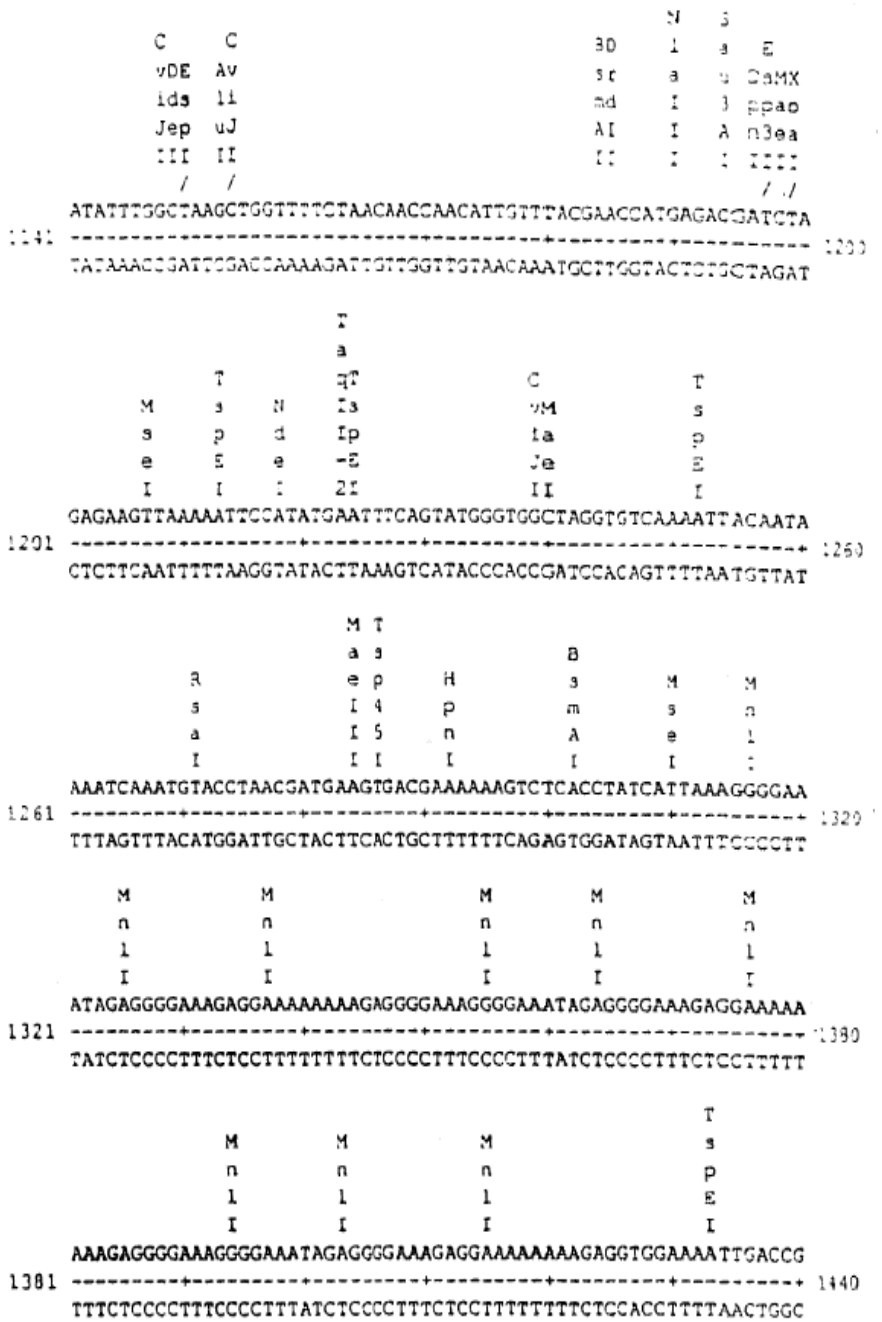


Fig. 1

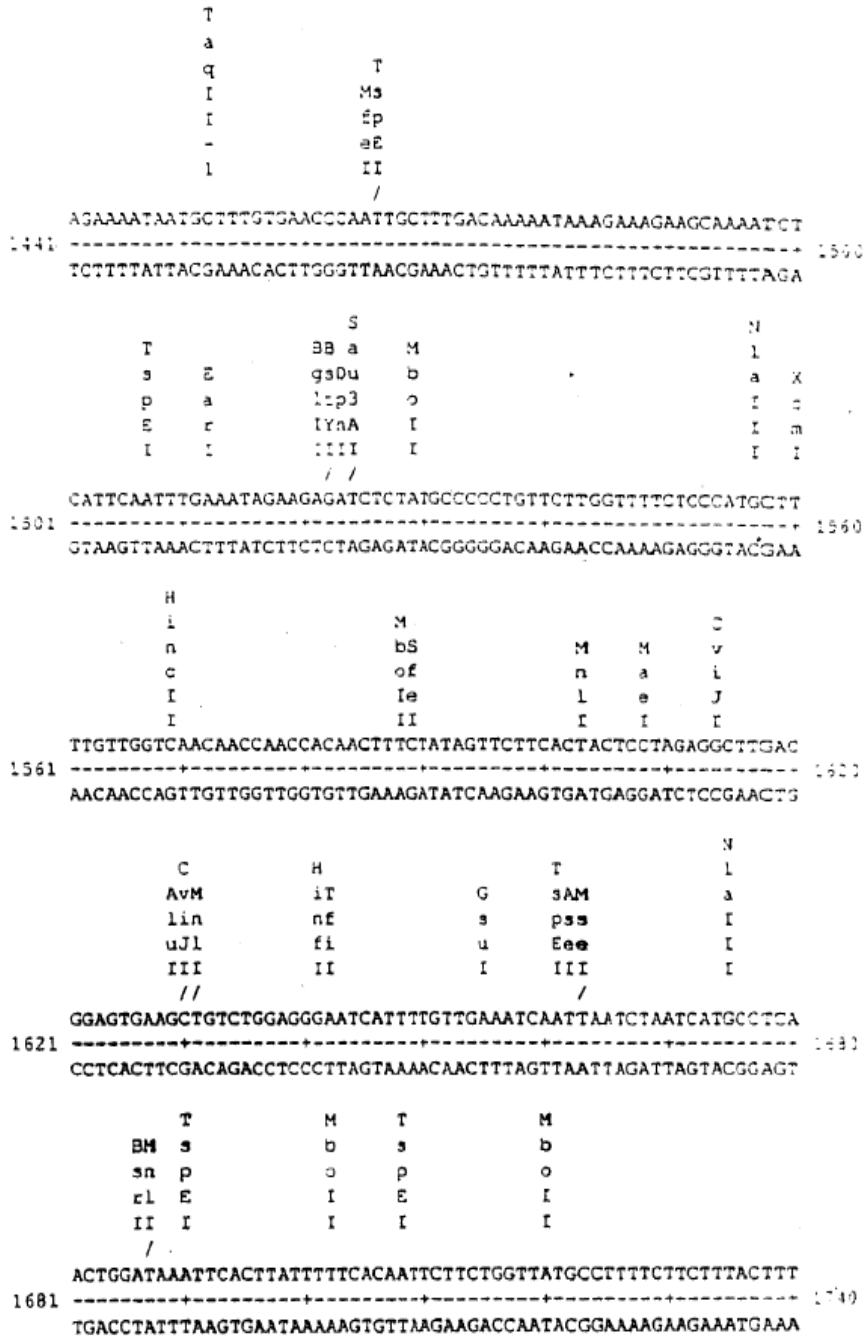


Fig. 1

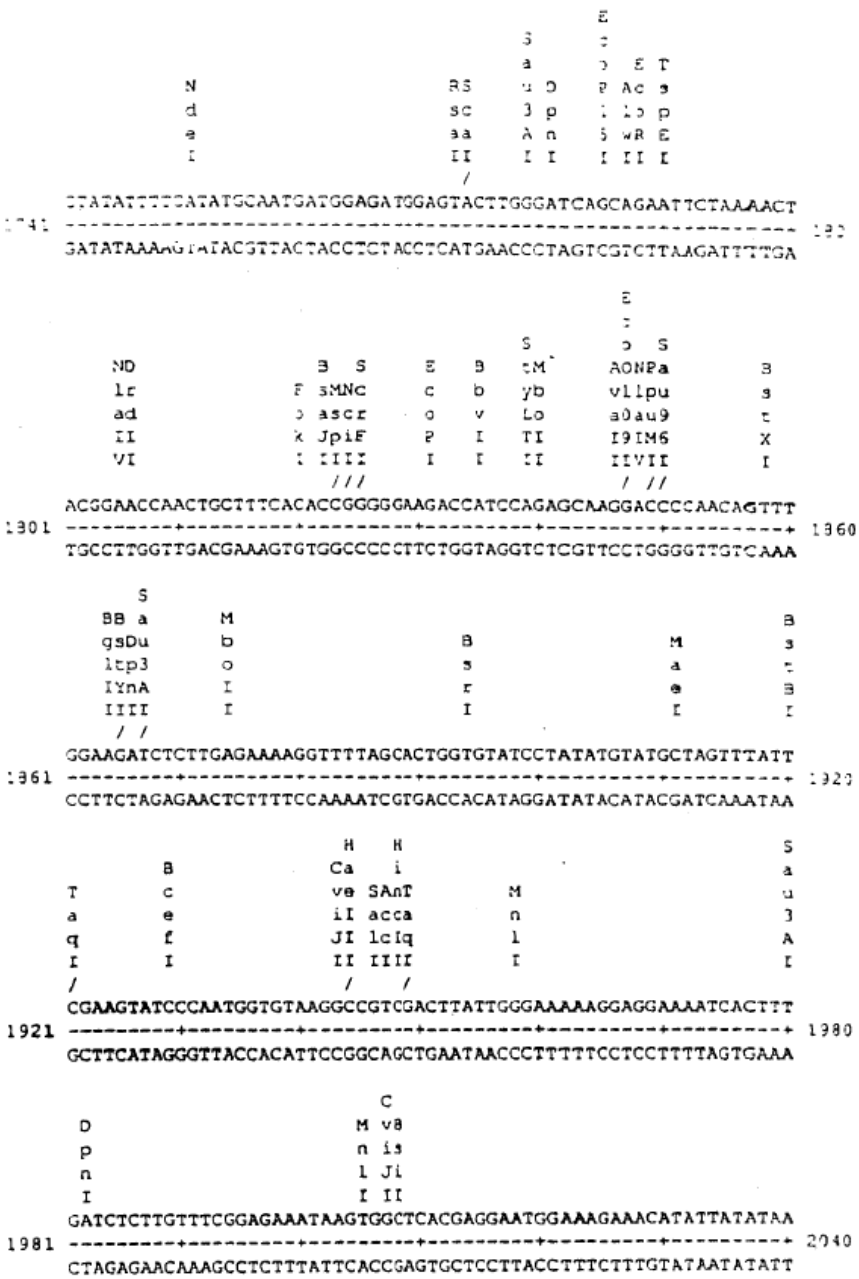


Fig. 1

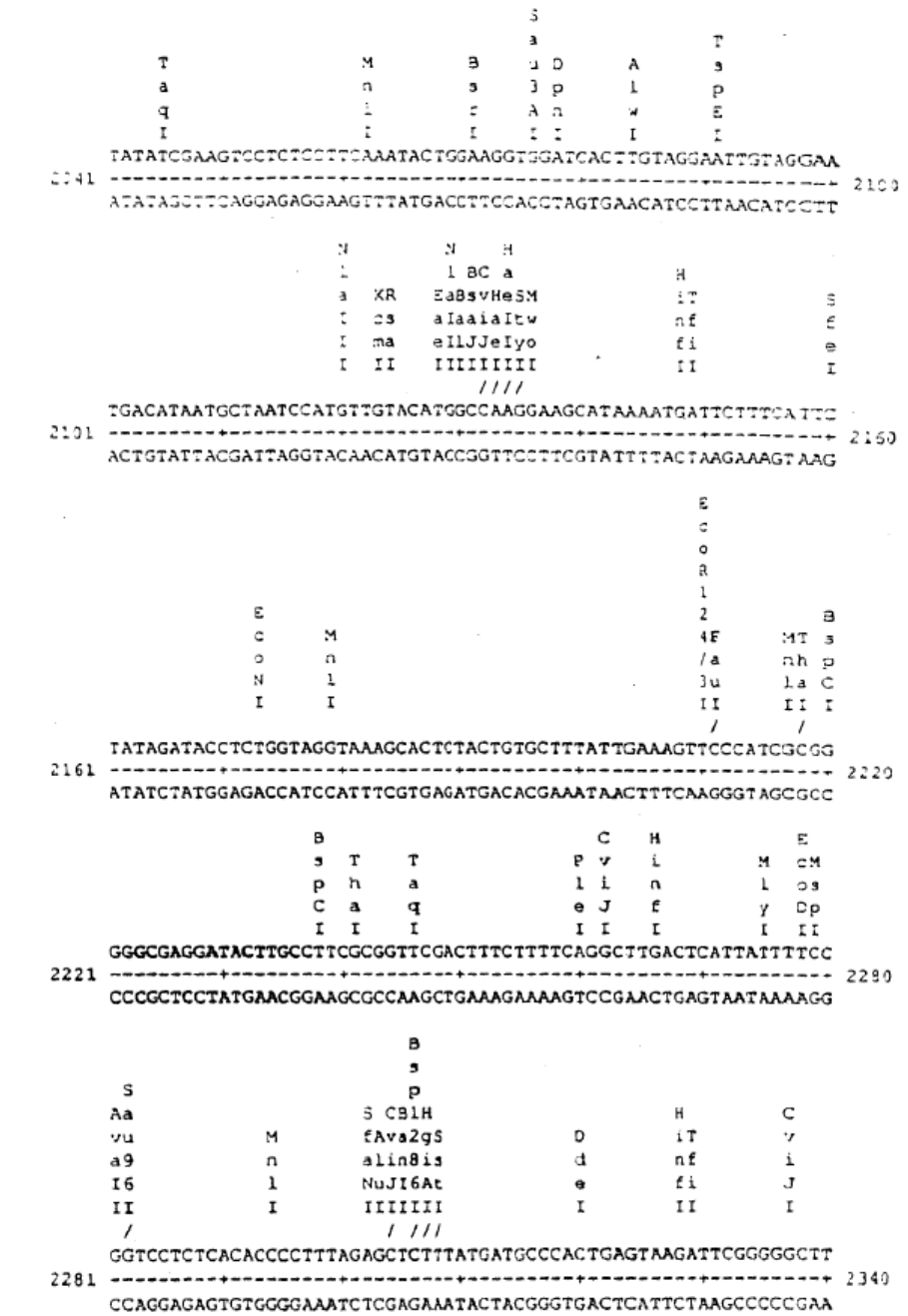
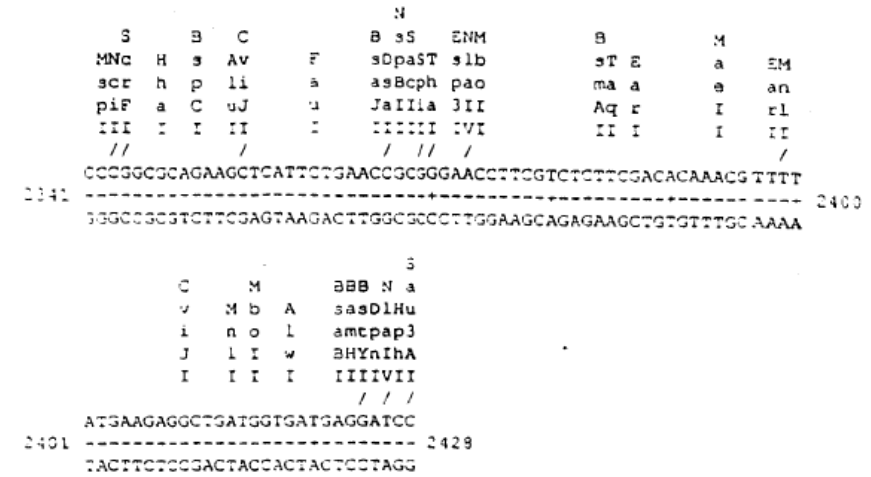


Fig. 1



Restriction enzymes:

AccI	AflIII	AluI	AlwI	AlwNI	AseI	AvaI	AvaII
BalI	BamHI	BanII	BbvI	BbvII	BcefI	BglII	Bpu10I
BsaI	BsaAI	BsaBI	BsaJI	BsiI	BsmI	BsmAI	Bsp1286I
BspCI	BspHI	BspMI	BsrI	BstBI	BstXI	BstYI	CfrI0I
CviJI	DdeI	DpnI	DrdII	DsaI	EaeI	EarI	Eco57I
EcoBI	EcoDI	EcoNI	EcoO109I	EcoPI	EcoP15I	EcoRI	EcoRII
EcoR124/3I	EspI	Esp3I	FauI	FinI	Fnu4HI	FokI	GdiII
GsuI	HaeI	HaeII	HaeIII	HgiAI	HhaI	HincII	HinfI
HphI	MaeI	MaeII	MaeIII	MboII	McrI	MfeI	MlyI
MmeI	MnlI	MseI	MspI	MwoI	NciI	NcoI	NdeI
NheI	NlaIII	NlaIV	NruI	NspBII	PleI	PmlI	PpuMI
PstI	RsaI	SacII	SalI	Sau96I	Sau3AI	ScaI	ScrFI
SfaNI	SfeI	SmaBI	SpeI	SpiI	SplI	SstI	StyI
StyLTI	StySJI	TaqI	TaqII-1	TaqII-2	TfiI	ThaI	Tsp45I
TspEI	Tth111II	XbaI	XcmI	XmaIII	XmnI		

Restriction enzymes:

AatII	AflII	AgeI	AhaII	ApaI	ApaLI	AvrII	BanI
BcgI	BclI	BglI	BspGI	BspMII	BssHII	BstEII	Bsu36I
CfrAI	ClaI	DraI	DraIII	DrdI	EciI	Eco47III	EcoAI
EcoDXXI	EcoEI	EcoKI	EcoR124I	EcoRV	FseI	FspI	HgaI
HgiEII	HindIII	HinfIII	HpaI	KpnI	MluI	NaeI	NarI
NotI	NsiI	NspI	PflMI	PshAI	PvuI	PvuII	RleAI
RsrII	SfiI	SgrAI	SmaI	SnaI	SphI	SspI	StuI
StySBI	StySPI	StySQI	Tth111I	Uba1105I	Uba1108I	XhoI	

Fig. 1

PATENT COURT
THE THIRD DEPARTMENT
DECISION

Case No. 2000Heo5438 Final Rejection(Patent)

Plaintiff: Inho PARK
Counsel for Plaintiff: Deokrok LEE, Patent Attorney

Defendant: Commissioner of the Korean Intellectual Property Office ("KIPO")
KIPO Litigator: Seungjoon BAEK

Closure of Hearing: August 31, 2001

Order

1. The Plaintiff's claim is dismissed.
2. The trial costs shall be borne by the Plaintiff.

Tenor of Claim

The decision of the Intellectual Property Tribunal ("IPT") issued on June 30, 2000 in Case No. 99Won1988 shall be cancelled.

Reasoning

1. Background Facts

[Evidence: Plaintiff's Exhibit Nos. 2 and 3; Defendant's Exhibit Nos. 1 and 2]

A. Procedural History in KIPO

1) The Plaintiff filed an application for an invention titled "Comprehensive Management Method for Household Garbage Recycling" under the Application No. 97-16748 ("Invention"). On April 30, 1999, however, KIPO issued a final rejection on the grounds that the Invention is not patentable under Article 29(1) of the Korea Patent Act ("KPA") because the Invention constitutes mental activities such as an agreement between human beings relating to management of administrative tasks, and thus lacks industrial applicability.

2) Thereupon, the Plaintiff filed an appeal against the final rejection with the IPT. The IPT examined the appeal case as Case No. 99 Won 1988 and on June 30, 2000, rendered a decision dismissing the Plaintiff's appeal for the reasons set forth in Section C below.

B. Summary of the Invention

The Invention relates to a comprehensive management method for household garbage recycling to facilitate segregation and collection of garbage. The claimed scope of the Invention is "a comprehensive management method for household garbage recycling based on statistical data of accumulated information obtained from each of the following steps: a competent authority distributes to each person who discards garbage barcode stickers containing identification of the person and a schedule calendar showing discarded garbage; each of the persons discards garbage by putting accurately segregated garbage in a designated garbage bag according to prescribed rules, wherein a barcode sticker containing the person's identification is required to be affixed on the garbage bag; a collector processes the discarded garbage by accurately segregating and collecting the garbage according to days of the week, transporting the garbage to a collection place, and sorting the garbage into garbage for recycling and garbage for landfill or

incineration; and the barcode affixed on an improperly segregated garbage bag is read and a correction order is issued to the corresponding person who discarded the garbage."

C. Summary of Grounds of the IPT Decision

The Invention relates to a comprehensive management method for household garbage recycling comprising the following four steps: distributing, by a competent authority, barcode stickers containing identification information of a person who discards garbage and a schedule calendar showing discarded garbage to each of the persons who discard garbage (step 1); discarding garbage, by the persons, by affixing the barcode stickers on garbage bags (step 2); segregating and collecting the discarded garbage by a collector (step 3); and during processing of the segregated and collected garbage, reading the barcode affixed on an improperly segregated garbage bag and issuing a correction order to the corresponding person who discarded the garbage (step 4). In order to achieve the objectives of the Invention, each of the four steps is essential.

However, step 4 is a step where the collector issues a corrective order to a person who improperly segregated garbage, and thus cannot be deemed a technical idea that uses laws of nature. Furthermore, even in view of the overall constitution, the Invention is similar to guidelines for garbage processing that occurs among the competent authority, persons who discard garbage, and collectors and thus cannot be viewed as a technical idea that uses laws of nature. Therefore, the Invention does not correspond to an invention having industrial applicability.

2. Whether the IPT Decision Is Legally Proper

A. Summary of Plaintiff's Grounds for Appeal

1) Step 4 of the Invention, which recites "during processing of the segregated and collected garbage, reading the barcode affixed on an improperly segregated garbage bag and issuing a correction order to the corresponding person who discarded the garbage," is a creation of a technical idea that uses laws of nature. Even if it is assumed that step 4 is not a creation of a technical idea, as long as steps 1 to 3 are a creation of technical ideas, the Invention as a whole, including step 4, is obviously deemed a creation of technical ideas. And even when one of the steps of an invention is not a technical idea, the invention as a whole cannot be deemed invalid. Therefore, the Invention corresponds to an invention having industrial applicability under the main body of Article 29(1) of the KPA.

2) The Invention is a business model invention for "a comprehensive management method for household garbage recycling" and requires machinery or computers that can perform the method inherent in each of the steps. Therefore, the overall constitution of the Invention is a useful creation of technical ideas having industrial applicability in the waste disposal industry.

B. Judgment

1) Standards for judging an invention under the KPA

In order for an invention to be patentable under the KPA, the invention should be first acknowledged to have "industrial applicability" {main body of Article 29(1) of the KPA} and the term "invention" under the KPA means a "highly advanced creation of technical ideas utilizing laws of nature" (Article 2, Item 1 of the KPA). Accordingly, if an invention described in a claim constitutes or uses any law other

than laws of nature, an artificial decision or agreement, a mathematical formula, or mental activities of a human being, it does not fall within the scope of an invention under the KPA.

In addition, whether laws of nature are used within the scope of the invention under the KPA should be determined based on a claim as a whole. Thus, even if a portion of an invention described in a claim uses laws of nature, if it is determined that the claim as a whole does not use laws of nature, it does not constitute a patentable invention under the KPA. In contrast, even if a portion of an invention described in a claim does not use laws of nature, if it is determined that the claim as a whole uses laws of nature, the claim constitutes a patentable invention under the KPA.

2) Whether the Invention falls within the scope of a patentable invention under the KPA

a) As seen above, the Invention comprises four steps: (i) distributing barcode stickers and a schedule calendar, by a competent authority, to each person who discards garbage (step 1); (ii) discarding garbage, by each of the persons who discard garbage, by affixing the barcode stickers on garbage bags according to prescribed rules (step 2); (iii) collecting and processing the garbage by a collector (step 3); and (iv) if a garbage bag is improperly segregated, issuing a correction order to the corresponding person who discarded the garbage by reading the barcode affixed on the garbage bag (step 4). Ultimately, the Invention aims to comprehensively manage household garbage using statistical data accumulated from information obtained in the course of each of the steps above.

b) First, whether each of the steps of the Invention uses laws of nature is reviewed.

First, step 1 above includes the means of “barcode stickers” and “schedule calendar.” As a whole, however, the means are

used merely as a tool and distributing the barcode stickers and calendar by the competent authority is in accordance with an artificial decision made based on mental activities of a human being. Thus, step 1 cannot be deemed as using laws of nature.

"Next, step 2 above includes the means of "garbage bags." As a whole, however, the means are used merely as a tool and the acts of the persons who discard garbage by affixing barcode stickers having their identifications on garbage bags and discarding designated garbage that is accurately segregated in the garbage bags based on the prescribed rules are merely factual acts that are performed based on mental activities of human beings according to pre-established rules. Thus, step 2 cannot be deemed as using laws of nature.

Further, step 3 above merely constitutes factual acts of accurately segregating and collecting discarded garbage by the collector based on his or her own judgment, transporting the garbage to a collection place, and processing the garbage by sorting, which are performed based on mental activities of a human being. Thus, step 3 cannot be deemed as using laws of nature either.

Finally, step 4 includes the means of reading barcodes through a computer, etc. However, issuing a corrective order to a person who segregated garbage improperly is not an act that is performed by a system connected to computer hardware according to the checked information. Rather, considered as a whole, the means are merely used as a tool and constitute a human act based on mental activities of a human being in issuing the corrective order to the corresponding person by reading the barcode. Thus, step 4 cannot be deemed as using laws of nature.

c) Next, whether the Invention as a whole uses laws of nature is reviewed.

"The Invention includes the means of barcode stickers, calendar,

garbage bags, and hardware and software for reading barcodes using computers, etc. However, each of the above steps constituting the elements of the Invention does not include any specific means of using a combination of hardware and software above. Furthermore, each of the steps uses the means only as a tool and thus merely constitutes mental activities of human beings. In addition, viewed as a whole, the Invention, which is directed to comprehensively managing household garbage based on statistical data accumulated from information obtained in the course of each of the steps above, cannot be practiced per se, but can only be practiced when the applicable laws and regulations are in place, and merely constitutes an artificial decision made pursuant to an agreement among the competent authority, persons who discard garbage, and collector, or a mental judgment or artificial decision made by the competent authority based on the agreement. Accordingly, the Invention cannot be deemed as using laws of nature.

d) Whether the Invention falls under a business model invention.
"Generally, a business model invention refers to a novel invention implemented using information technology, and in order for an invention to fall under the business model invention, information processing by software should be specifically performed by using hardware on a computer. However, each of the steps of the Invention is not processed on-line but off-line, and moreover, a system connecting the software and hardware is not specifically implemented. Thus, the Invention does not fall within the scope of such general business model invention.

C. Sub-conclusion

The Invention is not deemed to be a creation of technical ideas using laws of nature and thus does not fall within the scope of an

invention that has industrial applicability. Accordingly, the Invention is not patentable due to violation of the main body of Article 29(1) of the KPA and the IPT decision reaching the same conclusion is proper.

3. Conclusion

Therefore, the Plaintiff's claim lacks any merit.

September 21, 2001

Presiding Judge Jinseong LEE
Judge Youngil YOO
Judge Doohyeong LEE

PATENT COURT
THE THIRD DEPARTMENT
DECISION

Case No. 2005Heo11094 Final Rejection(Patent)

Plaintiff: SK Communications Co., Ltd. (Cyworld Co., Ltd. before merger)
Counsel for the Plaintiff: Eunku KIM, patent attorney

Defendant: Commissioner of the Korean Intellectual Property Office ("KIPO")
KIPO Litigator: Sungjoong JEONG

Closure of Hearing: November 9, 2006

Date of Decision: December 21, 2006

Order

1. The plaintiff's claim is dismissed.
2. The trial costs shall be borne by the plaintiff.

Tenor of Claim

Cancellation of trial decision on Case No. 2004Won5696 issued on December 1, 2005 by the Industrial Property Tribunal and Appeal Board(IPTAB).

Reasoning

1. History of dismissal decision of the trial on the appeal against rejection by patent examiner

[Evidence] Plaintiff's Exhibit Nos. 1 and 2 and Defendant's Exhibit Nos. 1 to 5

A. Plaintiff's filed application

Cyworld Co., Ltd. filed Korean Patent Application No. 10-2002-21391 on April 18, 2002, entitled “Method for Managing Mini-rooms for Use in Internet Community”. The claims and drawings of the application are attached as Annex 1. Cyworld Co., Ltd. was merged into the Plaintiff on August 2, 2003.

B. Plaintiff's Appeal against the Examiner's rejection and the Trial’s dismissal decision thereof

1) The KIPO Examiner rendered a decision of rejection of the filed application on November 5, 2004, for ineligibility of the invention for a patent since the application did not specifically describe because a method embodying the steps of creating and managing mini-rooms on a computer.

2) The Plaintiff filed an Appeal against the Examiner's decision of the rejection on December 3, 2004, and submitted an Amendment on December 30, 2004. However, the Examiner dismissed the amendment and maintained the original rejection on the grounds that the claim 3 as amended of the filed application (hereinafter, referred to as the amended claim 3 invention) was not patentable at the time of filing and violated Article 47 (4) (2) of the Korean Patent Act. The Plaintiff filed an Appeal against the decision of rejection.

3) The Intellectual Property Tribunal and Appeal Board (IPTAB) review the case under case number 2004Won5696 and issued dismissal decision of the Plaintiff's appeal on the grounds that the Plaintiff's amendment of December 1, 2005 is unlawful because the amended claim 3 invention does not meet the patent requirements stipulated in Article 47 (4) (2) of the Korean Patent Act, and that the claim 1 invention before the amendment (the date "April 18, 2002" written as the submission date of Defendant's Exhibit No. 4 seems to be an error of "May 27, 2004"; hereinafter, the claim is referred to as "the claim 1 invention before the amendment") violates the main text of Article 29 (1) of the Korean Patent Act because it does not utilize the laws of nature and that the whole application with multiple claims shall be rejected when even a claim out of the claims has reason to be rejected.

2. Plaintiff's assertion regarding cancellation of the trial decision and related issues

The issues of the present case are whether the decision of dismissal to the amendment of claim 3 invention is appropriate, and whether the claim 1 invention before the amendment (or the amended claim 3 invention) falls into an invention stipulated in the main text of Article 29 (1) of the Korean Patent Act. In this regard, the gist of the Plaintiff's assertion of cancellation of the trial decision is shown below.

A. The amended claim 3 invention falls into the invention industrially applicable as stipulated in the main text of Article 29 (1) of the Korean Patent Act since the processes of creating and managing mini-rooms, which correspond to information processing of software, are particularly embodied by using a computer, which is hardware.

B. Therefore, the rejection of the amended claim 3 invention is unlawful and the amended claim 3 invention should be granted.

3. Determination of appropriateness of the decision on dismissal of amendment

A. Legal principle applied in determining eligibility of a business method invention

1) Article 2 (1) of the Korean Patent Act stipulates that the term "invention" means the highly advanced creation of technical ideas utilizing the laws of nature. Accordingly, when an invention does not utilize the laws of nature, it should not be granted on the grounds of not satisfying the requirement for "an invention having industrial applicability" according to Article 29 (1) of the Korean Patent Act. Since whether the invention of a filed application utilizes the laws of nature or not should be determined based on the entirety of a claim, even when a part of the invention defined in the claim utilizes the laws of nature, the filed application as a whole does not fall into an eligible invention as defined by the Korean Patent Act if the entirety of a claim is determined not to utilize the laws of nature.

2) In particular, for a business method invention that embodies a new business method using information technology, information processing by software on a computer should be particularly embodied using hardware (see Supreme Court Decision 2001Hu3149 rendered on May 16, 2003). In this regard, "information processing by software on a computer should be particularly embodied using hardware" does not signify that software is merely read out by a computer, but further signifies the constitution of a particular information processing apparatus or operating process for the purposed utility via a specific inter-cooperative means.

Also, in order for a business method invention (hereinafter, referred to as a BM invention) to be a complete invention, the claims should be more than a mere suggestion of simple ideas, and all elements indispensable to achieve the purpose of an invention should be particularly

and clearly included.

B. Determination

1) The amended claim 3 invention falls into a BM invention that expresses one's identity in an online community and secures a new revenue model (see page 6, line 14 to page 7, line 1 and page 8, lines 11 to 13 of Defendant's Exhibit No. 4).

Accordingly, it is first analyzed whether each processing step by a software is particularly embodied using hardware in the amended claim 3 invention.

The purpose of the method of creating and managing mini-rooms of the amended claim 3 invention is to satisfy people's desire to express their identity by creating personal space in an online community, displaying personal things in the space and decorating the space (see page 6, lines 5 to 16 of Defendant's Exhibit No. 4).

A software means to achieve the above purpose comprises a mini-room creating system to facilitate creation of a mini-room, a system to deliver a created mini-room to other members through a community bulletin board or a member's homepage, and a mini-room display system to decorate a mini-room (see page 6, line 17 to page 7, line 1 of Defendant's Exhibit No. 4).

In addition, A hardware means used for information processing by the software includes a mini-room storing space 10, a furniture storing space 30, and a mini-room furniture storing space 20, in a service provider's server, a member’s terminal and internet as presumed from the expression “online community”.

Thus, in a literal sense, it is possible to say that the amended claim 3 invention includes a software processing steps for creating, delivering and displaying a mini-room as well as a hardware means for the mini-room storing space, the furniture storing space, and the mini-room furniture storing space.

2) However, as shown below, the amended claim 3 invention fails to particularly and clearly describe how the software and hardware cooperate to achieve the purpose of the invention.

① In the first step, a mini-room is only automatically created in the mini-room storing space 10 on a service provider's server simultaneously with member's joining a community as a member. However, it is not clearly described how a member confirms the creation of the mini-room through a computer. ② In the second step, the term "display" should be premised on the status that a member can see, but it is not particularly and clearly described how furniture is displayed in a database (the furniture storing space 30) that is a memory means and how a member accesses a list of furniture stored in the database to select and purchase furniture in the list. ③ In the third step, it is not clearly described how a member accesses a database (the mini-room furniture storing space 20) and specifies a position of furniture. ④ In the fourth step, it is not clearly described how to access a database (a member's mini-room) and read out an article stored on an online bulletin board.

Consequently, the scope of the amended claim 3 invention not only fails to include a specific means using combination of software and hardware in each step that is an element but it also does not particularly and clearly describe how the calculation or processing of information for each step is realized according to the purpose of use.

Therefore, it cannot be said that the amended claim 3 invention, as a whole, falls into an invention according to the Korean Patent Act since the information processing by software on a computer is not particularly embodied using hardware.

3) The Plaintiff asserts that, in the claim 3 invention before amendment, it is not an essential element to provide a member with information of each step related to a mini-room for the member to choose, and that an invention can be established without description of hardware which is of general use or information processing which is

obvious.

However, a BM invention, unlike a computer program having a purpose of obtaining a particular result by simply being read out on a computer, can be admitted as an invention only when a characteristic process corresponding to the purpose of an invention is embodied by a mutual organic combination or cooperative relationship between software and hardware and when an additional synergetic effect is obtained. Thus, how steps of processing information use hardware to achieve the purpose of an invention should be particularly and clearly described in the claims. As a result, the Plaintiff's assertion is groundless.

C. Sub-conclusion

As a result, the amended claim 3 invention is not an invention having industrial applicability as stipulated in the main text of Article 29 (1) of the Korean Patent Act and thus the amended claim 3 invention was not patentable at the time of filing according to Article 47 (4) (2) of the Korean Patent Act. Therefore, the decision of dismissal to the Plaintiff's amendment is appropriate.

4. Whether the claim 1 invention before the amendment falls into an invention according to the Korean Patent Act

A. Characteristics of the claim 1 invention before the amendment

The claim 1 invention before the amendment falls into a BM invention that includes an automatic mini-room creating step, a mini-room furniture storing step, and a furniture arranging step to express people's own identity in an online community and secure a new revenue model (see page 8, lines 11 to 13 of Defendant's Exhibit No. 4).

B. Determination

1) It is analyzed in the claim 1 invention, whether each processing step by a software is particularly embodied by utilizing hardware.

In the claim 1 invention before the amendment, the processing steps by software to realize the purpose of an invention are steps of automatically creating a mini-room and storing and arranging selected furniture.

In addition, a hardware means used for information processing by software includes the mini-room storing space 10, the furniture storing space 30, and the mini-room furniture storing space 20, in addition to the service provider's server, the member's terminal, and the iInternet, which is assumed from the expression "online community".

Thus, in a literal sense, it is possible to say that the claim 1 invention before the amendment includes a software processing step of creating a mini-room and storing and arranging selected furniture and a hardware means of the mini-room storing space, the furniture storing space, and the mini-room furniture storing space.

2) However, as shown below, the claim 1 invention before the amendment fails to particularly and clearly describe how the software and hardware cooperate to achieve the purpose of the invention.

① A mini-room is merely created automatically in the mini-room storing space 10 on a service provider's server, but it is not clearly described how a member checks creation of a mini-room through a computer. ② In the step of storing mini-room furniture, the term "displayed" furniture should be premised on the status that a member can see, but it is not particularly and clearly described how furniture is displayed in a database (the furniture storing space 30) that is a memory means and how a member accesses a list of furniture stored in a database to select furniture in the list to purchase. ③ It is not clearly described how a member accesses a database (the mini-room furniture storing space 20) and specifies the position of furniture.

“Therefore, since the information processing by software on a computer is not particularly embodied using hardware, it cannot be said that the claim 1 invention before amendment, as a whole, falls into an invention according to the Korean Patent Act.

C. Sub-conclusion

4. Whether the claim 1 invention before the amendment falls into an invention according to the Korean Patent Act

A. Characteristics of the claim 1 invention before the amendment

The claim 1 invention before the amendment falls into a BM invention that includes an automatic mini-room creating step, a mini-room furniture storing step, and a furniture arranging step to express people's own identity in an online community and secure a new revenue model (see page 8, lines 11 to 13 of Defendant's Exhibit No. 4).

B. Determination

1) It is analyzed in the claim 1 invention, whether each processing step by a software is particularly embodied by utilizing hardware.

In the claim 1 invention before the amendment, the processing steps by software to realize the purpose of an invention are steps of automatically creating a mini-room and storing and arranging selected furniture.

In addition, a hardware means used for information processing by software includes the mini-room storing space 10, the furniture storing space 30, and the mini-room furniture storing space 20, in addition to the service provider's server, the member’s terminal, and the iInternet, which is assumed from the expression “online community”.

Thus, in a literal sense, it is possible to say that the claim 1 invention before the amendment includes a software processing step of

creating a mini-room and storing and arranging selected furniture and a hardware means of the mini-room storing space, the furniture storing space, and the mini-room furniture storing space.

2) However, as shown below, the claim 1 invention before the amendment fails to particularly and clearly describe how the software and hardware cooperate to achieve the purpose of the invention.

① A mini-room is merely created automatically in the mini-room storing space 10 on a service provider's server, but it is not clearly described how a member checks creation of a mini-room through a computer. ② In the step of storing mini-room furniture, the term "displayed" furniture should be premised on the status that a member can see, but it is not particularly and clearly described how furniture is displayed in a database (the furniture storing space 30) that is a memory means and how a member accesses a list of furniture stored in a database to select furniture in the list to purchase. ③ It is not clearly described how a member accesses a database (the mini-room furniture storing space 20) and specifies the position of furniture.

Therefore, since the information processing by software on a computer is not particularly embodied using hardware, it cannot be said that the claim 1 invention before amendment, as a whole, falls into an invention according to the Korean Patent Act.

C. Sub-conclusion

As a result, the claim 1 invention before the amendment is not patentable because it is not an invention having industrial applicability as stipulated in the main text of Article 29 (1) of the Korean Patent Act. Also, the whole application shall be rejected when a rejection reason exists for any one of the claims of an application with multiple claims.

5. Conclusion

In light of the above, the Plaintiff's filed application is rejected as a whole without further reviewing the other claims. Accordingly, it is deemed that the trial decision having the same conclusion is appropriate.

Therefore, the plaintiff's request for cancelling the trial decision is dismissed for being groundless. Accordingly, it is ruled as the judgment above.

Presiding Judge Yongho MOON _____
Judge Yeongchul SEO _____
Judge Taesik YOON _____

[Annex 1]

Filed Application

1. Claims

A. Claims when the rejection decision was made (as amended on May 27, 2004)

Claim 1: A method of creating and managing a mini-room in a form of a private room in an internet community, the method comprising:

an automatic mini-room creating step for automatically creating a mini-room identifying a member in an online community as a private room in a mini-room storing space 10;

a mini-room furniture storing step for storing a furniture in a mini-room furniture storing space 20, when the furniture displayed in a furniture storing space 30 is selected and purchased by the member for decorating the mini-room as per the member's characteristics,; and

a furniture arranging step for placing the furniture stored in the mini -room furniture storing space 20 when the member assigns a desired position in the mini-room for the furniture.

Claim 2: The method of claim 1, further comprising a mini-room exposing step for exposing the member's mini-room by registering the mini-room stored in the mini-room storing space 10 on the bulletin board when an article written by the member is stored on the bulletin board in the online community

Claim 3: The method of claim 1 or 2, wherein the automatic mini-room creating step the mini-room is automatically created in the mini-room storing space 10 simultaneously with the member's joining.

B. Claims amended on December 30, 2004

Claim 1: Canceled

Claim 2: Canceled

Claim 3: A method of creating and managing a mini-room in a form of a private room in an Internet community, the method comprising:

an automatic mini-room creating step for automatically creating a mini-room identifying a member in an online community as a private room in a mini-room storing space 10 simultaneously with the member's joining (hereinafter, referred to as "a first step");

a mini-room furniture storing step for storing a furniture in a mini-room furniture storing space 20, when the furniture displayed in a furniture storing space 30 is selected and purchased by the member for decorating the mini-room as per the member's characteristics (hereinafter, referred to as "a second step");

a furniture arranging step for placing the furniture in the mini-room storing space 10 when the member assigns stored in the mini-room furniture storing space 20 when the member assigns a desired position in the mini-room for the furniture stored in the mini-room furniture storing space (hereinafter, referred to as "a third step"); and

a mini-room exposing step for exposing the member's mini-room by registering the mini-room stored in the mini-room storing space 10 on the bulletin board when an article written by the member is stored on the bulletin board in the online community (hereinafter, referred to as "a fourth step").

2. Drawings

Figure 1: Conceptual diagram of a mini-room service model using a mini-room of the filed application

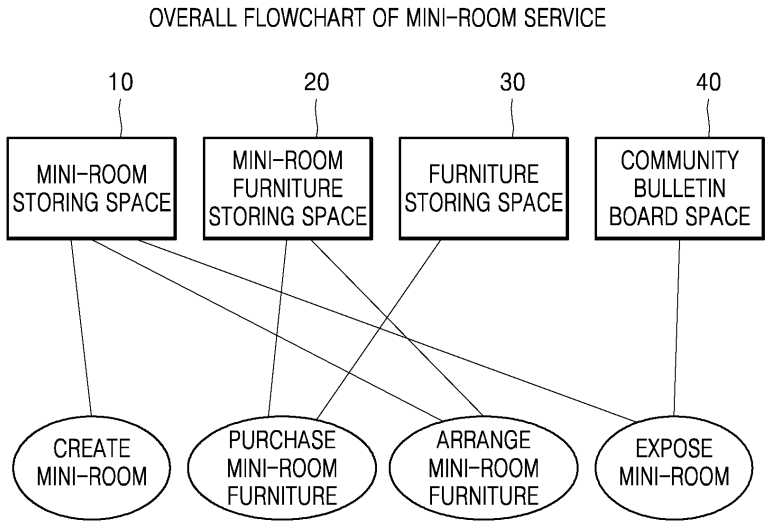


Figure 2: Diagram of a system for creating a mini-room of the filed application

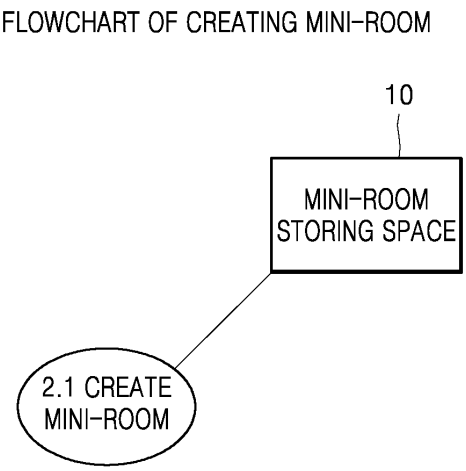


Figure 3: Diagram of a purchase system for purchasing furniture needed for a mini-room in the filed application

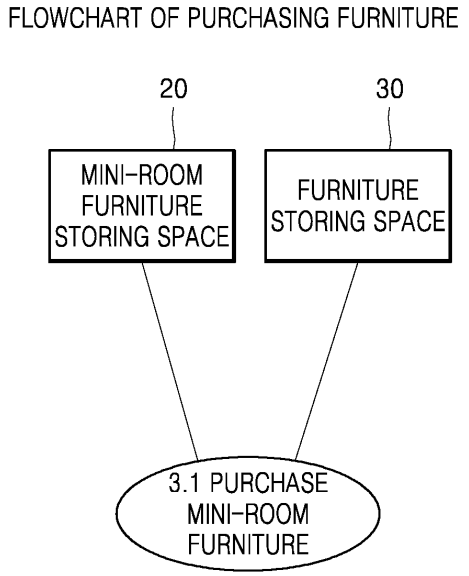


Figure 4: Diagram of an arrangement system for arranging purchased furniture in a mini-room

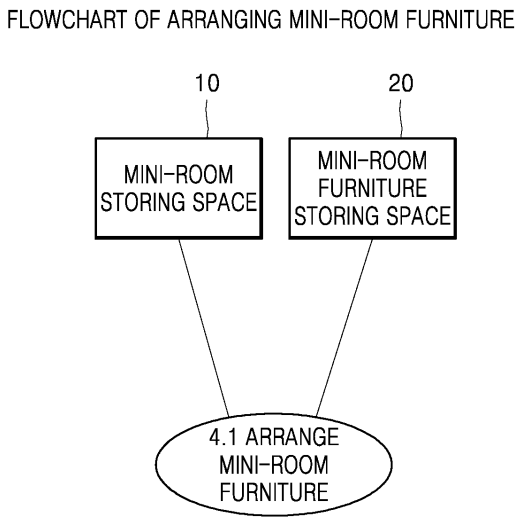
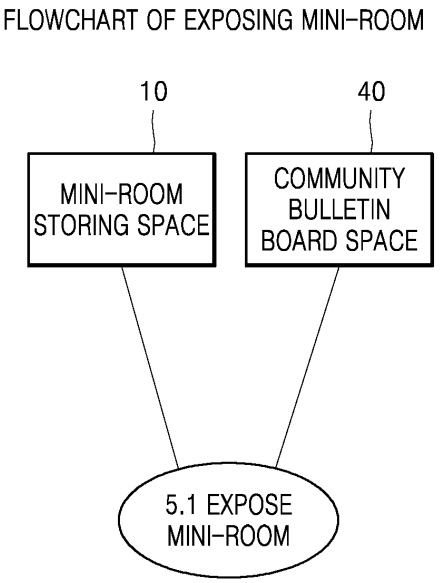


Figure 5: Diagram of an exposure system for exposing a decorated mini-room to other members



PATENT COURT
THE FIFTH DEPARTMENT
DECISION

Case No. 2008Heo7850 Invalidation of Registration (Patent)

Plaintiff: Interpark Gmarket Co., Ltd.
Counsel for the Plaintiff:
Taehoon JUNG, Patent Attorney

Defendants: 1. Internet Channel 21 Co., Ltd.
2. Fine Rich Co., Ltd.
"Counsel for the Defendants:
Sangmoon LEE, Patent Attorney

Closure of Hearing: April 21, 2009

Date of Decision: May 20, 2009

Order

1. The decision rendered by the Intellectual Property Trial and Appeal Board with respect to case no. 2007Dang1469 on May 22, 2008 is cancelled.
2. The trial costs shall be borne by the Defendants.

Tenor of Claim

It is the same as the order.

Reasoning

1. Background

A. Patented Invention

1) Name of the invention: Advertising system and manner using the internet web pages.

2) Patent application date/Patent registration date/ Patent registration no: June 19, 1999/ April 20, 2004 / No. 429760

3) Patent holder: Defendant companies

4) Scope of patent claims and major drawings: Same as set out in Schedule 1 attached hereto (invention of claim 1 shall be referred to as "Claim 1 Invention" and the other inventions of claims shall be referred to in the same manner).

B. Prior arts

1) Prior art 1

There is a newspaper article inserted in *The Korea Economic Daily* dated June 15, 1999 on 'Ads-Off which helps speed up search of the internet by making advertisements disappear from the internet sites'. The details are described in Schedule 2, paragraph (1).

2) Prior art 2

a) Description

There is a posting on the internet site http://taz.net.au/block on "Squid", a program which blocks banner advertisements and replaces them with another image. The details are described in Schedule 2, paragraph (2).

b) Whether Qualified as a Prior Art Data

Prior Art 2 is inserted in a printed document from access to the applicable internet site after the patent application date of the Patented Invention and its final update date is indicated as May 2, 1999. However, in the nature of the internet document, it is difficult to confirm the time of actual disclosure thereof on the internet or the specific time when the internet document was made accessible by the general public only by referring to the printed document, and it is also difficult to check how much has been changed of the contents during the time from the initial posting of the internet document on the internet to the time when it was actually printed out. Due to such circumstances, the Patent Act amended by law no. 6411 as of February 3, 2001 newly recognizes "invention accessible by the general public domestically or from overseas through the telecommunication lines provided by the Presidential Decree prior to any patent application", that is, technology disclosed through the internet, as the prior art as "inserted in publications", whereas Article 1-2 of the Enforcement Decree of the Patent Act limits the type of telecommunication lines of the internet to a small number of them in which public confidence is ensured.

"However, Prior Art 2 is indicated as finally updated as of May 2, 1999 on the print out which is earlier than June 19, 1999, the patent application date of the Patented Invention, but only by referring to the statement in Plaintiff's Exhibit 7, it is difficult to recognize public confidence in "http://taz/net.au", the internet site having posted Prior Art 2 or accept that any contents of the posting on the site or the posting date is true and there is no other evidence thereof and therefore, Prior Art 2 is not qualified as prior art to determine novelty and inventive step of the Patented Invention.

C. Process of Reaching the Decision

The Plaintiff filed a request for invalidation of registration of the

Patented Invention with the Intellectual Property Trial and Appeal Board by the reason that the Patented Invention is contrary to the public order and good morals as provided by Article 32 of the Patent Act and it is not considered as novel or involving inventive step as compared to the Prior Arts, but the Intellectual Property Trial and Appeal Board rendered its decision to dismiss the Plaintiff's appeal by the reason that the Patented Invention is not contrary to the public order and good morals and is considered as novel and involving inventive step.

[Based on undisputed facts and Plaintiff's Exhibits 1~8]

2. Assertions of the Parties and the Issues

A. Summary of the Assertions by the Plaintiff

First, the Patented Invention as an invention of a business model intends as its key element that banner advertisements or logos transmitted by an operator of a webpage to individual internet users can be arbitrarily blocked and instead, replaced by new advertisements prepared by The Defendants in advance to be displayed on PC monitors of users. This is an act of interrupting business of operators of web pages, disturbing fair competition order and commercial transaction order with such operators; is in breach of the public order and good morals under Article 32 of the Patent Act and therefore, the registration should be invalidated.

Second, the Patented Invention can be easily derived by simple combination of Prior Arts 1 and 2 by an ordinary engineer and thus it does not involve an inventive step and therefore its registration should be invalidated.

B. Summary of Assertions by the Defendants

First, there is no likely interruption of business if consent is

obtained from the internet users and webpage operators to alternative advertisements in the course of specific implementation of the Patented Invention, and therefore, the Patented Invention cannot be said as contrary to the public order and good morals under Article 32 of the Patent Act.

Second, the key point of the Patented Invention is making an alternative advertisement in replacement of banners and logos that are deleted but Prior Arts 1 and 2 have not displayed or indicated such business idea or technical idea and thus it is not easy for an ordinary engineer to invent the Patented Invention through simple combination of Prior Arts 1 and 2, and therefore, the Patented Invention is considered as involving an inventive step.

C. Issue in this Case

The key point in this case is whether the Patented Invention is contrary to the public order and good morals under Article 32 of the Patent Act and whether it involves an inventive step.

3. Whether the Patented Invention Is Contrary to the Public Order and Good Morals

A. Criteria of Judgment

The Patent Act refuses patent registration of an invention which is likely to disturb public order or good morals or to damage public hygiene, that is, an invention contrary to the public order, even if its novelty and inventive step are recognized but if such invention is registered, Article 133(1)1 of the Patent Act provides for invalidation thereof. However, Article 32 of the Patent Act is a general provision which is flexibly applicable depending on the technical levels and social environment at the time of patent application of an invention and is also an exceptional clause to conditions for patentability and

thus needs to be interpreted narrowly. If the purpose or technical idea of an invention is not likely to disturb the public order and good morals and just could be harmful depending on the manner of use, it is reasonable to see that the foregoing provision is not applicable.

B. Judgment

The Patented Invention is an invention of a business model which embodies a certain business idea online through a computer program (Business Model Invention, BM Invention) and its specific purpose is to replace banner advertisements and logos displayed together with web pages on PC monitors of internet users with new advertising materials, enhancing the effect of advertisement and telecommunication speed (Plaintiff's Exhibit 3, line 15 and below on page 2). Accordingly, the purpose and technical idea of the Patented Invention have no likeliness of disturbing the public order and good morals but at the specific implementation stage, there is a concern that it could hinder business of web page operators but such concern can be settled by duly obtaining consent from the internet users and web page operators by notifying them of the kind and holder of replacement advertisements in advance at the pre-implementation stage of the invention and thus it is difficult to see that the Patented Invention is contrary to the public order and good morals.

With regard to this, the Plaintiff asserts that the Patented Invention has never required consent from the users or web page operators in the scope of the patent claims and even if the user consents, such consent is difficult to be seen valid and any web page operators are not likely to grant such consent, and thus the Patented Invention cannot avoid breach of the public order and good morals.

Then, with respect to the Patented Invention being a BM Invention, it will be enough if the scope and description of the patent claims include clear statement of arithmetic process of information by step to conduct advertisements and the process of obtaining consents from the

users or web page operators needs not be set out in the scope or description of patent claims and due conduct of obtaining such consents at the implementation stage in accordance with the applicable laws and decrees would be enough and therefore, by the reason that web page operators would not consent, it is difficult to see that the Patented Invention is contrary to the public order and good morals. Accordingly, the Plaintiff's assertion is groundless.

4. Whether the Patented Invention Involves an Inventive Step

A. Criteria of Determination

In order to be a BM invention, information processing by software on computer should be specifically activated using hardware (Supreme Court Decision 2001Hu3149, May 16, 2003), and for a BM invention to be considered as involving an inventive step, the business idea should have originality surpassing the existing idea or at least specific technical elements to implement such business idea should be considered as involving an inventive step. In the area of computer program, if there is a disclosure of algorithm to solve a certain task, an ordinary engineer could easily infer any technical issues using technical logic customarily used in the relevant area without disclosure of detailed technology and thus for specific technical elements to be recognized as inventive, their function or order constituting algorithm to solve a task should have originality which is not seen in the prior art and just a simple combination of known technical elements including algorithm disclosed by prior art would be far more difficult to be considered as involving an inventive step than other technology area.

B. Whether Claim 1 Invention 1 is Inventive

1) Whether Business Idea Is Original

The business idea of Claim 1 Invention has a point in that the Defendants or those who are granted the license of Claim 1 Invention (collectively, "Defendants") accept individual internet users as members and have them download and store advertising materials in the hard discs of their PCs and then at the moment of their accessing to a certain web site, banners or logos transmitted by a server of the web site are blocked and instead, displaying the replacement advertisements in the blocked place.

Referring to the standards at the time of the patent application of Claim 1 Invention, the manner of transmitting advertising banners to advertise to individual internet users is only a well-known customary marketing practice in the area of e-commerce and in off-line business, that is, in practices, the manner of replacing other bulletins and advertisement such as movie posters and signboards with other advertisers' materials is a well-known customary marketing practice.
"Accordingly, the business idea of Claim 1 Invention is just a simple combination of banner advertising method widespread in the e-commerce and the business method widespread off-line and therefore, it can be said that the business idea is not or rarely original.

2) Whether the Specific Technical Elements Are Inventive

a) Comparison in Respect of Technical Area and Purpose

In the technical area, Claim 1 Invention and Prior Art 1 are the same in that they make disappear or replace advertisements on the internet sites with new ones.

In regards to the purpose, Claim 1 Invention aims at blocking banner advertisements and logos transmitted from servers of the internet web pages whenever internet users access to such web pages, speeding up telecommunication and displaying replacement new advertisements on the users' PCs, whereas Prior Art 1 aims at blocking

block banner advertisements and logos, etc. transmitted from servers of web pages whenever internet users access to the web pages, improving the internet search speed. Their purposes are partly the same in that they aim at improving internet telecommunication speed or search speed.

b) Comparison of Elements

① Technical Elements of Claim 1 Invention

Claim 1 Invention consists of (i) sensing stage of sensing whether web pages include banner advertisements or logos transmitted from servers to clients in the advertisement manner using web pages of the internet ("Element 1"), (ii) stopping stage of stopping display of banner advertisements or logos on the screens of web browsers if such advertisements or logos are included in the web pages transmitted ("Element 2"), (iii) storing stage of storing size and location of banner advertisements and logos ("Element 3"), (iv) selecting stage of selecting web banner advertisements or logos having already been stored in hard discs of client PCs as proper in size to replace banner advertisements or logos of a web page of which display is suspended ("Element 4") and (v) displaying stage of displaying on monitor screens of clients of web pages transmitted from servers after inserting in and replacing currently displayed banner advertisements or logos with new ones that are selected at the selecting stage ("Element 5").

② Comparison with Elements 1 and 2

Elements 1 and 2 are sensing stage and stopping stage and correspond to an element of Prior Art 1 in that Ad-Off asks users as to whether they allow transmission of trivial images like advertisements when they search on the internet and if they answer 'No', the advertisements are skipped to reflect users' taste. Both elements block display on screens of image files such as banner advertisements or logos among files transmitted from servers of web pages to users' PCs and thus both are substantially the same elements.

③ Comparison with Element 3

Element 3 is the storing stage and corresponds to an element of Prior Art 1 that "allows eliminated space to remain vacant or file names to be displayed, making it possible to confirm which advertisement was eliminated and may designate various scope of advertisements to be made invisible". The said element of Prior Art 1 should know in advance information of sizes and locations of image files such as banner advertisements or logos in order to leave vacant a space of banner advertisements or logos of web pages eliminated from display on screens of web browsers and HTML file used to prepare an internet web page usually contains information of contents to be expressed on web browsers. Accordingly, Element 3 is a well-known technical means in the computer programming area and has no substantial difference from the said element of Prior Art 1.

④ Comparison with Elements 4 and 5

Elements 4 and 5 are selecting stage and displaying stage and correspond to an element of Prior Art 1 that "leaves eliminated space vacant or allows file names to be displayed to trace which advertisements were eliminated". Both elements are the same in that they replace and display other images instead of eliminated banner advertisements or logos, etc. Small differences are that Elements 4 and 5 replace the eliminated banner advertisement or logos with new ones which have been already downloaded onto hard discs of users' PCs and display new ones adjusted to the size of the eliminated ones, whereas Prior Art 1 leaves the space of eliminated banner advertisements or logos vacant or replace the ones with file names and display the file names. However, it is only a well-known customary technical means in the computer programming area at the time of patent application to remove image files and replace them with other image files for display as in Elements 4 and 5, and further, change from a technical element of Prior Art 1 displaying file names in the space of eliminated banner advertisements or logos, etc. to Elements 4 and 5 that display image files can be easily performed by a person having ordinary skill in the

computer programming area without adding any special knowledge and therefore, it can be said that both elements are not considerably different.

c) Comparison with Operational Effects

The Patented Invention and Prior Art 1 are the same in their operational effects in that they block banner advertisements and logos, etc. in the form of image files transmitted from web pages, improving telecommunications speed of the internet and that they replace the vacant space of web pages left by blocking banner advertisements or logos with other image files or file names to be displayed.

3) Result of Comparison

As seen in the foregoing, Claim 1 Invention is not recognized for its originality in respect of business idea and also in the matter of specific technical elements, Claim 1 Invention follows the technical idea and elements disclosed in Prior Art 1 almost as they are and just simply combines well-known customary technologies in the computer programming area and therefore Claim 1 Invention is denied of inventive step.

C. Whether Claims 2~6 Inventions Involve an Inventive Step

1) Claim 2 Invention

Claim 2 Invention “allows users to arbitrarily set sizes of banner advertisements or logos sensed at the sensing stage and to limit loading onto web pages depending on the size of image files” and is a dependent claim giving shape to Claim 1 Invention. This corresponds to elements of Prior Art 1 that `can adjust the level or scope of elimination of advertisements in the option menu and for example, can select whether only big sized banner advertisements should be eliminated or all the advertisements whether they are small or big shall be eliminated and may designate various scope of advertisements to be made invisible. Both elements are substantially the same in that users

may arbitrarily set the size of banner advertisements or logos on web pages and block them from displaying onto screens of web browsers depending on the fixed size, and a person having ordinary skill may easily produce Claim 2 Invention from Prior Art 1 and therefore, the inventive step is denied.

2) Claim 3 Invention

Claim 3 Invention, a dependent claim subordinated to Claim 1 and 2 Inventions, specifically limits "regular downloading of contents of web banner advertisement or web logo DB from internet service servers to which users access", and downloading of image files, etc. from servers via internet is well-known customary technical means at the time of patent application in the computer programming area.

"Accordingly, Claim 3 Invention which adds well-known customary technology to Claim 1 and 2 Inventions lacking inventive step is denied of inventive step.

3) Claim 4 Invention

The point of Claim 4 Invention is "an advertising system using internet web pages with characteristics that client PCs have web logo DB, sensing module, stopping module, storing module, selecting module and displaying module." This includes the technical idea and elements of Claim 1 Invention only with making different categories of invention from Claim 1 Invention and thus the inventive step is denied as in the case of Claim 1 Invention.

4) Claim 5 Invention

Claim 5 Invention has almost the same technical idea and elements with Claim 2 Invention with only different categories of invention from Claim 2 Invention and thus the inventive step is denied as in the case of Claim 2 Invention.

5) Claim 6 Invention

Claim 6 Invention is different only in regards to category of invention from Claim 3 Invention but is almost the same with Claim 3 Invention in regards to the technical idea and elements and therefore, its inventive step is denied as in the case of Claim 3 Invention.

D. Sub-Conclusion

Accordingly, the Patented Invention is not contrary to the public order and good morals under Article 32 of the Patent Act but its inventive step is denied.

5. Conclusion

Then, the decision of the Intellectual Property Trial and Appeal Board is illegal and the Plaintiff's appeal for cancellation thereof is reasonable and therefore, this court renders its decision as set out in the Order.

Presiding Judge Myungsoo KIM
Judge Changsoo PARK
Judge Yongduk KIM

[Schedule 1]

Patented Invention

A. Scope of Patent Claims

Claim 1. In advertising method using internet web pages, said advertising method consisting of (i) sensing stage of sensing whether web pages include banner advertisements or logos transmitted from servers to clients ("Element 1"), (ii) stopping stage of stopping display of banner advertisements or logos on the screens of web browsers if such advertisements or logos are included in the web pages transmitted ("Element 2"), (iii) storing stage of storing size and location of banner advertisements and logos ("Element 3"), (iv) selecting stage of selecting web banner advertisements or logos having already been stored in the hard discs of client PCs as proper in size to replace banner advertisements or logos of a web page of which display is suspended ("Element 4") and (v) displaying stage of displaying on monitor screens of clients of web pages transmitted from servers after inserting in and replacing currently displayed banner advertisements or logos with new ones that are selected at the selecting stage ("Element 5").

Claim 2. In Claim 1, said advertising method using the internet web pages that allows users to arbitrarily set the size of banner advertisements or logos sensed at the said sensing stage and to limit loading onto web pages depending on the size of image files.

Claim 3. In Claim 1 or Claim 2, said advertising method using the internet web pages that regularly downloads contents of said web banner advertisement or said web logo DBs from the said internet service servers accessed.

Claim 4. In advertising system using internet web page consisting of client PC, internet access server, at least one server and open network connecting the said client PC and the said servers, said client PC has web banner advertisement or web logo DB storing web banner advertisements or web logos; sensing module sensing whether web pages transmitted from the said server to client PC contain banner advertisements or logos; stopping module which stops display of banner advertisements or logos on web browser screen if the said web pages contain banner advertisements or logos; storing module which stores sizes and locations of the said banner advertisements or logos; selecting module which selects said web banner advertisements or said web logos having already been stored in the said web banner advertisement/logo DB that are corresponding in sizes to the ones stopped from display; and displaying module which inserts the selected web banner advertisements or web logos from the selecting module in the location of currently displayed web banner advertisements thereby replacing them and then displays web pages transmitted from the said servers onto client's monitor screen.

Claim 5. In Claim 4, advertising system using the said internet web pages in which users may arbitrarily set sizes of banner advertisements/logos sensed by the said sensing module, limiting loading of image files onto web pages depending on the sizes of such image files.

Claim 6. In Claim 4 or Claim 5, advertising system using the internet web page that downloads contents of the said web banner advertisement or web logo DBs in Claims 4 and 5 from the said internet access service servers.

B. Figures

Figure 1: Outlined Connections between Servers and Clients on the Internet

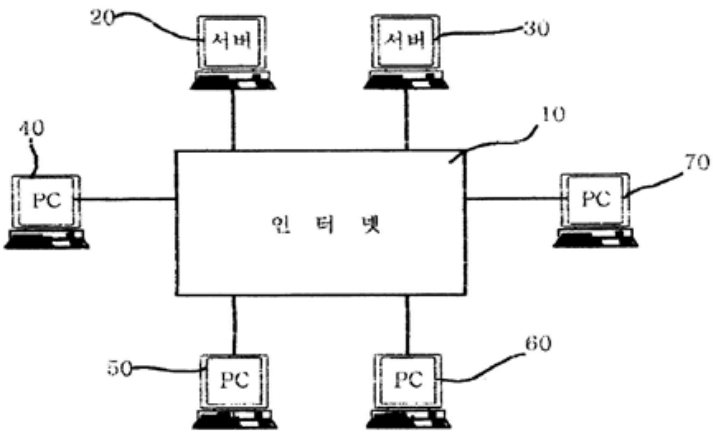


Figure 2: An Example of a Front Page of an Web Page to Be Displayed on the Prior Web Browsers

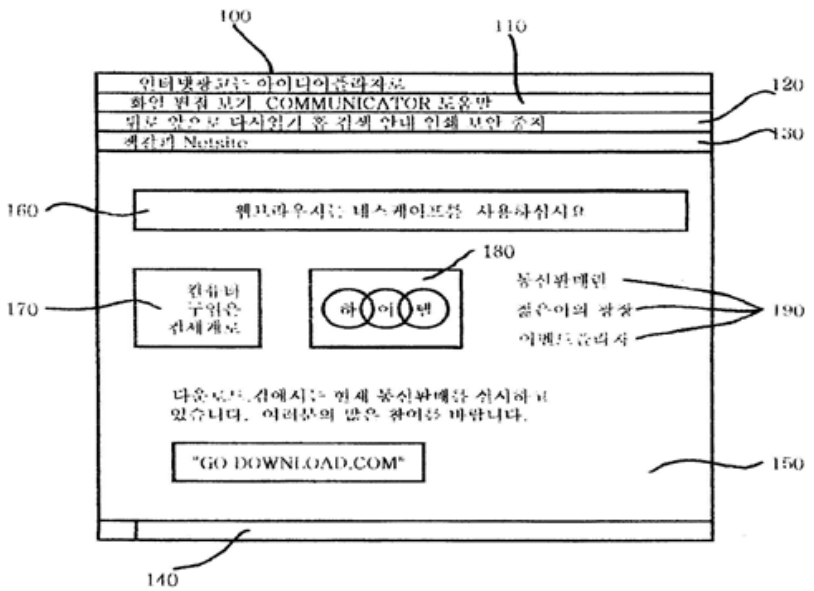


Figure 3: Front Page of a Web Page in Which Web Advertisement Is Replaced by the Patented Invention

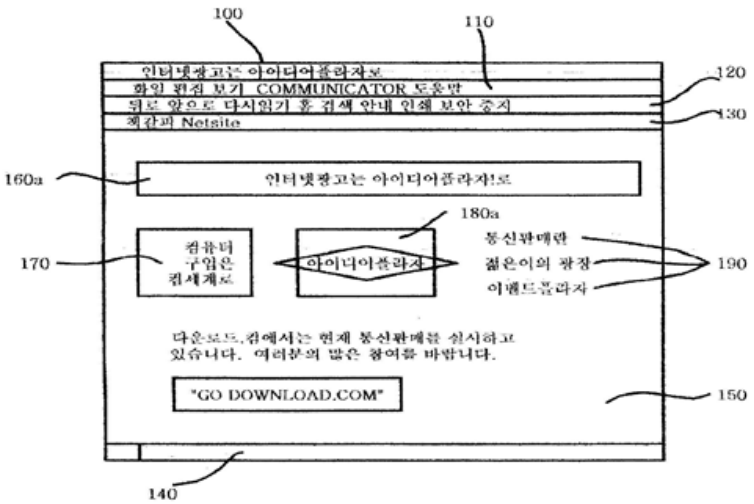
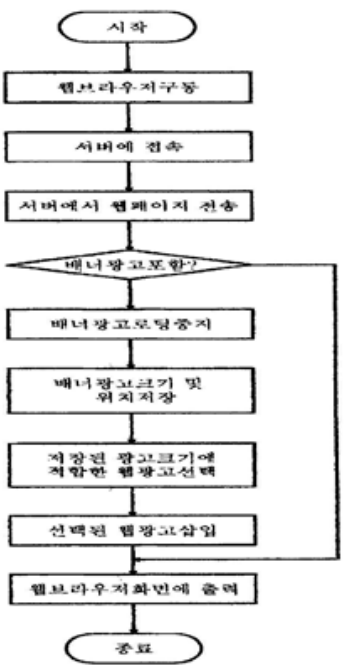


Figure 4: Flowchart Explaining the Method of the Patented Invention



[Schedule 2]

Prior Arts

1. Prior Arts 1 (Plaintiff's Exhibit 5, Report Inserted in *The Korea Economic Daily*, June 15, 1999)

This is a report in the newspaper on Ads-off that reads, "Ads-off asks users as to whether they allow transmission of small images like advertisements when they search on the internet and if they answer 'No', skips the advertisements reflecting the users' taste. This is a program any internet users desiring not to watch advertisements have to keep.", "Upon installation, advertisement removal function is automatically implemented on the Internet Explorer or Netscape. The level and scope of advertisement elimination can be adjusted in the option menu. For example, users may select whether they want to remove large sized banner advertisements only or all of small or large sized advertisements. It also has a function of leaving the eliminated space vacant or displaying file names to confirm what were eliminated. Users may designate various scopes of advertisements to be made invisible."

2. Prior Arts 2 (Plaintiff's Exhibit 6-1/6-2, Posting on the Internet Homepage (http://taz.net.au/block))

This is an internet posting on Squid program which blocks banner advertisements and replaces them with other images.The posting reads that "blocking banner advertisements using squid" (Plaintiff's Exhibit 6-2, page 1), "this (squid) is used to convert requests for generally downloaded files to local mirror and this can be used to convert banner advertisements to GIF files of local web servers" (Plaintiff's Exhibit 6-2, page 2), "I can block banner advertisements and also

convert generally downloaded files to local mirror or my preferred source site. This can save waste of band-width" (Plaintiff's Exhibit 6-2, page 4) and "I use this (squid) made from The Gimp. This is the same size with most of the banner advertisements" (Plaintiffs Exhibit 6-2, page 5).

PATENT COURT
THE FIRST DEPARTMENT
DECISION

Case No. 2008Heo8150 Invalidation of Registration (Patent)

Plaintiff (Released): Medtronic Spine LLC
Counsel/attorneys-at-law: Sanggeun KIM, Kwanseok OH, Minseo HWANG
Counsel/patent attorneys: Younghwan YANG, Yoonkee KIM, Jooho LEE

Plaintiff's Successor: Kyphon SARL
Counsel/attorneys-at-law: Sang Geun KIM, Kwanseok OH, Minseo HWANG
Counsel/patent attorneys: Younghwan YANG, Yoonkee KIM, Jooho LEE

Defendant: Yong-chol Ahn
Counsel/attorney-at-law: Dongse KANG
Counsel: Myungmoon Patent Law firm
Patent attorney in charge: Gunwoo PARK

Closure of Hearing: February 24, 2010

Date of Decision: March 19, 2010

Order

1. Plaintiff's Successor's claims are dismissed
2. The trial costs shall be borne by the Plaintiff's Successor

Tenor of Claim

The Korea Intellectual Property Tribunal's decision dated May 27, 2008 in Case No. 2007Dang3289 is hereby reversed.

Reasoning

1. Basic Facts

[Grounds for Recognizing Facts] Undisputed Facts, Plaintiff's Exhibits 1 through 5, Defendant's Exhibit 1, and the entire content of the hearings and the results obtained by evidence being taken.

A. Subject Patent

1) Title of Invention: Improved inflatable device for use in surgical protocol relating to fixation of bone

2) Filing Date (PCT Filing Date)/Priority Date: July 25, 1996 (Jan. 24, 1995)/Jan. 26, 1994

3) Registration Date/Registration No.: Sept. 23, 2002/No. 0355207

4) Patentee: Plaintiff's Successor
(After this lawsuit was initiated, all rights to the Subject Patent were transferred to the Plaintiff's Successor on May 7, 2009, and the Plaintiff's Successor joined this lawsuit on July 23, 2009. The original Plaintiff was released from this lawsuit on the same day with the consent from the Defendant.)

5) Scope of Patent Claims
Claim 1. A device for insertion in to a bone, that can apply pressure to the cancellous bone and move the fractured cortical bone (Element

1), comprising a catheter, and a distal end having a predetermined shape and size for insertion into a bone through a cannula, wherein said catheter supports near said distal end an inflatable body which has a wall and in its deflated state has a size and shape that can be inserted into a bone through the passage inside the cannula ("Element 2"), and, further, said wall has a size and shape configured to apply strength in response to the enlargement of the inflatable body inside the bone, and structured to change the thickness of the inflatable body so that it can restrain the enlargement inside the cancellous bone. ("Element 3") ("claim 1 of the Subject Patent")

Claims 2 through 24 (descriptions omitted)

6) Figures: Main figures are shown in Annex 1.

B. Prior Arts

1) Prior Art 1 (Prior Art 1 in the KIPT Decision)

Prior Art 1 relates to "a surgical procedure for fixation of bone using an inflatable device" described in US Patent No. 5,108,404 published on April 28, 1992, the main details and figures of which are provided in Annex 2, Technical Details and Main Figures of Prior Art 1.

2) Prior Art 2 (Prior Art 4 in the KIPT Decision)

Prior Art 2 relates to a "surgical device" described in US Patent No. 4,082,369 published on April 11, 1978, the main details and figures of which are provided in Annex 3, Technical Details and Main Figures of Prior Art 2.

3) Prior Art 3

Prior Art 3 relates to "low profile balloon catheter and method for making the same," described in US Patent No. 5,254,091 (Defendant's Exhibit 1) published on October 19, 1993, the main details and figures of which are provided in Annex 4, Technical Details and Main Figures

of Prior Art 3.

C. Procedural Background

1) The Defendant filed an invalidation trial with the Korea Intellectual Property Tribunal (the "KIPT") against the Plaintiff on November 27, 2007, on the grounds that the invention according to claim 1 of the Subject Patent could have been easily derived by a person having ordinary skill in the art ("PHOSITA") from Prior Art 1, 2 and 3, which were publicly disclosed before the filing date of the Subject Patent, and therefore lacked inventiveness.

2) The KIPT reviewed this invalidation trial Case No. 2007Dang3289, and rendered its decision on May 27, 2008, accepting the Defendant's claim on the ground that the Subject Patent lacked inventiveness over Prior Art 1 and 2.

2. Issues

The parties are in dispute over the issue of whether PHOSITA could have easily invented the invention according to claim 1 of the Subject Patent based on Prior Art 1, 2 and 3. Accordingly, the issue is whether the Subject Patent lacks inventiveness over Prior Art 1, 2 and 3. (The Defendant also argued that claim 1 of the Subject Patent failed to meet the description requirement, but withdrew the same on the date of the first hearing.)

3. Inventive Step of claim 1 of the Subject Patent

A. Technical Field and Objective

1) Technical Field

The invention according to claim 1 of the Subject Patent relates to

a device for stabilizing and treating broken bones, having an inflatable body (balloon) that can be inserted into the broken bone and form or expand a cavity (Plaintiff's Exhibit 3, Page 2). Prior Art 1 relates to an inflatable device that is inserted into the bone to form or expand the cavity, to stabilize and treat broken bones (Plaintiff's Exhibit 4, "Abstract"). Prior Art 2 relates to a surgical device having an inflatable balloon-like element used in the field of gynecology, such as hysterectomy (Plaintiff's Exhibit 5, "Abstract" and column 1). The invention according to claim 1 of the Subject Patent and Prior Art 1, 2 and 3 all belong to the same technical field, as they all relate to surgical devices having an inflatable structure (balloon) that are inserted into the human body and expand certain parts.

In this regard, the Plaintiff's Successor asserted that: the Subject Patent relates to the field of kyphoplasty; spinal orthopedics, gynecology and cardiology are each categorized as a separate specialized medical field; accordingly, PHOSITA should be limited to "spinal orthopedic surgeons" with ample clinical experience; as the inventors of the Subject Patent were the only ones in the field of kyphoplasty at the time of the filing date of the Subject Patent, balloon catheter devices for kyphoplastic use were not well known even in the field of orthopedics; further, there was not much communication between different medical fields, i.e., among the departments of spinal orthopedics, gynecology and cardiology; accordingly, inventions relating to devices used in specialized medical fields other than spinal orthopedics, such as Prior Art 2 and 3, should not be used as Prior Art in determining the inventive step of claim 1 of the Subject Patent.

We note that the "relevant technical field" in Article 29, Paragraph 2, of the Patent Law refers an industrial area in which the claimed invention is used and should be objectively determined by comprehensively considering the purpose, technical constitution and operational effects of the invention. (Supreme Court Decision dated April 25, 2003, No. 2002Hu987, etc.), and "a person having ordinary skill in the art" refers to a hypothetical natural person who would have been able to obtain

and understand all information at the technical level in the relevant technical field and freely exercise any ordinary means and abilities necessary for research and development, available at home and abroad at the time of the filing.

In this case, (i) the "abstract" section in the specification of the Subject Patent states that the main purpose of the balloon in the Subject Patent is the forming or enlarging of a passage or a cavity inside a bone, especially in, but not limited to, the vertebral bodies. The "examples" section describes "balloons for long bones including distal radius, proximal tibial plateau, proximal humerus and proximal femoral head," etc., in addition to the "balloon for vertebral bodies." (ii) One of the inventors for the Subject Patent, Karen Talmadge, is a "biochemist," not a "spinal orthopedic surgeon." (iii) The "technical background" section in the specification of the Subject Patent as prior art numerous angioplasty catheters. (iv) Claim 1 of the Subject Patent and Prior Arts 1, 2 and 3 may relate to different specific conditions to be treated but all commonly relate to a surgical device having an inflatable structure (balloon) that is inserted into the human body to enlarge certain parts. Descriptions in Plaintiff's Exhibit 3, some descriptions in Plaintiff's Exhibits 12 and 20 support the foregoing. In light of the above, it would be reasonable to conclude that the inventors for the Subject Patent, instead of limiting themselves to the field of orthopedics, invented the invention of the Subject Patent which can be used to form or enlarge a passage or a cavity inside a bone such as the vertebral bodies, distal radius, proximal tibial plateau, proximal humerus and proximal femoral head, etc., after research and development based on prior art encompassing a variety of surgical devices having an inflatable device (balloon) that were inserted into the human body and enlarged certain parts thereof. As such, it does not seem reasonable to limit the scope of the person having ordinary art to "spinal orthopedic surgeons" or to exclude inventions of medical devices in other specialized medical fields, such as Prior Art 2 and 3, as inappropriate to be used as Prior Art in determining the inventive

step of the invention according to claim 1 of the Subject Patent, which relates to a medical device in the field of spinal orthopedics. Descriptions in Plaintiff's Exhibits 7 through 11, 13 through 19 (including sub-numbered exhibits), some of the descriptions in Plaintiff's Exhibits 12 and 20, witness statement by Hak Sun KIM and the results of this court's inquiries with the Korean Orthopaedic Association, the Ministry of Food and Drug Safety, and the Health Insurance Review & Assessment Service fall short of negating the conclusion above, without anything else that suggests otherwise.

2) Purpose

Claim 1 of the Subject Patent and Prior Art 1 have the identical purpose, i.e., providing a device having an inflatable structure (balloon) which is inserted into a fractured bone and forms or enlarges a cavity to treat the fractured bone.

Nextly, while the purpose of claim 1 of the Subject Patent and that of Prior Art 2 and 3 are common in that they aim to provide a device having an inflatable structure (balloon) which is inserted into a human body and enlarges a certain part of the human body, the invention of claim 1 of the Subject Patent is used to restore a fractured bone, Prior Art 2 is used for surgical instruments in the field of gynecology to perform hysterectomy, etc., and Prior Art 3 is used for enlarging body conduits such as blood vessels and urethra, so the specific purposes of the inventions vary.

B. Comparison of the Constitution and Effects

1) Comparison of Element 1

Element 1 of claim 1 of the Subject Patent refers to "a device for insertion in to a bone, applying pressure to the cancellous bone and moving the fractured cortical bone." This element corresponds to "an inflatable device that is used to enlarge a cavity inside a fractured bone by inserting it into a fractured bone and inflating it to cause the

cancellous bone or the bone marrow to compress the inside (cortical bone) of the outer wall of the bone" in Prior Art 1 (Plaintiff's Exhibit 4, the "Abstract" section, Fig. 28).

The two elements are identical in terms of the constitution and the effect in that both are related to devices inserted into a fractured bone, which then compress the cancellous bone or the bone marrow, thereby moving the corticoid bone to restore the fractured bone to the original form or location and form a cavity inside the cancellous bone.

2) Comparison of Element 2

Element 2 of claim 1 of the Subject Patent is "comprising: a catheter, a distal end having a predetermined shape and size for insertion into a bone through a cannula, said catheter supports near said distal end an inflatable body which has a wall and in its deflated state has a size and shape that can be inserted into a bone through the passage inside the cannula" and corresponds to the "inflatable device inserted into a bone through a passage in the cannula (30) wherein a neck (77) is formed and supports a checker-shaped balloon (76) at the distal end of the neck (77)" in Prior Art 1. (Plaintiff's Exhibit 4, Figs. 21 to 24)

The two elements are identical in terms of the constitution and the effect in that both comprise a catheter [neck (77)] support an inflatable body [balloon (76)] that is inserted into a bone in its deflated state near the distal end of the catheter [neck (77)].

3) Comparison of Element 3

a) Interpreting Element 3

Element 3 of the Subject Patent refers to "said wall has a size and shape configured to apply strength in response to the enlargement of the inflatable body inside the bone, and structured to change the thickness of the inflatable body so that it can restrain the enlargement inside the cancellous bone." In this Element 3, however, descriptions such as "size and shape configured to apply strength in response to

the enlargement of the inflatable body inside the bone," "restrain the enlargement inside the cancellous bone" or "structured to change the thickness of the inflatable body" are abstract. It is thus difficult to specify the structure of the inflatable body based solely on the descriptions in the claims, and it is necessary to refer to the detailed description of the invention, etc., to confirm the technical details.

As for the descriptions "size and shape configured to apply strength in response to the enlargement of the inflatable body inside the bone" and "restrain the enlargement inside the cancellous bone," the detailed description of the invention section states that "in particular, the present invention is directed to a balloon for use in treating a bone that is fractured or predisposed to fracture. The balloon comprises a body that is inflatable so that it can be inserted into a bone yet non-expandable. The balloon has a predetermined shape and size so that it can be sufficiently inflated to compress the inner cancellous bone and create a cavity inside the cancellous bone and to restore the original position of the outer cortical bone. The balloon body is restrained to create said predetermined shape and size, and as a result, the fully inflated balloon body would not apply substantial pressure to the inner surface of the outer cortical bone if said bone is unfractured or uncollapsed. ··· These balloons approximate the inner shape of the bone they are inside of in order to maximally compress the cancellous bone. Preferably, they have additional design elements to achieve specific clinical goals. Preferably, they are made of inelastic materials and kept in their defined configurations by various restraining elements when inflated." (Plaintiff's Exhibit 3, Pages 4 and 5) In light of the entire description in the specification, it is reasonable to conclude that the descriptions "size and shape configured to apply strength in response to the enlargement of the inflatable body inside the bone" and "restrain the enlargement inside the cancellous bone" in Element 3 mean "an inflatable body (balloon) that, when inflated, has a size sufficient to form a cavity inside the cancellous bone while the outer cortical bone is being restored, and a shape approximating the inner

shape of the bone they are inside of, but when fully inflated, it is non-expandable so that it can keep the defined configuration (restrain enlargement) without applying substantial pressure to the inner surface of the outer cortical bone."

As for "structured to change the thickness of the inflatable body," we refer to the detailed description of the invention which states "in addition to the shape of the inflatable device itself, another aspect of importance is the construction of the wall or walls of the balloon such that proper inflation of the balloon body is achieved to provide for optimum compression of all the bone marrow" (Plaintiff's Exhibit 3, Page 4), "the fully inflated size and shape of the balloon is restrained by additional materials placed on the separate pieces of the balloon body, and the added thickness works as the restraining element. Further, the maximally inflated size and the shape of the walls of the balloon are restricted by restraints formed on the interior or the exterior of the device, such as meshwork, rolled on the substances melted and attached to the balloon body parts, continuous or discontinuous strings extending across the inside and glued at one place, connected to the exterior and sealing two balloon bodies, attaching two surfaces of the body using glue or heat. The spherical surface of the balloon body can be restricted by the use of inelastic materials in assembling the balloon body or by additional restraints described above." (Plaintiff's Exhibit 3, Page 5) In light of the entire description in the specification, it is reasonable to construe "structured to change the thickness of the inflatable body" as "a structure with varying thickness in different parts of the inflatable body (balloon)."

In sum, in light of the overall descriptions in the specification, Element 3 of claim 1 of the Subject Patent can be specified as "a structure with varying thickness in different parts of the balloon so that the walls of the inflatable body (balloon) can maintain a predetermined size and shape without further enlarging, when it is fully inflated inside a bone."

b) Specifying the corresponding element

① Corresponding element of Prior Art 1

Prior Art 1 states in the specification that "the intention of the present invention [is] to provide in each case of a fracture of osteoporotic or non-osteoporotic bone, an inflatable device that has a shape of or the ability to conform to the internal surface configuration of the cortical bone in which the device is used. For example, the inner surface configuration of the cortical bone of a vertebral body is disk-shaped or checker-shaped, the cortical bone of distal radius is gourd-shaped and the cortical bone of the proximal humerus is also gourd-shaped." (Plaintiff's Exhibit 4, column 2) "The outer configuration of the balloon (76) is substantially the same as that of the inner surface of the cortical wall of the vertebral body (66). The progress of balloon inflation is monitored fluoroscopically to ensure proper insertion of the balloon (76). In the case of an elliptical balloon, the balloon is injected gradually to maximum height. It is necessary to apply a pressure of about 300 psi to complete this task. The balloon's inflation should be monitored on the lateral fluoroscopic view of the spine. Posterior displacement of the bone into the spinal canal or full expansion of the balloon (76) signals the termination of the chamber preparation. Further, expansion at this point could result in spinal cord or root injury." (Plaintiff's Exhibit 4, column 7) "The balloon (95) has a configuration substantially the same as that of the inner surface of the cortical bone." (Plaintiff's Exhibit 4, column 8) In light of these descriptions, it is reasonable to construe the balloon in Prior Art 1 as "one having a configuration that is substantially the same as or is able to conform to the internal surface of the cortical bone, so that once fully inflated, it will have a determined shape and size that does not further expand" and this element corresponds to Element 3 of claim 1 of the Subject Patent.

In this regard, the Plaintiff's Successor argues that Prior Art 1 only discloses that the balloon's initial exterior configuration before inflation is made to be identical to the interior surface of the cortical

bone of the vertebral body (66), which does not mean that the balloon inflates to conform to the internal configuration of the cortical bone when it is inserted into a bone and inflated, and therefore, Prior Art 1 does not disclose Element 3 of claim 1 of the Subject Patent.

It seems that the specification of Prior Art 1 only states that "the exterior of the balloon has the same configuration as, or is able to conform to, the configuration of the interior surface of the vertebral bodies" and it is not expressly stated whether the exterior of the balloon refers to the exterior configuration of the balloon before or after inflation. There is no dispute between the parties on this point.

Other than the above-mentioned descriptions, however, Prior Art 1 also discloses that "the sagittal and coronal CAT-scan should be obtained before the performance of the method of the present invention. The coronal scan is also needed to determine the width of the vertebral body which is to be treated and ··· is needed to determine the height of the vertebral body to be treated." (Plaintiff's Exhibit 4, column 5) "The diameter of the balloon (76) is determined by the preoperative CAT-scan results. The diameter is in the range of 1.0 cm to 3.5 cm. The axial height (Fig. 23) of the balloon is determined by the intra-operative reduction height of the vertebral body fracture. The height is in the range of 0.5 cm to 4.0 cm. If the balloon placement is somewhat eccentric, a smaller balloon may be needed. The balloon (76) has a neck (77), and the outer configuration of the balloon (76) is substantially the same as that of the inner surface of the cortical wall of the vertebral body (66)." (Plaintiff's Exhibit 4, column 7) "Fig. 28A is a schematic side view of a vertebral body showing the initial insertion of an elliptical inflatable device in the vertebral body and before inflation of the device, Fig. 28B is a view similar to Fig. 28A but showing partial inflation of the inflatable device of Fig. 28A to initiate a cavity or passage in the bone marrow of the vertebral body, Fig. 28C is a view similar to Fig. 28B but showing a checker-shaped inflatable device in the vertebral body, Fig. 28D is a view similar to Fig. 28C but showing the initial injection stage in which liquid bone

or methyl methacrylate cement is injected into the vertebral body, [and] Fig. 28E is a view similar to Fig. 28D but showing the vertebral body after the liquid bone or methyl methacrylate cement has set to a hardened condition." (Plaintiff's Exhibit 4, column 3) "The purpose of the elliptical balloon (65) is to center a second, checker-shaped inflatable device or balloon (76) (Figs. 21-23) in the interior of vertebral body (66). After the elliptical balloon (65) is deflated and removed, checker-shaped or cylindrically shaped device or balloon (76) is inserted into the cannula and directed into the interior of the vertebral body (66) as shown in Fig. 21." (Plaintiff's Exhibit 4, column 6) It can be seen from these descriptions that in Prior Art 1 "the diameter and the axial height are determined by the width and the height of the vertebral body being treated, and the balloon which compresses the cancellous bone or the bone marrow to the internal surface of the cortical bone is a checker-shaped balloon having the same width and height." If the exterior configuration after inflation is not the same as the interior surface configuration of the cortical bone of the vertebral body, there is no reason to form the same initial pre-inflation exterior configuration that is the same as the interior surface configuration of the cortical bone. Accordingly, it is reasonable to conclude that the exterior configuration of the inflated balloon (76) in Prior Art 1 is substantially identical to the internal surface configuration of the vertebral bodies.

Therefore, as discussed above, the balloon (76) in Prior Art 1 "has a configuration that is the same as, or is able to conform to, the interior surface configuration of the cortical bone, and thus has a determined size and configuration that does not further expand," and corresponds to Element 3 of claim 1 of Prior Art 1. So the Plaintiff's Successor's argument explained above is inconsistent with this finding and cannot be accepted.

② Corresponding elements in Prior Art 2 and 3

The specification of Prior Art 2 further states that "the present invention contemplates an improved device ··· a balloon-like inflatable element in which the configuration of the balloon has been modified

to enable the same be used as a pneumatic packing and drainage device following a hysterectomy procedure. The improved device comprises an axially disposed rigid tube element and a balloon-like inflatable element ··· half of the inflatable element expands at a greater rate than the other, and is positioned to face the spine and pelvis of the patient, whereby the tube may be axially aligned with the vagina when the tube is positioned inside the cavity. ··· another embodiment of the improved trocar shield is provided with an inflatable element which assumes the contour of a torus whereby distending the cavity allowing adequate space in the distal side of the tubular member to perform surgical procedures. (said torus contour) can be accomplished by making the inflatable element in such manner that it includes three coaxially aligned portions, the outer two of which are relatively thicker in cross section than the centrally disposed portion." (Plaintiff's Exhibit 5, column 1) "According to the first embodiment of the invention, the device (10) comprises tubular element (11) and an inflatable element (12). ··· the inflatable element (12) has walls of different thicknesses with a relatively thin area (35) and relatively thick area (36). (Plaintiff's Exhibit 5, columns 1 to 2, Figs. 1 and 2) "In the second embodiment, ··· element (46) includes first, second and third bands (47)(48)(49) respectively, of annular configuration, the planes of which are disposed substantially perpendicular to that of the shield element (41). The first and third bands (47)(49), respectively, are formed of material which is substantially thicker than that of the second band (49) disposed therebetween. Thus, with inflation, the expanded element, because of the differential thickness of the bands (47)(48)(49) assumes a quasi-toroidal (doughnut) shape at equilibrium. ··· this quasi-toroidal shape causes the surgical cavity to be to be expanded for completion of a surgical procedure, and pushes the cavity in such manner that adequate space not occupied by the expandable element is available at the distal end of the tube, this configuration adding significant space availability as contrasted with the expandable element of uniform thickness ··· " (Plaintiff's Exhibit 5, columns 2 and 3, Fig. 3) The specification of

Prior Art 3 states that “balloon catheters are used to dilate or occlude various body conduits, cavities and openings such as blood vessels and the urethra. This is normally accomplished with a catheter formed from an elongate cannula and an inflatable balloon disposed circumferentially of the cannula near the distal end of the catheter. In accordance with a typical procedure, the catheter is provided with the balloon in a deflated or otherwise low profile state. With this configuration, the catheter is introduced into the body conduit and positioned with the balloon in the low profile state the point of desired dilation. At this point, the balloon in inflated or otherwise expanded to a high profile state thereby radially stretching the walls of the conduit. ··· These dilatation catheters are typically characterized by nondistensible balloons which are formed from materials such as polyethylene that are relatively inflexible and therefore do not expand significantly beyond a predetermined dimension. This characteristic of nondistensibility is of particular advantage in order to insure that the vessel or conduit is not injured by overextension. Unfortunately, however, the relatively inflexible materials which produce the nondistensible characteristics tend to inhibit the ability of the balloon to be rolled, compressed, deflated or otherwise formed into a low profile state.” (Defendant’s Exhibit 1, column 1) “In accordance with the present invention, a balloon catheter is provided wherein the balloon can be rolled on the catheter tube to a profile which is substantially constant in diameter along the length of the balloon. Furthermore, there are no sharp points associated with this low profile.” (Defendant’s Exhibit 1, column 2) “A dilatation catheter (10) is operatively disposed in a body conduit defined by walls (11) and includes an elongate cannula (12) having a distal end (14) and a proximal end. The catheter (10) also includes a balloon (16) having a distal end wall (18) and a proximal end wall (21) disposed in respective end regions (23)(25) of the balloon (16). ··· In accordance with the present invention, the thickness transition region (43) has a shorter axial dimension than does the height transition region (41). This occurs because the thickness of the end wall (21) thins to a dimension generally

equivalent to the thickness of the central wall (27) over a relatively short distance along the transition wall (32). ··· The balloons of the prior art have a thickness transition region (43) which is generally equivalent in axial length to the height transition region (41). In other words, the thickness of the transition wall (32) gradually decreases over the entire axial distance between the end region (25) and the central region (30). While this does not adversely affect the balloon in its inflated, high profile state, it has a dramatic effect on the rolled, low profile state of the balloon as illustrated in Fig. 2. With the relative thickness of the transition wall spaced even a short radial distance from the cannula (12) the balloon (10) in its rolled configuration tends to have an undesirable dog bone shape. ··· By thinning the wall (32) of the transition wall (36) and the wall (34) of the transition wall (38), the walls of the balloon (16) are either thick in proximity to the cannula (12) or thin at any substantial radial distance from the cannula (12). It is in this manner that the balloon of Fig. 1 in the rolled configuration achieves a low profile state as illustrated in Fig. 3." (Defendant's Exhibit 1, columns 4 to 6, Figs. 1, 2, 3 and 6) It can be seen from these descriptions that Prior Art 2 and 3 set the technical objective of providing a balloon that maintains a determined size and configuration when the balloon is inflated or deflated, and as a specific means of achieving the objective, adopted a balloon having walls of varying thickness. This structure corresponds to Element 3 of claim 1 of the Subject Patent.

c) Comparison

When Element 3 of claim 1 of the Subject Patent and the corresponding element of Prior Art 1 are compared, the corresponding element in Prior Art 1 is not substantially different from Element 3 of claim 1 of the Subject Patent having "a size and a configuration for applying pressure in response to the expansion of the walls of the inflatable body inside a bone," and "a structure restraining the expansion inside the cortical bone," in that the balloon has an exterior configuration that is substantially the same as the interior surface configuration of

the cortical bone. The corresponding element of Prior Art 1 does not include any express description of a specific means for maintaining the determined size and configuration of the balloon when fully inflated, i.e., "a balloon having walls of varying thickness."

As explained above, however, Prior Art 2 and 3 disclose the objective of maintaining the determined size and configuration when the balloon is inflated, as well as varying the thickness of the walls of the balloon as a means for achieving the same. In light of the following, it should not have been difficult to combine Prior Art 1 with Prior Art 2 or Prior Art 3. The effect achieved by the combination could also have been easily anticipated by PHOSITA from Prior Art 1, 2 and 3. In conclusion, Element 3 of claim 1 of the Subject Patent could have been easily derived by PHOSITA from Prior Art 1 combined with Prior Art 2 or 3. (Plaintiff's Successor argued that the level of ordinary skill in the art at the time of the priority date of the Subject Patent was very low and PHOSITA could not have easily combined Prior Art 1 and 2 or Prior Art 1 and 3, but such argument cannot be accepted in light of the factors set forth below.)

In other words, Prior Art 1, 2 and 3 all involve the same technical field and objective in that they all relate to balloon catheters that form or enlarge cavities by inserting a balloon into human body and compressing certain portions in an outward direction. Prior Art 1 discloses all of the basic/essential elements of the invention according to claim 1 of the Subject Patent except for the specific means for maintaining a determined size and configuration that does not further enlarge when the balloon is fully inflated. Accordingly, PHOSITA could have derived all of the elements of claim 1 of the Subject Patent by simply applying the element of varying the thickness of the walls in Prior Art 2 or 3 to the balloon described in Prior Art 1, without modifying another essential element of Prior Art 1, applying a new technical idea, etc.

C. Conclusion

Claim 1 of the Subject Patent and Prior Art 1, 2 and 3 involve the same technical field. Further, the objective of claim 1 of the Subject Patent is identical to that of Prior Art 1 and share generally common aspects with those of Prior Art 2 and 3, so the objective of the Subject Patent is not regarded as unique. Further, the constitution of the invention according to claim 1 of the Subject Patent can all be derived from the combination of Prior Art 1 with Prior Art 2 or 3. The combination would not have been difficult for PHOSITA, and the effect achieved by such combination could have been predicted without difficulty by PHOSITA from Prior Art 1, 2 and 3. We do not recognize any difficulty in the constitution or the superiority of the effect of the Subject Patent.

Therefore, the invention according to claim 1 of the Subject Patent could have been easily derived by PHOSITA from the combination Prior Art 1 and Prior Art 2 or 3.

D. Plaintiff's Successor's other arguments

In this regard, the Plaintiff's Successor asserts that the medical/commercial success of products embodying the Subject Patent demonstrates the superior effect of the Subject Patent and thus the inventive step of claim 1 of the Subject Patent should not be denied.

Factors, such as commercial success, and long-term failure by others before the filing date of the Subject Patent, may be considered in determining inventive step, but such circumstances without more would not establish inventiveness. The inventive step of a patented invention is determined primarily based on the disclosures in the specification, i.e., the objective, constitution and effect of the invention, by determining whether PHOSITA could have easily derived the invention from prior art. (Supreme Court May 29, 2008, Case No. 2006Hu3052) It is difficult to conclude that the medical/commercial success of the products

according to claim 1 of the Subject Patent is a factor sufficient to override the comparison of the Subject Patent with the Prior Art. Further, considering that the Subject Patent contains 24 claims, it is difficult to conclude that the commercial success of the products was solely attributable to claim 1 of the Subject Patent, based only on the evidence submitted by the Plaintiff and the Plaintiff's Successor. No other supporting evidence has been submitted. So the Plaintiff's Successor's argument is rejected.

4. Conclusion

Therefore, the inventive step of claim 1 of the Subject Patent is denied based on Prior Art 1 and 2 or Prior Art 1 and 3, and its registration should thus be invalidated. The KIPT's decision is consistent with this conclusion and is thus proper. The Plaintiff's Successor's request for cancellation of the decision is thus dismissed.

Presiding Judge Yongsup KIM
Judge Sanggyoon LEE
Judge Taeil PARK

[Annex 1]

Main Figures of the Subject Patent

Fig. 1: Perspective view of an embodiment

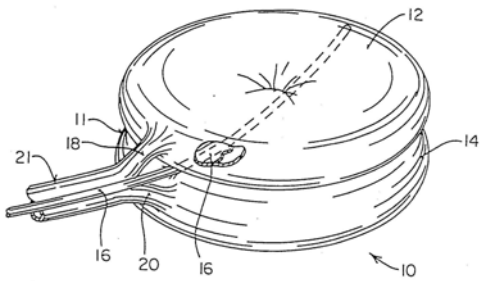


Fig. 3: Schematic view of another embodiment

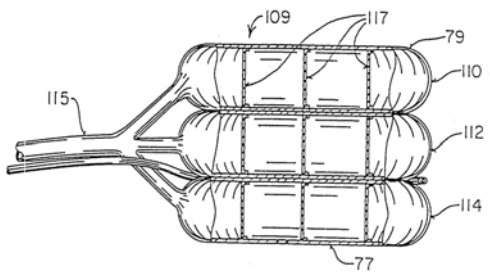
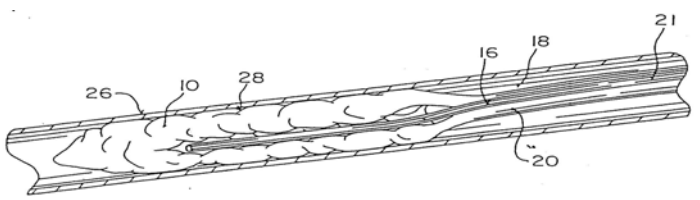


Fig. 8: Vertical section through the balloon being inserted into the vertebral body



[Numeral Indices]

10: balloon, 11: balloon body,
12, 14: balloon units, 16: suction tube,
18, 20: tube, 21: catheter,
26: cannula, 28: passage,
77, 79: inflatable surfaces, 109: inflatable device,
110, 112, 114: balloon units, 115: tube system,
117: restraints. The End.

[Annex 2]

Technical Details and Main Figures of Prior Art 1

1. Technical Details

A surgical method for fixation of bones using an inflatable device, the method comprising the following steps:

penetrating the bone having the fracture with a device having a guide pin and a cannula;

drilling the bone marrow of the bone to be treated to enlarge the cavity or passage;

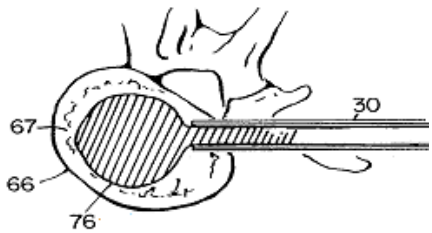
inserting an inflatable device like a balloon into the cavity and inflating it to compact the bone marrow against the inner surface of the outer wall of the bone and further enlarge the cavity;

injecting a flowable synthetic bone material or methyl methacrylate cement into the cavity and allowing it to harden; and removing the device,

Wherein said inflatable device has a configuration that is identical or conforming to the inner surface of the cortical bone (examples: the configuration of the inner surface of the vertebral bodies is disk-shaped or checker-shaped, and the cortical bone of the distal radius and the proximal humerus are gourd-shaped.) (Plaintiff's Exhibit 4, column 2).

2. Main Figures

Fig. 1: Top plan view of a checker-shaped inflatable device expanding the bone marrow



Figs. 2, 3: Top plan view and a side view of a checker-shaped inflatable device

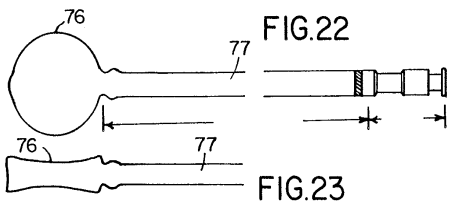


Fig. 4: Top plan view of the checker-shaped inflatable devices inserted into the vertebral body

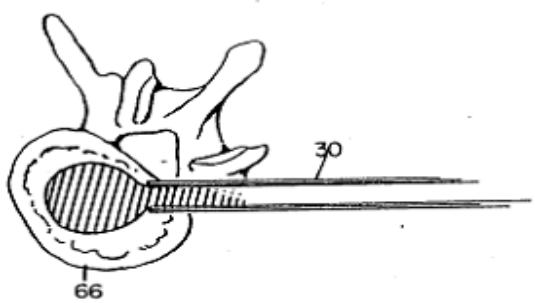
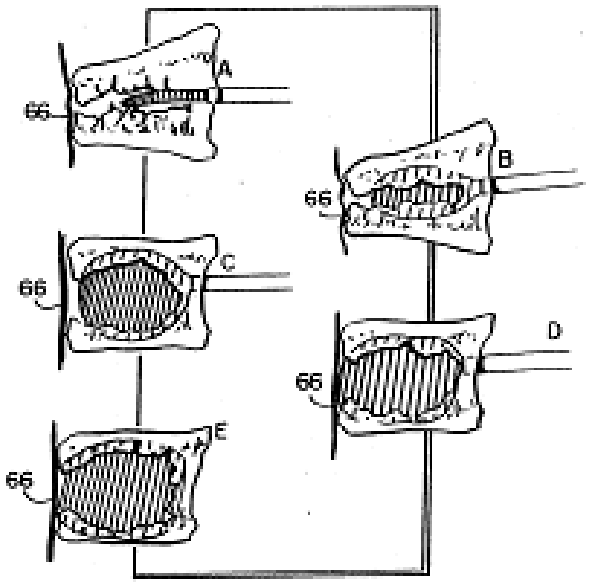


Fig. 5: Side view of treatment steps



[Annex 3]

Technical Details and Main Figures of Prior Art 2

1. Technical Details

The invention relates to surgical instrument used in the field of gynecology, such as hysterectomy. The technical elements comprising a balloon element of differential thickness whereby the configuration attained at equilibrium may be predetermined, and a tube element. The first embodiment includes an asymmetric hollow tubular inflatable element (12) having a relatively thin wall area (35) and a relatively thick wall area (36). The second embodiment includes a quasi-toroidal shaped inflatable element (46) wherein the first and third bands (47 and 49) are form of material that is thicker than that of the second band (48). (Plaintiff's Exhibit 5, "Abstract," columns 2 and 3)

2. Main Figures

Fig. 1: Schematic view of a first embodiment

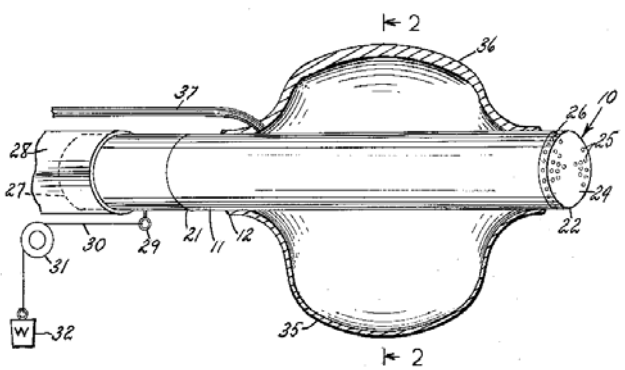


Fig. 2: Sectional view of the 'plane 2-2' in Fig. 1

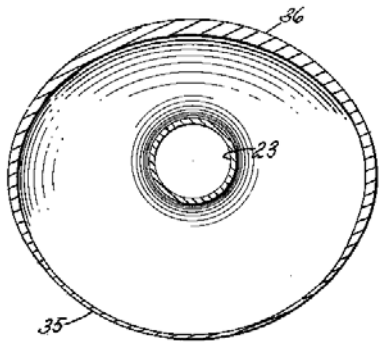
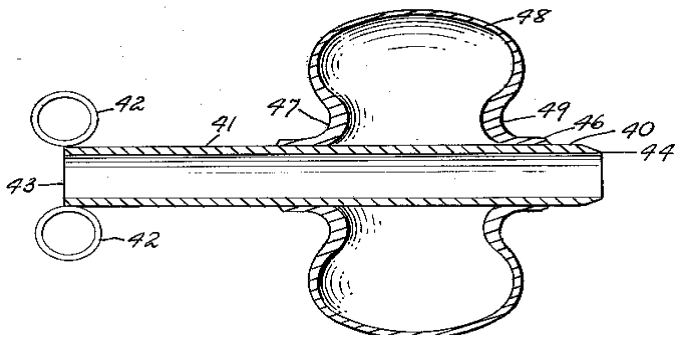


Fig. 3: Schematic view of the second embodiment



[Annex 4]

Technical Details and Main Figures of Prior Art 3

1. Technical Details

This invention relates to a low profile balloon catheter used for dilating various body conduits such as blood vessels and the urethra, and a method for making the same, wherein the balloon (16) has end walls (18 and 21) that are thicker than the central wall (27). (Plaintiff's Exhibit 6, column 5)

2. Main Figures

Fig. 1: Axial cross-section view of balloon catheter

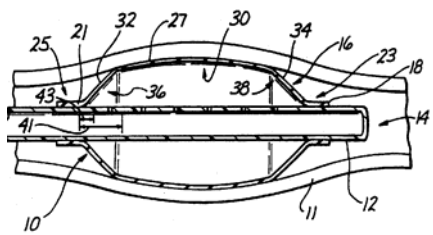


Fig. 2: Low profile top plan view of prior art balloon catheter

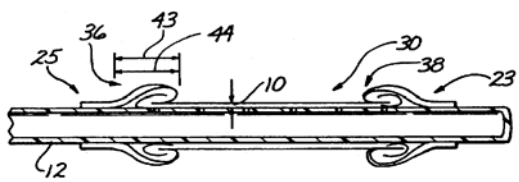


Fig. 3: Low profile top plan view of present invention

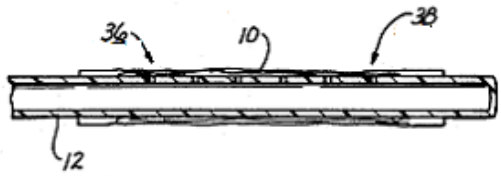
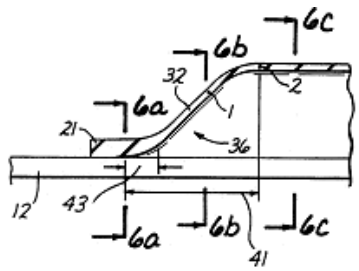


Fig. 6: Cross-section view of one quadrant of Fig. 1



PATENT COURT
THE FOURTH DEPARTMENT
DECISION

Case No. 2013Heo5759 Scope Confirmation (Patent)

Plaintiff (withdrawn): Bristol-Myers Squibb Company
Counsels for the Plaintiff:
Jongseok KIM, Attorney-at-law
Meesung SHIM, Patent attorney
Younghwan YANG, Patent attorney
Sangnam LEE, Patent attorney

Successor to Plaintiff Bristol-Myers Squibb Holdings Ireland
Counsels for the Successor:
Jongseok KIM, Attorney-at-law
Meesung SHIM, Patent attorney
Younghwan YANG, Patent attorney
Sangnam LEE, Patent attorney

Defendant: Jeil Pharmaceutical Co., Ltd.
Counsels for the Defendant:
Soyoung AHN, Patent attorney
Haesal HA, Patent attorney
Substitute for the Counsels:
Dongse KANG, Attorney-at-law

Closure of Hearing: April 2, 2014

Date of Decision: April 11, 2014

Order

1. The claim of the Successor to Plaintiff is dismissed.
2. The trial costs, including those incurred by succession, shall be borne by the Successor of the Plaintiff.

Tenor of Claim

The decision of the Intellectual Property Tribunal ("IPT") issued on April 30, 2013 in Case No. 2012Dang2418 shall be cancelled.

Reasoning

1. Background facts

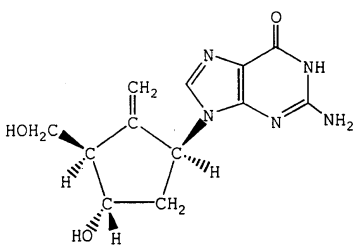
A. The applied-for patented invention at issue ("Subject Patent")

1) Title of the invention: Low Dose Entecavir[1)] (alternatively known as BMS-200475, it will be referred to as "BMS-200475" or "entecavir") Formulation and Use

2) Filing date/Priority claiming date/Registration date/Patent Number: August 26, 2002/February 29, 2000/September 3, 2007/Patent No. 757155

---

1) Entecavir has the chemical name "[1S-(1α, 3α, 4ß)]-2-amino-1, 9-dihydro-9-[4-hydroxy-3-(hydroxymethyl)-2-methylenecyclopentyl]-6H-furine-6-one" and the following structure:



3) Patentee: Successor to Plaintiff [the right of the Subject Patent was transferred from the Plaintiff (withdrawn) on October 21, 2013]

4) Claims of the Subject Patent

[Claim 1] A pharmaceutical composition effective for once a day administration to treat hepatitis B virus infection comprising from 0.5 to 1.0 mg of entecavir adhered to the surface of a carrier substrate

[Claims 7-10, 12, 14-17, 19, 21, 23] omitted

[Claims 2-6, 11, 13, 18, 20, and 22] omitted

B. Compared Product

The description and the drawing of the Compared Product specified by the Defendant who filed the present action are annexed here as Attachment 1.

C. Prior Arts

1) Prior Art 1 (Exhibit No. K5)[2)]

Prior Art 1 is a publication directed to entecavir in Drugs of the Future, Vol. 24, Issue 11, pages 1173-1177 published in 1999, and its disclosures are summarized in Item 1 of Annex 2.

2) Prior Art 2 (Exhibit No. E6)[3)]

Prior Art 2 is an article entitled “Antiviral Chemotherapy for the Treatment of Hepatitis B Virus Infections” in Gastroenterology, vol. 118(2), pages S83~S103, which was published approximately in February 2000 and archived at a library on February 17, 2000. Its disclosures are summarized in Item 2 of Annex 2.

---

2) Exhibit K4 was submitted as evidence in the Patent Court proceedings and this case. However, since it includes the same contents, Exhibit K5 has been designed as Prior Art 1 in this case.

3) It was a new Prior Art submitted during the Patent Court proceedings.

D. Procedural History of the IPT Decision

1) The Defendant filed a scope confirmation action (Case No. 2012 Dang 2418) against the Plaintiff with the IPT on September 13, 2012, on a ground that the Compared Product, which is produced by simple mixing of entecavir and an excipient, does not fall in the scope of Claim 1 because the Compared Product was expressly disclaimed by the Plaintiff from the scope of Claim 1; the Compared Product belongs to the public domain where a person having ordinary skill in the art ("PHOSITA") could have readily practiced the Compared Product in view of Prior Art 1 and the well-known technology.

2) On April 30, 2013, the IPT rendered a decision to hear the Defendant's claim on a ground that the Compared Product belongs to the public domain because it could have readily been conceived by Prior Art 1 and the well-known technology.

[Evidence: Undisputed facts, K1-K5, E6, and overall pleadings]

2. Summary of the IPT decision and the arguments by each party

A. Summary of the IPT decision and the arguments by the Successor of the Plaintiff

1) Since Claim 1 does not include any preparation limitation, the element ("adhered to the surface of a carrier substrate") should not be limited to being prepared by a particular preparation process. Thus, if entecavir of the Compared Product is adhered to the surface of a carrier substrate, it can be concluded that the Compared Product falls in the protection scope of Claim 1, regardless of the adhering method or preparation process.

2) Novelty of Claim 1 must consider the dosing amount and dosing cycle over Prior Art 1 and Prior Art 2. Prior Art 1 does not disclose

the effect and dose of entecavir for inhibiting hepatitis B virus in humans. Further, the element of "the oral dose of 0.5-2.5 mg per day" disclosed in Prior Art 2 is for woodchucks and is not viewed as an effective dose for humans.

3) Since the dosing amount and dosing cycle should be considered in determining whether the Compared Product belongs to the public domain, the Compared Product could not have readily been derived by PHOSITA from Prior Art 1 and Prior Art 2 for the reasons below:

a) As of the priority date of the Subject Patent, it was recognized in the art that a 1 to 50 mg/kg (60 to 3000 mg for 60 kg of body weight) dose of entecavir had to be administered several times daily for effectively treating hepatitis B infection; thus, the effect of the 1 mg dose of entecavir cannot be anticipated.

b) Prior Art 1 discloses preclinical trials where entecavir was administered to woodchucks carrying hepatitis B virus at doses of 0.02, 0.1, and 0.5 mg/kg and phase I trials where entecavir was administered to healthy volunteers in various doses (1, 2.5, 5, 10, 20, and 40 mg). However, human doses cannot be converted from the doses administered to woodchucks alone, and the 1 mg dose initially used in phase I trial is a starting dose for confirming safety, which is not considered to exhibit the pharmacological effects of entecavir. The human doses can be easily predicted based only on the serum drug concentration data in the woodchuck model in the preclinical trial and those in human patients in phase I trial, but Prior Art 1 does not provide such information. In addition, since the preclinical test showed that entecavir is very safe at a concentration that is 8000 times higher than its effective concentration, it provides a motivation to use a higher dose to assure that the treatment effect is exhibited. Thus, it is difficult to predict the effect of the 1 mg dose of entecavir from Prior Art 1.

c) Even if the woodchuck doses used in the woodchuck tests in Prior Art 1 can be converted to human doses, since the 0.02 mg/kg dose were shown to have superior effects in treating hepatitis B infection than the 0.1 mg/kg and 0.4 mg/kg in the woodchuck tests, PHOSITA would have likely selected 0.1 mg/kg and 0.5 mg/kg. Even if the woodchuck doses of 0.1 mg/kg and 0.5 mg/kg are converted to human doses as the method asserted by the Defendant, they correspond to 2 mg and 10 mg, respectively. Thus, it is still difficult to foresee the effect of the 1 mg dose of entecavir.

d) Prior Art 2 discloses an entecavir dose range of "0.5-2.5 mg p.o. daily for phase II." However, Prior Art 2 only presents the in vitro data and woodchuck test results and does not provide any disclosure related to phase II clinical trials. Thus, it can be understood that this dose range is for woodchuck tests which was calculated from the effective dose in Prior Art 2 (i.e., "0.1 and 0.5 mg") in consideration of about 5 kg of the woodchuck body weight. Thus, it is difficult to predict the effect of the 1 mg dose of entecavir from Prior Art 2.

4) Since Prior Art 1 does not present any serum concentration data in the woodchuck preclinical tests and human serum concentration data in the human phase I tests, which are required for determining doses suitable for phase II clinical trials, it is not likely that PHOSITA would have recognized the entecavir dose range of "0.5-2.5 mg" disclosed in Prior Art 2 as being suitable for clinical phase II trials. Accordingly, the 1 mg dose of entecavir could not have been conceived even from combining the teachings of Prior Art 1 and Prior Art 2.

5) Thus, the IPT decision reaching a different conclusion was not reasonable and must be revoked.

B. Arguments by the Defendant

1) In view of the specification of the Subject Patent, the constitutional element "adhered to the surface of a carrier substrate" refers to a form of entecavir coated on the surface of a carrier substrate with an adhesive substance. Since the specification of the Subject Patent describes that a composition comprising a low dose of entecavir cannot be prepared with good content uniformity by simply mixing the active substance and excipients, the Compared Product, which is produced by simply blending entecavir and excipients, is expressly disclaimed from the Subject Patent.

2) Since Claim 1 lacks novelty over the constitution of Prior Art 1 that discloses "the single oral administration of entecavir at a dose of 1 mg" or Prior Art 2 disclosing "the daily oral administration of entecavir at a dose of 0.5-2.5 mg" combined with the well-known conventional technology related to tablets, the scope of Claim 1 is not enforceable.

3) The Compared Product belongs to the public domain and PHOSITA could have readily been conceived from Prior Art 1 and Prior Art 2 by for the reasons below.

① The in vitro test disclosed in Prior Art 1 disclosed that entecavir exhibited its 50% efficacy on hepatitis B virus at a concentration of 0.00375 μmol/L (EC_{50} value), whereas it showed its 50% cytotoxicity at a concentration of 30 μmol/L (CC_{50} value), which was 8000 times higher than its EC_{50} value. This means that entecavir is more potent, and less toxic and more selective compared to other hepatitis B drugs. Thus, it can be expected that entecavir is effective at a much lower dose compared to other known hepatitis B drugs such as lamivudine, and the like. In addition, it can be found from the animal tests disclosed in Prior Art 1 that entecavir exhibited an effective hepatitis B

infection treatment when administered to woodchucks carrying hepatitis B virus at daily doses of 0.02, 0.1, and 0.5 mg/kg, and these doses are converted to 0.4, 2, and 10 mg, respectively, for a human weighing 60 kg. Thus, the effect of the 1 mg dose of entecavir can be predicted. In addition, the minimum dose of 0.02 mg/kg, which is shown to exhibit pharmacological activities (effectiveness) in the woodchuck animal tests in Prior Art 1, is converted to 0.4 mg for humans, and the 1 mg starting dose of phase I clinical trials reflects this dose. Accordingly, the effect of the 1 mg entecavir can be anticipated from Prior Art 1.

② Prior Art 2 discloses "0.5-2.5 mg p.o. daily for phase II," which refers to the human doses designed for phase II clinical trials. Table 2 in Prior Art 2 expressly describes "Phase II." As such, the dose of entecavir is expressed in "mg," instead of "mg/kg" used for the animal doses, the doses of the other hepatitis B drugs in Table 2 provided for human administration, and these doses are similar to the dose range of 0.4-2 mg, which is calculated from the woodchuck dose range of 0.02-0.1 mg/kg for humans. Thus, the effect of the daily administration of entecavir at a dose of 1 mg can be anticipated from Prior Art 2.

4) In preclinical tests, pharmacokinetics are required to be examined for animals. Conversely, pharmacokinetics are required in phase I tests and the phase II test doses are determined in consideration of the animal and human pharmacokinetic data. Prior Art 1 discloses that phase II trial for entecavir is ongoing after the preclinical and phase I trials had completed. Table 2 in Prior Art 2 describes "0.5-2.5 mg p.o. daily for phase II." From Prior Art 1 and Prior Art 2, PHOSITA would have recognized the "entecavir dose of 0.5-2.5 mg" in Table 2 as the phase II dosing in view of the conventional clinical trial procedures.

5) Accordingly, the Compared Product belongs to the public domain

and thus falls outside of the scope of Claim 1.

3. Whether the Compared Product belongs to the public domain

A. Comparison of the Technical Fields

According to K3, the Compared Product is "a tablet that can be administered once-daily to treat hepatitis B virus infection comprising 1.065 mg/tablet of entecavir monohydrate." (K3, page 21, 1st paragraph.)

Further, according to K5 and E6, Prior Art 1 discloses that "in the search for new antiviral agents ··· BMS-200475 was identified as being worthy of further evaluation. The compound was ··· although later studies proved its highly superior anti-HBV[4] activity" (K5, page 1175, left column, lower paragraph~right column, line 3). Prior Art 2 discloses that "[e]ntecavir (BMS-200475) is a carbocyclic deoxyguanosine analogue with potent antiherpes and antihepadnaviral activity. The EC50 for HBV in 2.2.15 cells is 0.00375μmol/L compared with 0.116μmol/L for lamivudine ··· In woodchucks infected with WHV,[5] treatment with entecavir produced 2-3 log10 reductions in viral load with undetectable serum HBV DNA in all treated woodchucks." (E6, "Entecavir" section on S94 and S95.)

In light of these facts, the Compared Product and Prior Art 1 and Prior Art 2 belong to the same technical field because they all relate to a hepatitis B virus infection treatment containing entecavir.

B. Comparison of the Objectives

According to K3, the specification of the Compared Product discloses that it "is a tablet that can be administered once-daily to treat hepatitis B virus infection comprising 1.065 mg/tablet of entecavir

4) Human hepatitis B virus
5) Woodchuck hepatitis virus

monohydrate [and] has an advantage of simple preparation of a tablet comprising entecavir with good content uniformity by uniformly mixing the components included in the tablet without forming agglomeration and directly tableting the mixture." (K3, pages 21-22, 1st paragraph and last paragraph of the Compared Product.) In light of these facts, it is clear that the objective of the Compared Product is to provide a tablet comprising 1 mg entecavir (it is undisputed that this is identical to 1.065 mg of entecavir monohydrate) that can be administered once-daily to treat hepatitis B, wherein the tablet has content uniformity and can be prepared in a simple manner.

Further, according to K5, Prior Art 1 discloses that "in the search for new antiviral agents ··· BMS-200475 was identified as being worthy of further evaluation ··· BMS-200475 was shown in early studies to be a potent inhibitor of hepatitis B virus replication in vitro in HepG2.2.15 cells (EC_{50} = 3.75 nM[6]), while inducing cytotoxicity only at concentrations which are 8000 times higher (CC_{50} = 30 μM[7])" (K5, page 1175, right column, lines 5-9), that "daily treatment of chronically infected animals with BMS-200475 (0.02-0.5mg/kg p.o.) for periods of 1-3 months led to effective suppression of WHV, as manifested by decreased levels of WHV DNA ···" (K5, page 1176, 3rd paragraph), and that "[i]n the first clinical trial conducted with the compound, BMS-200475 was administered to healthy volunteers as single oral doses of 1, 2.5, 5, 10, 20 or 40mg p.o. [and] was well tolerated with an incidence of treatment-related adverse events similar to that for placebo. BMS-200475 is currently in phase II trials in the U.S." (K5, page 1176, right column, the "Clinical Studies" section.) In light of these facts, it is clear that the objective of Prior Art 1 is to

---

6) EC_{50} refers to the concentration of a drug effective to show a 50% effect (where the maximum effect is 100%). "EC_{50}=3.75nM" means that the concentration inhibiting 50% of the virus is 3.75nM.

7) CC_{50} refers to the cytotoxic concentration of a drug sufficient to induce 50% cytotoxicity (where the maximum effect is 100%). "CC_{50}=30μM" means that the concentration inducing 50% cytotoxicity is 30 μM.

introduce entecavir as a novel therapeutic agent for hepatitis B virus, and to provide in vitro test information, woodchuck animal studies and phase I clinical trials.

According to E6, Prior Art 2 discloses that "[o]f the nucleoside analogues that have already undergone, or are about to enter, clinical trials, all representatives of the first category are pyrimidine derivatives (lamivudine, emtricitabine), whereas those in the second category are purine derivatives (ganciclovir, famciclovir/penciclovir, lobucavir, entecavir, and adefovir dipivoxil)" (E6, Table 2, S89, right column, 2nd paragraph), and "[e]ntecavir (BMS-200475) is a carbocyclic deoxyguanosine analogue with potent antiherpes and antihepadnaviral activity. The EC_{50} for HBV in 2.2.15 cells is 0.00375 μmol/L compared with 0.116 μmol/L for lamivudine." (E6, S94, right column, last paragraph.) Table 2 shows that, in phase II, entecavir was administered at a dose of 0.5~2.5mg (p.o. daily) and the EC_{50} value was 0.00375 μmol/L. In light of these facts, it is clear that the objective of Prior Art 2 is to introduce nucleoside analogues therapeutic against hepatitis B virus — in particular, entecavir, which has a strong inhibitory effect against hepatitis B virus replication at a lower concentration and dose.

In sum, Prior Arts 1 and 2 relate to entecavir which exhibits a superior effects at a lower concentration compared to other hepatitis B therapeutic agents, and their objectives partly overlap with those of the Compared Product (that is, to provide low dose entecavir). In addition, as seen in the "Comparison of Elements and Effects" section below, the objective of the Compared Product to provide a hepatitis B therapeutic agent that can be administered once-daily comprising 1 mg of entecavir, which PHOSITA could have readily derived from Prior Arts 1 and 2. Another objective of the Compared Product to provide a tablet that has content uniformity and simply preparation could easily have been derived from the widely known and conventionally used direct powder compression method. Since the resulting working effects do not appear to be remarkable, the objectives of the Compared

Product also are not unique compared to those of Prior Art 1 and 2.

C. Comparison of the Constitutions and Effects

1) The Compared Product

According to K3, the specification of the Compared Product discloses that it "is a tablet that can be administered once-daily to treat hepatitis B virus infection comprising 1.065 mg/tablet of entecavir monohydrate, wherein the tablet comprises entecavir as a main ingredient, a carrier, and an adhesive substance as a binder, and wherein the tablet is prepared by compression molding of a powder mixture comprising said substances and tableting the mixture. The entecavir tablet according to the invention is prepared by a direct powder compression method which comprises mixing a main ingredient, entecavir monohydrate, with a carrier and a binder, compression molding of the mixture, and tableting the mixture."

In light of these facts, it is clear that the Compared Product is "a tablet for use as a hepatitis B virus infection therapeutic agent that can be administered once-daily and comprises 1.065 mg/tablet of entecavir monohydrate ("Constitution 1"), wherein the tablet comprises entecavir as a main ingredient, a carrier, and an adhesive substance as a binder, and wherein the tablet is prepared by a direct powder compression method which comprises compression molding of a powder mixture comprising said substances and tableting the mixture." ("Constitution 2.").

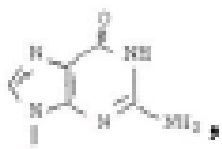
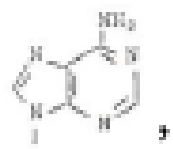
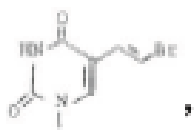
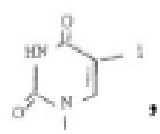
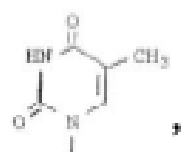
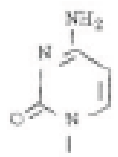
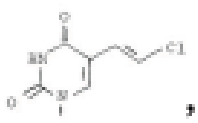
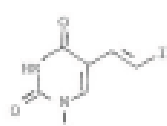
2) Constitution 1

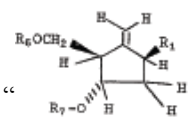
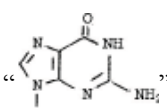
(A) Differences between Constitution 1 and the Prior Art Technology

"1) Again, Constitution 1 relates to "a hepatitis B virus infection therapeutic agent that can be administered once-daily and comprises 1.065 mg/tablet of entecavir monohydrate" (which corresponds to 1 mg of entecavir).

"2) However, according to K5 and K6, respectively, the specification of KR Patent No. 160,523 (a product patent in the same family as the Present Patent published before the priority date of the Present Patent) and Prior Art 1 disclose the following facts.

① The specification of KR Patent No. 160,523
(Title: HYDROXYMETHYL (METHYLENECYCLOPENTYL) PURINES AND PYRIMIDINES) discloses that "the compounds of formula 1 and the pharmaceutically acceptable salts thereof[8] are antiviral agents that can be used to treat viral infection in mammalian species such as domesticated animals (e.g., dogs, cats, horses and the like) and humans, and avian species (e.g., chickens and turkeys). The compounds of formula 1, wherein R1 is


,

,

,

,

,

,

,

,

8) Entecavir is a compound of formula 1 represented by
"  ," wherein R1 is "  " and R6 and R7 are hydrogen atoms.

are effective against one or more of the following viruses: herpes simplex virus 1 and 2, varicella-zoster virus, cytomegalovirus, and human immunodeficiency virus (HIV). They are also believed to be active against a variety of other DNA and retroviruses. Exemplary DNA viruses in addition to those named above include ··· hepatitis B virus, and adenoviruses ··· The compounds of this invention may be administered parenterally (for example, by intravenous, intraperitoneal or intramuscular injection), orally or topically. The compounds may be administered orally or parenterally in an amount effective to treat the infection. The dosage will, of course, depend on the severity of the infection, but will likely be in the range of about 1.0 to 50 mg/kg of body weight. The desired dose may be administered several times daily at appropriate intervals." KR Patent No. 160,523, which claims compounds of formula 1 including entecavir and the pharmaceutically acceptable salts thereof, was granted on August 19, 1998 and its priority date is October 18, 1990.

② Prior Art 1 discloses that "BMS-200475 was shown in early studies to be a potent inhibitor of hepatitis B virus replication in vitro in HepG2.2.15 cells (EC_{50} = 3.75 nM), while inducing cytotoxicity only at concentrations which are 8000 times higher (CC_{50} = 30 μM) ··· BMS-200475 was shown to be more efficiently phosphorylated to its triphosphate form than lamivudine, penciclovir or lobucavir, and this phosphorylation of BMS-200475, especially at low concentrations, was indicated as being one reason for its high potency against HBV ··· The woodchuck is a commonly used animal model for hepatitis B infection. In one in vivo study, daily treatment of chronically infected animals with BMS-200475 (0.02-0.5mg/kg p.o.) for periods of 1-3 months led to effective suppression of WHV, as manifested by decreased levels of DNA and reduced endogenous hepadnaviral polymerase activity.

3) In light of these facts, it is clear that the effect of entecavir as a hepatitis B therapeutic agent was known before the priority date of the Present Patent and that Constitution 1 is limited to a method of administering entecavir with a dose of 1 mg and the once-daily administration cycle. In response to KIPO's Notice of Preliminary Rejection issued in the examination of the application of the Present Patent, the Plaintiff submitted a response arguing that "[t]he present invention relates to a pharmaceutical composition for treating HBV infection comprising a low dose of entecavir, and the use of entecavir in the treatment of HBV infection was already known. The present invention comprises the use of a low dose of entecavir as a technical constituent of the invention." (K36, page 9.) In view of the foregoing, it is clear that the Present Patent features a limitation on the dose of entecavir.

(B) Whether technology directed only to limiting the administration method of a known pharmaceutical composition invention belongs to the public domain -

It is a common technical problem in the art to try to determine a dose and administration cycle for a known substance in the medicinal invention field within a range for maintaining its pharmacological effect without toxicity or side effects. The procedure for finding such a dose and administration cycle is well known to PHOSITA. Thus, for a pharmaceutical composition which is known to be effective for the treatment of a particular disease or a particular patient, PHOSITA can optimize a method of administration including a dose, administration cycle, etc. within an effective *and* tolerant range — solving the problem of increasing the pharmacological effects while decreasing side effects — using ordinary creativity. Where the administration method of a known pharmaceutical composition invention showing no unexpectedly remarkable effects to PHOSITA (and thus could be predicted by such a person), the technology belongs to the public domain.

(C) Conclusion

1) First, we review whether it was known to PHOSITA before the priority date of the Present Patent that 1 to 50 mg/kg entecavir was required to be administered several times daily.

According to K2, the specification of the Present Patent describes that "[e]ntecavir and its use in treating hepatitis B are disclosed by Zahler et al. in U. S. Patent 5,206,244. This patent discloses that an effective antiviral dose for oral or parenteral administration will likely be in the range of about 1.0 to 50 mg/kg of body weight and that the desired dose may be administered several times daily at appropriate intervals." (K2, paragraph <3>.) Further, according to K6, the specification of KR Patent No. 160,523 (the Korean counterpart of U.S. Patent No. 5,206,244), which is a product patent of the same family as the Present Patent, discloses that "[t]he compounds may be administered orally or parenterally in an amount effective to treat the infection. The dosage will, of course, depend on the severity of the infection, but will likely be in the range of about 1.0 to 50 mg/kg of body weight. The desired dose may be administered several times daily at appropriate intervals. (K6, page 4, lines 14-16.)

In light of these facts, it is clear that the typical entecavir dose-related description in the Present Patent directly relies on the specification of KR Patent No. 160,523 to determine whether the dosage will likely fall within the range of about 1.0 to 50 mg/kg of body weight (60 to 3000 mg for 60 kg of body weight).

However, the following facts from the disclosure of K6 make it clear that the specifications of the Present Patent and KR Patent No. 160,523 merely estimate the stated dose and administration cycle of entecavir: (i) the specification of KR Patent No. 160,523 merely discloses the dosages for all compounds effective to treat the infection and does not specify particular compounds or

dosages of particular diseases, (ii) the specification of KR Patent No. 160,523 discloses that the compounds have an antiviral effect against hepatitis B virus as well as herpes simplex virus (HSV-1 and HSV-2), varicella-zoster virus (VZV), cytomegalovirus (HCMV), and human immunodeficiency virus (HIV) (K6, page 4, 1st paragraph) but the working examples teach antivirus tests for each of HSV-1, HSV-2, VZV, HCMV and HIV (K6, page 40, Table 1) yet none for hepatitis B virus, (iii) the HSV-1, HSV-2, VZV, and HCMV antiviral assays also merely describe the ID_{50} values determined from a drug concentration for achieving a 50% plaque reduction compared to virus controls, and do not specifically teach a basis for the effective dosage of the antiviral agent in the range of about 1.0 to 50 mg/kg, and (iv) there is no data proving that, at the time of the priority date of KR Patent No. 160,523, entecavir clinical trials for treating hepatitis B were ever conducted.

Accordingly, before the priority date of the Present Patent, PHOSITA generally would not have thought that 1 to 50 mg/kg entecavir must be administered several times daily.

2) Next, we discuss whether it would have been possible to predict an once-daily administration cycle of 1 mg entecavir.

a) Clinical trial process

① According to the Prior Arts K29, K30, K41, E8, E15, and E16, and the expert testimonies by Lim Dong-Seok and Lee Bum-Jin, it is understood that a new drug development process includes a series of clinical trial processes as the following.

Ⓐ Pre-clinical tests are required to gather safety and efficacy information for a drug before carrying out human trials. In a drug safety test, the maximum safe dose at which no toxicities or side effects are observed (NOAEL: no observed adverse

effect level) is determined by administering the drug to test animals. To test the drug's efficacy, an in vitro test, a diseased animal model test (an in vivo test) and other similar tests are conducted. In the in vitro test, the drug response is identified and the effective concentration (EC_{50}) is determined in vitro using cell lines, etc. In the diseased animal model tests, the drug response of each dose is identified and pharmacokinetics data about the blood drug concentration, terminal half-life, rate of metabolism, rate of excretion, etc. is studied based on a diseased animal model.

Ⓑ Phase I clinical trials are required to confirm drug safety and gather pharmacokinetics information by administering the drug to healthy volunteers. In the drug safety test, abnormal reactions are checked by administering the drug at the maximum recommended starting dose (MRSD).[9]When calculating the MRSD, the maximum safe dose at which no adverse action was observed (NOAEL: no observed adverse effect level) in the animal tests is first determined, the NOAEL value is converted to a human equivalent dose (HED)[10] considering the body surface area, and the HED is divided by a safety factor (usually 10). The MRSD may be lowered based on the pharmacologically active dose (PAD, reflecting the HED) tested in the animal tests. At this stage, pharmacokinetics information about the blood drug concentration of each dose,

9) The maximum recommended starting dose (MRSD) for phase I clinical trials is generally determined in accordance with the publication "Guidance for Industry: Estimating the Maximum Safe Starting Dose in Initial Clinical Trials for Therapeutics in Adult Healthy Volunteers" (E8) published by the Center for Drug Evaluation and Research (CDER) of the U.S. FDA.

10) Human equivalent dose (HED) is calculated by multiplying the animal dose and a conversion factor considering the body surface area. The conversion factor is a ratio of human/animal km factors, where the km factor is a value calculated by dividing the body weight in kg by the surface area in m2.

terminal half-life, rate of metabolism, rate of excretion, etc. is obtained, and a dose, administration cycle and the like for phase II clinical trials are designed based on the pharmacokinetics information as well as the pharmacokinetics information obtained in the pre-clinical tests.

Ⓒ Phase II clinical trials are required to identify clinical effects in patients with a particular disease, and to collect various information necessary to determine the dose, administration period, etc. At this stage, pharmacological efficacy is tested by designing two or three doses and then administering them to a small number of patients.

Ⓓ In phase III clinical trials, a dose chosen from phase II clinical trials is tested in a large number of patients to determine whether the dose is superior to existing therapeutic agents and also safe enough to apply for approval for commercialization once the efficacy is evaluated.

② In view of these facts, a new drug is developed by obtaining drug safety and efficacy data through a series of conventionally conducted clinical trial processes, and then determining the most suitable dose and administration cycle based on the data.

b) Review of prior art

① As shown in K5, K14, and E6, it is clear that Prior Arts 1 and 2 and the online journal at http://www.thebody.comcontentart 32934.html, which were all published before the priority date of the Subject Patent, include disclosures as described below.

Ⓐ Prior Art 1 (K5) includes the following disclosures:

[Introduction] Lamivudine, introduced in 1995 for HIV disease, was launched this year by BioChem Pharma and Glaxo Wellcome as the first oral antiviral treatment for chronic hepatitis B. Three nucleoside analogs, adefovir dipivoxil (Gilead), BMS-200475 (Bristol-Myers Squibb), and emtricitabine (Triangle) are

undergoing phase III, II, and I/II clinical development, respectively, while others are under preclinical evaluation … In the search for new antiviral agents, scientists at Bristol-Myers Squibb synthesized a series of 4-hydroxy-3-(hydroxymethyl)-2-methylenecyclopentyl purines and pyrimidines and identified SQ-34676 (BMS-200475) as being worthy of further evaluation. The compound was originally targeted as an antiherpes virus agent, although later studies proved its highly superior anti-HBV activity. [Pharmacological Actions] BMS-200475 was shown in early studies to be a potent inhibitor of hepatitis B virus replication in vitro in HepG2.2.15 cells (EC_{50}=3.75 nM), while inducing cytotoxicity only at concentrations which are 8000 times higher (CC_{50}=30μM) … In a separate study in human hepatoma cells, BMS-200475 was found to be specifically taken up and phosphorylated to its mono-, di-, and triphosphate esters. […] BMS-200475 was shown to be more efficiently phosphorylated to its triphosphate form than lamivudine, penciclovir, lobucavir, and this phosphorylation of BMS-200475, especially at low concentrations, was indicated as being one reason for its high potency against HBV. […] The woodchuck is a commonly used animal model for hepatitis B infection. In one in vivo study, daily treatment of chronically infected animals with BMS-200475 (0.02-0.5mg/kg p.o.) for periods of 1-3 months led to effective suppression of WHV, as manifested by decreased levels of WHV DAN and reduced endogenous hepadnaviral polymerase activity. […] In another woodchuck study, BMS-200475 was administered once daily (0.02 or 0.1 mg/kg) to chronically infected WHV carriers for 84 days. WHV viremia was reduced by 10 to 1000-fold after just 1 week of treatment with the title compound at both doses. […] In the first clinical trials conducted with the compound, BMS-200475 was administered to healthy volunteers as single oral doses of 1, 2.5, 5, 10, 20, or 40 mg p.o. according to a randomized, double-blind, placebo-controlled design. Pharmacokinetics

were evaluated using blood and urine samples collected for 14 days post-dosing. Safety was evaluated by physical examination. BMS-200475 was well tolerated, with an incidence of treatment-related adverse events similar to that for placebo (31% vs. 33% for placebo). Side effects of the study drug, all of which were mild and reversible, included drowsiness/fatigue, headache and lightheadedness/dizziness. Pharmacokinetic assessment revealed that the drug is well absorbed after oral dosing, with dose-dependent increases in peak plasma concentrations and AUC values. Plasma drug concentrations declined in a biexponential fashion, with a mean terminal $T_{1/2}$ of 55 h.

Ⓑ With regard to the nucleoside analogues which underwent clinical tests for treating hepatitis B infection, Prior Art includes Table 2 on the following facts (E6).

Table 2. Summary of Pharmacokinetic, In Vitro Antiviral Activity (EC_{50}), and Reduction of Serum HBV DNA and Proposed Mechanism of Action of Current Nucleoside Analogues in Clinical Trials

	OB (%)	Active form	$t_{1/2}$ of active metabolite (h)	Dose	EC_{50} (μmol/L) in vitro	SI	Reduction in serum HBV DNA	Proposed mechanism of action	Stage	Study (ref no.)
Lamivudine ((−)3TC)	88	β-L-3TC-triphosphate	8.2	100 mg po daily	0.01	2870–6200	4–6 $\log_{10}$	Competitive inhibition with dCTP Chain termination	Approved	18, 48 82, 83 86, 87 90 120 148 149
Famciclovir (penciclovir)	77	Penciclovir-triphosphate	12–18	500 mg po 3 times daily	EC_{50}, 1.6 for intracellular replication; EC_{50}, 0.7 for viral release	280–630	80% from pretreatment level 1–2 $\log_{10}$	Competitive inhibition, dGTP Chain termination Inhibition of priming, first-, and second-strand synthesis	Phase III	19, 48 115–117 120 121 128 129
Adefovir dipivoxil (bis-POM PMEA)		PMEA-diphosphate	16–18	5–30 mg po daily	0.05–0.7	214–858	4–6 $\log_{10}$	Competitive inhibition, dATP Inhibition of first-strand synthesis	Phase II–III	137 144–146 149 150
Lobucavir (R-BHCG)	>50	R-BHCG-triphosphate	10	200 mg po 2–4 times daily	2.5	>80	2–4 $\log_{10}$	Competitive inhibition dGTP Chain termination Inhibition of first-strand synthesis	Discontinued	157–161 165
Entecavir (BMS-200475)	90	BMS 200475 triphosphate	115	0.5–2.5 mg po daily	0.00375	8000	2–3 $\log_{10}$	Competitive inhibition dGTP Chain termination Inhibition of first-strand synthesis	Phase II	163–166
Emtricitabine [5 fluoro-thiacytidine (FTC)]	80–90	(−)FTC-triphosphate	2.4		0.03	6000–200,000		Competitive inhibition with dCTP Chain termination Inhibition of first-strand synthesis	Phase I–II	167–169 194

NOTE. EC_{50} values are based in vitro on studies in 2.2.15 cells or transient transfections of human hepatoma cells with infectious clones of HBV. The selectivity index (SI) is included where known. Only penciclovir has demonstrated significant activity against the viral CCC DNA form of DHBV in vivo [117]

OB oral bioavailability; po orally; ref, reference.

Ⓒ The online journal at http://www.thebody.comcontentart 32934. html (K14) discloses that "a single daily dose of 5 mg should give plasma concentrations of the drug above the EC_{50} value against HBV for 24 hours."

② In light of these disclosures, the following facts are apparent.

Ⓐ Entecavir is effectively adsorbed and phosphorylated *in vitro* at a low concentration, and the concentration needed to inhibit 50% of hepatitis B virus (EC50) is 0.00375 μMol/L (=3.75nM), which is markedly low. Thus, entecavir would have been expected to exhibit its effect at a very low dose. On the other hand, since the concentration needed to induce 50% cytotoxicity (CC_{50}) is 30 μMol/L which is fully 8,000 times greater than the value of EC_{50}, entecavir would have been expected to be safe at a high dose. In clinical phase I for entecavir, a single oral dose of 1, 2.5, 5, 10, 20, or 40 mg p.o. was given to healthy volunteers and it was confirmed that entecavir does not cause toxicities or abnormal responses such as adverse side effects, etc.

Ⓑ The i*n vitro* concentrations of entecavir, lamivudine (approved and currently available in the market) and adefovir-dipivoxil (phase II to phase III) needed to inhibit 50% of hepatitis B virus (EC_{50}) was 0.00375 μMol/L, 0.01 μMol/L, and 0.05-0.7 μMol/L, respectively. Thus, the drug concentration of entecavir is remarkably lower than those of other hepatitis B infection drugs. The human oral daily doses for lamivudine and adefovir-dipivoxil are 100 mg and 5-30 mg, respectively. Thus, it would have been expected that entecavir would be effective at a lower dose than other hepatitis B infection drugs. In addition, since 5 mg entecavir was known to exhibit a serum drug concentration that is greater than the EC_{50} for

hepatitis B infection (HBV), PHOSITA would have expected that entecavir would be effective at a dose lower than 5 mg.

Ⓒ In addition, since the mean terminal half-life of entecavir was found to be 55 hours by a serum drug concentration test conducted during phase I, it could have been predicted that the effect of entecavir would be maintained in vivo for a prolonged period of time. Thus, entecavir could be administered with an once-a-day schedule.

Ⓓ Furthermore, Table 2 of Prior Art 2 describes an entecavir dose range of “0.5-2.5 mg p.o. daily for phase II.” Although the entecavir relevant documents cited in Table 2 of Prior Art 2 (reference numbers 163-165) do not disclose phase II results, the dose required for phase II trials would have been designed based on the pharmacokinetic data obtained from preclinical and phase I trials, which would have been conducted according to conventional clinical trial procedures as described above. Thus, it can be seen from Prior Art 1 that entecavir was administered in phase II trials, and its pharmacokinetics were evaluated in preclinical and phase I. Although there are no specific serum drug concentration data, such data is an essential prerequisite for conducting a phase II trial. Thus, PHOSITA would have recognized the dose of entecavir set forth in Table 2 as one suitable for phase II stage based on the pharmacokinetic data. In addition, it would have been expected from the results of the preclinical and phase I tests that entecavir would be effective in a dose lower than 5 mg. Thus, it is highly likely the dose in Table 2 would have been understood as a dose suitable for phase II trials. Moreover, that all the doses for the other hepatitis B infection drugs are for humans, and that the dose of entecavir is expressed with “mg” (and not “mg/kg” which is used to express a dose for an animal) would have been difficult for PHOSITA to recognize the disclosed dose as one for an

animal. Thus, PHOSITA would have recognized the doses set forth in Table 2 as ones designed for phase II trials. Once the phase II trial was designed, it would have been much easier to predict the pharmacological effect of entecavir. Thus, it would have been expected from Table 2 that entecavir would be effective in the range of 0.5-2.5 mg.

3) Next, we consider whether there are any factors teaching away from predicting the effect of the 1 mg dose of entecavir.

a) According to the document referenced in Prior Art 2 (reference number 164 and K10), the effect of entecavir at 0.1 and 0.5 mg/kg was superior to that of 0.02 mg/kg in woodchucks, and the 0.1 and 0.5 mg woodchuck doses correspond to 2 and 10 mg/kg doses when converted to human equivalent doses (HED). We therefore consider whether such animal test data teaches away from predicting the effect of 1 mg entecavir.

① In general, an animal has a different metabolism mechanism from a human being. Furthermore, woodchuck hepatitis virus (WHV) and human hepatitis B virus (HBV) are different viruses. Thus, it is difficult to derive a human dose based only on a dose for a woodchuck.

② In phase I, the maximum recommended starting dose (MRSD) may be determined based on the pharmacologically active dose (PAD) obtained in an animal experiment, and the stability of the drug is confirmed and pharmacokinetic data is obtained by increasing the dose from the starting dose (MRSD). In phase II, a dose designed for phase II which is predicted to be a treatment effective dose is determined based on the pharmacokinetic data obtained from human phase I trials and the preclinical data obtained from animal trials. Thus, in stepwise clinical trials, the PAD for animals may be

considered to contribute to extrapolation of phase II doses. However, considering that the phase II dose is determined using pharmacokinetic data obtained from human trials as well as animals, it is understood that calculating human doses solely based on animal doses is a difficult task.

③ The FDA estimates a starting dose (MRSD) for phase I in view of human equivalent doses (HED). However, before pharmacokinetic data is obtained during a phase I trial, if there is not sufficient information to calculate a precise dose, the MRSD is calculated using the HED, but the HED, which value is divided by a safety factor (10), lacks precision.
In light of the above, PHOSITA would not have readily predicted a human dose solely based on an animal dose. Accordingly, the results of the animal test do not teach away from predicting the effect of 1 mg entecavir.

b) In addition, since the starting dose for the phase I trial (MSRD) is calculated by converting the NOAEL to the HED and the HED is divided by a safety factor of 10 to arrive at the lowest dose that may not exhibit toxicities. Thus, we consider whether the starting dose of entecavir is 1 mg teaches away from predicting the effective human dose of 1 mg entecavir.

① Since the effective *in vitro* concentration of entecavir was markedly low (EC_{50}=0.00375 μMol/L) and entecavir would have been expected to be effective at a dose that is lower than 5 mg, there was insufficient reason to persuade PHOSITA that entecavir is not effective at 1 mg.

② Although the starting dose of a phase I trial is not a dose designed to ensure the effectiveness of a drug according to conventional clinical trial procedures, a dose designed for a phase II trial, which is expected to be an effective treatment dose, is estimated based on human pharmacokinetic data obtained

for each dose from phase I trials and animal pharmacokinetic data obtained from preclinical trials. Thus, the starting dose could have been effective.

③ The dose of entecavir predicted to be treatment effective in a phase II trial was in the range of 0.5-2.5 mg.

In light of the above, the fact that the starting dose of 1 mg entecavir would have been sufficient for predicting the effect of 1 mg entecavir.

c) Further, we consider whether a preclinical test showed that entecavir is very safe at a concentration that is 8000 times greater than its effective concentration (thus providing a motivation to use a higher dose to assure that a treatment effect is shown) would have taught away from predicting the effect of 1 mg entecavir.

Although the preclinical toxicity test result showed that entecavir is safe at a high concentration, it nevertheless would have been impossible to rule out a case where entecavir exhibited unexpected toxicity when actually administered to a human patient. In this case, since PHOSITA would have likely selected a lower dose still within the effective range, such a toxicity test result does not teach away from predicting the effect of 1 mg entecavir.

(D) Results of review

Based on the above we conclude that Constitution 1 of the Compared Product is directed to an once-a-day dosage of 1 mg entecavir (a known hepatitis B infection drug). However, optimizing a dosing regimen — a dose, a dosing interval, etc. to exhibit a desired treatment effect within a safe range — falls within the conventional creativity of PHOSITA for the following reasons.

① Before the priority date of the Present Patent, PHOSITA would not have generally recognized that entecavir had to be administered several times a day at a dose of 1 to 50 mg

per 1 kg (60 to 3000 mg on the basis of 60 kg of an adult).

② The 1 mg entecavir administration was known to be safe, and there are no prior art that taught away from predicting the efficacy of 1 mg entecavir.

③ By comparing the effective concentration values (EC_{50}) and human doses of entecavir with other hepatitis B infection drugs and from the fact that 5 mg entecavir will exhibit a serum drug concentration that is greater than EC_{50} for HBV, PHOSITA would have expected that entecavir would be effective at a dose of 5 mg or less.

④ From the disclosure relating to a mean terminal half-life of 55 hours, the once-a-day administration of entecavir would have been anticipated.

⑤ From the dose range of "0.5-2.5 mg p.o. daily" in Table 2 of Prior Art 2, which is a dose designed for phase II, the administration of entecavir at a dose of 0.5-2.5 mg once a day would have been self-evident.

Thus, PHOSITA would have readily derived from Prior Art 1 and Prior Art 2 the once-a-day administration of 1 mg entecavir, which appears to be within a safe range while maintaining the pharmacological effectiveness, as found through repetitive experiments. PHOSITA would have anticipated the efficacy of Constitution 1 based on the teachings of Prior Arts 1 and 2.

3) Comparison of Constitution 2

As stated above, Constitution 2 is directed to a tablet "wherein the tablet comprises entecavir, carriers, and a binder that is an adhesive material and is prepared by a direct compression method wherein a powdery mixture of said substances are compressed and molded into a tablet."

However, as discussed earlier, a monohydrate of entecavir is disclosed

in Prior Art 1 and Prior Art 2. According to the disclosures of K5 and E1, Prior Art 1 discloses that "the pharmacokinetic results suggest that entecavir is well absorbed after oral administration." (*See* K5, the right column of page 1176, lines 14-15 under the section heading "Clinical Studies.") The book titled "Pharmacy," published by Pharmaceutical Department of Korean Pharmacy School Conference on March 2, 1996, discloses that:

"[A] tablet is a formulation prepared by compressing pharmaceuticals into a fixed shape (e.g., lens form, disc form, etc.). Tablets and capsules are the most commonly used formulations and are expected to have systemic or topical (intra-oral, gastric, intestinal, vaginal) effects. Peroral tablets are the most representative tablet forms, and include uncoated tablets, sugar-coated tablets, enteric coating tablets, multilayered tablets, etc. The advantages of tablets are 1) they are easy to take; 2) they provide an accurately measured dose of the active ingredient; 3) it is possible to control the action modes of tablets with various techniques; 4) by using tablet coatings, tastes, odors, irritancy, etc. can be corrected; and 5) with appropriate packages, it is possible to prevent degeneration or contamination and maintain product quality for a prolonged period of time…" (see E1, lines 1-10 of page 280)

[and]

"In general, tablets are composed of several types of substances in addition to an active ingredient … Additive substances are classified according to [their] functions as excipients, binders, disintegrants, lubricants, etc.(see E1, page 281, lines 1-3 under the section heading "1-2. Additives of Tablets") … Most of the currently available tablets are compressed tablets prepared by compression molding, and the tableting methods can be classified as a direct powder compression method or a granule compression method depending on the compression method. A direct powder compression method is so-called because an excipient, a binder, a disintegrant, etc. are added to a crystalline or powdery active ingredient to form a uniform dry mixture, and the mixture is directly tableted." (See E1, "1-3 Tableting"

in page 286, and line 1 of page 287.)

In light of these facts, Prior Art 1 shows that entecavir is well-absorbed upon oral administration, and it is clear that the use of a tablet for oral administration. The direct compression method comprising an excipient, a binder, and a disintegrant to a crystalline or powdery drug to form a uniform dry mixture and directly compressing the mixture are conventional techniques in the field of drugs. Thus, PHOSITA would easily have derived Constitution 2 from Prior Art 1 and Prior Art 2 based on these conventional techniques, and the resulting effect would have been merely expected by PHOSITA from Prior Art 1 and Prior Art 2 in view of conventional techniques.

4) Ease of combination

We consider whether PHOSITA would have any technical difficulty in combining Prior Art 1 and Prior Art 2 with the conventional technology to derive the Compared Product. As discussed above, Prior Art 1 and Prior Art 2 belong to the same technical field in that they both relate to the treatment of hepatitis B infection virus with entecavir. In addition, they share the same technical goal of providing a hepatitis B infection treatment that exhibits a superior effect at a low dose. Taking into consideration of these circumstances plus K5 and E6, as well as the briefs submitted so far, the following facts are clear. Both Prior Art 1 and Prior Art 2 disclose entecavir clinical trials; the documents referenced therein do not teach away from combining Prior Art 1 and Prior Art 2 with the conventional technology relating to a direct powder compression method; and PHOSITA would not have had any difficulty in combining Prior Art 1 and Prior Art 2 with conventional technology. In view of these facts, there would have been no difficulty in combining Prior Art 1 and Prior Art 2 with conventional technology to derive the Compared Product.

D. Sub-conclusion

The Compared Product, Prior Art 1 and Prior Art 2 belong to the same technical field, and the objective of the Compared Product is not unique when compared to the objectives of Prior Art 1 and Prior Art 2. Further, PHOSITA would have readily derived the constitution of the Compared Product in view of Prior Art 1 and Prior Art 2 and conventional technology, and thus presents no constitutional difficulty. The relevant effect also would have been expected from Prior Art 1 and Prior Art 2 and conventional technology by PHOSITA thus, no remarkable effect has been shown.

Therefore, the Compared Product belongs to public domain technology that PHOSITA could have readily practiced in view of Prior Art 1 and Prior Art 2 together with conventional technology. As such, there is no need for comparison with Claim 1, because the Compared Product does not fall within the scope of protection of the claim.

4. Conclusion

As the IPT decision arriving at the above conclusion was lawful, the petition of the Successor of the Plaintiff is groundless and therefore is dismissed. The decision as described in the Order is hereby issued.

Presiding Judge Kyuhyun HAN
Judge Dawoo LEE
Judge Hyejin LEE

[Annex 1]

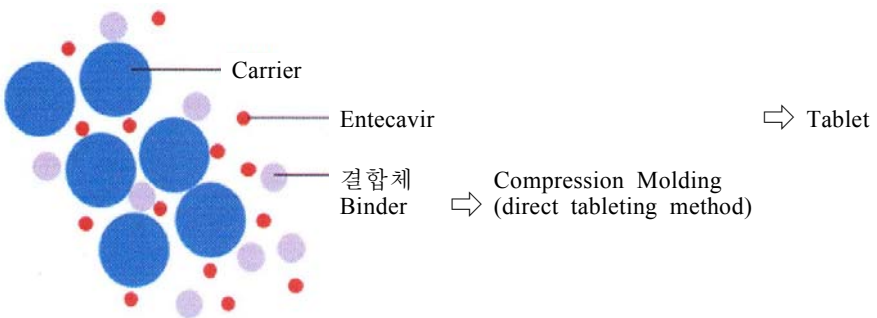
Compared Invention

The entecavir tablet of the Compared Invention is an once-a day dosage to treat hepatitis B virus infection comprising 1.065 mg per tablet of entecavir monohydrate. The tablet comprises the active ingredient (entecavir), a carrier and a binder (an adhesive substance). The tablet is prepared by a direct compression molding of a powder mixture comprising the listed substances.

The entecavir tablet of the Compared Invention is prepared by a direct powder compression method (*i.e.*, a direct tableting method), where the active ingredient, a carrier and a binder are blended to form a mixture, which is then compressed and molded into a tablet (see below Figure).

That is, the tablet is molded by uniformly mixing the active ingredient, a carrier, and a binder followed by compressing the mixture in powder form by a tableting machine. In the method, the active ingredient, a carrier, and a binder in solid powder form are condensed into a tablet by pressure.

[Figure]



The Compared Invention has the advantage of simply preparing an entecavir-comprising tablet having superior content uniformity by uniformly mixing the ingredients of the tablet and directly tableting them without the step of forming granules.

[Annex 2]

Disclosures of Prior Arts

1. Prior Art 1 (Exhibit No. K5)

Prior Art 1 relates to "BMS-200475 (Entecavir) and includes the following disclosures.

"In the search for new antiviral agents, scientists at Bristol-Myers Squibb synthesized a series of 4-hydroxy-3-(hydroxymethyl)-2-methylenecyclophyneyl purines and pyrimidines and identified SO-34676 (BMS-200475) as being worthy of further evaluation. The compound was originally targeted as an antiherpesvirus agent, although later studies proved its highly superior anti-HBV activity" (*see* page 1175, left column, line 5 from the bottom to right column, line 3).

"BMS-200475 was shown in early studies to be a potent inhibitor of hepatitis B virus replication in vitro in HepG2.2.15 cells (EC_{50}=3.75 nM), while inducing cytotoxicity only at concentrations fully 8000 times lower (CC_{50}0=30 μM)" (*see* page 1175, right column, lines 5-9).

"BMS-200475 was shown to be more efficiently phosphorylated to its triphosphate form than lamivudine, penciclovir, or lobucavir, and this phosphorylation of BMS-200475, especially at low concentrations, was indicated as being one reason for its high potency against HBV." (*see* page 1176, left column, lines 4-9)

"The woodchuck is a commonly used animal model for hepatitis B infection. In one vi vivo study, daily treatment of chronically infected animals with BMS-200475 (0.02-0.5 mg/kg p.o.) for periods of 1-3 months led to effective suppression of WHV, as manifested by decreased levels of WHV DNA and reduced endogenous hepadnaviral polymerase activity. Viral DNA was nondetectable using a dot blog hybridization technique in animals treated for 3 months with BMS-200475; analysis using a more sensitive PCR assay showed that mean

WHV titers decreased significantly as a result of the treatment. Upon discontinuation of the drug, hepatitis viremia gradually returned to pretreatment levels." (*see* page 1176, left column, lines 21-33).

"In another woodchuck study, BMS 200475 was administered once daily (0.02 or 0.1 mg/kg) to chronically infected WHV carriers for 84 days. WHV viremia was reduced by 10- to 1000-fold after just 1 week of treatment with the title compound at both doses. All carriers treated at the higher dose and 4 of 6 treated at the lower dose had reductions of >1000-fold in WHV viremia by the third week of therapy; this level of suppression was maintained for 6-8 weeks after the drug was discontinued. Serum WHV DNA returned to pretreatment of detectable levels 8-12 weeks after discontinuing treatment" (*see* page 1176, left column, lines 34-44)

"A subsequent study evaluated the effects of maintenance therapy of chronically infected WHV carriers with BMS-200475. Nineteen woodchucks were treated once daily for 8 weeks with this agent (0.5 mg/kg p.o.); .and serum WHV DNA dropped below limits of detection after 1-5 weeks of treatment. Six woodchucks were then withdrawn from drug therapy, causing viral DNA to rebound to pretreatment levels within 1-8 weeks, while the remaining 13 continued treatment with BMS-200475 using a once-weekly dosing regimen (0.5 mg/kg p.0.). Viral DNA serum levels remained fully undetectable in 12 of 13 animals 16 weeks after discontinuation of daily drug dosing. These results indicate that once viral suppression is successfully achieved, maintenance therapy using a much less frequent dosing schedules is feasible" (*see* page 1176, left column, lines 45-49).

"The ability of BMS-20047S to inhibit DHBV infection in primary duck hepatocytes (EC50=0.13 nM) and in vivo ducklings has also been demonstrated. In vivo in injected ducks, BMS-200475 decreased viral DNA levels in the liver by 96, 83, and 45% at doses of 1.0. 0.1, and 0.01 mg/kg/day by oral gavage. Its activity was slightly superior to that of lobucavir and highly superior to that of lamivudine in vitro." (*see* page 1176, right column, lines 1-8).

"In the first clinical trial conducted with the compound, BMS-200475 was administered to healthy volunteers as single oral doses of 1, 2.5, 5, 10, 20, or 40 mg p.o. according to a randomized, double-blinded, placebo-controlled design. Pharmacokinetics were evaluated using blood and urine samples collected for 14 days postdosing. Safety was evaluated by physical examination and laboratory testing before escalation to each subsequent dosing level. BMS-200475 was well tolerated, with an incidence of treatment-treated adverse events similar to that for placebo (31% vs. 33% for placebo). Side effects of the study drug, all of which were mild and reversible, included drowsiness/fatigue, headache and lightheadedness/dizziness. Pharmacokinetic assessment revealed that the drug is well absorbed after oral dosing, with dose-dependent increases in peak plasma concentrations and AUC values. Plasma drug concentrations declined in a biexponential fashion, with a mean terminal t1/2 of 55 h. More than 50% of the administered dose was eliminated in the urine as unchanged drug. Renal tubular secretion appeared to play an important role, with renal clearance values ranging from 300-600 mL/min. BMS-200475 is currently in phase II trials in the U.S. Development of the compound is also being conducted outside the U.S." (*see* page 1176, "Clinical Studies")

2. Prior Art 2 (Exhibit No. E6)

Prior Art 2 relates to "Antiviral Chemotherapy for the Treatment of Hepatitis B Virus Infections" and includes the following disclosures.

"Entecavir [1S-(1α, 3α, 4β)]-2-amino-1,9-dihydro-9-[4-hydroxy-3-(hydroxymethyl)-2-methylenecyclopentyl]-6H-furine-6-one (BMS-200475) a carbocyclic deoxyguanosine analogue with potent antiherpes and antihepadnaviral activity. The EC_{50} for HBV in 2.2.15 cells is 0.00375 μmol/L (Table 2) compared with 0.116 μmol/L for lamivudine. The CC_{50} in contrast, is 30 μmol/L, producing a selectivity index of > 8000. The Kd, for the HBV polymerase is 0.0012 μmol/L. In

woodchucks infected with WHV, treatment with entecavir produced 2-3 log10 reductions in viral load with undetectable serum HBV DNA in all treated woodchucks, although relapse occurred shortly after discontinuation of brief treatment. phase I-II clinical studies have been initiated with entecavir. Adverse effects of entecavir include headache, dizziness, and photophobia, consistent with neurological toxicity." (*see* page S94, right column, last paragraph – page S96, left column, line 8).

Table 2. Summary of Pharmacokinetic, In Vitro Antiviral Activity (EC_{50}), and Reduction of Serum HBV DNA and Proposed Mechanism of Action of Current Nucleoside Analogues in Clinical Trials

	OB (%)	Active form	$t_{1/2}$ of active metabolite (h)	Dose	EC_{50} (μmol/L) in vitro	SI	Reduction in serum HBV DNA	Proposed mechanism of action	Stage	Study (ref no.)
Lamivudine ((−)3TC)	88	β-L-3TC-triphosphate	8.2	100 mg po daily	0.01	2870–8200	4–6 $\log_{10}$	Competitive inhibition with dCTP Chain termination	Approved	19, 48 82, 83 86, 87 90 120 148 149
Famciclovir (penciclovir)	77	Penciclovir-triphosphate	12–18	500 mg po 3 times daily	EC_{50}, 1.6 for intracellular replication; EC_{90}, 0.7 for viral release	280–630	80% from pretreatment level 1–2 $\log_{10}$	Competitive inhibition, dGTP Chain termination Inhibition of priming, first-, and second-strand synthesis	Phase III	19, 48 115–117 120 121 128 129
Adefovir-dipivoxil (bis-POM PMEA)		PMEA-diphosphate	16–18	5–30 mg po daily	0.05–0.7	214–858	4–6 $\log_{10}$	Competitive inhibition, dATP Inhibition of first-strand synthesis	Phase II–III	137 144–146 149 150
Lobucavir (R-BHCG)	>50	R-BHCG-triphosphate	10	200 mg po 2–4 times daily	2.5	>80	2–4 $\log_{10}$	Competitive inhibition dGTP Chain termination Inhibition of first-strand synthesis	Discontinued	157–161 165
Entecavir (BMS-200475)	90	BMS 200475 triphosphate	115	0.5–2.5 mg po daily	0.00375	8000	2–3 $\log_{10}$	Competitive inhibition dGTP Chain termination Inhibition of first-strand synthesis	Phase II	163–166
Emtricitabine [5 fluoro-thiacytidine (FTC)]	60–90	(−)FTC-triphosphate	2.4		0.03	6000–200,000		Competitive inhibition with dCTP Chain termination Inhibition of first-strand synthesis	Phase I–II	167–169 194

NOTE. EC_{50} values are based in vitro on studies in 2.2.15 cells or transient transfections of human hepatoma cells with infectious clones of HBV. The selectivity index (SI) is included where known. Only penciclovir has demonstrated significant activity against the viral CCC DNA form of DHBV in vivo [117]

OB oral bioavailability; po orally; ref, reference.

PATENT COURT
THE THIRD DEPARTMENT
DECISION

Case No. 99Heo9373 Dismissal of Amendment (Patent)

Plaintiff: Pfizer Inc.
Counsel for the Plaintiff: Chang Se KIM,
Eunhwa CHOI, Youngmi NAH, Patent Attorney
Youngmo KWON, Attorney-at-law
Substitutes for the Counsels: Dongin SHIN,
Hyunsil LEE, Patent Attorney

Defendant: Commissioner of the Korean Intellectual Property Office ("KIPO")
KIPO Litigators: Jaecheol NOH, Manho MIN

Closure of Hearing: June 23, 2000

Order

1. The Plaintiff's claim is dismissed.
2. The trial costs shall be borne by the Plaintiff.

Tenor of Claim

The decision of the Intellectual Property Trial and Appeal Board, which was issued on October 30, 1999 in Case No. 99Bo4, shall be cancelled.

Reasoning

1. Background facts

The following facts are recognized after considering the descriptions and arguments based on Exhibit Nos. Kap-1 to 5, Kap-9, Eul-2-1, Eul-2-2 and Eul-3.

A. Details and procedures relating to the subject decision

1) The Plaintiff filed a patent application for an invention entitled "5-Arylindole derivatives and use thereof for serotonin agonist" in the United States on November 2, 1992 (Application No. 07/970758), filed an international patent application under Patent Cooperation Treaty (PCT) on October 19, 1993 while claiming priority to the above patent application (International Patent Application No. PCT/US 93/09790), submitted a translation of the international patent application to the KIPO on May 2, 1995 (Application No. 95-701729), and filed a divisional application with the claims reproduced below in Section 'B' on June 23, 1998 (Application No 98-704854; hereinafter referred to as the 'Subject Invention'; for the compounds used for the Subject Invention, a separate divisional application was filed and registered as a patent on September 5, 1998).

2) The KIPO issued Grounds of Rejection on August 22, 1998 based on the following grounds: the Subject Invention cannot be patented according to Article 29, Paragraph 1 of the Patent Act since Claims 1 and 2 (which recite use inventions for medicines) are not supported by the descriptions of materials (such as data) for demonstrating pharmacological effect as a requisite for establishing a medicinal invention in the Detailed Description of Invention such that the Subject Invention cannot be deemed to be an invention having been completed as an invention of medicinal use as of the application date;

and the Subject Invention cannot be patented pursuant to Article 42, Paragraph 3 of the Patent Act since the requirement for description as an invention of medicinal use was not fulfilled since there is no data directed to toxicity.

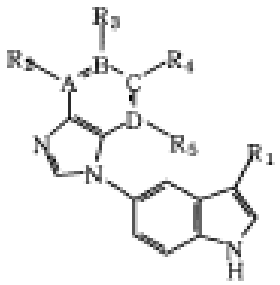
3) The Plaintiff submitted an Amendment on December 22, 1998, wherein the specification was amended as described in Section 'C'. However, the KIPO issued a Dismissal of Amendment on December 28, 1998 based on the ground that the description of pharmacological test results, which was added according to the Amendment, constituted an additional matter that had not been described in the original specification at the time of filing. According to the KIPO, the Amendment changed a significant matter of the specification, and thus, the amendment cannot be admitted according to Article 51, Paragraph 1 of the Old Patent Act (the Patent Act prior to the revision of Law No. 5329 on April 10, 1997).

4) In response to the Dismissal of Amendment, the Plaintiff filed an appeal on February 5, 1999. The Intellectual Property Tribunal decided to dismiss the appeal on October 30, 1999 based on the grounds described in Section 'D' (hereinafter, the decision is referred to as the 'Subject Decision').

B. Claims of the Subject Invention

Claim 1: A pharmaceutical composition for treatment of a disease selected from a group consisting of hypertension, depression, anxiety, dietary disorder, obesity, drug addiction, multi-centric headache, migraine, sharp pain, chronic paroxysmal migraine and headache in connection with vascular disorder, which comprises a compound represented by Chemical Formula (I) [description of the substituents being omitted] in an effective amount for treating such a disease, and a pharmaceutically acceptable carrier.

(Chemical Formula 1)



Claim 2: A pharmaceutical composition for treatment of a disease caused by serotonergic neural transmission deficiency, which comprises a compound represented by Chemical Formula (1) [as shown above] in an effective amount for treating such a disease, and a pharmaceutically acceptable carrier.

C. Amendment

The values of IC_{50} (inhibitory concentration of a drug that causes 50% of the maximum inhibition) for twenty (20) compounds of Chemical Formula I, which were described in the Examples of the Subject Invention, i.e., measured values of activities of the compound of Chemical Formula I on serotonin (5-HT1A and 5-HT1D) receptor, were added to the specification (Exhibit No. Kap-3, page 30). Further, the toxicity data were supplemented (page 98).

D. Gist of the Decision Grounds

1) Since an invention of medicinal use is established on the basis of pharmacological activity of a certain substance or composition that was confirmed, the pharmacological activity must be described in the specification at the time of filing a patent application (hereinafter referred to as the 'original specification') such that the activity can be specifically identified. Further, the pharmacological activity cannot be

simply presumed for an invention of medicinal use since there are numerous cases wherein compounds having similar molecular structures show completely different chemical properties. Thus, the pharmacological activity should be described with specific experimental data or concrete substance that can replace the same.

2) The Subject Invention is directed to an invention of a medicine that employs a pharmaceutical composition (hereinafter referred to as the "compound of the Subject Invention"), which comprises a compound represented by Chemical Formula (I) and a pharmaceutically acceptable carrier, for treating a disease selected from a group consisting of hypertension, depression, anxiety, dietary disorder, obesity, drug addiction, multi-centric headache, migraine, sharp pain, chronic paroxysmal migraine and headache in connection with vascular disorder, as well as for treating a disease caused by serotonergic neural transmission deficiency. Since the Subject Invention states that its compound demonstrates a therapeutic effect to treat said diseases due to an activity as a serotonin agonist, the pharmacological effect of the compound of the Subject Invention with respect to said diseases such as activity as a serotonin agonist must be specifically identified in the original specification. However, the original specification of the Subject Invention has no specific description, which state that the compound of the Subject Invention is useful for treating a disease caused by serotonergic neural transmission deficiency or has an activity as a serotonin ($5\text{-}HT_1$) agonist. The table added on page 30 of the amended specification of the Subject Invention describes the specific values of binding affinity (IC_{50}) as the test results of pharmacological effect of twenty (20) compounds among the compounds of the Subject Invention (which were synthesized in Examples) on serotonin ($5\text{-}HT_1$) receptor. Thus, the pharmacological effect of the compound of the Subject Invention was specifically identified after the additional amendment was filed.

3) Accordingly, such an Amendment changed a significant matter of an invention described in the original specification.

2. Arguments of parties concerned

A. Summary of Plaintiff's arguments

1) The original specification of the Subject Invention describes the constitution of the invention including the object of the invention, chemical structures of the compounds, and a process of preparing the same. It also discloses the pharmacological activity of the Subject Invention, which the compounds of the Subject Invention are useful for treating a disease caused by serotonergic neural transmission deficiency such as depression, anxiety, dietary disorder, obesity, migraine and hypertension, as well as conventional methods to determine the activity of compounds as serotonin agonists. Further, total substances to carry out the Subject Invention as an invention of medicine, including methods for formulation and administration and doses, are described so that a person having ordinary skill in the art ("PHOSITA") can easily confirm the activity as a serotonin agonist demonstrated by the compound of the Subject Invention after reviewing the descriptions in the original specification, and easily carry out the Subject Invention as an invention of a medicinal use.

Further, Article 42, Paragraph 3 of the Patent Act (which prescribes the requisites for a specification) only prescribes that a specification should be described so that PHOSITA can easily carry out the invention. The Patent Act does not prescribe anywhere that specific experimental data for the activity must be described in order to demonstrate the pharmacological effect.

Accordingly, the original specification of the Subject Invention simply includes somewhat less experimental data to identify the pharmacological effect. However, all the requisites for PHOSITA to understand that the Subject Invention is effective on hypertension,

headache and the like (and to easily carry out the Subject Invention) are described therein. Thus, the Subject Invention has sufficient descriptions and is not an incomplete invention.

2) The gist of the Subject Invention, as disclosed by the original specification, is that the pharmaceutical composition according to the Subject Invention acts as a serotonin agonist, thereby being effective on diseases caused by serotonergic neural transmission deficiency such as depression. Even though the experimental data added through the Amendment could not be directly anticipated from the disclosure in the original specification, PHOSITA can reproducibly contrive them by easily carrying out the experiments according to the known procedure disclosed in the specification with the compounds of Examples, the chemical structures of which are disclosed in the original specification.

Accordingly, the Amendment does not change a significant matter since the pharmacological effect of the Subject Invention was achieved as of the filing date of the patent application. Further, the effect described in the original specification was identified via the Amendment without departing from the substance of the original specification.

B. Summary of the Defendant's arguments

Since the essential of an invention of a chemical material resides on the material, it is enough to describe (concerning use of the material) for which the material can be used, i.e., utility of the material in the specification. However, in case of an invention of medicinal use to treat a disease (like the Subject Invention), the essential of the invention is use for treating the disease. Thus, the technical substance directed to the pharmacological effect that demonstrated the therapeutic usefulness of the material, i.e., objective and specific test materials to support a medicinal effect that was elucidated by tests in practice, should be described in the specification. Accordingly, in the specification of the Subject Invention, test materials that objectively support the

therapeutic effect for treating a disease related to serotonergic deficiency should be described regarding the medicinal use, or at least specific test result should be described to confirm the mechanism related to activity of the compound of the Subject Invention as a serotonin agonist. However, the original specification of the Subject Invention simply lists the diseases (including hypertension, depression, anxiety, dietary accentuation, obesity and migraine), which can be treated according to the Subject Invention, without any description of test materials that can objectively support the therapeutic effect for treating a disease related to serotonergic deficiency, nor any specific test result to confirm the mechanism related to activity of the compound of the Subject Invention as a serotonin agonist. As such, the original specification of the Subject Invention fails to meet the requisite for description of an invention.

2) The Subject Invention adds IC_{50} values through the Amendment, which are concentrations of test material when binding of a reactant having radio-active label to a receptor is inhibited by 50%. Determination of IC_{50} values is to carry out practical tests to find out how much the binding affinity of the test material to the receptor is, and the determined IC_{50} values are objective and specific experimental data that may confirm the level of activity or mechanism of the test material. Thus, an amendment of adding IC_{50} values corresponds to adding a new technical matter to support the use of a medicine, which is beyond the scope of the originally described specification, and substantially changes the constitution of an invention of medicinal use. Accordingly, such an amendment corresponds to altering a significant matter of an invention.

3) If an amendment of adding a pharmacological effect (which is a core requisite for describing an invention of medicinal use) is permitted for an invention of medicinal use, then this would result in substantial retroaction of the application date. This would be contrary to the

Korean patent system, which follows the first-to-file rule.

3. Decision

A. Level of description of pharmacological effect in the specification for an invention of medicinal use

Article 42, Paragraph 3 of the Patent Act prescribes that the object, constitution and effect of an invention should be described in the Detailed Description of Invention so that PHOSITA can easily carry out the invention. Further, Article 42, Paragraph 4 prescribes that the claims of a patent application must be supported by the Detailed Description of Invention. This is so that those skilled in the art can: clearly understand the substances of the invention and easily carry out the invention by specific description of the subject to be solved by the invention, means selected to solve the subject or technical constitution of the invention, and inherent effect achieved by the invention in the Detailed Description of Invention; clarify the substance of the invention to facilitate examination of the requisites as a patent; and elucidate the technical scope of the invention.

In case of inventions directed to chemical materials in general, the invention is characterized by the material itself. Accordingly, if the use of the material should be described in the Detailed Description of Invention, then it is enough to describe the usefulness of the material to an extent that the material can be utilized in a certain technical field or the like. However, in case of an invention of medicinal use, the invention is characterized by discovering use of a certain material as a medicine, i.e., the effect of treating or preventing a certain disease, not being an invention of the material itself used for a medicine, so that the use or effect should be an essential constituent of the invention. The effect cannot be anticipated simply on the basis of chemical structure since there are a number of compounds having quite different chemical properties between the compounds having

similar chemical structures. Further, since a medicine is used on human bodies, which have complicated structures and functions, even though an effective dose, route of administration and particulars for formulation are described to some extent in the specification, PHOSITA cannot recognize whether the medicine is actually active for such a use. Thus, in the specification of a patent application for an invention of medicinal use, the pharmacological effect of a certain substance should be objectively and concretely described so that PHOSITA can clearly understand, recognize and reproduce the pharmaceutical activity of the certain substance without adding any particular knowledge at the technical level as of the application date. If the pharmacological mechanism of a certain substance, which demonstrates a certain pharmacological effect, had been already clarified before filing of the patent application, then it is enough to simply describe such a pharmacological effect. However, if it is not, then experimental results from specific experiments to confirm such a pharmacological effect of the certain substance should be quantitatively described or at least specifically described to replace such quantitative data.

As such, when the specification of an invention of medicinal use lacks such description, the predetermined requisites for describing the specification according to Article 42, Paragraphs 3, 4 are not satisfied. Further, a specification lacking such description cannot be deemed to recite a complete invention since the technical completion or incompletion of an invention is decided on the basis of descriptions provided in the specification.

B. Whether pharmacological effect is sufficiently described in the original specification of the Subject Invention

1) The Subject Invention relates to a pharmaceutical composition for treating hypertension, depression, anxiety, dietary disorder, obesity, drug addiction, multi-centric headache, migraine, sharp pain, chronic

paroxysmal migraine and headache in connection with vascular disorder, or a disease caused by serotonergic neural transmission deficiency. Although being novel substances, the compounds of the Subject Invention have been already registered as a material patent. As noted above, the Subject Invention corresponds to a medicinal use invention. As disussed below, the original specification of the Subject Invention describes that indole derivatives (compounds of same type as the compounds of the Subject Invention) are useful for treating hypertension, Raymond's disease and migraine. For chemical compounds, there are many cases of demonstrating remarkably different chemical properties between compounds having similar structural formulas, and the pharmacological mechanism of the compounds of the Subject Invention (as different types of indole derivatives) cannot be definitely stated to be elucidated simply because some examples of indole derivatives having such therapeutic effect are described in the original specification. There is no evidence to regard the pharmacological mechanism being already elucidated otherwise. As such, the specification of the Subject Invention must involve quantitative description of experimental results from specific experiments, or any detailed description that may replace the experimental results, to confirm the pharmacological effect described in Claims 1 and 2 of the Subject Invention.

2) Now, the section concerning the pharmacological effect in the original specification of the Subject Invention will be discussed.

Page 1 of the specification describes the background art as follows: "USP 4,839,377 and 4,855,314, and European Patent Application Publication No. 313,397 mentions 5-substituted 3-aminoalkylindoles. These compounds are clearly expressed to be useful for treating migraine. GB Patent Application No. 40,279 mentions 3-aminoalkyl-1H -indole-5-thioamide and carboxamide. These compounds are clearly expressed to be useful for hypertension, Raymond disease and migraine." On pages 11 and 12, the specification describes: "The

present invention relates to a pharmaceutical composition which is useful for treating diseases caused by serotonergic neural transmission deficiency such as hypertension, depression, anxiety, dietary disorder, obesity, drug addiction, multi-centric headache, migraine, sharp pain, chronic paroxysmal migraine and headache in connection with vascular disorder." On page 28, the specification describes the following: "Compounds of Chemical Formula I and pharmaceutically acceptable salts thereof are used in mental therapeutics, being usable for treating depression, anxiety, dietary disorder, obesity, drug addiction, multi-centric headache, migraine, chronic paroxysmal migraine and headache in connection with vascular disorder, sharp pain and other diseases caused by serotonergic neural transmission deficiency, as a useful serotonin ($5-HT_1$) agonist and benzodiazepine agonist and antagonist. Alternatively, these compounds can be primarily used as an anti-hypertensive agent and a vasodilator." However, the descriptions simply mention the utility of compounds of the Subject Invention by listing the types of diseases that can be treated with the compounds. They cannot be deemed to be specific descriptions of the pharmacological effect.

Pages 28 and 29 of the specification describe: "The active compounds according to the present invention are evaluated as anti-migraine modifiers by examining the degree of imitating sumatriptan upon shrinkage of isolated hiatus saphenous of a dog [P.P.A. Humphrey et al., Br. J. pharmacol., 94, 1128 (1988)]. The efficacy may be blocked by metiodepin which has been known as a serotonin antagonist. Sumatriptan is known to be useful for treating migraine, and to selectively increase vascular resistance of carotid in an anesthetized dog. The basis of efficacy was suggested in W. Fenwick et al., Br. J. Pharmacol., 96, 83 (1989). The active compounds according to the present invention can be evaluated by plasma protein ejecting response in dura mater of guinea pig after one-way electric triple irritation of ganglion, as is described in Markowitz et al., J. Neurosci., 7(12) 4129-4136 (1987). From the aspect of potency, efficacy, or both, the degree

of these compounds for imitating sumatriptan is determined via analysis described below. Activity of serotonin 5-HT1 agonist is determined in vitro by employing an analysis of receptor binding by the use of cortex of rats as a receptor source and [^{3}H]-8-OH-DPAT as a radioactive ligand, as was explained for 5-HT1A receptor [D. Hoyer et al., Eur. J. Pharm., Vol. 118, 13 (1985)]; and an analysis of receptor binding by the use of a tail of cow as a receptor source and [^{3}H]serotonin as a radioactive ligand, as was explained for 5-HT1D receptor [R. E. Heuring and S. J. Peroutka, J. Neuroscience, Vol. 7, 894 (1987)]. Affinity to benzothiazepine receptor is determined in vitro by employing an analysis of receptor binding by the use of cerebellum of a guinea pig as a receptor source and [^{3}H] flunitrazepam as a radioactive ligand." However, it merely describes indirectly a method to determine the pharmacological effect such as IC_{50} of the compounds of the Subject Invention. Such description cannot be deemed to be a specific description of the pharmacological effect.

As such, the Subject Invention possesses insufficient descriptions or is an incomplete invention according to Article 42, Paragraphs 3 and 4 since the original specification of the Subject Invention fails to objectively and specifically describe the pharmacological effect such that PHOSITA can clearly understand the pharmacological effect of compounds of the Subject Invention and reproduce it without adding any particular knowledge on the basis of technical level as of the patent application.

C. Whether the Amendment of the specification of the Subject Invention changed a significant matter

1) Criteria

Article 47, Paragraph 1 of the Old Patent Act prescribes: "An applicant of a patent application may amend the specification or drawing(s) attached to the patent application ··· within the scope of not

for changing significant matter of the specification or drawing(s) which were originally attached to the patent application". Here, the amendment refers to clearly correcting any deficiency or insufficient matter in documents such as the specification. Further, the change of significant matter means to increase, decrease or alter the scope of claims recited in the specification, which brought substantial change so that the identity of substance cannot be recognized between the original claims and the amendment, e.g., the addition of a novel significant matter to the original claims or alteration thereof. Accordingly, an alteration, which does not reach such an extent, is not considered as changing a significant matter (*see* Supreme Court Decision No. 93Hu800 rendered on September 27, 1994).

Further, Article 48 of the Old Patent Act prescribes: "An amendment of increasing, decreasing or altering the scope of a claim within a range of what is described in the specification or drawing(s) originally attached to the patent application before the delivery of a copy of Decision of Patent Publication is regarded not to be a change of significant matter". In this respect, 『a range of what is described in the specification or drawing(s)』 includes not only what is described through direct expression, but also what is regarded to be described by PHOSITA through an objective consideration of the technical substance at the time of the patent application (i.e., what is obvious).

2) As discussed above, the pharmacological effect of the compounds of the Subject Invention is not specifically described in the original specification of the Subject Invention. However, the measured values of agonist activity of compounds of Chemical Formula I on serotonin ($5\text{-}HT_{1A}$ and $5\text{-}HT_{1D}$) were added through the Amendment of the specification for twenty (20) compounds from the Examples of the Subject Invention. This means that specific experimental results were expressed as quantitative values to confirm the pharmacological effect of the Subject Invention.

Thus, the description of pharmacological effect in the original specification is vague (not being based on specific experimental results), while actual experimental results were expressed as quantitative values in the amended specification of the Subject Invention. Even if a known experimental procedure to confirm the pharmacological effect of the compounds of the Subject Invention is described in the original specification, and if it is described that compounds similar to the compounds of the Subject Invention have the same effect as that of the Subject Invention, the result cannot be anticipated since the experimental result cannot be known until the experiment is practically carried out with respect to a chemical substance. Consequently, such experimental results do not correspond to an obvious subject matter that can be derived from the descriptions of the original specification. Accordingly, the pharmacological effect of the Subject Invention was specifically confirmed by the Amendment for the first time. As such, the Amendment completed an incomplete invention since the Amendment corresponds to an addition of new technical matters and departs from the scope described in the original specification.

D. Sub-conclusion

Since the Amendment of the subject case changed a significant subject matter in the specification, the Amendment must be dismissed according to Article 51, Paragraph 1 of the Old Patent Act. Thus, the lower decision, which concluded as such, is proper.

4. Conclusion

As such, the Plaintiff's claim is groundless, and the Court issues a decision as set forth in the Order.

Dated this August 25, 2000

Presiding Judge Hyosook JEON
Judge Gimoon SEONG
Judge Myunggyu LEE

PATENT COURT
THE THIRD DEPARTMENT
DECISION

Case No. 2006Heo6099 Final Rejection (Patent)

Plaintiff: KOREA INSTITUTE OF MACHINERY & MATERIALS
Counsel for the Plaintiff: Youme Patent & Law Firm
Patent Attorney, Dongmyong KIM

Defendant: Commissioner of the Korean Intellectual Property Office("KIPO")
KIPO Litigator: Moonuk LEE, Junho LEE

Closure of Hearing: February 23, 2007

Date of Decision: April 6, 2007

Order

1. Decision of Case 2005Won966 by the Intellectual Property Trial and Appeal Board on May 30, 2006, is hereby vacated.
2. The trial costs shall be borne by the Defendant.

Tenor of Claim

It is the same as the order.

Reasoning

1. Details of Trial Decision

[Plaintiff's Exhibit 1, Plaintiff's Exhibits 2-1 to 2-4, and Proceeding]

A. Present Invention

① Title : "BUBBLE DETECOR OF FUEL LINE"

Filing Date/Application No.: August 2, 2002/2002-45900

Claims (amended on March 18, 2005) are as presented below, and drawings are shown in Appendix 1.

Claim 1. A bubble detector of a fuel line along which liquid fuel is conveyed to a combustion chamber for combustion, comprising: a housing (hereinafter, referred to as 'Element 1') which is formed in a shape of tube penetrating the fuel line, and has one side divided into two parts; a light emitter (hereinafter, referred to as 'Element 2') which has an infrared ray lamp installed at one end of the divided parts of the housing, and emits an infrared ray from the infrared ray lamp; a beam splitter (hereinafter, referred to as 'Element 3') which is obliquely installed so as to run through a dividing point of the housing, and allows a part of the infrared ray emitted from the light emitter to pass through the beam splitter, but reflects the remaining part of the infrared ray; a first light-receiver (hereinafter, referred to as 'Element 4') which is installed at the other end of the divided parts of the housing, and detects the infrared ray that passes through the beam splitter and then enters the first light-receiver without passing through the fuel being conveyed along the fuel line; a second light-receiver (hereinafter, referred to as 'Element 5') which is installed at one side of the housing which is not divided, and detects an infrared ray that is reflected by the beam splitter and then enters the second light-receiver while passing through the fuel being conveyed along the fuel line after a part of the infrared ray within a wavelength range is absorbed; a comparator (hereinafter, referred to as 'Element 6') which is simultaneously connected with the first and second light-receivers, and compares intensity of the infrared ray detected by the first light-receiver with intensity of the infrared ray detected by the second light-receiver; and a calibrator (hereinafter, referred to as 'Element 7') which is connected to the comparator, and calculates a measurement

value of the predetermined amount of bubbles based on difference in intensity of the infrared ray (hereinafter, 'Claim 1 of the claime invention').

Claim 2. (Cancelled)

Claim 3. The bubble detector of claim 1, wherein the first light-receiver and second light-receiver are composed of photodiodes.

Claim 4. The bubble detector of claim 1, wherein the fuel line is a fuel line which conveys liquid LPG applied to an LPG vehicle equipped with a liquid LPG injection system.

Claim 5. The bubble detector of claim 1, wherein the fuel line is a fuel line which conveys DME (Di Methyl Ether) fuel.

④ Inventors: KIM, Chang-up, CHOI, Ji-ho, OH, Seung-mook, and KANG, Kern-yong.

B. Prior Art

The Prior Art relates to "Method and Apparatus for the Optical Measurement of the Concentration of a Particulate in a Fluid" disclosed in U.S. Patent No. 4,193,692, which is published on March 18, 1980, and the technical contents and the drawings thereof are as shown in Appendix 2.

C. Decision of Rejection and Trial Decision of Case

1) The KIPO issued Decision of Rejection dated January 17, 2005 based on the reason that the present invention lacks an inventive step over the Prior Art. The Plaintiff filed an Appeal against the Decision of Rejection on February 17, 2005 to vacate the Decision of Rejection, and amended the claims on March 18, 2005 by defining "light" recited in the claims to "infrared ray" and cancelling claim 2 as described above. The Examiner reexamined the amended claims during the reconsideration before appeal, but upheld the Decision.

2) Thereafter, the Korean Intellectual Property Trial and Appeal Board examined the Appeal (Case 2005Won966), and issued the Trial Decision on May 30, 2006, which dismissed the Plaintiff's Appeal based on the reason that the invention of Claim 1 lacked an inventive step over the Prior Art as disclosed below, and the patent could not be granted when Claim 1 of the claimed invention was rejected.

3) Summary of Trial Decision

a) Comparison of Objectives

The invention of Claim 1 differs from the Prior Art in that the subjects to be measured are fuel and particulates, respectively. However, these two inventions have same objective since both of them intend to measure concentration of a fluid that flows in a fuel line or a chamber.

b) Comparison of Elements and Effects

① Elements 1 and 2 of the invention of Claim 1 are substantially the same as 'the chamber 10 which accommodates a fluid sample, an optical radiation light source 14 (hereinafter, referred to as 'light source') which emits light to the chamber, and a beam shaper 18 which receives light 16 and transmits the light to the chamber 10' in the Prior Art.

② Element 3 of the invention of Claim 1 is not disclosed in the Prior Art. However, a person having ordinary skill in the art ("PHOSITA") could have easily determined whether Element 3 should be mounted, considering a dimension and a type of fluid to be measured. In addition, the invention of Claim 1 does not have any advantageous effect on measuring bubbles or concentration of the fluid by adopting Element 3 of Claim 1.

③ Elements 4 and 5 of the invention of Claim 1 are substantially the same as 'the first optical radiation detector 20 (hereinafter, referred to as 'first detector') which detects a direct light emitted by the beam shaper 18, and the second optical radiation detector 24 (hereinafter, referred to as 'second detector')

which detects a scattered light' in the Prior Art.

④ Elements 6 and 7 of the invention of Claim 1 are substantially the same as 'the first and second detectors 20 and 24 (reference numerals 22 and 26 in the trial decision are apparent typographical errors) which detect light emitted by the beam shaper 18, a signal processor 30 which processes data, and an indicator 34 which indicates a measured result' in the Prior Art.

c) Accordingly, the invention of Claim 1 does not have an distinguishable objective, difficulty of constitution, and advantageous effect, when it is compared to the Prior Art.

2. Summary of Arguments

A. Plaintiff's Argument

The Plaintiff argues that the trial decision should be vacated because the invention of Claim 1 has a distinguishable objective and an advantageous effect when it is compared to the Prior Art. In addition, the invention of Claim 1 has distinct constitution because it relies on different principle to solve technical problems. Thus, the claimed invention does not lack an inventive step.

B. Defendant's Argument

The Defendant argues that the invention of Claim 1 lacks the inventive step over the Prior Art, as disclosed below.

1) Comparison of Objectives

The invention of Claim 1 and the Prior Art have same objective in the same technical field, in that concentration of foreign substances contained in fuel or a fluid is measured by using optical means. In addition, these two inventions rely on same principle to solve the

technical problem in that concentration of foreign substances in a medium is measured by checking an amount of light energy increased or decreased by foreign substances in the medium when the light passes through the medium.

Furthermore, it is a well-known and commonly used technology to detect bubbles or particulates by using absorptiveness or scattering properties of light (however, as discussed below, there is no supporting document disclosing the technology of measuring bubbles by using absorptiveness of light). When the property of light is selected, it is not chosen depending on the subjects to be measured. Rather, such selection is optional.

Therefore, the objectives of the two inventions are substantially the same, and thus the objective of the invention of Claim 1 is not distinguishable.

2) Comparison of Elements

a) The Prior Art does not teach any element corresponding to the housing, Element 1 of the invention of Claim 1, which is divided into two parts. However, Element 1 is a simple design variation because Element 1 merely serves to mount the light receivers, not to ensure a path of light.

b) The light emitter for emitting the infrared ray, Element 2 of the invention of Claim 1, is the same as the light source 14 of the Prior Art. The type of light used between the infrared ray and the visible ray is a mere option which may be changed if necessary, and the Prior Art also discloses that the infrared ray can be used. In addition, since LPG fuel or DME fuel is not defined in the invention of Claim 1, the use of the infrared ray in the invention of Claim 1 does not have any special technical meanings. Therefore, the corresponding elements of the two inventions are substantially the same.

c) The beam splitter, Element 3 of the invention of Claim 1, is not disclosed in the Prior Art, but Element 3 is a configuration

that does not have any particular function because the presence of bubbles can be detected even though light is not split.

d) The first light-receiver, Element 4 of the invention of Claim 1, is an unnecessary configuration because a value of a light amount measured by the first light-receiver is a value already known when the first light-receiver is initially installed, or a value which can be sufficiently obtained by measuring a light amount only once. Element 4 and the first detector 20 of the Prior Art are substantially the same configurations because they have same functions and operations thereof, with mere difference of arrangement.

e) The second light-receiver, Element 5 of the invention of Claim 1, is substantially the same as the second detector 24 of the Prior Art. Particularly, the second light-receiver is substantially the same as the first detector 20 of the Prior Art in that it measures the amount of light running straight without being absorbed in fuel or being scattered.

f) The comparator, Element 6 of the invention of Claim 1, is substantially the same as the signal processor 30 of the Prior Art.

g) The calibrator, Element 7 of the invention of Claim 1, is substantially the same as the configuration of the Prior Art in which concentration of particulates is measured by putting a value R of an output signal created by the signal processor 30 into a straight line made in advance.

h) Since the invention of Claim 1 does not provide any detailed configuration to use absorptiveness of light, the invention of Claim 1 is not distinguished from a typical method that measures particulates in a liquid by using scattering properties of light as disclosed in the Prior Art.

I) Therefore, the invention of Claim 1 does not have the difficulty of constitution.

3) Comparison of Effects

The invention of Claim 1 does not teach the amount of light absorbed by fuel and a method of measuring the same. Further, in the invention of Claim 1, measurement errors may occur in which particulates are present in the fuel or an excessive amount of bubbles are present in the fuel, and thus, accuracy of measurement may be deteriorated, compared to the Prior Art. Thus, the invention of Claim 1 does not have advantageous effects.

3. Determination of Inventive Step of Claim 1 of Claimed Invention over Prior Art

A. Criteria for Determining Inventive Step

The purpose of Articles 29(1)2 and 29(2) of the Korean Patent Act is to reject an invention which lacks novelty or an inventive step, when the invention is disclosed in a publication distributed in Korea or in a foreign country prior to the filing of the patent application, or could have been easily conceived from the publicly known prior art. Thus, the level of difficulty of conception to determine the inventive step should be determined in consideration of difference in technical constitution and a functional effect. Accordingly, when the constitution of the patented technology differ from the prior arts, and exhibits remarkable improvement in functional effect over the prior art, the inventive step of the patented invention should be recognized according to the purpose of the patent system for achieving improvement and development of technologies. In addition, when PHOSITA can deduce an advantageous effect from the disclosure of the detailed description even though the advantageous effect of the patented invention is not disclosed in the detailed description, the effect should be taken into account to determine the inventive step (See Supreme Court Decision 2000Hu3234 delivered on August 23, 2002, Supreme Court Decision 97Hu2033 delivered on April 9, 1999,

and Supreme Court Decision 97Hu44 delivered on December 9, 1997).

Further, when the inventive step of the patented invention is determined, the technical disclosure in the claims are subject to the determination, but when a plurality of constituent elements constitutes the claim, the entire technical spirit in which the respective constituent elements are cooperatively combined is subject to the determination of the inventive step, and the respective constituent elements should not be independently subject to the determination of the inventive step. Therefore, when determining the difficulty of technical constitution as a basis of the inventive step of the patented invention, one should consider the difficulty of the entire constitution in which distinct constituent elements and remaining constituent elements cooperatively combined on the basis of particular principle for solving the problem, rather than technical difficulty in deriving the individual constituent elements separated from the corresponding constituent elements after separating the plurality of constituent elements disclosed in the claim.

B. Detailed Determination

[Plaintiff's Exhibits 2 and 3, Plaintiff's Exhibits 4-1 to 4-4, Defendant's Exhibits 1-1 to 1-4, Defendant's Exhibits 2, 3, and 4 (Among the exhibits, Defendant's Exhibits 2, 3, and 4 are not used as new publicly known exhibits), and Proceeding]

1) Comparison of Objectives

a) Invention of Claim 1

The invention of Claim 1 relates to a bubble detector of a fuel line for an LPG vehicle with an LPLi (Liquid Phase LPG injection, in a manner in which LPG fuel is injected in a liquid state) system.

However, there were problems in that bubbles can be generated in the fuel line of the LPG vehicle with the LPLi system, and the generated bubbles are collected in a fuel injector, such that the bubbles remain in the injector without being circulated at the same time when an

engine is stopped, thereby causing a vapor lock (bubble lock) phenomenon.

The invention of Claim 1 has been made in an effort to solve the problems described above, and the objective thereof is to provide a bubble detector of a fuel line, which is capable of quantitatively measuring bubbles generated in the fuel line of the LPG vehicle and then mixed with and conveyed together with liquid LPG. Such invention is based on the principle in which a part of intensity of the infrared ray passing through the liquid is absorbed within a predetermined wavelength range (wavelength of 2.5 to 3.5 μm) while the infrared ray passes through the liquid LPG in the fuel line, and the amount of transmitted light is increased as the amount of bubbles in the liquid LPG is increased.

b) Prior Art

The Prior Art relates to an apparatus for optically measuring concentration of particulates in a fluid (in the specification, the term 'particulates' is used to define a solid having the nature to scatter light instead of a physical concept including a bubble or a liquid close to a critical state), and to a method of linearizing particular concentration and a signal calculated by the apparatus so that the concentration and the signal have a linear function relationship. The related art discloses a method of inputting a signal of a ratio of intensity of the scattered light and intensity of the transmitted light into a network that linearizes the signal, and a use of such method, to solve the problem in which the ratio and the concentration of the scattered light and the transmitted light do not have a linear function relationship at high concentration of 200 ppm or higher when measuring concentration of the particulates in the fluid. However, this method has drawbacks since it is expensive to design and manufacture the network, and also it is necessary to correct the method depending on each measuring apparatus.

An objective of the Prior Art is to provide an apparatus for measuring concentration of particulates by making an output signal having a linear relationship with concentration and by using an optical measurement method, and to improve an apparatus and a method for

measuring concentration by using transmission and scattering of the optical radiation light.

c) Level of Technology relating to Measurement of Foreign Substances in Fluid other than Prior Art

The related art discloses technologies of calculating particulates by using absorption (means blockage of light by particulates) or scattering of light caused by solid particulates in a liquid, particularly, a method of using a scattered light after generating bubbles by using the particulates as cores (Defendant's Exhibit 2), a method of increasing intensity of the scattered light by increasing a volume of a scattered body by vaporizing particulates or a liquid around particulates or making the particulates or the liquid to be plasma so that particulates of 0.1 μm to 0.3 μm or less in a sample liquid can be detected (Defendant's Exhibit 3), and a method of detecting a change in light in order to monitor a level of a liquid by detecting bubbles mixed with the liquid flowing in piping by using a principle in which light reaches the light receiving element when the piping is sufficiently filled with the liquid, and light from the light source is reflected and refracted and does not reach the light receiving element when the bubbles are mixed with the liquid or no liquid is present (Defendant's Exhibit 4) to improve a capability to detect and calculate the particulates of about 1 μm in pure water used to manufacture semiconductor devices.

d) As described above, the Prior Art relates to using the properties of light which is scattered when measuring concentration of solid particulates in a general fluid, whereas the invention of Claim 1 relates to using the properties of the infrared ray which is absorbed in the fuel when measuring bubbles in the fuel in the fuel line of the LPG vehicle. The prior arts are directed to detect and calculate concentration by merely using the scattered light and the refracted light. In addition, the subjects of the prior arts are pure water, a sample liquid, water in the piping, and the like, used to manufacture the semiconductor devices, instead of fuel as recited in the invention

of Claim 1.

Therefore, the invention of Claim 1 differ from the Prior Art in that specific technical problems of these two inventions are different, and the principle or the method made for solving the problems is not inherent in the Prior Art nor easily conceived from the Prior Art (even though the related art other than the Prior Art is included), and as a result, the objective of the invention of Claim 1 is distinguishable.

2) Comparison of Elements

a) Regarding Element 1

Element 1 is 'the housing which is formed in a shape of tube penetrating the fuel line, and has one side divided into two parts', and the Prior Art has a configuration in which light is emitted from the light source to the single chamber through the beam shaper, and does not have a configuration corresponding to the housing. However, Element 1 is a configuration for installing the light emitter and the first and second light-receivers, and thus, it does not have any particular technical difficulty, because the housing is provided to integrally install the individual components. However, Element 1 is derived from the technical spirit that forms the two light-receivers by dividing the light-receiver which penetrates the fuel line, and the light-receiver which does not penetrate the fuel line. The Prior Art fails to disclose such technical spirits. Thus, it would not be obvious for PHOSITA to select and adopt Element 1 to the apparatus for measuring foreign substances in fuel by using light, considering the Prior Art or the technical level at the time of filing the present application.

b) Regarding Element 2

Element 2 is ‘the light emitter which has an infrared ray lamp installed at one end of the divided parts of the housing, and emits an infrared ray from the infrared ray lamp’, and Element 2 corresponds to the light source of the Prior Art which emits light within the whole

region including a visible ray and from an infrared ray to an ultraviolet (UV) ray.

The infrared ray is selected for Element 2 is to use the nature of the infrared ray in which a part of the infrared ray within a particular wavelength region is absorbed while passing through the LPG fuel being conveyed via the fuel line, that is, the nature in which when a vapor ratio (or dryness) is increased in the liquid in a saturated state, absorption of light is decreased, and intensity of light passing through the liquid in a saturated state is increased compared to a case in which only the liquid is present, In the specification of the Prior Art, it is described ‘it may be other appropriate detecting devices when the infrared ray is used. Energy of the transmitted light may be decreased even by absorption’. However, from this description, it could not be determined that the Prior Art discloses or teaches the motivation to reach Claim 1 of the claimed invention which uses the nature of the infrared ray absorbed in the fuel (theoretically, light has all the properties such as reflection, absorption, and refraction in accordance with a state of a surface, density, and color of an object with which the light collides, but the invention of Claim 1 uses the main property, that is, absorption among the properties of light). In this regard, the Defendant argues that because the type of fuel is not limited in the invention of Claim 1, there is no special technical meaning in selecting the infrared ray, but the wavelength region itself within which a part of the infrared ray is absorbed does not greatly vary regardless of whether the type of fuel is LPG or DME, and the wavelength region within which a part of the infrared ray is absorbed can be adjusted as necessary, such that it cannot be said that there is no technical meaning in selecting the infrared ray because the type of fuel is not defined in the claim. Accordingly, the Defendant's argument is not persuasive.

c) Regarding Element 3

Element 3 is 'the beam splitter which is obliquely installed so as to

run through a dividing point of the housing and allows a part of the infrared ray emitted from the light emitter to pass through the beam splitter, but reflects the remaining part of the infrared ray', and the Prior Art has a configuration in which light is emitted directly to the single chamber, and does not have a configuration corresponding to the beam splitter.

There is no particular technical difficulty of constitution in which the beam splitter, Element 3, is obliquely installed, and divides the infrared ray into the infrared ray that passes through the beam splitter, and the infrared ray that is reflected by the beam splitter. However, the beam splitter, Element 3, is an essential configuration for achieving the distinguishable technical objective to quantitatively detect the amount of bubbles contained in the fuel while serving to receive light emitted from the light emitter, allowing a part of light to pass through the beam splitter and then enter the first light-receiver, and allowing the remaining of the light to be reflected, penetrate the fuel line, and then enter the second light-receiver. Therefore, the configuration of the beam splitter could not be easily conceived from the Prior Art that does not provide the above technical objective.

d) Regarding Element 4

Element 4 is 'the first light-receiver which is installed at the other end of the divided parts of the housing, and detects the infrared ray that passes through the beam splitter and then enters the first light-receiver without passing through the fuel being conveyed along the fuel line', and Element 4 corresponds to the first detector of the Prior Art. However, the first light-receiver is a device which detects the infrared ray that travels straight without passing through the fuel, and detects intensity of the infrared ray that is emitted from the light emitter, penetrates the beam splitter, and travels straight, and the comparator simultaneously connected with the second light-receiver serves to compare intensity of the infrared ray detected by the second light-receiver by utilizing data (that can be easily understood and

reproduced by PHOSITA in consideration of the detailed description in the specification although not explicitly described in the specification) produced by multiplying a value, which is detected by the first light-receiver, by a ratio (a numeric value that may be obtained by a relatively simple experiment) of the infrared ray passing through pure fuel having no bubble. On the contrary, the first detector of the Prior Art is a device which detects the amount of light that passes through the fluid without being scattered by particulates in the fluid or absorbed in the fluid, and serves to generate a signal, which is compared to a signal of the second detector that detects the amount of light scattered by particulates in the fluid, and transmit the signal to the signal processor. Accordingly, the corresponding elements of the two inventions are different from each other in terms of the subject to be measured and the function that is carried out in the entire apparatus for measuring the foreign substances in a liquid. Furthermore, since the infrared ray detected by the first light-receiver and the infrared ray detected by the second light-receiver are divided from the same light source simultaneously emitted from the light source, the first light-receiver, Element 4 of the invention of Claim 1, always provides a reference value relative to a value detected by the second light-receiver, such that it would be obvious for PHOSITA to deduce that the effect in that the amount of bubbles can be stably measured even though intensity of the infrared ray emitted from the light emitter varies. In this regard, the Defendant argues that the value detected by the first light-receiver is a numeric value obtained by measuring the bubbles once, and thus the first light-receiver is an unnecessary configuration, and has the same configuration as the first detector of the Prior Art because the first light-receiver corresponds to the simple change in arrangement of the first detector of the Prior Art. However, the first light-receiver needs a reference value relative to the second light-receiver to measure the amount of bubbles stably and effectively. In addition, as described above, the first detector of the claimed invention differ from the first detector of the Prior Art in that they

have different functions in the entire measurement apparatus. Therefore, the Defendant's argument is not persuasive.

e) Regarding Element 5

Element 5 is 'the second light-receiver which is installed at one side of the housing which is not divided, and detects an infrared ray that is reflected by the beam splitter and then enters the second light-receiver while passing through the fuel being conveyed along the fuel line after a part of the infrared ray within a wavelength range is absorbed', and Element 5 corresponds to the first detector or the second detector of the Prior Art. However, the second light-receiver, Element 5, is a device that detects intensity of the transmitted direct light, that is, the infrared ray which is reflected by the beam splitter, and the infrared ray within a particular wavelength region is absorbed while passing through the fuel in the fuel line (a part of the infrared ray may be also scattered by the bubbles although not disclosed in the specification), but the first detector of the Prior Art is a device which detects the amount of light that passes through the fluid without being scattered by particulates in the fluid or absorbed in the fluid, and compares amount of light detected with the amount of scattered light detected by the second detector. Further, the second detector of the Prior Art is a device that measures the value of concentration of particulates by detecting the amount of light scattered by particulates in the fluid.

Therefore, the first detector is the same as the second light-receiver, Element 5, in that the first detector and the second light-receiver detect a direct light that passes therethrough without being absorbed or scattered, but the first detector and the second light-receiver have different functions in that the first detector is a device that obtains a reference value instead of a measurement value, such that the configuration of the first detector could not be easily substituted with the second light-receiver by PHOSITA (even though points at which the detector and the second light-receiver measure the amount of light

that travels straight without being absorbed or scattered in the liquid are coincident with each other as argued by the Defendant, the two configurations are absolutely different from each other in terms of functions that are carried out by the entire apparatus cooperatively coupled to other configurations, and as a result, the second light-receiver could not be easily derived from the first detector without the cooperatively coupled relationship and functions). In addition, the second detector is the same as the second light-receiver, Element 5, in terms of a function that acts as a measurement value, but the subjects to be measured are different from each other in that the second detector measures light scattered by particulates, and as a result, the second detector has a configuration different from the second light-receiver.

f) Element 6

Element 6 is 'the comparator which is simultaneously connected with the first and second light-receivers, and compares intensity of the infrared ray detected by the first light-receiver with intensity of the infrared ray detected by the second light-receiver', and Element 6 corresponds to 'a configuration that creates an output signal by processing, with the signal processor 30, a signal from the first detector 20 that detects a direct light passing through the fluid and a signal from the second detector 24 that detects the scattered light' in the Prior Art. However, the detailed description of the Prior Art discloses that "it has been found that the ratio (R=S/[D+KS]) of the scattered light to the sum of the direct light D plus the scattered light S multiplied by a constant K is substantially a linear function of the concentration over a range of several orders of magnitude", and "the signals S (scatted light) and D (direct light) are applied to signal processor 30 which develops the processed signal R which includes the constant K. Thereafter, the constant K is adjusted by means of potentiometers 54 and 55". According to the disclosure above, since the Prior Art also disclose a configuration that compares intensity of

the direct light and the scattered light inputted by the signal processor 30 with the potentiometers 54 and 55, corresponding configurations of the two inventions are same in that intensity of the light detected by the first light-receiver is compared with intensity of the light detected by the second light-receiver (the first and second detectors of the Prior Art). However, the comparator, Element 6 of the invention of Claim 1, may approximately detect the amount of bubbles in the fuel by comparing intensities of the infrared rays of the first and second light-receivers (e.g., in a case in which the light source is 200, intensity of the infrared ray detected by the first light-receiver is 100, and a ratio of the light that passes when no bubble is present is 70%, it can be detected that no bubble is detected when the intensity of the infrared ray detected by the second light-receiver is 70, and that a large amount of bubbles are present when the intensity thereof is 90). The invention of Claim 1 differ from the Prior Art in that in the Prior Art, concentration of particulates can be measured only when linearization is carried out by the signal processor.

g) Regarding Element 7

Element 7 is 'the calibrator 23 which is connected to the comparator 21, and calculates a measurement value of the predetermined amount of bubbles based on difference in intensity of the infrared ray', and Element 7 corresponds to the signal processor 30 of the Prior Art. However, the detailed description of the Prior Art discloses that "one way of measuring the concentration of a particulate contained in fluid is to plot curve 46 for known values of concentration and then using this graph to find the unknown concentration after the signal corresponding to the scattered to direct light is obtained", and "this linearization is achieved without the necessity of having to provide a special linearizing network following a processor developing the simple ratio of the scattered to the transmitted light P, but instead employs a slightly more complex signal processor which linearizes the relationship by adding to the direct light signal in the denominator the

scattered light component suitable multiplied by a selectable constant K". According to the above disclosure, since the Prior Art has a configuration that measures concentration of particulates by putting an output signal value R created by the signal processor 30 into a straight line made in advance, such configuration is the same as Element 7 in that Element 7 calibrates the amount of bubbles and a measurement value of concentration of particulates. However, the calibrator, Element 7, can measure the amount of bubbles by using a relatively simple configuration compared to the signal processor of the Prior Art that performs complex linearization, such that it can greatly reduce manufacturing costs. Thus, the invention of Claim 1 has an advantageous effect over the Prior Art.

h) Summary of Comparison Result

As described above, the entire configuration of the invention of Claim 1 is to compare a measurement value of the direct light with a reference value calculated from the light that does not pass through the fuel, by using a principle in which intensity of the infrared ray transmitted without being absorbed in the fuel is increased as the amount of bubbles is increased while a part of the infrared ray within a wavelength range passes through the fuel, in order to solve the technical objectives to quantitatively measure the amount of bubbles contained in the fuel. On the contrary, the Prior Art is intended to compare the scattered light caused by particulates in the liquid with the direct light passing through the liquid, and thereafter measure concentration of particulates by an operation of allowing the concentration of the particulates to have a linear relationship even though the concentration thereof is in a predetermined range or higher. Therefore, the Prior Art does not disclose or teach the configuration corresponding to Element 1 (housing divided into two parts), and the configuration corresponding to Element 3 (beam splitter). In addition, the respective constituent elements of the Prior Art, which correspond to Elements 2, 4, 5, 6, and 7 of the invention of Claim 1, are

significantly different from Elements in terms of functions and operations, and these differences result from differences in terms of specific technical objectives and principles for solving the objectives between the invention of Claim 1 and the Prior Art. Therefore, compared to the Prior Art, the difficulty of constitution of the invention of Claim 1 as a whole should be recognized.

3) Comparison of Effects

According to the disclosure of the invention of Claim 1, the occurrence of bubbles and its cause may be understood by quantitatively measuring the amount of bubbles generated in the fuel line of the LPG vehicle with the LPLi system. Furthermore, according to the invention of Claim 1, the amount of bubbles may be accurately measured using configuration that compares a relative reference value with a measurement value of the second light-receiver, without separately installing a configuration to compensate for difference even though the light amount is unstable. Thus, a simple structure and the structure applied to various types of fuel lines result in greatly reducing manufacturing costs. Compared to the related art which discloses a method of obtaining a ratio of the direct light and the scattered light and then performing special linearization network, the Prior Art discloses a linear relationship which is present between concentration and measured values even though concentration of particulates in the fluid is high, and a signal processor, which requires low design and manufacturing costs and need not be corrected depending on the measuring devices. While particulates in the liquid is measured in the Prior Art (there is no document supporting that the Prior Art can effectively measure bubbles in the fuel), according to the invention of Claim 1, the amount of bubbles in the fuel can be measured effectively and stably by using a simple structure without using precise equipment such as the signal processor even though the light amount is unstable, thereby reducing manufacturing costs. Thus, the invention of Claim 1 has an advantageous functional effect over

the Prior Art.

In this regard, as described in Section 2.B.(3), the Defendant argues that in the case of the invention of Claim 1, since a measurement error occurs when particulates or an excessive amount of bubbles are present in the fuel, the invention of Claim 1 does not have any advantageous effect over the Prior Art. However, the fuel used in the invention of Claim 1, is typically filtered to remove particulates. In addition, the invention of Claim 1 is not applied for a case in which the bubbles are abnormally generated. Therefore, the Defendant's argument is not persuasive.

C. Sub-Conclusion

The invention of Claim 1 has a distinguishable objective over the Prior Art. Also, the invention of Claim 1 has the difficulty of constitution because the invention of Claim 1 differs from the Prior Art in terms of the principle for solving the problem and the entire configuration with cooperatively coupled constituent elements could not be easily conceived from the Prior Art. In addition, the invention of Claim 1 also has an advantageous effect over the Prior Art. Thus, it is concluded that the invention of Claim 1 does not lack the inventive step over the Prior Art. Therefore, the trial decision of this case, which reached the different conclusion, is hereby overturned.

4. Conclusion

Accordingly, the Plaintiff's Petition requesting the revocation of the trial decision of this case is persuasive, thus, hereby granted.

Presiding Judge Gimoon SUNG
Judge Kyungtae KANG
Judge Dongsoo HAN

[Appendix 1]

Present Invention

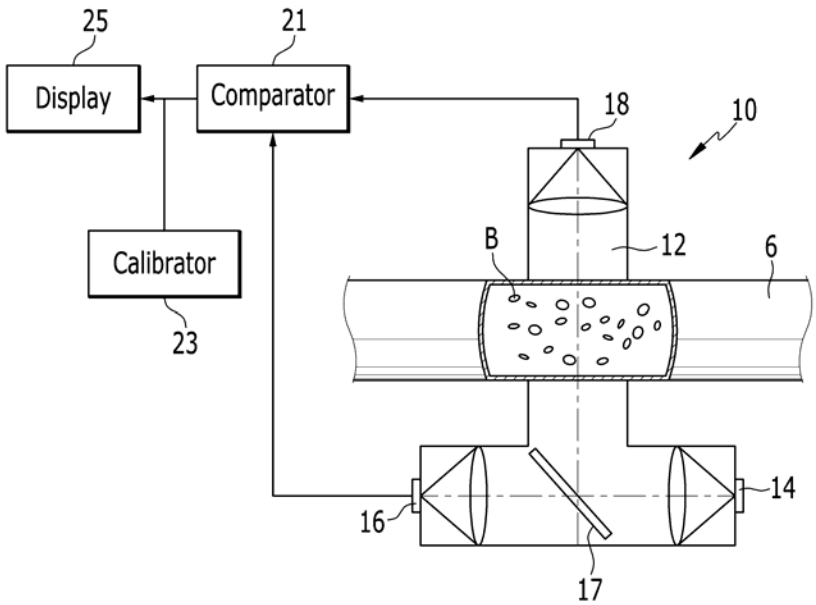


Fig. 1: A schematic view showing a structure of a bubble detector of fuel line according to one embodiment

6: Fuel line
10: Bubble detector
12: Housing
14: Light Emitter
16: First light-receiver
18: Second light-receiver

B: Bubble

[Appendix 2]

Prior Art

1. Details of Invention

The Prior Art relates to an apparatus and a method for optically measuring concentration in which an output signal is prepared as a linear function of fluid concentration, and to an apparatus and a method for measuring concentration of particulates, the apparatus including a chamber 10 which stores a fluid sample 12, and a light source 14 which generates rays that is transmitted through the sample, in which first and second detectors 20 and 24 are disposed, the first detector 20 receives a direct light and produces an electric signal corresponding to intensity of light passing through the chamber and the fluid sample, and the second detector 24 is disposed at a predetermined angle with respect to the direct light, inputs and compares a signal corresponding to intensity of scattered light that is scattered at a predetermined angle, and then determines a ratio of signals of the first and second detectors as an integer.

2. Drawing

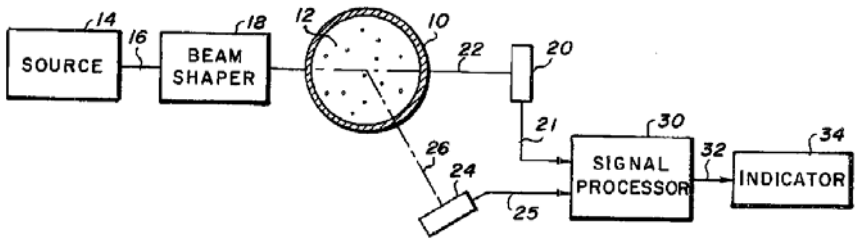


Fig. 1

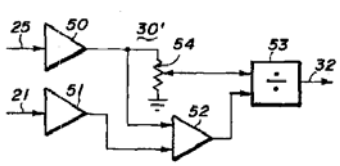


Fig. 2A

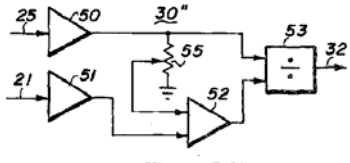


Fig. 2B

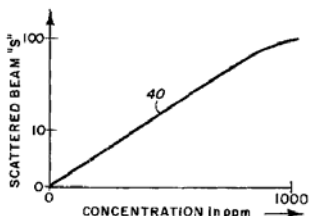


Fig. 3A

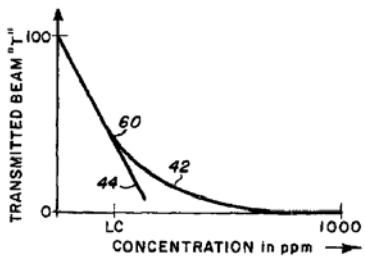


Fig. 3B

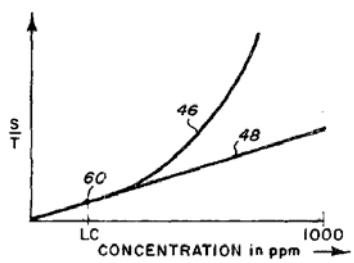


Fig. 3C

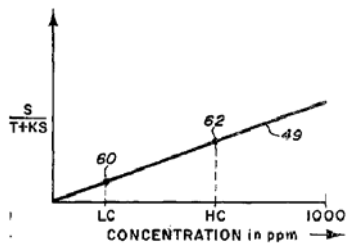


Fig. 3D

PATENT COURT
THE THIRD DEPARTMENT
DECISION

Case No. 2013Heo9324 Invalidation of Registration (Patent)

Plaintiff: Damokecotech Co. Ltd
Counsel for Plaintiff:
Youngik HWANG, Patent attorney

Defendant: Nak Mo LIM
Counsel for Defendant:
Byeongsoon JEONG, Patent attorney

Closure of Hearing: March 27, 2014

Date of Decision: May 9, 2014

Order

1. Portions regarding Claims 1 to 5 of Korean Patent No. 10-0894397 in the decision of the Intellectual Property Tribunal ("IPT") issued on October 29, 2013 in Case No. 2012Dang3008 shall be cancelled.
2. The trial costs shall be borne by Defendant.

Tenor of Claim

It is the same as the order.

Reasoning

1. Background facts

A. Plaintiff's patented invention

1) Title: Automatic open-close device using wind force and gravity

2) Filing date/registration date/registration No.: July 15, 2008/April 14, 2009/894397

3) Patentee: Plaintiff and Yeon-Soo Han

4) Claims

1. An automatic open-close device using wind force and gravity, including an open-close part consisting of rotational plates, rotation parts, rotation weights, and a connection part, the automatic open-close device having: a pair of the rotational plates comprising a first rotational plate and a second rotational plate shaped as a semicircular plate formed symmetrically based on the connection part; a pair of the rotation parts comprising a first rotation part and a second rotation part connecting the rotational plate and the connection part and rotating the rotational plates based on the connection part to an orthogonal direction; a pair of the rotation weights comprising a first weight and a second rotation weight extended from the rotational plate towards the connection part and formed such that gravity is exerted on an extended surface; and the connection part connecting the rotational plate and the rotation part and having a hollow part inside such that the rotation weight can come in and go out when the rotational plates rotate to the orthogonal direction.

2. The automatic open-close device using wind force and gravity of Claim 1, further comprising a drive part, wherein the drive part comprises a propeller, which is a device generating an impellent force

when rotated by a power generator; a motor, which is a power generator connected with a rotation axis of the propeller and generating a power to the propeller; and a motor attachment plate, which attaches the motor to an outside device.

3. The automatic open-close device using wind force and gravity of Claim 2, wherein the propeller varies a pitch angle (blade angle), which is an inclination of a cross-section of a propeller blade to a rotation surface.

4. The automatic open-close device using wind force and gravity of Claim 3, further comprising a housing, which includes the open-close part and the drive part in its inside and shaped as a cylinder.

5. The automatic open-close device using wind force and gravity of Claim 4, wherein the housing further comprises a rotational plate stop part formed in order to prevent collision with the propeller when the rotational plate is positioned to its original position by gravity to the rotation weight after wind force by the drive part to the rotational plate is stopped.

6 and 10. (*cancelled*)

7 to 9. (*descriptions omitted*)

5) Main drawings: [Annex 1] the same as "Plaintiff's patented invention" (hereinafter, Plaintiff's patented invention is referred to as "the Subject Patent," and Claim 1 of the Subject Patent is referred to as "Claim 1" and other claims will be referred to in the same manner).

B. Prior Arts

1) Prior Art 1 (*see* Exhibit No. K-4)
   a) Title of Device: Ventilation device of pig farm
   b) Filing date/Registration date/Publication date/Registration No.: November 25, 2004/February 16, 2005/March 10, 2005/20-0376902

c) Main contents and drawings: the same as described in Section 1 of [Annex 2: Prior Arts]

2) Prior Art 2 (*see* Exhibit No. E-1)

a) Title of Device:Apparatus for capturing insects

b) Filing date/Registration date/Publication date/Registration No.: September 28, 2005/February 2, 2006/February 8, 2006/20-0408283

c) Main contents and drawings: the same as described in Section 2 of [Annex 2: Prior Arts]

C. Procedural history of the IPT decision and action

1) With regard to the Subject Patent, the defendant filed an invalidation action against the patent of patentees, Plaintiff and Yeon-Soo Han, with the IPT on November 22, 2012 under Case No. 2012 Dang 3008 on the grounds that ① Claims 1 to 5 could have been easily conceived by a person having ordinary skill in the art ("PHOSITA") from Prior Art 1, and ② Claims 7 to 9 are not supported by the specification.

2) IPT issued the decision on October 29, 2013 ruling that "since inventive step of Claims 1 to 5 is denied by Prior Art 1, the patent thereon is invalidated, and since Claims 7 to 9 are supported by the specification, Defendant's action is partially dismissed."

3) Consequently, Plaintiff, one of co-appellants, filed a trial against Defendant on November 28, 2013 seeking a cancelation on the portions regarding Claims 1 to 5 from the IPT decision.

[Recognition basis] Exhibit Nos. K-1 to K-4, and E-1 and overall pleadings

2. Summary of Parties' arguments and main issue of the Subject Case

A. Summary of Parties' arguments

1) Plaintiff's ground to cancel the IPT decision
   a) The basic structure is different because the device is closed, not by the gravity of the rotational plate, but by the weight of the rotation weight against the gravity of the rotational plate in Claim 1, whereas the device is closed by the downward action of the weight and gravity of a rotational plate in Prior Art 1. Further, they are different because the rotation part of Claim 1 serves as the support of a lever in Claim 1, whereas the coupling part of Prior Art 1 merely serves as a hinge. Moreover, Prior Art 1 does not disclose any feature corresponding to the connection part of Claim 1.
   b) Claim 1 provides different and remarkable effects compared to Prior Art 1 in that the device can be easily opened and calmly closed even by weak wind force by using a principle of the lever to the rotational plate, and a rotation of the rotational plate is smoothly operated by not allowing dead insects to be caught in a gap of the rotation weight by means of the connection part.
   c) Since Claims 2 to 5 directly or indirectly depend from Claim 1, as far as inventive step of Claim 1 is recognized, inventive step of Claims 2 to 5 should be recognized.
   d) Thus, since inventive step of Claims 1 to 5 is not denied, the IPT decision contrary thereto should be cancelled.

2) Summary of Defendant's argument
   a) Claim 1 is substantially identical to a ventilation device wherein two semicircular shutter plates are hinge-connected in a discharge pipe to have a V-shape and a weight is provided in each shutter plate so as to be opened and closed by wind

force. Further, the connection part of Claim 1 is no more than a mere addition or change of a hollow part to a coupling part for connecting the shutter plates (one hinge connection) in Prior Art 1 such that incoming and outgoing rotation weight is possible for a smooth operation of the rotational plate. Thus, the connection part of Claim 1 could have been easily derived by PHOSITA from the corresponding feature of Prior Art 1.

b) The effect of Claim 1 that "the opening and closing is automatically possible without any power connection" is identical to or could be sufficiently expected from the corresponding feature of Prior Art 1.

c) Features added to Claims 2 to 5 are identical to or no more than a mere application of well-known techniques to Prior Arts 1 and 2. Thus, Claims 2 to 5 could have been easily conceived by PHOSITA from Prior Arts 1 and 2.

d) Therefore, since inventive step of Claims 1 to 5 is denied and registration thereof should be cancelled, the IPT decision is reasonable.

B. Main issue of the Subject Case

The main issue of the Subject Case summarized by the parties' arguments resides in whether inventive step of Claims 1 to 5 is denied by Prior Arts 1 and 2.

3. Whether inventive step of Claims 1 to 5 is denied

A. Comparison in technical field (common comparison)

1) The present invention relates to the automatic open-close device, and more specifically, the automatic open-close device using wind force and gravity (see Paragraph No [1] at Page 3 of Exhibit No. K-2). Meanwhile, Prior Art 1 relates to a ventilation device for

discharging air inside the pig farm, comprising a discharge induction pipe for inducing air discharged from the pig farm to an upstream portion and coupled to a ventilator, and the device is to prevent contaminations such as dusts or ammonia gas (see lines 1 and 2 of "Techniques to which the device belongs and prior arts" and lines 3 and 4 Technical objective to be achieved by the device at Page 2 of Exhibit No. K-4), and Prior Art 2 relates to an apparatus for capturing insects, and more specifically, an apparatus for capturing the insects by using a drive unit such as a motor and a light source (see lines 1 and 2 of "Techniques to which the device belongs and prior arts" at Page 2 of Exhibit No. E-1).

Upon reviewing the above, Prior Art 1 shares substantially the same technical field as the Subject Patent in view of the automatic open-close device for opening and closing a passage by using the wind force (the ventilator) and Prior Art 2 shares substantially the same technical field as the Subject Patent in view of the apparatus for capturing the insects in the field where the automatic open-close device of the Subject Patent is used.

2) In this respect, Plaintiff argued that the technical fields are different since the uses are different in that the Subject Patent relates to an automatic open-close device for opening and closing an insect capturing apparatus, whereas Prior Art 1 relates to an open-close device for opening and closing a stench discharge pipe of a pig farm. However, the specification of the Subject Patent merely describes "an automatic open-close device using wind force and gravity" but does not define a use thereof. Thus, the Plaintiff's argument above is groundless.

B. Comparison in objective (common comparison)

1) The Subject Patent provides a non-powered non-disposable automatic open-close device using wind force and gravity, wherein an automatic switch for inflow of air is opened by using wind force of a

propeller or wind and automatically closed by using gravity (a center of gravity) when the wind force or wind is blocked (*see* Paragraph No. [6] at Page 5 of Exhibit No. K-2).

Meanwhile, Prior Art 1 prevents environmental pollution by allowing air discharged from the pig farm to be discharged toward the upstream portion (*see* lines 1 and 2 "Technical objective to be achieved by the device" at Page 2 of Exhibit No. K-4), and Prior Art 2 provides an apparatus for capturing insects with minimal noise and simplifying a structure thereof while capturing the insects by means of a drive unit such as a motor and a light source that are harmless to the human body and animals and do not cause smell (*see* lines 1 and 2 "Technical objective to be achieved by the device" at Page 2 of Exhibit No. E-1).

2) Upon reviewing the above, the Subject Patent and Prior Art 2 share a common objective in providing an apparatus for capturing insects. Further, the Subject Patent prevents the escape of insects by blocking the passage using an automatic switch provided in the cylindrical housing, and Prior Art 1 allows the air discharged from the pig farm to the upstream portion via the ventilator but blocks the air inside the pig farm so as not to escape to the outside when a shutter plate, which is provided in the cylindrical discharge pipe, is closed. Thus, both inventions have substantially the same technical objective in that the rotational plate (the shutter plate) provided in the cylindrical housing (the discharge pipe or discharge induction pipe) is opened by the wind and automatically closed by using gravity (the center of gravity) when there is no wind force from the propeller (the ventilator), thereby blocking the inside/outside passages.

3) In this regard, Plaintiff argued that the Subject Patent is for capturing the insects in a capturing net by opening and closing the rotational plate and to prevent escape of the insects, whereas Prior Art 1 is for discharging harmful gas and to block the inflow of outside air by opening and closing the shutter plate; thus, both inventions are

different in objective. However, the specification of the Subject Patent describes that the technical objective to be achieved by the Subject Patent is to provide a non-powered, non-disposable automatic open-close device using wind force and gravity, wherein the automatic switch for inflow of air is opened by using the wind force of the propeller or the wind and automatically closed using gravity (the center of gravity), when the wind force or wind is blocked (see Paragraph No. [6] at Page 5 of Exhibit No. K-2) and the Subject Patent is used not only in capturing the insects for pest control but also in a greenhouse installation and may be used as an industrial ventilation facilities (see Paragraph Nos. [15] and 16 at the same page). Thus, the use thereof is not deemed to be limited to the capturing of insects. Further, it is obvious to PHOSITA that the Subject Patent may be used for blocking the harmful gas in the greenhouse installation or ventilation facilities. Therefore, since it is difficult to view that the Subject Patent has uniqueness in objective compared to Prior Art 1, Plaintiff's argument is groundless.

C. Judgment on inventive step of Claim 1

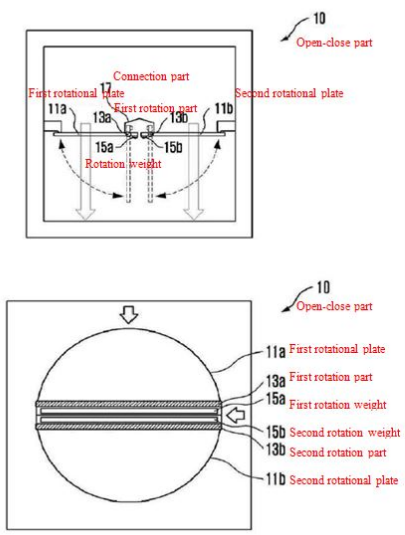
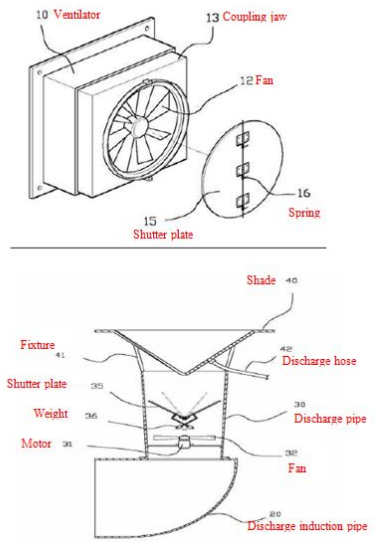
1) Analysis on constitutional elements

Claim 1 is directed to "an automatic open-close device using wind force and gravity, including an open-close part consisting of rotational plates, rotation parts, rotation weights, and a connection part (Feature 1), the automatic open-close device having: a pair of the rotational plates comprising a first rotational plate and a second rotational plate shaped as a semicircular plate formed symmetrically based on the connection part (Feature 2); a pair of the rotation parts comprising a first rotation part and a second rotation part connecting the rotational plate and the connection part and rotating the rotational plates based on the connection part to an orthogonal direction (Feature 3); a pair of the rotation weights comprising a first weight and a second rotation weight extended from the rotational plate towards the connection part

and formed such that gravity is exerted on an extended surface (Feature 4); and the connection part connecting the rotational plate and the rotation part and having a hollow part inside such that the rotation weight can come in and go out when the rotational plates rotate to the orthogonal direction (Feature 5).”

2) Comparison in Feature 1

Feature 1 is an automatic open-close device including the open-close part comprising the rotational plates, the rotation parts, the rotation weights, and the connection part. However, said feature corresponds to Prior Art 1 wherein the shutter plates (35) provided in a discharge pipe (30) are formed semi-circularly to have a V-shape and a weight (36) is provided in each shutter plate (35) so that the shutter plate (35) blocks a discharge pipe (30) by means of usual weight of the weight (36) (see Figs. 1 and 5 of Section 1 in [Annex 2]).

Claim 1 (Figs 1a and 1b)	Cited Reference 1 (Figs. 1 and 5)[1]
	

1) Fig. 1 of Prior Art 1 shows an embodiment where the shutter plate (15) is provided vertically, and Fig. 5 of Prior Art 1 shows an embodiment

Upon reviewing the above, Feature 1 and the corresponding feature of Prior Art 1 are identical in that the open-close device of blocking the passage by rotating the rotational plate (the shutter plate) based on the rotation part by the center of gravity and the gravity by using the rotation weight (the weight) if there is no external factor. However, Prior Art 1 does not disclose any feature corresponding to the connection part (17) in Feature 1, and Fig. 1 of Prior Art 1 merely shows three coupling parts (“hinges”) for connecting two shutter plates, of which specific comparison will be reviewed in “6) Comparison in Feature 5” below.

3) Comparison in Feature 2

Feature 2 is a pair of rotational plates comprising a first rotational plate and a second rotational plate shaped as a semicircular plate formed symmetrically based on the connection part. However, said feature corresponds to the semicircular shutter plates (15, 35) provided to have the V-shape in Prior Art 1 (see Figs. 1 and 5 of Section 1 in [Annex 2]). According to the embodiment of Prior Art 1 where the shutter plate is provided vertically, the pair of shutter plates (15) are connected to each other by three hinges and a fixing hole is shown in the uppermost and lower most portions of an engagement jaw of a circular frame where the shutter plate (15) is provided, wherein the fixing hole projects such that the upper and lower hinge axes of the shutter plate can be fixed (see Fig. 1 above).

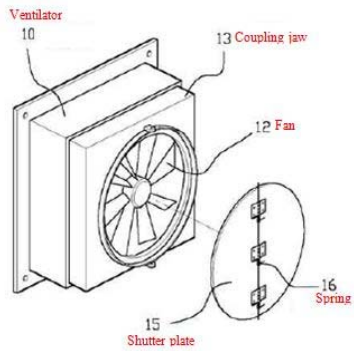


Fig. 1 of Cited Reference 1

where the shutter plate (35) is provided horizontally; thus, the drawings will be used separately.

Both features are substantially identical in paring two semicircular rotational plates (the shutter plates) to be positioned symmetrically and acting to open or close the circular passage while rotating based on the center portion of the circular passage.

4) Comparison in Feature 3

a) Feature 3 is the pair of rotation parts comprising the first rotation part and the second rotation part connecting the rotational plate and the connection part and rotating the rotational plates based on the connection part to the orthogonal direction. However, said feature corresponds to Prior Art 1 wherein the pair of semicircular shutter plates (15) are connected by three hinges and rotate based on the upper and lower hinge axes and the hinges (see Figs. 1 and 5 of Section 1 in [Annex 2]).

Upon comparing both features, Feature 3 is paired to rotate one rotational plate (the first and second rotational plates) respectively, whereas three hinges and the upper and lower hinge axes in Prior Art 1, which correspond to Feature 3, rotate the pair of shutter plates (15) simultaneously. However, in constituting the device of rotating two semicircular rotational plates (the shutter plates) that block the passage, whether to have one integrated rotation axis or two separated axes could have been appropriately selected by PHOSITA upon considering the radius of rotation of the rotational plate or target of which inflow and outflow is controlled, the material of the rotational plate, the structure of the discharge pipe, etc.

b) Thus, Feature 3 could have been easily derived by PHOSITA from the corresponding feature of Prior Art 1.

5) Comparison in Feature 4

a) Feature 4 is the pair of rotation weights comprising the first rotation weight and the second rotation weight extended from the rotational plate towards the connection part and formed such that gravity is exerted on the extended surface. However, said feature

corresponds to Prior Art 1 wherein the weight (36) is provided in each shutter plate (35) such that the shutter plate (35) blocks the discharge pipe (30) by means of the usual weight of the weight (36) (see Page 3, lines 4-7 of Exhibit No. K-4).

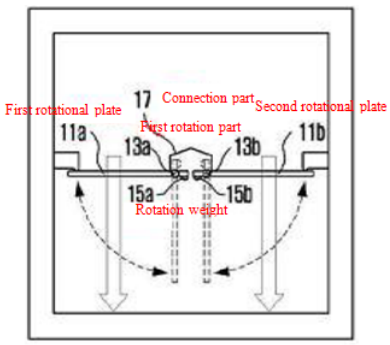
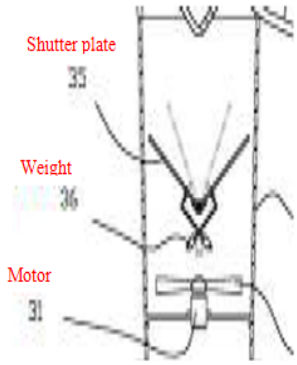


Fig. 3a of the Subject Patent

"



Expanded view of Fig. 5 of Cited Reference 1

b) Both features are identical in view of the pair of rotation weights (the weight) formed in the extended portion from the rotational plate (the shutter plate) to exert the load to the rotational plate (the shutter plate). However, the rotation weight in Feature 4 is formed on one surface of the rotation part extended beyond each rotation part and provided in a direction opposite to the direction in which the rotational plate moves, thereby moving the rotation part with the lever (that is, the force point and the point of application act in opposite directions), whereas the weight in Prior Art 1 is not extended from the rotation axis but extended to the shutter plate (35) through a rod so that the weight is provided in the same direction as the shutter plate moves (that is, acting in the same direction as the gravity acts). Thus, both features are different in the configuration and position of providing the weight and the operation theory thereof. Further, since the hinge of the shutter plate in Prior Art 1 includes one rotation axis, the position of the weight in Prior Art 1 should be changed when the configuration is

changed to provide the weight in the portion extended beyond the rotation axis or when the propeller is provided in the upper portion as the Subject Patent so that the direction of wind is opposite. However, due to the above difference in the configuration and operation theory, it is difficult to consider that changing how the weight is applied could have been easily or merely selected by PHOSITA. Further, the specification of Prior Art 1 neither discloses nor suggests this feature. Thus, Claim 4 could not have been easily derived by PHOSITA from the corresponding feature of Prior Art 1.

Moreover, Feature 4 provides the functional effects wherein the rotation weight is easily provided in the rotational plate without using the rod, the rotation weight can be provided in various locations since there is no influence on the wind force of the motor, and the cost can be reduced (*see* Paragraph No. [41] at Page 6 of Exhibit No. K-2). Thus, Feature 4 provides different effects compared to Prior Art 1.

6) Comparison in Feature 5

a) Feature 5 is the connection part (17) connecting the rotational plate and the rotation part and having the hollow part inside such that the rotation weight can come in and go out when the rotational plates rotate to the orthogonal direction. However, Prior Art 1 does not disclose this feature.

Upon reviewing the above, for the connection part, Claim 1 describes “the pair of rotational plates is shaped as the semicircular plate formed symmetrically based on the connection part,” “the pair of rotation parts connects between the rotational plate and the connection part,” and “the pair of rotation weights is extended from the rotational plate towards the connection part.” Thus, according to said descriptions and Figs. 1a, 2a, 2b, 3a, and 3b in [Annex 1] of the Subject Patent, it could be understood that the connection part is formed at a portion where the rotation parts of two semicircular plates, which form one circle, meet and is connected to the rotation part by the rotational plate, the surfaces extended from two rotational plates are formed on

an upper surface of the connection part, and the rotation weight is provided in the extended surface. Further, the connection part has the hollow part inside such that the rotation weight can come in and go out when the rotational plates rotate to the orthogonal direction. Thus, it could be understood that the inside thereof includes a body part corresponding to a body which defines a certain space where two extended surfaces of the rotational plates, to which the rotation weights are attached, can rotate. Moreover, it could be understood that since the rotation weight is formed such that the gravity is exerted on the extended surface (Feature 4), the rotation direction of the extended surface moves from the approximately vertical state of the rotational plate to the horizontal state. Upon synthesizing the foregoing, the connection part in Feature 5 is formed from the center of two rotational plates towards the upper direction based on the horizontal state of the rotational plate and has the predetermined body with the hollow part inside wherein both ends of the rotation part are connected to the connection part and the connection part contacts with other portions of the rotation part but is substantially separated therefrom such that the rotational plate and the extended surface are not hindered from rotating based on the rotation part. The corresponding feature of Prior Art 1 does not disclose any feature corresponding to the connection

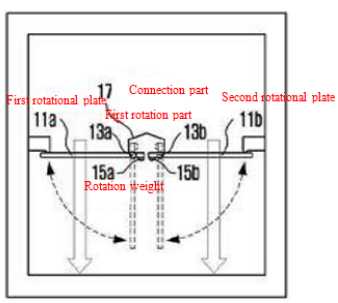


Fig. 1a of the Subject Patent

““

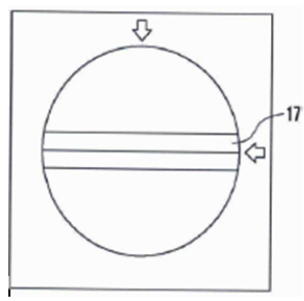


Fig. 2b of the Subject Patent

part in Feature 5, and the specification of Prior Art 1 neither discloses nor suggests the connection part. Thus, Feature 5 could not have been easily derived by PHOSITA from Prior Art 1.

b) Meanwhile, the specification of the Subject Patent describes "since the structure of the conventional automatic switch, which can block the automatic open-close part, includes a distance spaced from the circular body and a gap formed in the propeller (the induction fan) by impurities, escape of small insects cannot be prevented (*see* Paragraph No. [2] at Page 3 of Exhibit No. K-2)," "in the case of the greenhouse installation, the semi-automatic open-close device is provided utilizing the method of discharging to the outside by the operation of the ventilator; however, when the operation of the ventilator stops, inflow of contaminants or insects through the gap cannot be prevented and there is a problem in maintaining the temperature (*see* Paragraph No. [3] at the same page)," and "in the case of the switch using the motor, there is a problem of the increase of cost for having facilities for the malfunction of the motor or impurities (*see* Paragraph No. [4] at the same page)." As such, the Subject Patent acknowledged the problems that the conventional automatic switch cannot prevent the escape of small insects due to the gap in the propeller (the induction fan) caused by the impurities and cannot prevent the inflow of the impurities or contaminant or insects through the gap of the open-close device. Further, the specification of the Subject Patent describes "the effect is provided that the present invention is used in the greenhouse installation so that the inflow of contaminant or insects that may flow in when the ventilation is not operated is automatically prevented without any power connection, thereby preventing secondary infection of crops and damage caused by the insects and preventing the temperature change (*see* Paragraph No. [15] at Page 4 of Exhibit No. K-2)" and "in the case of industrial ventilation facilities, since the inflow of impurities can be prevented, the infrastructure can be protected (see Paragraph No. [16] at the same page)." As such, it is obvious to PHOSITA that since two semicircular

rotational plates rotate by each rotation part in the Subject Patent, even though two rotational plates contact each other closely, the gap through which small insects or impurities can flow in may be formed. Thus, the Subject Patent solves the above acknowledged problems by closing the gap between the circular passage, which is the discharge passage, and the rotational plate, which is the open-close device, by means of a first and second rotational plate stop parts (31a, 31b) in order to prevent the inflow of the small insects or impurities when blocking the open-close device (*see* Fig. 3a in [Annex 1]), and by closing the gap in the center portion where two semicircular rotational plates meet by means of the connection part formed in the upper portion. Therefore, the connection part in Feature 5 provides the effects of preventing the inflow of the small insects or impurities by closing the gap between the rotational plates, and preventing the escape of insects by not allowing the light of an attraction lamp to escape through the gap between two rotational plates when being used as an insect capturing device. Further, the connection part provides the effects of covering the gap between the rotational plates so as to prevent the improper open-close operation of the open-close part since the insects or impurities are caught between the gap when there is no connection part, and inducing the wind towards the rotational plate by blocking the extended surface of the rotational plate so as not to hinder the opening of the rotational plate since a part of the wind force directly hits the extended surface of the rotation weight when the wind force acts. Thus, these effects are different and remarkable compared to Prior Art 1 and could not be easily expected by PHOSITA.

c) Therefore, Feature 5 could not have been easily derived by PHOSITA from Prior Art 1.

7) Summary of Comparison Results

Thus, Claim 1 shares substantially the same technical field as Prior Art 1 and lacks uniqueness in objective compared to Prior Art 1, and

Features 2 and 3 of Claim 1 are substantially identical to or could have been easily derived from the corresponding features of Prior Art 1. However, Features 1 and 4 of Claim 1 are different from the corresponding features of Prior Art 1; Prior Art 1 does not disclose any feature corresponding to Feature 5 of Claim 1, and it is difficult to consider that Feature 1, 4, and 5 could have been easily derived by PHOSITA from Prior Art 1 and functional effects therefrom are different or remarkable compared to Prior Art 1. Therefore, inventive step of Claim 1 is not denied by Prior Art 1.

D. Judgment on inventive step of Claims 2 to 5

Claims 2 to 5 directly or indirectly depend from Claim 1. Thus, as far as inventive step of Claim 1 is not denied as above, inventive step of Claims 2 to 5, which limitedly or additionally specify Claim 1, is not denied either.

E. Sub-conclusion

Consequently, inventive step of Claims 1 to 5 is not denied.

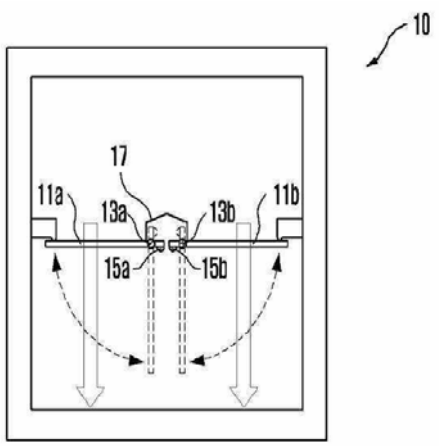
4. Conclusion

Therefore, since the registration of Claims 1 to 5 shall not be invalidated, the portion in the IPT decision contrary thereto is unlawful and Plaintiff's claim seeking a cancellation thereof is reasonable. Thus, upon referring to the above, the Court issues the decision stated in the Order.

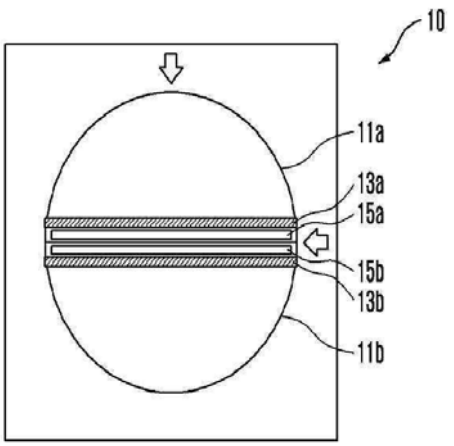
Presiding Judge Juneyoung JEONG
Judge Shin KIM
Judge Cheonwoo SON

[Annex 1]

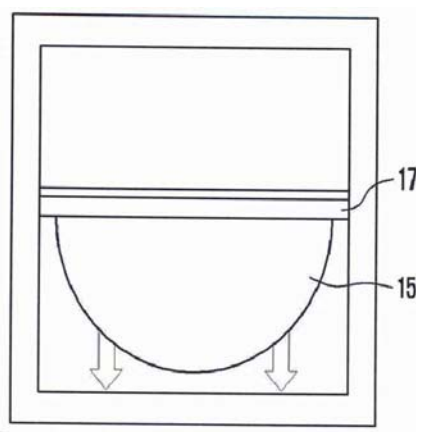
Plaintiff's Patented Invention

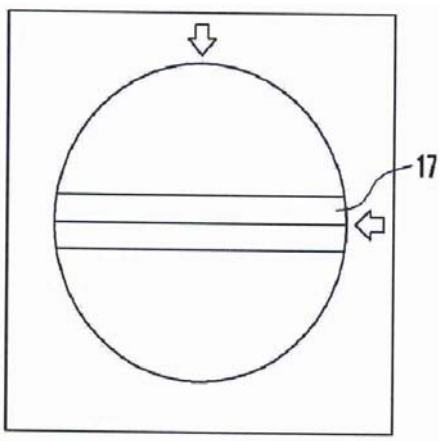


[Fig. 1a] shows a state where the open-close part is closed in the automatic open-close device using the wind force and gravity according to an embodiment of the invention.

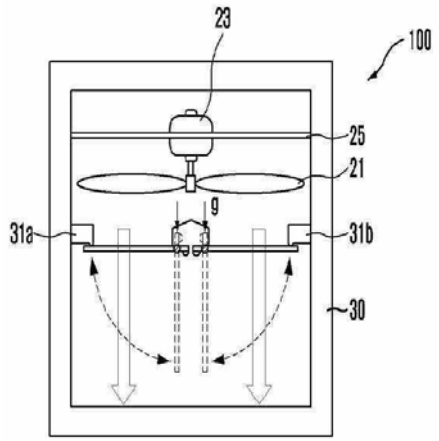


[Fig. 1b] shows a state where the open-close part is closed in the automatic open-close device using the wind force and gravity according to an embodiment of the invention.

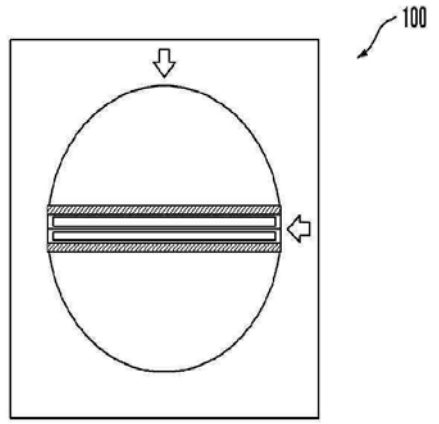




[Fig. 2a] shows a state where the open-close part is opened in the automatic open-close device using the wind force and gravity according to an embodiment of the invention.



[Fig. 3a] shows the automatic open-close device (100) comprising the open-close part according to an embodiment of the invention.



[Fig. 3b] shows the automatic open-close device (100) comprising the open-close part according to an embodiment of the invention.

[Explanations of reference numerals for main parts of the drawings]

10: Open-close part	11a, 11b, 15: Rotational plate
13a, 13b: Rotation part	15a, 15b: Rotation weight
17: Connection part	21: Propeller
23: Motor	25: Motor attachment plate
30: Housing	31a, 31b: Rotational plate stop part
100: Automatic open-close device	

[Annex 2]

Prior Arts

1. Prior Art 1 (Exhibit No. K-4)

A. Main contents

The present device relates to a ventilation device of a pig farm for discharging air inside the pig farm, comprising a discharge induction pipe inducing air discharged from the pig farm to an upstream portion and coupled to a ventilator, and a discharge pipe vertically provided in an upper portion of the discharge induction pipe and discharging discharge air to an upper portion, and covering a V-shaped share in a leading end of the discharge pipe, wherein the air discharged from the ventilator horizontal to a ground is discharged to the upstream portion (*see* Page 2, lines 23-26 of Exhibit No. K-4).

The ventilator (10) to which the discharge pipe (20) is coupled is configured to discharge the inside air by rotating a fan (12) by a motor (12), a coupling jaw (13) is formed in one side of the ventilator (10) so that the discharge induction pipe (20) is inserted into the coupling jaw (13) and then fixed by means of a fixing screw, and the ventilator (10) is provided with a semicircular shutter plate (15) that is opened or closed by wind pressure. The shutter plate (15) has a semicircular shape and is elastic-supportedly provided in a spring (16), and when the fan (12) rotates, the shutter plate (15) is opened so that the discharge air can be discharged, and when the fan (12) stops, the shutter plate (15) blocks a discharge port so that inside/outside air does not flow. By doing so, the present device eliminates, without ventilation, a case where outside air flows inside through the ventilator (10). A shutter plate (35) provided in a discharge pipe (30) is formed semi-circularly to have the V-shape and a weight (36) is provided in

each shutter plate (35) so that the shutter plate (35) blocks the discharge pipe (30) by means of the usual weight of the weight (36), and when a fan (32) rotates, the shutter plate (35) is lifted by the wind pressure such that the discharge air can be discharged to outside through the discharge pipe (30) (*see* Page 2, sixth line from the bottom to Page 3, line 7 in Exhibit No. K-4).

B. Main drawings

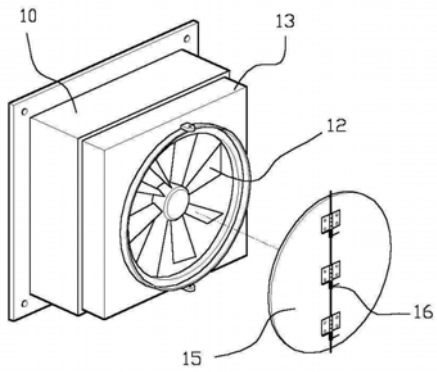


Fig. 1 shows an exploded perspective view of a ventilator according to the present device.

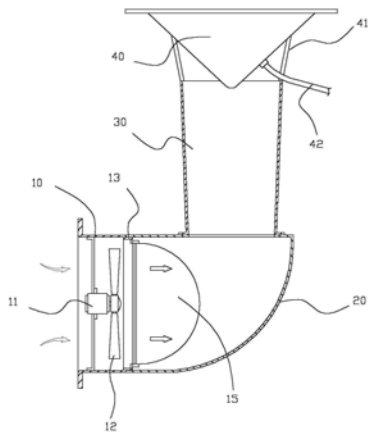


Fig. 3 shows a cross-sectional view of a coupling state of the present device

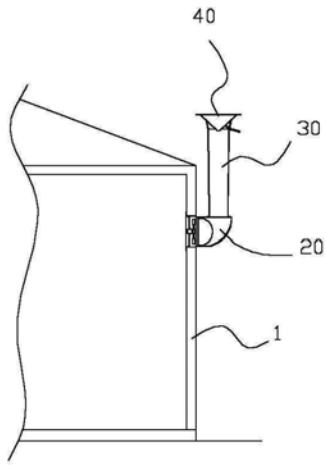


Fig. 4 shows an explanatory view of an installation state of the present device

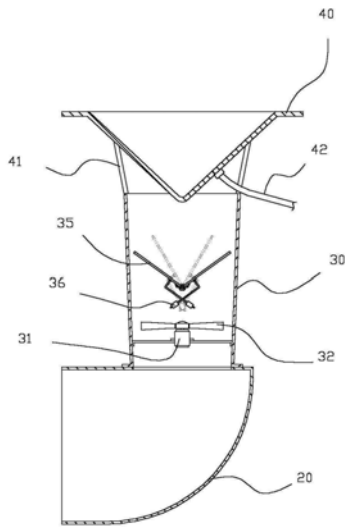


Fig. 5 shows a cross-sectional view according to another embodiment of the present device.

[Explanations of reference numerals for main parts of the drawings]

1: Pig farm	10: Ventilator
11, 31: Motor	12, 32: Fan
13: Coupling jaw	15, 35: Shutter plate
16: Spring	20: Discharge induction pipe
30: Discharge pipe	40: Shade

2. Prior Arts 2 (Exhibit No. E-1)

A. Prior Art

The present device relates to an apparatus for capturing insects with minimizing noise and simplifying a structure thereof while capturing the insects by means of a drive unit such as a motor and light source that are harmless to the human body and animals and do not cause smell (see Page 2, seventh and eighth lines from the bottom in Exhibit No. E-1).

The present device provides an apparatus for capturing insects, having a capturing net in which the insects are captured, a light source for inducing the insects, and a drive unit for driving an induction gas such that the insects induced by the light source are captured in the capturing net, the apparatus comprising: a first frame having a shade shape; a second frame having a tubular shape of which both sides are penetrated and one side is coupled with the capturing net; a plurality of first support bars coupling the first frame and the second frame such that the first frame and the second frame are spaced apart from each other by a predetermined distance; a plurality of second support bars extending from an inner wall surface of the second frame to support the drive unit such that the drive unit is spaced apart by a predetermined distance from the inner wall surface of the second frame between the light source in the second frame and the capturing net; and a plurality of third support bars coupling the drive unit and the light source such that the light source is positioned in a spaced spacing between the first frame and the second frame (see Page 2, the fifth line from the bottom to Page 3, line 3 in Exhibit No. E-1).

B. Main drawings

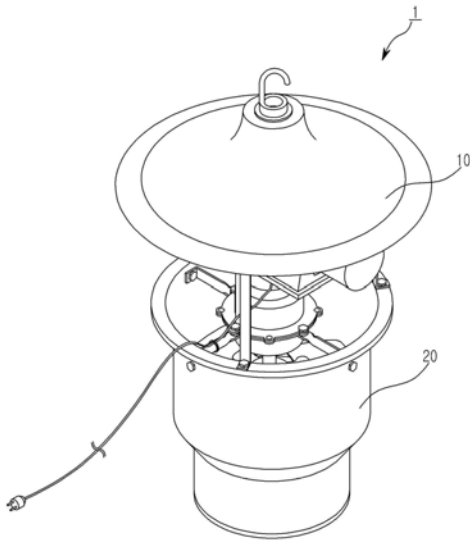


Fig. 1 shows a perspective view of an apparatus for capturing insects.

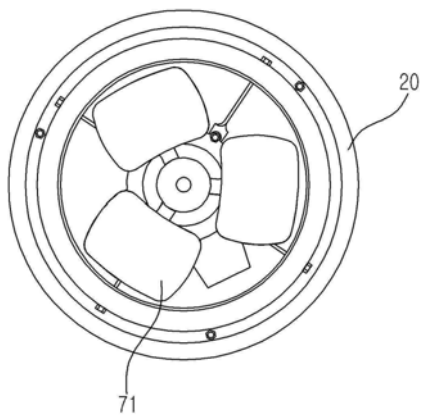


Fig. 3 shows a lower cross-section of Fig. 2.

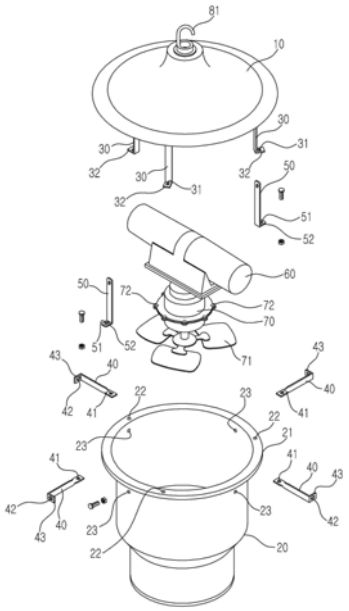


Fig. 2 shows an exploded perspective view of the apparatus for capturing the insects in Fig. 1.

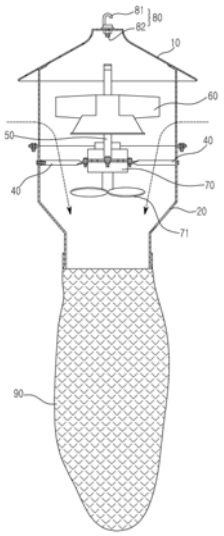


Fig. 4 is to explain a theory on how the insects are captured in the capturing net by the apparatus for capturing the insects according to the present device.

[Explanations of reference numerals for main parts of the drawings]

1: Apparatus for capturing insects	10: First frame
20: Second frame	30: First support bar
40: Second support bar	50: Third support bar
60: Light source	70: Drive unit

PATENT COURT
THE THIRD DEPARTMENT
DECISION

Case No. 2006Heo3496 Scope Confirmation(Patent)

Plaintiff: SKC Co., Ltd.
Counsel for the Plaintiff: Yoon&Yang
(Attorneys Duksoon CHANG, Yongtaek KIM)
Patent Attorney Soojung JIN

Defendant: Rohm and Haas Electronic Materials CMP Holdings, Inc.
Counsel for the Defendant: Attorneys
Ohchang KWON, Yonggap KIM
Patent Attorney Young KIM, Yoonsung CHO,
Choongbeom PARK

Closure of Hearing: May 18, 2007

Date of Decision: July 13, 2007

ORDER

1. Plaintiff's claim is dismissed.
2. The trial costs shall be borne by the Plaintiff.

Tenor of Claim

In regard to the Korean Intellectual Property Trial and Appeal Board's decision rendered on March 28, 2006 for Case No. 2005Dang616, Plaintiff requests cancellation of the portion relating to the Claims 1, 2, 4, 6, 11, 16, 18, 19 and 28 of Patent No. 195831.

REASONING

1. Backgrounds

A. The Contents of the Invention

1) Patented Invention
   a) Title: Improved Polishing Pad and Methods for Its Use
   b) Application Date/ Registration Date/ Registration Number: December 8, 1995 (priority claim: April 8, 1994) / February 18, 1999/ Patent No. 195831 (hereinafter the Patent)
   c) Patent Holder: Defendant
   d) Scope of the Patent and Drawing
      Claim 1: An improved polishing pad having a surface texture or a pattern comprising both large and small flow channels which together permit the transport of polishing slurry containing particles across the surface of the polishing pad (hereafter referred to as Element 1), {said surface texture being produced solely by external means upon the surface of said solid uniform polymer sheet (hereafter referred to as Element 2)}, and comprising a solid uniform polymer sheet with no intrinsic ability to absorb or transport slurry particles (hereafter referred to as Element 3).
      Rest of the Claims and Drawings: Provided in Appendix 1.

2) Prior Art: Provided in Appendix 2.

3) Invention to be Compared: Provided in Appendix 3.

B. Decision of the Korean Intellectual Property Trial and Appeal Board

The Plaintiff filed a negative scope trial at the Korean Intellectual Property Trial and Appeal Board (hereinafter the Board) on March

23rd, 2005, claiming that the Invention to be Compared does not fall under the scope of the Patent.

The Board reviewed the filing above under case no. 2005Dang617 and found that the Invention to be Compared falls under the scope of Claims 1, 2, 4, 6, 11, 16, 18 and 19 of the Patent, does not fall under the scope of Claims 3, 5, 7 through 10, 12 through 15, and 17 of the Patent, and is not specificied enough to be decided whether it falls under the scope of Claims 20 through 28 of the Patent. Therefore, the Board dismissed plaintiff's arguments relating to Claims 1, 2, 4, 6, 11, 16, 18 and 19, accepted plaintiff's arguments relating to Claims 3, 5, 7 through 10, 12 through 15, and 17 and declined to rule on arguments relating to Claims 20 through 28.

[Evidence] Plaintiff's Exhibits 1 through 4, and all arguments, materials, pieces of evidence submitted to this court.

2. Issues in this case and the Summary of the Parties' Arguments

A. Issues

1) Whether the specification of the Patented Invention properly describes the Patented Invention;

2) Whether the Inventions in Claims 1, 2, 4, 6, 11, 16 and 18 have novelty;

3) Whether the working of the Invention to be Compared indirectly infringes upon Claims 1, 2, 4, 6, 11, 16, 18, 19 through 28, and thus, falls under the scope of each Claim

B. Summary of the Plaintiff's Arguments

1) Regarding Improper Description

Patented Invention cannot have a patented scope since the

specification does not properly describe the Patented Invention. (However, the plaintiff did not provide specific ground of improper description.)

2) Regarding Novelty

Claim 1 has the technical means of solid uniform polymer sheet with no intrinsic ability to absorb or transport slurry particles as its characteristic, but this means merely reaffirms the evident fact that exclusion of bulk non-uniformity from the pre-existing pad decreases the polishing activity. Hence Claim 1 is technologically insignificant. Also, as the effect of improving the variability of polishing rate has been previously achieved by the use of Prior Art, namely, by continuously providing micro-channels and thereby continuing the consistent channeling of slurry particles, the exclusion of bulk non-uniformity from the pad, which gives a uniform effect over the entire polishing pad, does not particularly affect the variability of polishing rate. In particular, no data on the improvement of variability of polishing rate is provided in the specification of the Patented Invention. In short, the said technical means of Claim 1 is either technologically insignificant or does not improve the effect of the invention, and Claim 1 therefore lacks novelty and cannot have any patented scope.

In addition, Claims 2, 4, 6, 11, 16 and 18 of the Patented Invention lack Inventiveness as they are identical to the technical means stipulated in the Prior Art, have no technical significance, or are merely an addition of a technical means that has already been publicized. Therefore, the Claims above cannot have a patented scope.

3) Regarding whether the Invention to be Compared falls under the scope of the Patent

a) Claim 1

The Invention to be Compared is different from Claim 1 in that the Invention to be Compared includes micro-holes instead of the bulk non

-uniformity of the previously used polishing pad made out of non-uniform polymeric material and that it does not include the small flow channels of Claim 1.

The break-in procedure conducted prior to the use of polishing pad made by the Invention to be Compared (hereafter referred to as the Product at Trial)) and the conditioning procedure conducted concurrently with the use of the polishing pad form stripe indentations on the surface of the polishing pad. However, said conditioning procedure is intended to maintain a certain level of roughness on the surface of the polishing pad and not to form stripe indentations. Thus, the formation of stripe indentations is merely an unintentional event and the stripe indentations are neither uniformly formed over the entire surface of polishing pad nor is a controlling mechanism of polishing rate. Therefore, the use of the Product at Trial cannot be said to result in the small flow channels of Claim 1.

Moreover, the Invention to be Compared produces through the inclusion of micro-holes an advanced effect unattainable by Claim 1.

Therefore, the working of Invention to be Compared neither directly nor indirectly infringes upon Claim 1, and thus the Invention to be Compared cannot be deemed to fall under the scope of Claim 1.

b) Claims 2, 4, 6, 11 and 18

Claims 2, 4, 6, 11 and 18 are dependent claims of Claim 1, and thus, the Invention to be Compared does not fall under the scope of each of the Claims above as long as the Invention to be Compared does not fall under the scope of Claim 1.

c) Claims 19 through 21

Claims 19 through 21 are relating a layered polishing pad including the polishing pad of Claim 1, and Claims 22 through 28 are relating a polishing method using the polishing pad of Claim 1. Therefore, the Invention to be Compared does not fall under the scope of each of the Claims above, as long as the Invention to be Compared does not fall under the scope of Claim 1, which forms the technical characteristic of the Claims above.

Further, with regard to a layered polishing pad wherein the non-surface layer or layers is substantially more(less) compliant than said surface layer of Claims 20 and 21, the technical element non-surface layer has not been described in Claim 19, which is an independent claim, and the compliance is described in imprecise term such as substantially more(less) compliant, making it unable to understand the technical characteristics. Invention to be Compared does not fall under the scope of a patent if a part of the scope of a patent is either abstract or unclear in such a way that it prevents specifying the technical scope. Therefore, the Board erred in dismissing plaintiff's claim on the grounds that the Invention to be Compared was not sufficiently specified.

3. Decision

A. Improper description of the Patented Invention

Plaintiff, at this court, argues that the specification of the Patented Invention does not properly describe the Patented Invention, but does not specify the ground for such argument. Therefore, this part of the plaintiff's claim shall be deemed groundless. During the proceeding at the Board, the plaintiff argued the following: (1) the description of intrinsic ability to absorb or transport slurry particles in Claims 1, 19 and 22 is ambiguous and not supported by the detailed description of the invention; (2) while the purpose of the Patented Invention is to decrease the variability of polishing pad, and thus the dispersion of the large and small flow channels plays an important role, this aspect is not described in the detailed description of the invention, nor is it specified in Claim 1; (3) in Claim 5, the description widths and depths of large flow channels coexist in various status is ambiguous and not supported by the detailed description; (5) in Claims 20 and 21, relative compliance of surface layer to non-surface layer is not supported by the invention's detailed description; and (6) [sic] in Claims 24 and 27,

the description produced with intervals is ambiguous. However, the Board rejected these claims, and thus, we shall review the Board's decision.

The matter of whether the specification of a patent constitutes an improper description pursuant to Article 42 Clause 4-1 of the Korean Patent Act is to be determined based on whether, with the standard being the level of the technology at the time of the patent application, each claimed scope and the detailed description of the invention corresponds to each other in such a way that a person having ordinary skill in the art in the technical field to which the patented invention belongs would be able to plainly understand the technical composition of the technical elements in the claims and effects of their combination or operation solely from the specification. On the other hand, the matter of whether the specification of a patent is improper under Article 42 Clause 4-2 of the Korean Patent Act is to be determined based on whether there is an element which ultimately makes the scope of the patent unclear, by way of including a term which makes the composition of the invention unclear or by including a use of term incongruous with its definition defined in the detailed description, for instance. Based on these considerations, Claims pointed out above by the plaintiff are neither unsupported by the detailed description nor ambiguous. Therefore, the decision of the Board is not unlawful.

B. Novelty of Claims 1, 2, 4, 6, 11, 16 and 18 Compared to Prior Art

1) Claim 1

a) Comparison in the Objective and Technical Field

Claim 1 aims to produce an improved polishing pad used to create a smooth, ultra-flat surface on items such as glass, semiconductors, dielectric/metal composites and integrated circuits (page 2 of Plaintiff's Exhibit No. 2), whereas Prior Art aims to produce a sheet polishing apparatus and a method that is stable and high in polishing rate regardless of the shape of the wafer.

Therefore, the two inventions are identical in terms of their objective and technical field, in that they pertain to polishing a pad which levels the surface of items including semiconductor, etc.

b) Comparison in Elements

① Element 1

Element 1 of Claim 1 is having a surface texture or a pattern comprising both large and small flow channels which together permit the transport of polishing slurry containing particles across the surface of the polishing pad, which corresponds to the formation of macrogrooves (47) and microgrooves (50) and polishing pad (21) of the Prior Art.

However, based on the descriptions polishing pad can go under conditioning before polishing procedure by forming multiple cylinder-shaped macro-grooves (Column 5 of Plaintiff's Exhibit No. 4), pad conditioning assembly (30) is provided to form micro-channels(50) on the pad (21). Micro-channels (50) are formed during the planarization of wafers. (Column 4 of Plaintiff's Exhibit No. 4) in the specification of the Prior Art, it can be inferred that the macro-groove (47) and micro-groove (50) of the Prior Art can be retained during the use of the polishing pad as the surface texture moves the polishing slurry on the polishing pad. In such aspect, Element 1 of Claim 1 is identical to the corresponding composition of the Prior Art.

② Element 3

Element 3 of Claim 1 is a solid uniform polymer sheet with no intrinsic ability to absorb or transport slurry particles. Compared to this, specification of the Prior Art merely describes polishing pad (21) is relatively solid polyurethane or similar material which enables the transport of polishing particle including silica particle and its likes, and makes no mention of an intrinsic property of the polishing pad.

However, the background of the invention section of the detailed description of the Patented Invention, after mentioning the Prior Art as preceding reference, describes that the polishing pad notified to the inventors are composite materials or multiphase materials with an

intrinsic micro-texture due to their methods of production. Micro-texture on the surface is induced by carefully introducing bulk non-uniformities during the production of the pad. Aforementioned bulk texture becomes a surface micro-texture when it is exposed by way of cross-sectional cut, polishing or other means. Said micro-texture existing prior to use enables the absorption and transportation of slurry particles, and adds to the pad's polishing activity without the addition of extra micro-texture or macro-texture. (row 5 through 9 of page 3 of Plaintiff's Exhibit No. 2) Based on this description, the polishing pad described above in the Prior Art can be regarded as a non-uniform polymer material containing an intrinsic micro-texture which enables the absorption and transportation of slurry particles described as the preceding technology of the Patented Invention.

Therefore, the Prior Art does not describe or suggest any uniform polymer pad besides the polishing pad as a non-uniform polymer material containing intrinsic micro-texture which enables the absorption and transportation of slurry particles, and thus Element 3 of Claim 1 is an element of composition which does not exist in the Prior Art..

③ Element 2

Element 2 of Claim 1 is that the surface texture being produced solely by external means upon the surface of the solid uniform polymer sheet.

Firstly, the Prior Art does not describe or suggest a uniform polymer sheet as noted above.

Next, a large flow channel and a small flow channel included in the surface texture of Claim 1 and the corresponding macro-grooves (47) and micro-grooves (50) in the Prior Art are same in that they are formed by external means, as stated above regarding Element 1. However, the non-uniform polymer pad disclosed in the Prior Art has an intrinsic micro-texture capable of transporting polishing particles, which means it contains micro-texture that does not rely on external means, and thus is different from Element 2 of Claim 1.

c) Novelty

As discussed above, Claim 1 is not different from the Prior Art in that it contains large flow channel and small flow channel as the surface structure formed by external means during use of the polishing pad. However, whereas Claim 1 is a uniform polymer without an intrinsic ability to absorb and transport slurry particles, the Prior Art is a non-uniform polymer with such ability, containing an intrinsic micro-texture. Therefore, there is a difference in compositions.

However, the specification of the Patented Invention states the equivalence in polishing activity and notable decrease in the variability of the polishing rate as its effect, and there is no evidence supporting that applying a uniform polymer to the polishing pad is a well-known technology in the relevant technical field. Therefore, the difference in compositions noted above cannot be deemed a mere addition, variation or deletion of a well-known technology that is similarly effective. .

Therefore, the Prior Art does not deny the novelty of Claim 1.

2) Claims 2, 4, 6, 11, 16 and 18

Claims 2, 4, 6, 11, 16 and 18 are dependent claims of Claim 1 and they merely specify the elements of Claim 1 by either adding or limiting elements. Therefore, the inventive step of these dependent claims cannot be denied as long as the inventive step of Claim 1 cannot be denied.

C. Whether the Invention to be Compared is sufficiently Specified such that it may be compared with Claims 20 through 28

Before examining whether the Invention to be Compared falls under the scope of Claim 20 and Claim 28, we will examine whether the Invention to be Compared is sufficiently specified such that it may be compared with the inventions in Claims 20 through 28.

1) Claims 20 and 21

Claims 20 and 21 are both dependent claims of Claim 19. Claim 20 stipulates polishing pads wherein the non-surface layer or layers is substantially more compliant than the surface layer, and Claim 21 stipulates polishing pads wherein the non-surface layer or layers is practically less compliant than said surface layer.

Since there is no element in the Invention to be Compared that may be compared with the compositions of Claims 20 and 21 outlined above, the Invention to be Compared is not sufficiently specified to be compared with Claims 20 and 21.

2) Claims 22 through 28

Claims 22 through 28 pertain to the method of polishing a product's surface using a polishing pad.The Invention to be Compared does not include any element to be compared with the following elements of Claims 22 through 28: wherein polishing slurry containing particles is present on polishing pad and there is relative lateral motion between the article and the pad and including pressing the article.

Therefore, the Invention to be Compared is not sufficiently specified to be compared with Claims 22 through 28.

D. Whether working of Invention to be Compared indirectly infringes upon Claims 1, 2, 4, 6, 11, 16, 18 and 19

1) Indirect Infringement of Claim 1

a) Criteria for Determining Indirect Infringement of a Patent Right

Article 127 item 1 of the Korean Patent Act states that when patent is an invention of a product, making, assigning, leasing, importing or offering for assignment or lease of an article which is used exclusively for the production of the patented product as a matter of business is regarded as an infringement of patent right or an exclusive license (hereafter referred to only as patent right). In principle, making or assigning a product that does not fulfill the requirements of a patented

invention does not infringe the patent right. However, when it is highly probable that the use of the said article will lead to fulfillment of the requirements of the patented invention and thus infringement of the patent right, the provision regards the said acts of making, assigning, etc., which occur at the stage prior to the infringement, as an infringement of the patent right and treat them as the same as direct infringement, to the extent that the patent right is not unduly expanded, in order to increase the effectiveness of remedying the infringement of patent rights.

Therefore, in the provision above, the *production* of the patented product should be construed as all conscious activity by a person who received an article which does not fulfill the requirements of patented invention to use this article to produce a product which fulfills the requirements of patented invention. Thus, the production of the patented product includes not only industrial production, but also fabrication, assembly and repair of such product.

On the other hand, as an article the making or assignment of which constitutes indirect infringement of patent right must be the one used exclusively for the production of patented invention, the use of said article must always result in the production of patented product. If the said article has a usage other than production of the patented product, the act of making the said article does not constitute indirect infringement. In light of the purpose of the provision, the said other usage must be commonly accepted or approved as having a commercial or economically practicality, and a mere possibility of being used in theory or experimentally or temporarily does not qualify as other usage that can refute the indirect infringement.

b) Whether the article of the Invention to be Compared is used for the production of the product disclosed in Claim 1

① Comparison of Compositions

Compositions of Claim 1 include having a surface texture or a pattern comprising both large and small flow channels which together permit the transport of polishing slurry containing particles across the

surface of the polishing pad and solid uniform polymer sheet with no intrinsic ability to absorb or transport slurry particles.

As opposed to this, the Invention to be Compared is a polishing pad used in CMP procedure including micro-holes (15) in the form of an oval indentation with an open upper end, on the surface of bulk sheet (11) made of uniform polyurethane and grooves (13, 13') arranged in the form of channels which evenly transport polishing slurry over the entire surface of polishing pad, and thus, contains a bulk sheet with a uniform texture (11), micro-holes (15), and grooves (13, 13') as its elements.

Comparing the compositions of the two inventions, grooves (13, 13') of the Invention to be Compared is identical to the large flow channels of Claim 1 in that said grooves transport polishing slurry over the entire surface of polishing pad and consistently contain the polishing slurry over the use of polishing pad, and in that polishing slurry is formed by external means instead of by an intrinsic property of the sheet of polishing pad. Further, the two inventions are identical in that the sheet of the polishing pad in both inventions is a uniform solid polymer without an intrinsic ability to absorb or transport slurry particles. On the other hand, small flow channels of Claim 1 is not included in the Invention to be Compared.

Regarding the above, the plaintiff argues that while the internal structure such as air bubbles unevenly dispersed on a polishing pad made of non-uniform polymeric material, is the cause of variability in polishing rate in the Invention to be Compared, it is included as a method of attributing any polishing rate at all, by functioning as a means to store, allocate and provide the polishing slurry. As the Invention to be Compared maintains the internal structure's necessary function for the activation of polishing rate by including micro-holes, it shares a technical idea with the polishing pad made of non-uniform polymer substance, but has a technical idea completely different from the Patented Invention, in that the Patented Invention has merely eliminated the irregular internal structure from a non-uniform polymer

material.

However, the uniformity of a polishing pad is determined by whether its material has an intrinsic ability to absorb and transport the slurry particle, both in the Patented Invention and the Invention to be Compared. When micro-holes are added by external means to a polymer pad uniform by itself, it cannot be regarded that the polymer pad has non-uniformity. Therefore, the plaintiff's argument that Invention to be Compared and the Patented Invention disclosed in Claim 1 are different in terms of uniformity of polymer pad is groundless.

② Whether the use of the article of the Invention to be Compared forms the small flow channels in Claim 1

As noted above, the Invention to be Compared is identical as Claim 1 in that it includes the elements of a *uniform polymer pad* and large flow channels of Claim 1 and does not contain the element of small flow channels of Claim 1. However, it falls under the *production* of the product disclosed in the Patented Invention as stipulated in Article 127 Clause 1 of the Korean Patent Act if the use of the article as in the Invention to be Compared forms the element of small flow channel of Claim 1.

Therefore, whether the use of the article of the Invention to be Compared forms small flow channels as described in Claim 1 is to be examined.

A) Facts found from evidence

Putting together Plaintiff's Exhibits 11, 12, 17, and 18 and Defendant's Exhibits 1 through 5, 7, 8, and 10 and the impressions from the entire proceeding at the court, each of the following facts is found.

(a) The product which the plaintiff produced by using the Invention to be Compared (model name: SURESKC) is designed in such a way that it undergoes a break-in process prior to use, and conducts a conditioning process consistently during use. Break-in and conditioning

processes consist of pressing the surface of polishing pad with a conditioner, which functions to (1) maintain the roughness of the surface by scraping off the transformed surface, (2) remove foreign material and residues created in the CMP procedure, and (3) promote the allocation of slurry. The only type of conditioner currently in use is one on which innumerable fine diamond particles are attached.

(b) Said product produced by the plaintiff has been used exclusively by Samsung Electronics Co., Ltd (hereafter referred to as Samsung Electronics). Samsung Electronics is currently conducting break-in and conditioning processes by using a conditioner to which approximately 150,000 diamond particles are attached, which simultaneously self-rotates at the speed of tens of times per minute and oscillates between the center and periphery of the polishing pad. Break-in process takes 10 to 20 minutes on average.

(c) Before Samsung Electronics used the said product, there were only grooves and micro-holes on the surface of the polishing pad and no other indentation prior to conditioning, and miniscule stripe indentations appeared on the surface only after conditioning. When observed under an electron microscope, said stripe indentations were close to straight lines, and 40 randomly selected stripes of indentation were of various lengths, from 40m to 960m, and of various widths, from 1m to 4.5m. In terms of depth, they were deeper than 2.5m after break-in, and deeper than 6m after use-up. For each of the polishing pad after break-in, after 10 hours of use, after 20 hours of use and after use-up, there were one to three stripe indentations between two rows of three micro-holes. Amount or size of the stripe indentations did not vary

regardless of its distance from center, measured at 3, 6 and 9. Therefore, it was estimated that approximately 600,000 to 1,800,000 stripe indentations would be observed in the entire polishing pad with the area of 202,580mm.

More stripe indentations were observed when observed under an optical microscope than were observed under an electron microscope.

(d) Average size of a slurry particle most commonly used domestically ranges from 0.12m to 0.16m.

B) Property of the small flow channels of Claim 1

According to the language of the claim, small flow channels of Claim 1 is a type of surface texture or pattern, with an ability to transport polishing slurry with particle over the entire surface of polishing pad, and are formed by external means, but as the technical composition is not evident from the language of the claim above, it shall be supplemented by detailed description and drawings.

The detailed description of the specification of the Patented Invention reads, among others: the smallest dimension of macro-groove intervals is 0.5mm; although micro-textures of the invention are small-sized, they comprise of structures of even smaller sets on the projected surface on macro-textures, which also function as a channel for the undisturbed flow of slurry; By definition, micro-grooves are notably smaller than macro-grooves. Therefore, the actual largest dimension of the size of micro-grooves is either 0.25mm or more than half of the least interval between the protrusions of macro-grooves, which is half of the projected surface. The lower bound of micro-grooves is more than ten times the average diameter of slurry particle used in polishing; and as in the case of macro-grooves, a random micro-groove pattern can be used as long as the entire projected surface goes through covering, such

that it is uniform and the micro-groove pattern is within the said range in size. A preferable micro-groove pattern is either an array of irregularly arranged straight lines or indentations with an irregular variety of width and depth. The effect of this irregularity is to provide a specifically intended, uniform polishing rate over the entire surface of the pad.

Therefore, for small flow channel of Claim 1 to be sufficiently effective, its width and depth should be limited to the upper bound of 0.25mm, a number corresponding to half of the smallest protrusion between large flow channels, and limited to the lower bound of ten times the average diameter of slurry particle.

C) Forming a small flow channel

The stripe indentations formed in break-in and conditioning process while using the article of the Invention to be Compared have width and depth mostly falling within the upper and lower bounds of those of the product disclosed in Claim 1, and number of the strip indentations, on average, range from one to three between micro-holes, adding up to a total of 600,000 to 1,800,000 stripe indentations over the entire surface of polishing pad (with a strong possibility that there exist more than the estimate as more indentations are observed under an optical telescope). Also, conditioning is intended to maintain the roughness of surface on the polishing pad and to promote the allocation of slurry, besides eliminating polishing residue from the polishing pad. When polishing pad is rubbed with diamond conditioner, it necessarily forms many indentations of various shapes, which form the roughness of surface on the polishing pad, function as a pass way for slurry particles, and thereby contribute to the mechanical and chemical polishing activity of the polishing pad. Based on these considerations, said stripe indentations are the same as small flow channels of Claim 1

in that they are formed by external means, and that they have the function of transporting particle-containing slurry over the whole surface of polishing pad, and said stripe indentations cannot be deemed an inadvertent incidence from the conditioning process. (Plaintiff argues that whereas commonly used conditioning or conditioning used in the Invention to be Compared functions to eliminate the residue on the surface and form and maintain the roughness of the surface of the polishing pad, conditioning from the Patented Invention is designed to form small flow channels as the pass way for slurry, and is hence different from the aforementioned types of conditioning. However, since the Patented Invention also describes a diamond pad conditioner (RPC1) in its embodiment, the conditioning process as in the Patented Invention is not fundamentally different from that of the Invention to be Compared. Therefore, plaintiff's argument above is groundless.)

Thus, at the time the decision of the Board was made, when the article as in the Invention to be Compared is used as it would be, the small flow channels of Claim 1 are necessarily formed, which fulfills the requirement of Claim 1. Therefore, Invention to be Compared is deemed as production of the product disclosed in Claim 1.

c) Whether the article of the Invention to be Compared is used exclusively for the production of the product disclosed in Claim 1

As it is noted above that the article of the Invention to be Compared is used for the production of the product disclosed in Claim 1, it is to be examined whether the use of the article of the Invention to be Compared has a usage other than the production of the product disclosed in Claim 1.

Polishing pad produced by the plaintiff based on the Invention to be Compared has been used only by Samsung Electronics. In this case, the use necessarily involves break-in and conditioning processes by a

diamond conditioner. It is also recognized that, based on Plaintiff's Exhibit No. 17 and all the submissions of arguments, materials and evidence during this proceeding, in CMP procedure, while break-in process has decreased in importance, it is still acknowledged as needed, and that after diamond conditioning was developed, its superiority was noted to such extent that all CMP procedure started using the said conditioner from the mid-90's. Based on these finding of the facts, there does not seem to be a practical way, commonly accepted or approved, of using the article of the Invention to be Compared, without forming small flow channels of Claim 1, such as using the article without a diamond conditioner or conditioning process.

With regard to this, the plaintiff responded that conditioning's effect to the surface of the polishing pad, and the existence and extent of its effect rely on various factors, such as the type of conditioner, hardness of the pad, type of slurry used, type of particles in the slurry and the degree of pressure conditioning poses on the pad, and therefore it cannot be concluded that small flow channels are formed under every different condition under which different semiconductor producers use the article of the Invention to be Compared. However, the use of the article of the Invention to be Compared in a specific condition whereby small flow channels do not form is a mere possibility, which cannot be deemed to be commonly accepted or approved as commercially or economically practical. Therefore, plaintiff's argument above is groundless.

Therefore, we find that the article of the Invention to be Compared is used exclusively for the production of the product disclosed in Claim 1.

d) Summary

Making the article of the Invention to be Compared constitutes making of an article that is used exclusively for the production of the product disclosed in Claim 1. The plaintiff clearly made the article as a matter of business, because he made the polishing pads and sold

them in exchange for consideration. Therefore, making of the article of the Invention to be Compared constitutes an indirect infringement of Claim 1. (The plaintiff also asserts that the Invention to be compared has an advanced effect through the technological means of the micro-holes, which is unattainable by Claim 1, and therefore cannot be an indirect infringement of Claim 1. However, although the Invention to be Compared has an element not included in Claim 1 and this element has an advanced effect, if the use of the article of the Invention to be Compared meets all of the elements in Claim 1, the Invention to be Compared and the invention disclosed in Claim 1 are in the relationship where the former makes use of the latter, and the indirect infringement of Claim 1 may not be denied on this ground. Therefore, the plaintiff's argument above is groundless.

2) Indirect Infringement of Claim 2

Claim 2 is a dependent claim of Claim 1. The technical characteristic of Claim 2 is to limit Claim 1 by specifying the dimensions of the protruded surface between the large flow channels to the range of 0.5 mm to 5 mm in largest lateral dimension. The lateral dimension of grooves in the Invention to be Compared, 1.076 mm, falls within the range specified in Claim 2.

Therefore, making the article of the Invention to be Compared constitutes an indirect infringement of Claim 2.

3) Indirect Infringement of Claim 4

Claim 4 is a dependent claim of Claim 1. The technical characteristic of Claim 4 is to limit Claim 1 by specifying that the large flow channels have a greater depth than width and its depth not to exceed 90% of the overall thickness of the pad. Said composition of Claim 4 is identical to that of the Invention to be Compared, which specifies that grooves' depth be greater than width and not to exceed 90% of the overall thickness of the pad.

Therefore, making the article of the Invention to be Compared

constitutes an indirect infringement of Claim 4.

4) Indirect Infringement of Claim 6

Claim 6 is a dependent claim of Claim 1. The technical characteristic of Claim 6 is to limit Claim 1 by specifying that the solid uniform polymer sheet is a pad made of polyurethane. Said composition of Claim 6 is identical to that of the Invention to be Compared which specifies polyurethane.

Therefore, making of the article of the Invention to be Compared constitutes an indirect infringement of Claim 6.

5) Indirect Infringement of Claim 11

Claim 11 is a dependent claim of Claim 1 through Claim 5. The technical characteristic of Claim 11 is to add elements to or limit the Claims by specifying that the large flow channels in the pad are arranged in a concentric annular fashion. Said composition of Claim 11 is identical to the grooves of the Invention to be Compared having a wave form (that is, the concentric annular form).

Therefore, making of the article of the Invention to be Compared constitutes an indirect infringement of Claim 11.

6) Indirect Infringement of Claim 16

Claim 16 is a dependent claim of Claim 1 through 5. The technical characteristic of Claim 16 is to add elements to or limit the Claims by specifying that the small flow channels are of a multiplicity of widths and depths ranging from 0.25mm to no less than 10 times the average size of the particles in the polishing slurry. Said composition of Claim 16 is identical to the stripe indentations formed during use of the Invention to be Compared, ranging from 0.25 to no less than 10 times the average size of slurry particles.

Therefore, making of the article of the Invention to be Compared constitutes an indirect infringement of Claim 16.

7) Indirect Infringement of Claim 18

Claim 18 is a dependent claim of Claim 16. The technical characteristic of Claim 18 is to add elements to or limit Claim 16 by specifying that small flow channels are straight and are randomly oriented with respect to each other. Said composition of Claim 18 is identical to the stripe indentations formed during the use of the Accused Invention Product that are straight and randomly oriented with respect to each other.

Therefore, making of the article of the Invention to be Compared constitutes an indirect infringement of Claim 18.

8) Indirect Infringement of Claim 19

Claim 19 is an independent claim which relates to a layered polishing pad which includes all elements of Claim 1 and more than two layers of polymeric materials. The Invention to be Compared also obviously anticipates a layered structure wherein a non-surface layer other than the surface of polishing pad exists.

Therefore, making of the article of the Invention to be Compared constitutes an indirect infringement of Claim 19.

E. Sub-conclusion

Therefore, the Patented Invention cannot be deemed as not having the scope of a patent right on the grounds of improper description or lack of novelty, and the Invention to be Compared is not sufficiently specified to be compared with Claims 20 through 28 in terms of its compositions, and making of the article of the Invention to be Compared constitutes an indirect infringement of Claims 1, 2, 4, 6, 11, 16, 18 and 19. The Invention to be Compared thus falls under the scope of each of the said Claims. As the decision of the Board conforms with the decision of this court, it shall be deemed lawful.

4. Conclusion

Thus, the plaintiff's claim is groundless, and thus, is dismissed.

Presiding Judge Kimoon SUNG
Judge Dongsoo HAN
Judge Minsup KWAK

[Attachment 1]

Claims and Drawings of the Patented Invention

1. Scope of the Patent (Claims 2 to 28)

Claim 2: A pad according to Claim 1 wherein the projecting surfaces between said large flow channels are of dimensions ranging from 0.5mm to 5mm in largest lateral dimension.

Claim 3: A pad according to claim 1 wherein the width and depth of said large flow channels are equal and do not exceed more than half of the largest lateral dimension of projecting surfaces between said large flow.

Claim 4: A pad according to claim 1 wherein said large flow channels have a depth greater than width, said depth not to exceed 90% of the overall thickness of said pad.

Claim 5: A pad according to claim 1 wherein said large flow channels are of several widths and depths present together.

Claim 6: A pad according to claim 1 wherein said solid uniform polymer sheet is a polyurethane.

Claim 7: A pad according to claim 1 wherein said solid uniform polymer sheet is a polycarbonate.

Claim 8: A pad according to claim 1 wherein said solid uniform polymer sheet is a nylon.

Claim 9: A pad according to claim 1 wherein said solid uniform polymer sheet is an acrylic polymer.

Claim 10: A pad according to claim 1 wherein said solid uniform polymer sheet is a polyester.

Claim 11: A pad according to claim 1, 2, 3, 4 or 5 wherein said large flow channels are arranged in a concentric annular fashion.

Claim 12: A pad according to claim 1, 2, 3, 4 or 5 wherein said large flow channels are arranged in a regular square grid pattern to

produce projecting surface features of substantially rectangular outline.

Claim 13: A pad according to claim 1, 2, 3, 4 or 5 wherein said large flow channels are arranged in a regular grid pattern to produce projecting surface features of substantially triangular outline.

Claim 14: A pad according to claim 1, 2, 3, 4 or 5 wherein said large flow channels are straight and are randomly oriented with respect to each other.

Claim 15: A pad according to claim 1, 2, 3, 4 or 5 wherein the width of said small flow channels is constant and is of a dimension ranging from 0.25 mm to no less than 10 times the average size of the particles in the polishing slurry.

Claim 16: A pad according to claim 1, 2, 3, 4 or 5 wherein said small flow channels are of a multiplicity of widths and depths ranging from 0.25 mm to no less than 10 times the average size of the particles in the polishing slurry.

Claim 17: A pad according to claim 15 wherein said small flow channels are straight and are randomly oriented with respect to each other.

Claim 18: A pad according to claim 16 wherein said small flow channels are straight and are randomly oriented with respect to each other.

Claim 19: A layered polishing pad comprising two or more layers of polymeric materials wherein the surface layer is comprised of a solid uniform polymer sheet with no intrinsic ability to absorb or transport slurry particles, with said sheet in use having a surface texture or pattern comprising both large and small flow channels which together permit the transport of polishing slurry containing particles across the surface of the polishing pad. Said surface texture is produced solely by external means upon the surface of said solid uniform polymer sheet.

Claim 20: A layered polishing pad according to claim 19 wherein the non-surface layer or layers is substantially more compliant than said surface layer.

Claim 21: A layered polishing pad according to claim 19 wherein

the non-surface layer or layers is substantially less compliant than said surface layer.

Claim 22: A method for polishing the surface of an article which includes: pressing said article against a polishing pad while polishing slurry containing particles is present on said pad with relative lateral motion between said article and said pad, in which said polishing pad is comprised of a solid uniform polymer sheet with no intrinsic ability to absorb or transport slurry particles. Said sheet in use has a surface texture or pattern comprising both large and small flow channels which together permit the transport of said polishing slurry containing particles across the surface of said polishing pad, and said surface texture is produced solely by external means upon the surface of said solid uniform polymer sheet.

Claim 23: A method according to claim 22 wherein said large flow channels are produced prior to use.

Claim 24: A method according to claim 22 wherein said large flow channels are produced at intervals during the polishing process.

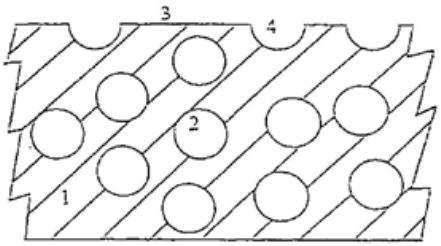
Claim 25: A method according to claim 22 wherein said large flow channels are produced continuously during the polishing process.

Claim 26: A method according to claim 23, 24 or 25 wherein said small flow channels are produced prior to use.

Claim 27: A method according to claim 23, 24 or 25 wherein said small flow channels are produced at intervals during the polishing process.

Claim 28: A method according to claim 23, 24 or 25 wherein small flow channels are produced continuously during the polishing process.

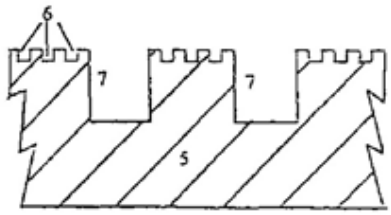
2. Figures



Prior Art

<FIG. 1>

“



<FIG. 2>

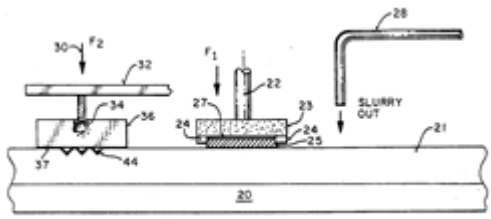
[Attachment 2]

The Prior Art

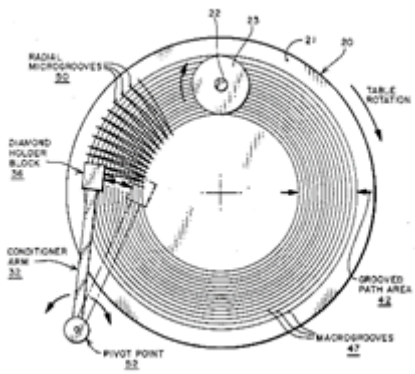
1. Summary of technology

The Prior Art (Plaintiff's Exhibit No. 4, United States Patent, Number 5,216,843, Date 1993. 6. 8), as a polishing pad conditioning apparatus for wafer planarization process includes, as noted in the specification and figures, the following summary of technology, according to the present invention, a polishing pad (21) comprises a relatively hard polyurethane, or similar material, capable of transporting abrasive particulate matter such as silica particles (Column 4, lines 22-25). Additionally, a polishing pad conditioning assembly (30) is provided for generating micro-channels (50) in the polishing pad (21). The micro-channels (50) are generated while wafers are being planarized (Column 4, lines 47-50). In the preferred embodiment of the present invention the polishing pad (21) is initially conditioned prior to polishing by impregnating the surface with a plurality of circumferential macro-grooves (47) (Column 5 lines 2-6). There are approximately 2-32 macro-grooves per radial inch (Column 5, lines 10-11). (In FIG. 6) The micro-grooves (50) generated by the diamond tips (44) of shanks (38) during wafer planarization are shown having a triangular shape with a depth of about 40 microns and a spacing of approximately 0.15 inches. Although the micro-grooves (50) are generated radially in the preferred embodiment, it is to be appreciated that other directions may also be used (Column 6, lines 61-68).

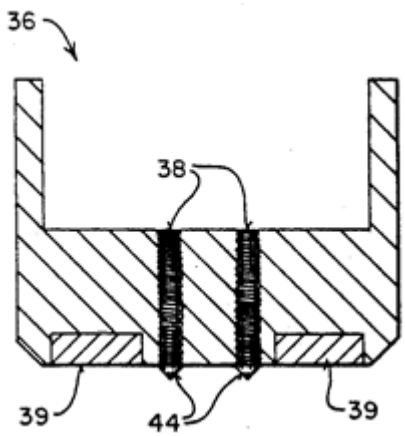
2. Figures



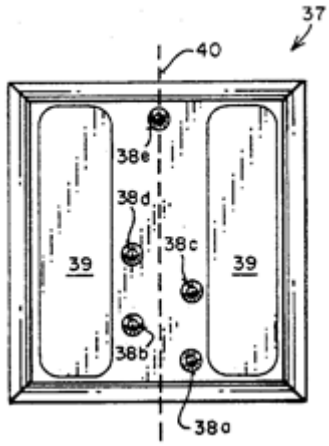
<FIG. 3>



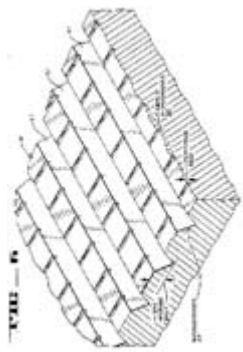
<FIG. 4>



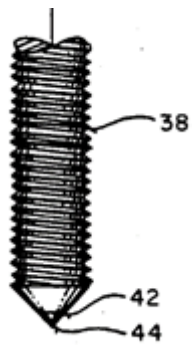
<FIG. 5a>



<FIG. 5b>



<FIG. 5c>



<FIG. 6>

[Attachment 3]

The Invention to be Compared

1. Description

1) Title of the Accused Invention
Polishing pad for CMP

2) Brief Description of the Accused Invention Figures
FIG. 1 is a side view of the Accused Invention
FIG. 2 is a plane surface view of the Accused Invention
FIG. 3 is an enlarged view of a portion (micro-hole) of FIG.2

<Key Marks in the Figures>
10: Polishing pad 11: Bulk sheet
13, 13': Groove 15: Micro-hole
a: Standard Length b: Largest lateral dimension of projecting surface between grooves
c, c': Width of groove d, d': Depth of groove

3) Detailed Description of the Accused Invention

The Accused Invention relates to a polishing pad used during the Chemical Mechanical Polishing (CMP) process to planarize the surface of semiconductor devices such as wafers during the production of semiconductors. As can be seen from FIG. 1, 2 and 3, the Accused Invention's polishing pad (10) has circular shaped micro-holes (15) and channel shaped grooves (13, 13') on the polyurethane bulk sheet (11). Said groove (13, 13') is channel-shaped, and permits the transport of polishing slurry across the whole surface of the polishing pad. The polishing slurry is included in said micro-hole (15) (micro-hole (15) is not of a channel structure and does neither transport nor flow the polishing slurry), and has the role of evenly supplying the polishing

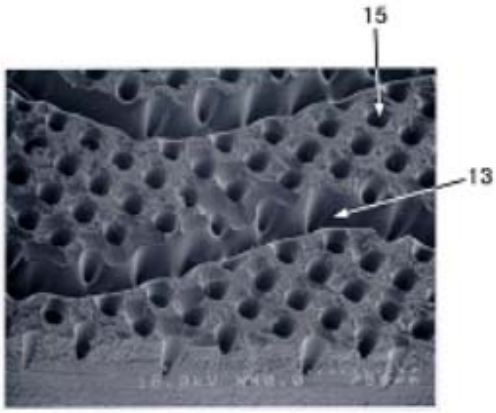
slurry to those parts not supplied by the groove (13, 13').

As can be seen from FIG. 1, the projecting surface between the groove of the Accused Invention (13, 13') is 1076㎛ (1.076mm) at the largest lateral dimension (b), the width (c, c') of the groove (13, 13') is 293㎛ (0.293mm), the depth (d, d') is 391㎛ (0.391mm). Said width (c, c') and depth (d, d') are different from each other, not exceeding of the largest lateral dimension of said projecting surface. Further, the depth (d, d') of said groove (13, 13') is larger than the width (c, c'), with depth (d, d') not to exceed 90% of the overall thickness of the pad. A groove's (13) width (c) and depth (d) of the said groove (13, 13') is almost identical to the width (c') and depth (d') of a different groove (13').

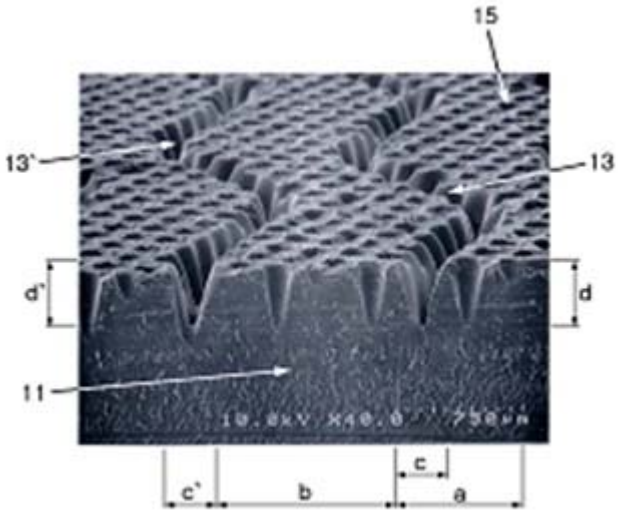
As can be seen from FIG. 1 and FIG. 2, the groove (13, 13') of the Accused Invention is in a wave form.

As can be seen from the description above and with reference to FIG. 1 and 2, the Accused Invention is a polishing pad used during the CMP process to planarize the surface of semiconductor devices. The pad generates the micro-hole (15) and groove (13, 13') on the surface of the bulk sheet, and a polishing slurry is transported across the whole surface of the polishing pad by the groove (13, 13'). The micro-hole functions to evenly supply the polishing slurry to those areas not supplied by the groove (13, 13').

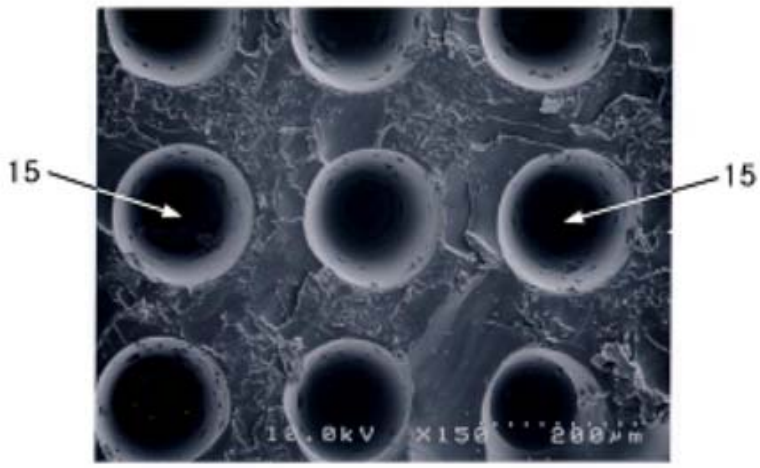
2. Figures



<FIG. 1>



<FIG. 2>



<FIG. 3>

PATENT COURT
THE THIRD DEPARTMENT
DECISION

Case No. 98Heo2160 Scope Confirmation(Patent)

Plaintiff: 1. Wonho CHOI
2. Yoonho CHOI
Counsel for the Plaintiffs:
Byungdo HWANG, Patent attorney

Defendant: Samin Co., Ltd.
Counsel for the Defendant:
Yongin KIM, Patent attorney
Changseop SHIM, Patent attorney

Closure of Hearing: August 27, 1998

Order

1. The Plaintiffs' claims are dismissed.
2. The trial costs shall be borne by Plaintiffs.

Tenor of Claim

The decision of the Intellectual Property Tribunal ("IPT") issued on September 18, 1997 in Case No. 96Dang1172 shall be cancelled. The trial costs shall be borne by Defendant.

Reasoning

1. Background facts

Upon reviewing the description in Exhibit Nos. K-1 to K-3 and the overall pleadings, the following facts are recognized and there is no evidence to the contrary.

A. Procedural history in KIPO

Plaintiffs are patentees of Korean Patent No. 10-0097703 (filed on February 7, 1994 and registered on April 2, 1996; hereinafter, "Subject Patent") entitled "Method for restoring wrinkled metal plate of automobile to original state." The invention is described in Section B below.

Defendant filed an action against Plaintiffs seeking a decision that the invention, as described in the drawings and explanation in Annex A (hereinafter, "Invention A") does not fall within the scope of the Subject Patent, and thus, the IPT issued a decision in Case No. 96 Dang 1172 on September 18, 1997 (hereinafter, "IPT decision") that Invention A does not fall within the scope of the Subject Patent on the grounds as described in Section C below.

B. Summary of Subject Patent (Claims)

1) A method for restoring a wrinkled metal plate of an automobile to an original state, comprising the steps of: placing a fluorescent lamp on one side of a metal plate to be restored to its original state such that the fluorescent lamp is placed parallel to the metal plate; placing a tip of a working tool, the tip being sharp and bent, at a lower portion of a wrinkled part of the metal plate by a worker positioned opposite the fluorescent lamp; precisely placing the tip of the working tool at a lower portion of a center of the wrinkled part of the metal

plate by using a difference of light and shade of a shadow of the fluorescent lamp; and then rapidly, elastically, slightly and repeatedly pushing down a handle of the working tool by leverage until the wrinkled part is completely restored to the original state.

2) The method according to Claim (1), wherein an S-shaped hook is hung to a lower portion of the wrinkled metal plate and a body of the working tool is hung to a lower portion of the hook, thereby pushing down the handle of the working tool.

3) The method according to Claim (1) or (2), wherein the center of the wrinkled part of the metal plate is checked by using distortion and the difference of light and shade of the shadow of the fluorescent lamp reflected on the metal plate.

4) The method according to Claim (1) or (2), wherein the restoring of the wrinkled part of the metal plate is checked by using distortion and the difference of light and shade of the shadow of the fluorescent lamp.

C. Summary of Grounds of IPT decision

The Invention A wherein a wrinkled metal plate is flattened by a working tool having a hook shape while distinguishing light and shade reflected on a wrinkled region of the metal plate with the naked eye was publicly known as shown in a catalogue from Martin Tools, which was published in 1993 before the filing of the Subject Patent.

The Prior Art does not disclose that a board (101) colored with a black stripe (102) having a certain width is reflected on the wrinkled region of the metal plate. However, such a feature enables easy checking of the wrinkling and the Subject Patent does not disclose the technique of checking the wrinkling by using the board colored with the black stripe.

Thus, as reviewed above, Invention A was publicly known before

the filing of the Subject Patent, and a patent right is granted only to an invention having novelty. Therefore, when part of a patent includes a portion that is publicly known and cannot be considered to be intimately combined with the occurrence of technical effects of the invention, the scope of right cannot expand to cover subject matter in the public domain. Therefore, there is no need to compare the Subject Patent with Invention A, and Invention A does not fall within the scope of the Subject Patent.

2. Judgment on the Propriety of the IPT Decision

A. Summary of Plaintiff's Ground to Cancel the Decision

1) The catalogue (Exhibit No. K-4) submitted by Defendant as evidence of being publicly known during the IPT trial procedure is not authentic, but was forged. The technique described as being identical or similar to Invention A is not described in a catalogue identified as Exhibit No. E-2. Thus, these catalogues cannot be used as evidence for being publicly known. Nevertheless, the IPT decision was issued by accepting these catalogues as evidence, ruling that Invention A was published before the filing of the Subject Patent.Accordingly, this IPT decision is unlawful.

2) The Subject Patent uses a wrinkling of an image of the fluorescent lamp by focusing the image on the wrinkled automobile body, whereas Invention A uses an image of the board by focusing the image on the wrinkled automobile body. Therefore, except for the difference in using the fluorescent lamp or the board, Invention A is substantially identical to the Subject Patent in that both inventions use the wrinkled image, which is the key technique of the Subject Patent. Thus, Invention A falls within the scope of the Subject Patent. Even though Invention A uses reflection light, the image focused on the automobile body is the same, and this difference does not bring about

any technical difference in working process. In the case of outdoor work where the sun shines, the effect is obtained wherein the image of the fluorescent lamp in the Subject Patent is focused more clearly than the image of the board in Invention A.

B. Summary of Defendant's Arguments

Both inventions are completely different in technical means in that the Subject Patent uses the Fluorescent lamp, whereas Invention A uses a board colored with a black stripe. Further, both inventions have contrary technical ideas in that the Subject Patent obtains the un-reflected image, whereas Invention A obtains the reflected image. Moreover, since the image of the shadow cannot be obtained outdoors where the sun shines, the Subject Patent cannot be practiced, whereas Invention A can be practiced merely with certain brightness regardless of whether it is indoors or outdoors. Also, there is a significant difference in effect in that two fluorescent lamps should be arranged in parallel to be closer to the metal plate in the Subject Patent, whereas regardless of the types of light source, Invention A only needs the presence of light when indoor. Consequently, the inventions are not even equivalent.

C. Judgment

1) Judgment on Whether Invention A was Publicly Known

The catalogue in Exhibit No. K-4 submitted by Defendant as evidence of being publicly known during the IPT trial procedure is not authentic and there is no other evidence to prove that Invention A was publicly known. Nevertheless, the IPT decision ruled that Invention A was publicly known before the filing of the Subject Patent.Thus, this IPT decision is unlawful (however, as will be described below, this unlawfulness does not affect the conclusion of the decision).

2) Judgment on Whether Invention A Falls Within the Scope of the Subject Patent

a) It is prescribed in Article 97 of the Korean Patent Act that the scope of protection of a patented invention shall be determined by the subject matters described in the claims, and it is prescribed in Article 42(4) of the Korean Patent Act that the claims should include one or two or more claims describing the subject matters sought to be protected and the claims should be described only with the matters which are essential for the invention.According to said Articles, the scope of the patented invention is, in principle, determined by the subject matters described in the claims. However, in cases where the technical constitution of a claim cannot be understood from the descriptions or where the scope cannot be established even if the technical constitution is understood, the scope may be supplemented by other descriptions in the specification. However, if the technical scope is clear from the descriptions in the claim, it cannot be altered based on the description from the specification. (Supreme Court Case No. 91 Huh 1809 issued on June 23, 1992).

If Invention A includes all constitutional elements described in the claims, Invention A falls within the scope of the patented invention, and if Invention A lacks any constitutional elements, Invention A does not fall within the scope of the patented invention. However, even though an invention formally lacks a constitutional element of the patented invention, in a case where the invention uses a substantially equivalent element, infringement should be recognized exceptionally by applying the doctrine of equivalents.

b) Returning to this action, according to the description of Claim 1 of the Subject Patent (if Invention A does not fall within the scope of Claim 1, Invention A does not fall within the scope of any other claims; thus, Invention A is compared only with Claim 1), for the scope of protection, the Subject Patent claims a method for restoring a wrinkled metal plate of an automobile to an original state, comprising the steps of: ① placing a fluorescent lamp on one side of a metal

plate to be restored to its original state such that the fluorescent lamp is placed parallel to the metal plate; ② placing a tip of a working tool, the tip being sharp and bent, at a lower portion of a wrinkled part of the metal plate by a worker positioned opposite the fluorescent lamp; ③ precisely placing the tip of the working tool at a lower portion of a center of the wrinkled part of the metal plate by using a difference of light and shade of a shadow of the fluorescent lamp; and then ④ rapidly, elastically, slightly and repeatedly pushing down a handle of the working tool by leverage until the wrinkled part is completely restored to the original state.

Meanwhile, as described in the specification of A, Invention A relates to a method for restoring a wrinkled metal plate of an automobile to an original state, comprising the steps of: ① placing a board colored with a black stripe having a certain width on one side of a metal plate to be restored to its original state such that the board is placed vertical to the metal plate; ② placing a tip of a working tool, the tip being sharp and bent, at a lower portion of a wrinkled region of the metal plate by a worker positioned opposite the board; ③ precisely placing the tip of the working tool at a lower portion of a center of the wrinkled region of the metal plate by using a difference of light and shade of a shadow of the board after moving a position of the board by using the reflection of light source to adjust such that the black stripe covers 1/2 of the wrinkled region; and ④ then rapidly, elastically, slightly and repeatedly pushing down a handle of the working tool by leverage until the wrinkled region is completely restored to the original state. Upon comparing Invention A to Claim 1 of the Subject Patent, among the essential constitutional elements of the Subject Patent, Invention A lacks the constitutional element of “the fluorescent lamp” and the feature of “using the difference of light and shade of the shadow of the fluorescent lamp” and substitutes them with “the board colored with the black stripe having the certain width” and using the difference of light and shade of the shadow of the board after moving the position of the board by using the reflection of light source to

adjust such that the black stripe covers the 1/2 the wrinkled region.

Thus, since Invention A does not include all constitutional elements, Invention A does not literally infringe the Subject Patent.

c) Then, it will be reviewed whether Invention A infringes under the doctrine of equivalents.

Generally, in order to recognize equivalent infringement, the following requirements should be satisfied: although Invention A substitutes the constitutional elements of the patented invention with other constitutional elements, the substituting constitutional elements perform substantially the same functions in substantially the same manner to provide substantially the same functional effects as the constitutional elements of the patented invention; such substitution could have been easily derived at the time Invention A was reduced to practice by a person having ordinary skill in the art ("PHOSITA") Invention A does not use the same techniques which were publicly known at the time of filing the Subject Patent or could not have been easily derived by PHOSITA from such techniques at the time of filing; and the constitutional elements of the Invention A which substituted the constitutional elements of the Subject Patent should not have been intentionally omitted from the scope of the claims during the prosecution of the Subject Patent.

Returning to this action, the board, which is the constitutional element substituted in Invention A, performs substantially the same function as the fluorescent lamp, which is the corresponding constitutional element of the Subject Patent, as it assisted an accurate finding of the center of the wrinkled region in the metal plate. However, Invention A is practiced by locating the center of the wrinkled region by using the difference in light and shade of the shadow of the board after moving the position of the board by using the reflection of the light source to adjust, such that the image of the black stripe reflected on the metal plate covers the 1/2 of the wrinkled region, whereas the Subject Patent is practiced by locating the center of the wrinkled part by using the difference of light and shade of the

image of the fluorescent lamp between the wrinkled part and the unwrinkled part by shining the fluorescent lamp to the wrinkled part of the metal plate. Thus, it cannot be considered that both inventions are practiced in substantially the same manner in that Invention A uses the image of the board generated by the reflection of light source and the light and shade of the black stripe, whereas the Subject Patent uses the light and shade of the image of the fluorescent lamp itself, which is the light source. Further, Invention A has advantages in that natural, outdoor light could be used and it is very convenient to install and move the board. On the other hand, the effect of the Subject Patent is greatly marred under natural, outdoor light in spite of using the fluorescent light, and the Subject Patent has disadvantages in that it is very inconvenient to install and move the fluorescent lamp since the fluorescent lamp requires an electric power supply and electric codes. Thus, it cannot be considered that both inventions have substantially the same functional effect (even though the Subject Patent is advantageous in being able to find the center of the wrinkled part more accurately than Invention A, the judgment remains the same).

Therefore, Invention A does infringe the Subject Patent under the doctrine of equivalents.

3. Conclusion

Accordingly, since Invention A does not fall within the scope of the Subject Patent, the decision of the IPT decision is reasonable. Thus, Plaintiff's claim seeking cancellation of the IPT decision is groundless, the Court dismisses the claim and issues the decision stated in the Order.

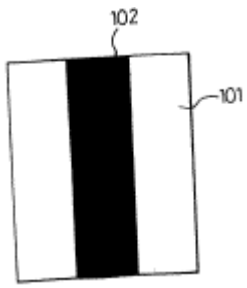
September 17, 1998

Presiding Judge	Ilhwan PARK
Judge	Jangho LEE
Judge	Soowan LEE

Drawings of Invention A

Fig. 1

Fig. 2



Explanations on the drawings of Invention A

1. Title of Invention A

Method for restoring wrinkled metal plate of automobile to original state

2. Brief explanations of the drawings

Fig. 1 is a perspective view showing an operating state of Invention A.

Fig. 2 is a front view of a board applied to Invention A.

3. Detailed explanation of Invention A

The present invention relate to a method for restoring a wrinkled metal plate of an automobile to an original state by using a working tool with a hook shape, comprising the steps of: placing a board (101) colored with a black stripe (102), which has a certain width on its intermediate region, on one side of a metal plate (104) along a wrinkled region of the metal plate (104) such that the board is placed vertical to the metal plate (104) and then, identifying light and shade of the black stripe (102) reflected on the wrinkled region by a worker with the naked eye after moving a position of the board (101) by using the reflection from the light source to adjust, such that the black stripe (102) covers a 1/2 of the wrinkled part.

According to the method for restoring the wrinkled metal plate of the automobile to the original state as described above, the wrinkled region is gradually flattened by identifying a movement (an amount of change) of a boundary region between the black stripe (102) and a background color when performing a process on a region where the black stripe (102) colored in the board (101) and the background color (white) of the board extend over the wrinkled part while, by using

natural light or light irradiated from indoor illumination light, identifying with the naked eye that the light and shade of the black stripe (102) colored in the board (101) is reflected on the metal plate (104).

PATENT COURT
THE THIRD DEPARTMENT
DECISION

Case No. 98Heo9604 Scope Confirmation(Design)

Plaintiff: Chasoon KIM
Counsel for the Plaintiff: Seok Hwan KIM, Patent Attorney

Defendant: Gilseon JIN

Closure of Hearing: February 25, 1999

Order

1. The decision of the Intellectual Property Tribunal ("IPT") issued on September 30, 1998 in Case No. 98Dang535 shall be cancelled.
2. The trial costs shall be borne by the Defendant.

Tenor of Claim

It is the same as the order.

Reasoning

1. Background facts

Considering the totality of Plaintiff's Exhibit Nos. 1 to 5 and overall pleadings, the following facts are acknowledged and no evidence to the contrary has been presented:

A. Procedural history

The Plaintiff is the owner of the design registration No. 163408 for a combined shape and pattern of an "electronic desk lamp body" (application date is November 12, 1993 and registration date is April 26, 1995) as described in Drawing 1 attached hereto ("Registered Design").

The Defendant filed a trial seeking confirmation of scope of rights, arguing that the design described in Drawing 2 attached hereto ("Subject Design") does not fall under the scope of rights of the Registered Design on the ground that the Subject Design is not similar to the Registered Design in terms of composition and conjures a different sense of aesthetic impression as a whole.

The IPT examined this case under No. 98 Dang 535 and rendered a decision on September 30, 1998 ruling that the Subject Design does not fall under the scope of rights of the Registered Design for the reasons set forth in Section B below ("IPT Decision").

B. Summary of IPT Decision

Upon review of the front views and right side views of the compared designs, they conjure different sense of aesthetic impressions from each other due to the existence/non-existence of a lampshade, lamp support and support stand. Even if the comparison is limited to the body itself, the designs are not similar as the Subject Design has a support stand in the bottom of the body which is larger than the body case to fulfil the function of supporting the lamp. Therefore, the Subject Design does not fall under the scope of rights of the Registered Design.

2. Parties' Arguments

A. Summary of grounds for appeal proffered by Plaintiff

In a trial confirming scope of rights of a registered design, the comparison should be made between the Registered design and a product having the same shape and pattern as the Registered design. However, the IPT concluded that the Registered Design and the Subject Design are dissimilar based on a comparison of the designs as a whole, which amounts to legal error. In addition, the shape and pattern of the bodies of the compared designs are identical, except the Subject Design's support stand, which adds support to the body and does not exist in the Registered Design. However, the support stand is nothing more than a simple commercial modification that anyone can easily make. Therefore, the compared designs are confusingly similar to each other.

B. Defendant's arguments

Defendant has failed to attend the hearing or submit any briefs, and has made no assertions to date.

3. Judgment

Based on the evidence referred to above, the Registered Design is a design for an electronic desk lamp body and the Subject Design is a design for an electronic desk lamp; that is, the Registered Design is a design for a part and the Subject Design is a design for a finished product containing the part, so the compared designs cover different articles, respectively.

However, if the Registered Design pertains to a part and the compared Subject Design relates to a finished product containing the part and use of the Subject Design is inevitably pre-conditioned upon

the use of the part covered by the Registered Design, that is, the Subject Design has to use the Registered Design, in light of the legislative intent of Article 45(1) of the old Design Act (before amended by Law No. 5354 dated August 22, 1997) which stipulates that if a design uses a third party's registered design (which was filed earlier) or any similar design, the design may not be used for commercial purposes without obtaining the design owner's consent or being granted a non-exclusive license through a trial for the grant of a non-exclusive license, the Subject Design should be deemed to fall under the scope of rights of the Registered Design insofar as the Subject Design's design for the part corresponding to the Registered Design is acknowledged to be identical or similar to the Registered Design.

Whether the Subject Design's counterpart portion is similar to the Registered Design is reviewed below. The Registered Design and the body portion of the Subject Design are completely identical in terms of the following factors: the front side is semi-circle shaped; the rear side is a case whose top and bottom parts are connected with rounded corners; the top middle of the upper case has a curve in the form of an egg; there are several symmetrical slots on the left and right sides of the middle point of the curve; a power button is formed in the front surface of the front side; and the rear side is a design for a lamp body showing a shape and pattern combined with a circular tube shape, which becomes narrower at the top, installed to enable the lamp support to be fixed. The sole difference between the Subject Design and the Registered Design is that there is an additional support stand on the bottom of the lamp body, which is larger than the body itself and whose front side is semi-circle shaped and rear side is in the form of a thin plank with angled corners. However, for a design of a an electronic lamp body, like the Registered Design, the shape and pattern of the front side of the body can be viewed as an essential portion well observed by consumers, and the support stand in the form of a thin plank added to the body is not as conspicuous, so the existence or

non-existence of such support stand does not make much difference to the sense of aesthetic impression. Furthermore, the addition of a support stand on the bottom of the body of the lamp is merely a functional and commercial modification that can be made by any skilled persons in the art. Based on the foregoing, despite the difference in the existence/non-existence of a support stand, the compared designs are similar in terms of the sense of aesthetic impression.

Accordingly, the Subject Design uses the Registered Design and falls under the scope of rights of the Registered Design, and the IPT Decision reaching the opposite conclusion is illegal.

4. Conclusion

Therefore, since the IPT decision should be cancelled and the Plaintiff's claim seeking cancellation thereof is grounded, the Court accepts the claim and issues the decision stated in the Order.

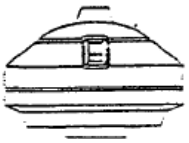
March 11, 1999

Presiding Judge Ilhwan PARK
Judge Jangho LEE
Judge Soowan LEE

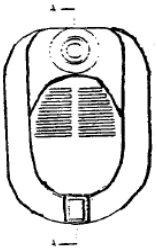
[Annex 1]

Registered

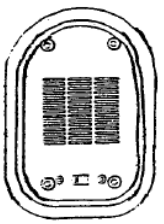
Front View



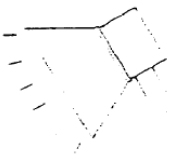
Top View



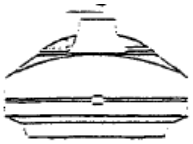
Bottom View



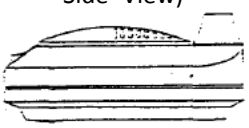
Use Status View for Reference



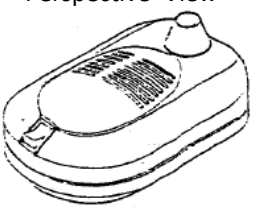
Rear View

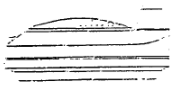


Right Side View (Symmetric to Left Side View)

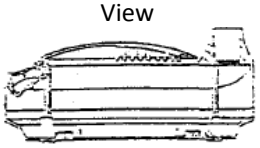


Perspective View





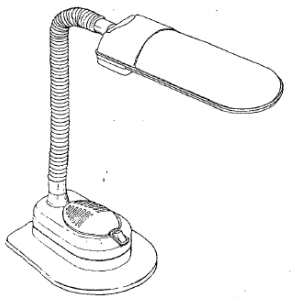
A-A Line Sectional View



[Annex 2]

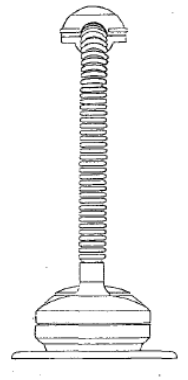
Subject Design

Perspective View

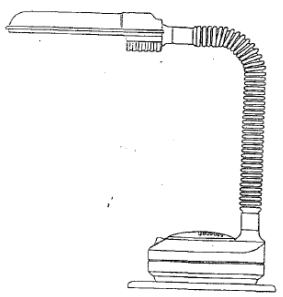


Front View

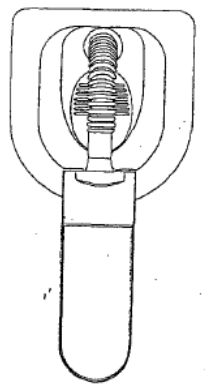
Rear View



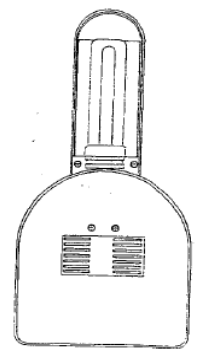
Left Side View
(Symmetric to Right Side View)



Top View



Bottom View



PATENT COURT
THE THIRD DEPARTMENT
DECISION

Case No. 2014Heo2344 Final Rejection(Trademark)

Plaintiff: CeramTec GmbH
Counsel for the Plaintiff: FirstLaw P.C.
Jingil JEONG, Attorney-at-law

Defendant: Commissioner of the Korean Intellectual Property Office ("KIPO")
KIPO Litigator: Inwook JANG

Closure of Hearing: August 22, 2014

Date of Decision: September 19, 2014

Order

1. The decision of the Intellectual Property Tribunal ("IPT") issued on March 3, 2014 in Case No. 2013Won4945 shall be cancelled.
2. The trial costs shall be borne by the Defendant.

Tenor of Claim

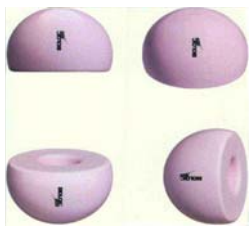
It is the same as the order.

Reasoning

1. Background facts

A. The applied-for trademark at issue ("Subject Mark")

1) Int'l Reg. No. 1113627; Int'l Reg. Date: January 18, 2012

2) Composition:  (3D mark)

3) Designated Goods: Implants for osteosynthesis, ortheses, endoprostheses and organ substitutions, anchors for endoprostheses, and anchors for dental protheses, articular surface replacement, bone spacers, hip joint balls, acetabular shell, acetabular fossa and knee joint components under Goods Classification Class 10

B. Procedural history of the IPT decision

1) The KIPO examiner rendered a decision on May 31, 2013 ruling that the Subject Mark filed by the Plaintiff cannot be registered as it falls under Article 6(1)(iii) of the Trademark Act ("TMA") on the grounds that this 3D mark comprising of 4 pink hollow semi-spheres as a whole is viewed as representing a shape or pattern of its designated goods that can be ordinarily employed in the relevant industry, even though some words are inscribed on the surfaces of the semi-spheres, being a mark expressing the shape of its designated goods in an ordinary manner. Objecting to this decision, the Plaintiff filed an appeal with the IPT.

2) Under the case No. 2013 Won 4945, the IPT examined the appeal and rendered a decision on March 3, 2014 dismissing the Plaintiff's appeal on the ground that the Subject Mark falls under Article 6(1)(iii) of the TMA. The IPT reasoned that the consumers of the designated goods would intuitively perceive the 3D shape as a hip joint ball, meaning that the Subject Mark expresses the shape of its designated goods in an ordinary manner; the color added to the dimensional shape of the Subject Mark was used solely to conjure a luxurious impression; and even though the word portion inscribed on the 3D mark (

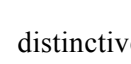
) is distinctive, it is not to be considered in judging the distinctiveness of the 3D mark.

[Evidence: Undisputed, Plaintiff's Exhibit Nos. 1 to 4, 15 and overall pleadings]

2. Summary of the Grounds for Appeal and Parties' Arguments

A. Summary of the Grounds for Appeal and Plaintiff's arguments

1) Article 6(1)(iii) of the TMA determines the distinctiveness of a mark upon consideration of the mark as a whole and provides that any trademark consisting solely of a mark indicating the shape of its designated goods in a common way is non-distinctive. Distinctiveness is recognized if a mark does not solely indicate the shape of the designated goods in an ordinary manner but is combined with any other distinctive element. Judging the distinctiveness of a mark to the exclusion of a distinctive word portion goes against the provision referred to above.

2) The Subject Mark is a combination of a dimensional shape, unique pink color and distinctive word portion (

). The unique pink

color of the Subject Mark is distinguished from the others that use white or gray colors that are common for medical components for the human body, in terms of shape, or that are made of metal or ceramic, in terms of texture. If a hip joint ball having the same shape as the Subject Mark exists, consumers would easily recognize the source of the ball due to its distinguished shape, color and texture. In addition, upon review of the mark as a whole, the word portion of the Subject Mark (

) is clearly perceived and its distinctiveness is recognized as it has obtained registration from the KIPO.

3) The KIPO had originally established an examination standard under which the distinctiveness of a 3D mark should be judged upon review of the mark as a whole, but later changed the standard to the effect that the distinctiveness of a 3D mark should be judged based on the shape of the mark. “The revised standard took effect from March 15, 2012, which is after the international registration date of the Subject Mark.” However, the revised standard contravenes Article 6(1)(iii) of the TMA, which provides that “any trademark consisting solely of a mark indicating the shape of its designated goods in a common way” is non-distinctive. Considering that the KIPO’s examination standard is prepared for the purpose of the examiner’s convenience during the examination process, it is clear that such standard cannot be applied preferentially over the statutory law. Moreover, it is unreasonable to impose restraints on the registration process of an international trademark pursuant to the mere internal examination standard adopted by the KIPO after the international registration date.

4) Article 2(1)(i)(a) of the TMA defines the term “trademark” to mean any device, word, figure, three-dimensional shape or the combination thereof or the combination of them and colors. A combination of a dimensional shape and a device or word fits the definition of a trademark under the TMA. A 3D mark does not necessarily have to be

a trademark consisting of a dimensional shape alone. A mark combining a dimensional shape with a word should also surely be granted trademark registration. The KIPO requires that a trademark application for a color mark should be classified into two groups, which are "marks solely consisting of color(s)" and "marks combined with color(s)," but in case of a dimensional mark, the KIPO does not require such classification for the purpose of an application, so the applicants inevitably have to simply indicate "dimensional marks" on their application forms. For such reason, the Subject Mark was also filed simply as a "dimensional mark," and thus, it is unreasonable to judge the distinctiveness of the Subject Mark solely based on the dimensional shape without considering the other components of the Subject Mark.

5) In the case of a mark combining a dimensional shape and a word, Article 52(1) of the TMA protects the mark as a whole, but does not protect the dimensional shape itself. If the dimensional shape itself is non-distinctive but a registration has been granted as a result of combining the same with a distinctive word, a person opposing the registration with respect to the scope of protection may argue that the dimensional shape itself is not a valid right or argue based on the limitation of effectiveness under Article 51(1)(ii) and (ii)bis of the TMA. There is no reason to refuse granting a registration to a mark combining a non-distinctive dimensional shape with a distinctive word.

6) Moreover, from the perspective of the public interest, the Subject Mark is not deemed to be a mark exclusive ownership of which by a specific party is unfair.

7) Therefore, the Subject Mark is distinctive as a whole, and thus, does not constitute a descriptive mark under Article 6(1)(iii) of the TMA. The IPT decision reaching the opposite conclusion is unjust and

should be revoked.

B. Defendant's arguments

1) Article 8 of the trademark examination standard provides that the distinctiveness of a 3D mark, or whether the appearance of the relevant goods or packaging embodies a general shape of the goods, should be judged "solely by its dimensional shape." If the Subject Mark is used for its designated goods, "hip joint balls," its dimensional shape would be perceived as a shape embodying a hip joint ball or hip joint liner, meaning that the Subject Mark lacks distinctiveness as it falls under a mark expressing the shape of its designated goods in an ordinary manner. In addition, even considering the color and the word of the Subject Mark, the pink color of the dimensional shape is viewed only as one of the colors used for a hip joint ball to conjure a luxurious impression to consumers. The word portion (BIOLOX delta) takes up only a very small part of the dimensional shape and it is hard to clearly identify it. The Subject Mark lacks distinctiveness even upon consideration of the color and the word portion.

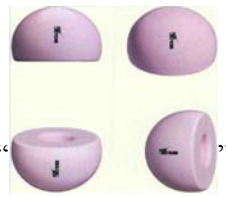
2) Deeming a mark combining a non-distinctive dimensional shape with a distinctive word or device as satisfying the distinctiveness requirement, and accordingly, granting a 3D mark registration for the mark does not correspond to the legislative intent contemplated at the time of adopting the 3D mark system, which is to protect dimensional marks functioning as a source identifier. If non-distinctive dimensional shapes are granted registrations as a valid trademark, it is expected that disputes will arise as to the validity of the registrations. Consumers are likely to be misled or confused into believing that a non-distinctive dimensional shape has exclusive validity. Some trademark owners are likely to exercise their rights based on non-distinctive dimensional shapes, which goes against the public interest.

3) Article 7(1)(xiii) of the TMA provides that "any trademark consisting solely of three-dimensional shapes, colors, sounds, odors, or the combination of colors, which is essential to secure the functions of goods whose trademark is to be registered or of the packaging thereof" cannot be registered in any case. This suggests the "functionality of trademarks," meaning that a mark cannot be registered if the shape thereof is solely attributable to the inherent nature of the goods. In addition, marks can be classified into two groups, which are typical marks and non-typical marks. The distinctiveness of non-typical marks is acknowledged only when the mark itself satisfies the distinctiveness requirement or acquires distinctiveness through use, so even if a dimensional mark is combined with a word, if the dimensional shape itself lacks distinctiveness or fails to acquire distinctiveness through use, consumers would only recognize the word portion as not a source identifier but a function of the goods. In addition, if a dimensional mark is perceived as a source identifier of goods solely due to its distinctive word portion, it should be understood as a mark that functions as a word mark irrespective of its dimensional shape or pattern, so such a mark cannot be viewed as a dimensional mark; otherwise, it goes against the intent of the 3D mark system.

4) Article 51 of the TMA provides that no effect of trademark rights shall be extended to a dimensional mark lacking distinctiveness, even though the mark obtained a 3D registration. The purpose of this provision is, by excluding any dimensional mark from being registered if its shape embodies the essential technical working of the goods, to prevent such mark from restricting the competitors' freedom to supply their goods applying the same function or employ technical means to apply such function to their goods. Even if a non-distinctive dimensional shape is combined with a distinctive word, the effectiveness of a trademark right is limited insofar as the dimensional shape lacks distinctiveness. Therefore, in light of the provision above, the distinctiveness of a dimensional mark should be judged by its dimensional shape itself.

3. Whether the Subject Mark falls under Article 6(1)(iii) of the TMA

A. Composition of the Subject Mark

The Subject Mark "  " is a 3D mark of a hollow semi-sphere combined with light and dark pink colors and the word "BIOLOX delta".

B. Background leading to the adoption of 3D Marks and applicable TMA provisions

1) Background leading to the adoption of 3D Marks

In the past, the TMA had no provisions concerning 3D marks and did not permit the granting of registration for any 3D marks. However, in order to actively keep up with the international trend allowing the registration of 3D marks and expand the applicants' scope of choices for trademarks, the TMA was partially amended by Law No. 5355 dated August 22, 1997 to allow the registration of marks consisting of dimensional shapes.[1)]

1) http://www.law.go.kr. Please refer to the reason for partial amendment to the Trademark Act by Law No. 5355 dated August 22, 1997.

2) Applicable TMA provisions

a) Article 2 (Definitions)

(1) The terms used in this Act shall be defined as follows:

1. The term “trademark” means any of the following items (hereinafter, referred to as “mark”) that is used by a person who produces, processes or sells goods for business purposes, in order to distinguish goods related to his/her business from those of another person:
   (a) Any device, word, figure, three-dimensional shape or the combination thereof or the combination of them and colors;

b) Article 6 (Requirements for Trademark Registration)

(1) Trademark registration may be granted, except for a trademark falling under any of the following subparagraphs:

3. Any trademark consisting solely of a mark indicating in a common way the origin, quality, raw materials, efficacy, use, quantity, shape (including shapes of packages), price, production method, processing method, using method or time of the goods;

c) Article 7 (Unregistrable Trademark)

(1) Notwithstanding Article 6, no trademark falling under any of the following subparagraphs shall be registered:

13. Any trademark consisting solely of three-dimensional shapes, colors, sounds, odors, or the combination of colors, which is essential (in cases of service business, referring to cases in which such constituents are essential to the use and purpose of the service business) to secure the function of goods whose trademark is to be registered or of the packaging thereof;

d) Article 9 (Application for Trademark Registration)

(2) Where a trademark of which an applicant intends to obtain a registration is composed of three-dimensional shapes under Article 2 (1) 1 (a) or marks under Article 2 (1) 1 (b), the purpose and explanation therefor (excluding explanation in cases of three-dimensional shapes), in addition to matters falling under each subparagraph of paragraph (1), shall be entered in the application form, as prescribed by Ordinance of the Ministry of Trade, Industry and Energy.

e) Article 51 (Scope of Ineffectiveness of Trademark Rights)

(1) No effect of trademark rights (excluding geographical collective mark rights) shall be extended to a trademark which falls under any of the following subparagraphs:

2. Any trademark indicating in the normal denomination, place of origin, quality, raw materials, efficacy, use, quantity, shape (including shapes of wrappers), price or producing, processing and using methods and time of goods identical or similar to the designated goods of the registered trademark in a common way;

2-2. In cases of trademarks comprised of three-dimensional shapes provided in Article 9 (2) and where it is impossible to recognize by the three-dimensional shape whose business the goods are related to, any trademark comprised of the shapes identical or similar to the three-dimensional shape of the registered trademark that is used for the goods identical or similar to the designated goods of the registered trademark;

f) Article 52 (Scope of Protection of Registered Trademarks, etc.)

(1) The scope of protection of registered trademarks shall be determined by a trademark specified in the application form for trademark registration (referring to visual expression in cases of a trademark falling under Article 2 (1) 1 (c)).

C. Criteria for judging the distinctiveness of a mark combining a dimensional shape and a word

a) Article 2(1)(i)(a) of the TMA defines the term “trademark” to mean “any device, word, figure, three-dimensional shape or the combination thereof or the combination of them and colors,” recognizing that not only a mark of a dimensional shape but also a mark combining a dimensional shape with a device, word or figure constitutes a trademark.

b) Article 6(1)(iii) of the TMA provides that any trademark consisting solely of a mark indicating the shape of its designated goods in a common way cannot be registered. Article 7(1)(xiii) of the TMA provides that any trademark consisting solely of three-dimensional shapes, which is essential to secure the function of goods or the packaging thereof, cannot be registered. However, the provision above does not prohibit the registration of a “mark indicating the shape of its designated goods in a common way” or a “trademark consisting solely of three-dimensional shapes, which is essential to secure the function of goods or the packaging thereof” to the extent that it is combined with another distinctive element. In addition, the TMA has no provision prescribing the distinctiveness of a mark combining a dimensional shape and any device, word or figure should be judged solely by the dimensional shape alone. Further, there is no legal basis requiring us to ignore any combined device, word and figure and judge the distinctiveness of a mark entirely by the dimensional shape solely on the ground that the mark incorporates a dimensional shape.

c) Article 6(1) of the TMA prescribes that a mark can be registered if it does not fall under any of the items in the same provision that elaborates the types of non-distinctive marks. Article 7(1) of the TMA specifies the reasons for which a mark cannot obtain registration. Unless falling under any of the prescribed restricted registrations, a trademark registration should not be rejected and the applicant's right to choose his/her mark freely should be honored. Even if it is a mark consisting of a combination of a 3D shape with a device, word, etc., the above provisions still apply.

d) The scope of protection granted for a registered trademark is determined depending on the description on the application, and accordingly, the scope of protection of a mark combining a dimensional shape with a device or word is determined based on the mark as a whole, not on its dimensional shape alone.

e) The application for the Subject Mark indicates that the Subject Mark is a "3D mark." However, in the trademark application process, the KIPO does not distinguish marks combining a dimensional shape with a device or word from those solely consisting of a dimensional shape, simply referring to them collectively as "dimensional marks," so applicants have to file an application for a mark combining a dimensional shape with a device or word merely as a "dimensional mark." Therefore, the applicant should not be deemed as having limited its filed mark to only a dimensional mark solely based on the ground that the application form indicates a dimensional mark.

f) In the case of a mark combining a dimensional shape with a device or word, if the dimensional shape lacks distinctiveness but the word is distinctive, the non-distinctive dimensional shape cannot function as a source identifier, and thus, there is no likelihood of confusion arising with respect to the goods having a similar dimensional shape. It appears that the consumers can easily recognize whose goods the mark

identifies by the distinctive word.

In addition, granting trademark registrations as above is not viewed as going against the legislative intent of the 3D mark system which aims to actively keep up with the international trend allowing registrations of 3D marks and expand the applicants' scope of choices for trademarks.

Moreover, Article 51(1) of the TMA provides that if a registered trademark consisting of a dimensional shape lacks distinctiveness and a person uses a mark having the same or similar shape thereto, the effect of the trademark right should not be extend to the used mark, placing a limitation on the trademark owner's unfair exercise of his/her injunction claim against the user of the mark. Accordingly, permitting a trademark registration as above is not viewed as going against the public interest or the legislative intent of the 3D mark system.

g) Reference material for interpretation No. 11 of Article 8 of the KIPO trademark examination standard provides that the distinctiveness of a 3D mark, or whether the appearance of the relevant goods or packaging embodies a general shape of the goods, should be judged "solely by its dimensional shape," but the trademark examination standard above is merely an internal guideline established by the KIPO for convenience purposes to facilitate the trademark examination process.

h) Therefore, the distinctiveness of a mark combining a dimensional shape with a device or word should be judged not solely based on its dimensional shape but on the combination as a whole. The mark should be deemed to satisfy the distinctiveness requirement as long as the mark is acknowledged as being used as a source identifier in consequence of being combined with a mark or word, even though the dimensional shape lacks distinctiveness.

D. Whether or not the Subject Mark is distinctive

Since the Subject Mark is a mark consisting of a dimensional shape combined with a word, its distinctiveness should be judged upon reviewing the combination as a whole. According to this principle, whether or not the Subject Mark is distinctive will be reviewed below.

The dimensional shape of the Subject Mark consists of a semi-sphere with a circular hollow surface. With respect to its designated goods including hip joint balls, consumers would recognize the mark as the shape of a hip joint ball, and thus, the Subject Mark is a mark embodying the shape of its designated goods in a common manner, which means that its dimensional shape lacks distinctiveness (which is not disputed between the parties). In addition, the dimensional shape of the Subject Mark takes the color pink as a whole. Pink can generally be viewed as a common color and the addition of the color pink to the Subject Mark has the mere effect of conjuring a luxurious feeling to the hip joint ball, and its added brightness just make the mark appear more three dimensional, so it does not appear that the color grants any distinctiveness to the Subject Mark.

The "BIOLOX delta" portion of the Subject Mark consists of the coined word "BIOLOX," which is a combination of "BIO" meaning "life" and "LOX" having no special meaning; "delta," which refers to the fourth letter of the Greek alphabet, written in a different size and font from the "BIOLOX" portion; and a simple curve shape under the "delta" portion. The word portion "BIOLOX delta" is a coined work having no descriptive meaning in connection with its designated goods, such as its nature, so the word portion itself is recognized to be distinctive."In addition, according to the trademark sample (Plaintiff's Exhibit No. 15) submitted at the time of filing the application, the word portion is placed in the middle of the mark and considering the proportion it takes up in the entire mark, consumers can easily recognize the word portion. Even if envisioning the word portion

inscribed on an actual size product (4.5cm horizontally × 3.5cm vertically), there is no difficulty in recognizing the word. Moreover, it does not appear that the word portion would be recognized as an explanation of the goods or a pattern added to the dimensional shape. The Subject Mark is deemed to satisfy the distinctive requirement by virtue of its word portion.

Therefore, the Subject Mark is deemed to be distinctive as a whole.

E. Sub-conclusion

Accordingly, the Subject Mark should not be deemed as a mark that embodies the shape of its designated goods in a common manner, and thus, does not fall under Article 6(1)(iii) of the TMA.

4. Conclusion

Therefore, since the IPT decision reaching the opposite conclusion is unjust and the Plaintiff's claim seeking cancellation thereof is grounded, the Court accepts the claim and issues the decision stated in the Order.

Presiding Judge Kyuhyeon HAN
Judge Dawoo LEE
Judge Hyejin LEE