# IP LAW JOURNAL

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# LETTER FROM THE EDITOR-IN-CHIEF

Patent and other categories of intellectual property rights are no longer limited to the boundaries of one country. It is now an international issue having significant economic and social impacts.

Therefore, the procedures and standards for intellectual property litigation should not only accommodate the circumstances of the country of jurisdiction but must be generally acceptable to the global community. The same need motivated the Korean Patent Court to host the 2015 International IP Court Conference, where chief judges of intellectual property courts and other judges from Korea, U.S., Germany, China, Japan and other countries participated to better understand the litigation procedures in various countries and discuss reasonable and widely acceptable standards.

In furtherance of the same objective, we began publishing English versions of articles by Patent Courts, so that the court procedures of Korea would be more widely known to the other members of the global community and evaluated by many intellectual property law experts. This year's English language publication of our articles include "Summary of Decision" and "Summary of Article" sections which summarize seven of the recent decisions by the Patent Court and six articles published by Patent Court judges. They will provide the readers with helpful insight into how the Korean intellectual property court procedures are specifically applied in practice. The articles can be searched online through legal research systems such as Thomson Reuters.

The Korean Patent Court has only reviewed appeals against the Intellectual Property Tribunal's decisions involving patents, etc. Beginning on January 1, 2016, however, the Patent Court will have exclusive jurisdiction over any and all appeals in cases involving damages and injunctions against infringement of patent, etc. As a result, courts will become even more specialized, with trial courts in five jurisdictions (Seoul Central, Daejeon, Daegu, Busan and Kwangju) reviewing cases of first instance and the Patent Court reviewing all appeals, instead of the previous 58 trial courts for first instance cases and 23 courts for appeals. By concentrating the jurisdiction over patent cases, the Patent Court's role has expanded and the public's interest in intellectual property is growing. Under such circumstances, it is hoped that this book will inform the global community of

the Patent Court's capabilities and contribute to the Patent Court's growth to become the world's leading patent court.

I hope that this book will be helpful to the experts, researchers and practitioners of the global community who are interested in intellectual property court procedures, and also promote further improvement of the Korean intellectual property court procedure.

I deeply appreciate and thank the editors, intellectual property law experts who translated and reviewed the content, and Artech Design for publishing this book.

**December** 2015

Chief Judge of the Patent Court, **Youngho KANG**

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# Overview

# Korean System of Judging Inventiveness

**Boogyu KWAK***

## I. Patent Act

Article 29 (Requirements for Patent Registration)

(1) An invention having industrial applicability may be patentable unless it falls under any of the following subparagraphs:

1. Anvention publicly known or worked in the Republic of Korea or in a foreign country prior to the filing of the patent application;
2. An invention published through a publication distributed in the Republic of Korea or in a foreign country prior to the filing of the patent application or an invention made accessible to the public through telecommunication lines.

(2) Notwithstanding paragraph (1), where an invention could easily be made prior to the filing of the patent application by a person having ordinary skill in the art to which the invention pertains, on the basis of an invention referred to in any subparagraph of paragraph (1), no patent shall be granted for such invention.

Article 29(1) of the Patent Act is referred to as the 'novelty requirement' and paragraph (2), 'inventiveness requirement'. Inventiveness is denied if 'a person with ordinary skill in the art' can 'easily' reach the subject invention out of 'the prior art'.

## II. The Supreme Court Cases

The Supreme Court's criteria of judging inventiveness has been slightly different in its expression as times change but yet substantially consistent.

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*Judge, the Patent Court of Korea.

## 1. Cases of Judging Inventiveness on the Basis of 'Improved Effects' (Type 1)

The Supreme Court held in its Decision 81Hu24(February 9, 1982) that "even an invention combining publicly known and common use technology can be seen a novel invention when such combination is not a simple addition of effects the respective technologies had before the combination but generates more improved effects than before and a person with ordinary skill in the art cannot easily embody such combination (expression 'novelty' is used but in light of the decision, it means 'inventiveness'). Since then such criteria of judging inventiveness has been upheld in many cases in 1980's and 1990's.[1] Decisions in 2000's have sometimes reiterated such expression.[2]

The Supreme Court has from time to time used an expression of 'new effects'. The Supreme Court held in its Decision on case 94Hu1411(December 26, 1995) that "if the claimed technology is deemed to produce a new effect better than expected from the prior art publicly known and thus the claimed technology is judged as considerably improved and enhanced from the prior art, the claimed technology, which cannot be easily invented by a person with ordinary skill in the art("PHOSITA"), shall be seen as having inventiveness, in light of the purpose of the patent system seeking improvement and development of technology."[3]

## 2. Judgement Based on 'Extraordinary Difficulty' and 'New Synergistic Effect' (Type 2)

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1) Supreme Court Decisions 83Hu73(July 9, 1985), 85Hu54(November 11, 1986), 86Hu117(June 13, 1989), 89Hu865(December 12, 1989), 90Hu441(December 21, 1990), 91Hu1816(June 23, 1992), 92Hu643(December 11, 1992), 94Hu852(November 28, 1995), 94Hu1589(January 26, 1996), 94Hu1565(March 8, 1996), 95Hu415(April 26, 1996), 96Hu641(March 14, 1997), 97Hu273(November 28, 1997), 97Hu211(November 28, 1997) and 97Hu778(May 12, 1998).

2) Supreme Court Decisions 2005Hu2441(February 23, 2006), 2004Hu2741(February 24, 2006) and 2007Hu3585(September 24, 2009).

3) Court cases having used the same expressions are Supreme Court Decisions 94Hu1756(April 26, 1996), 95Hu422(May 10, 1996), 95Hu880(May 10, 1996), 94Hu1992(June 11, 1996), 96Hu559(October 11, 1996), 96Hu405(December 10, 1996), 96Hu1064(May 23, 1997), 96Hu2012(June 24, 1997) and 96Hu825(September 26, 1997).

The Supreme Court Decision 86 Hu27(February 10, 1987) held that "even if the invention concerned has a feature of summing recognized contents from publications known to the public and publicly known knowledge before the patent application, if there is no extraordinary difficulty in so summing and there is not seen any new synergic effect beyond the effect expected from the known prior art, the invention concerned shall not be acknowledged to be inventive in its composition and effects" and since then, such criteria has been consistently applied until around 2008[4] and sometimes thereafter.[5]

The decisions featured an expression that if either 'extraordinary difficulty' or 'new synergic effect' exists, inventiveness of an invention is acknowledged, but in general, if difficulty of composition is recognized, an invention is recognized as inventive without a need to consider 'a notable effect' in practice.[6]

## 3. Judging Based on 'Difference of Purpose, Composition and Effect' (Type 3)

There are multiple decisions of the Supreme Court that acknowledge inventiveness since the invention concerned is different in purpose, composition and effect when compared to the prior art or deny inventiveness since there is no such difference, without presenting such difference as a criterion.[7] This technique of judgment has been also frequent in decisions of the

4) Supreme Court Decisions 88Hu516(July 11, 1989), 88Hu769(November 24, 1989), 90Hu1284(October 11, 1991), 90Hu2478(October 25, 1991), 92Da40563(February 12, 1993), 95Hu1197(July 26, 1996), 95Hu1517(November 26, 1996), 96Hu221(May 30, 1997), 97Hu1610(December 8, 1998), 99Hu1522(July 13, 2001), 2003Da30265(November 28, 2003), 2002Hu963(November 28, 2003), 2001Hu1105(December 26, 2003), 2004Hu448(April 15, 2005), 2003Hu1895(December 23, 2005), 2007Hu3172(February 1, 2008) and 2006Hu3052, (May 29, 2008).

5) Supreme Court Decisions 2009Hu4322(October 13, 2011), 2002Hu8(April 26, 2012) and 2011Hu4011(April 26, 2012).

6) *Judgment of Inventiveness of an Invention Combining Multiple Prior Arts,* Dongsoo HAN published in the Supreme Court Law Information (registered, 2010)

7) Supreme Court Decisions 94Hu944(October 13, 1995), 94Hu272(November 21, 1995), 94Hu685(December 26, 1995), 94Hu1411(December 26, 1995), 94Hu982(January 23, 1996), 95Hu1388(July 12, 1996), 95Hu1739(February 28, 1997), 96Hu1262(June 13, 1997), 96Hu1279(June 13, 1997), 96Hu573(August 29, 1997), 97Hu51(December 23, 1997), 99Hu2150(April 12, 2002) and 2003Hu175(January 28, 2005).

Patent Court.

### 4. Judging Based on 'Suggestion, Motivation and Technical Level, Etc.'(Type 4)

Supreme Court Decision 2005Hu3284(September 6, 2007) held that "in judging the inventiveness of a patented invention by quoting numerous references of the prior art, if such references present suggestion or motivation that association or combination of cited technologies may lead to the patented invention or even if not, if it is acknowledged that PHOSITA may easily arrive at such combination in light of the technical level, technical common sense, basic tasks in the relevant field of technology, development tendency and demand of the relevant industry, etc., as of the time of the patent application, inventiveness of the patented invention is denied" and since then this criteria has been utilized to the present.[8)]

Type 3 relieving the TSM test under the U.S. Case Law with respect to easiness of combination sees combination easy in light of the technical level of a person with ordinary skill, basic tasks in the relevant field of technology and demand from the relevant industry, even if there is no TSM in the references of the prior art.[9)]

## III. Examination Criteria of the Korean Intellectual Property Office

The examination criteria of the Korean Intellectual Property Office ("KIPO") have been constantly amended and herein mentioned is the amended criteria as of September 24, 2015. KIPO examination criteria are in principle based on the

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8) Supreme Court Decisions 2005Hu3284(September 6, 2007), 2008Hu3377(July 9, 2009), 2009Hu78(July 23, 2009), 2007Hu2728(September 24, 2009), 2007Hu2742(September 24, 2009), 2009Hu1644(October 29, 2009), 2008Hu4738(December 24, 2009), 2009Hu1897(September 9, 2010), 2011Hu1814(July 25, 2013), 2012Hu115(May 16, 2014), 2014Hu423(June 26, 2014), 2014Hu430(June 26, 2014) and 2014Hu1693(January 15, 2015).

9) *Judgment of Inventiveness of an Invention Combining Multiple Prior Arts,* Dongsoo HAN published in the Supreme Court Law Information (registered, 2010)

Supreme Court decisions but in details refer to foreign cases, preparing KIPO's own criteria and securing expeditiousness and consistency of the examination.

## 1. Procedure of Judging Inventiveness

***A.*** Invention set out in the claims is specified.

***B.*** Cited invention[10] is specified. Multiple cited inventions may be specified. Specification of cited inventions needs to be in the viewpoint of PHOSITA, assuming that the field of technology and technical tasks are in common with the invention set out in the claims.

***C.*** The closest cited invention to the invention set out in the claims is selected and both inventions are contrasted to each other, the differences are clarified. When confirming the differences, the organic combination of elements of the inventions will be considered. More specifically, elements that are organically combined need not be disassembled but need to be as a whole contrasted to the corresponding elements of the cited invention.

***D.*** It will be determined whether it is easy or not for PHOSITA to reach the invention set out in the claims referring to the closest cited invention even though there are some differences between the inventions, in view of the other cited inventions and technical common sense and a rule of thumb prior to the patent application.

## 2. Criteria of Judging Inventiveness

### *A. Motivation to Reach the Invention*

If the cited invention contains suggestion on the invention set out in the claims, if the cited invention and the invention set out in the claims are common in their tasks, functions or applications, or if the inventions are related in the field of technology, such could be a strong ground that PHOSITA could easily invent the

10) Cited invention means the same with the prior art.

invention set out in the claims from the cited invention.

**1 ) Suggestions in the Cited Invention**

If the cited invention has suggestion on the invention set out in the claims, this could be a strong ground that PHOSITA could easily invent the invention set out in the claims.

**2 ) Commonality of Tasks**

A) If the tasks of the cited invention and the claimed invention are in common, this is a strong ground that PHOSITA could easily invent the invention set out in the claims.

If cited invention is not in common with the invention set out in the claims in respect of technical tasks, it needs to be closely examined whether the task of the claimed invention is a self-evident task in the relevant field of technology or can be easily conceived in view of technical common sense and then it will be determined whether the result of such examination cannot be a ground of denying inventiveness.

B) If it is obvious that PHOSITA could have arrived at the same composition with that of the claimed invention by exercising ordinary creativity over the cited invention, the inventiveness can be denied.

**3 ) Commonality of Functions and Applications**

If functions or applications of the cited invention and the claimed invention are in common, this can be a strong ground that PHOSITA may easily invent the claimed invention referring to the cited invention.

**4 ) Relevance to the Field of Technology**

The fact that there exist technical means relevant to solution of technical tasks among the publicly known technology in the field of technology relevant to the claimed invention can be a strong ground that PHOSITA can easily invent the claimed invention pursuant to the cited invention.

### *B. Exercise of Ordinary Creativity of PHOSITA*

Usual improvement made through general application of publicly known

technology, deducing from known physical characteristics and reference to other field of technology for solution of known tasks, etc. is the exercise of ordinary creativity of PHOSITA. Specific types of exercise of ordinary creativity include selection of optimum material among known materials for achievement of a certain objective, optimization of numerical scope, substitution by equivalents, simple change of design according to specific application of technology, omission of some of the elements or simple change of usage, etc. If the claimed invention and the cited invention are different only in respect of such matters, the inventiveness is usually denied unless there are any other ground to acknowledge inventiveness.

**1 ) Substitution by Equivalents**

Substitution of some of the elements of the invention with publicly known compatible elements performing the same function is a type of exercise of ordinary creativity of PHOSITA and therefore, such invention is not recognized as involving inventive step unless there is any special circumstance including an improved effect.

In order for substitution with equivalents to be the exercise of ordinary creativity of PHOSITA, only the fact that the known elements function as equivalents is not sufficient but the substitution should be obvious to PHOSITA as of the time of patent application. If the equivalence is known to the relevant field of technology, such as the fact that the substituted elements function as equivalents being known prior to the patent application, this could be evidence that the substitution is obvious to PHOSITA.

**2 ) Simple Change of Design According to Specific Application of Technology**

In the event the claimed invention utilizes the technical idea of the cited invention and is just a simple change of design according to specific circumstantial change in application but is not recognized for any improved effects, such invention is just an exercise of ordinary creativity by PHOSITA and thus its inventiveness is not acknowledged.

For example, difference between the claimed invention and the cited invention arises out of specific application of known technical composition and the difference is only about size, proportion, relative dimension or quantity of elements, such difference is seen as an exercise of ordinary creativity of

PHOSITA and thus inventiveness is denied. However, if such difference has an effect of making different act or function and the effect is deemed beyond the predictable scope by PHOSITA, inventiveness may be acknowledged.

**3 ) Omission of Some Elements**

If some of the elements of known invention disclosed in the prior art are omitted, resulting in disappearance of relevant functions or deterioration of quality (including effect of invention), such omission is seen obvious to PHOSITA and inventiveness of the invention is denied. However, considering the technical common sense at the time of patent application, notwithstanding omission of some of the elements, if the functions are maintained or rather improved beyond expectation of PHOSITA, the inventiveness can be acknowledged.

**4 ) Simple Change or Limitation of Usage**

If usage of known invention disclosed in the prior art is simply changed or is additionally limited, the inventiveness is not acknowledged. That is, if the claimed invention is classified from the prior art only by change of usage or additional limitation of usage, the inventiveness is not acknowledged unless there is any improved effect by such change or limitation considering technical common sense as of the time of patent application.

**5 ) General Application of Publicly Known Technology**

If publicly known technology of which composition and function are known since being set out in the prior art is added and applied for solution of technical tasks of the claimed invention and thereby only predictable effect is obtained, the inventiveness is not acknowledged. However, considering the technical common sense at the time of patent application, if publicly known technology is applied to form organic combination with other elements and finally obtain improved effects from the prior art, the inventiveness may be acknowledged.

### *C. Consideration of Improved Effect*

**1 )** If the effect arising from technical composition of the claimed invention is better than that of the cited invention, the effect can be positively taken into consideration in acknowledging inventiveness.

**2 )** Even if certain aspects of the cited invention and certain aspects of the claimed invention are similar or seemingly, or PHOSITA may easily conceive the claimed invention by combination of multiple cited inventions, if the claimed invention has an effect of different nature or the same but notable effect and such effect is beyond expectation of PHOSITA at the relevant technical level, the inventiveness may be acknowledged.

In particular, in the field of technology in which it is not easy to expect the effect of composition of articles like in case of selection invention or chemical inventions, etc., having an improved effect compared to the cited invention is a material factor to acknowledge the inventiveness.

**3 )** If the specifications of invention describe improved effects compared to the cited invention or without such direct description, PHOSITA may easily recognize the improved effect from the objective composition of the invention set out in the specifications or drawings, the inventiveness is determined considering improved effects asserted or evidenced (for example, result of experiment) in arguments, etc. However, if the specifications of invention do not set out an effect or a person with ordinary skill may not guess such an effect from the specifications or drawings of the invention, the effect asserted or evidenced in arguments, etc. cannot be taken into consideration.

### *D. Other Factor of Difficulty*

Overall effects shall be reviewed with focus on difficulty in technical composition considering particularity of the objectives and conspicuousness of effects but in judging inventiveness there can be various factors of judgment and thus if the applicant asserts in an argument, etc. that the invention cannot be easily made referring to the matters set below, the examiner should not easily reach a conclusion of denying inventiveness.

**1 )** If the prior art references teach not to refer to the prior art, in other words, if there is a description in the prior art references that hinders PHOSITA from reaching the claimed invention, despite the similarity between the prior art and the claimed invention, inventiveness of the claimed invention is not denied by the prior art references. The fact that the prior art references

expressed the prior art as inferior cannot be said as a hindering factor.

**2 )** The fact that products of the invention have been commercially successful or obtained favorable response from the industry or no one has implemented the invention for a long time prior to the patent application can be taken into consideration as a secondary data to acknowledge inventiveness. However, those facts alone cannot be regarded as the ground of acknowledging inventiveness and inventiveness should be judged on the basis of the objectives, composition and effect of the invention set out in its specifications and thus if commercial success results not from technical characteristics of invention but from other factors such as improvement of marketing techniques or advertisement/promotion, commercial success cannot be considered as reference data in judging inventiveness.

**3 )** The fact that the claimed invention solves technical tasks PHOSITA has tried to solve for a long time or satisfies certain needs having been desired of for a long time can be evidence that the claimed invention involves the inventive step. Solution of technical tasks or satisfaction of needs should be recognized by a person with ordinary skill in the art and continued and then for the first time be satisfied by the claimed invention and in order to acknowledge this, objective evidentiary data is required.

**4 )** If an invention is made by employing technical means which have been abandoned by PHOSITA due to technical prejudice interfering with research and development of certain technical tasks in the relevant field of technology, and thereby solves the technical tasks, such can be considered as one of the indicators of inventiveness.

**5 )** If the claimed invention proposes means of overcoming technical difficulties other persons have failed to solve or means of solving technical tasks, this is regarded a favorable evidence of inventiveness. If a claimed invention proposes means for overcoming or solving technical difficulties which have been failed in resolving by others, this is regarded as an advantageous evidence for inventiveness.

**6 )** If a claimed invention falls within the area of a brand-new technology and therefore has no prior art relevant to the invention, or even the closest prior art to the invention is far away from the invention, the inventiveness may be positively inferred.

# IV. Reality of Judging Inventiveness

## 1. Judgment of Inventiveness by Difference in Composition and Effect[11)]

Among the Supreme Court Decisions on the criteria of judging inventiveness, 'type 3', that is, the manner of judging inventiveness by comparing the objectives, composition and effects of inventions has been the main stream in the practice of the Patent Court or the Intellectual Property Trial and Appeal Board so far. This manner is also evaluated as very much effective in judging inventiveness and thus specific methods of judgment are summarized herein. However, objectives are just subjective reiteration of an objective element called effects and in practice there is rare case of acknowledging inventiveness only by peculiarity of objectives and thus composition and effects of inventions are mainly contrasted.

### *A. If difference in composition is big and the effect is notably excellent*

If the invention concerned is largely different in composition from the prior art and the effect therefrom is also notably excellent, such invention is highly likely to be deemed difficult for PHOSITA to easily invent.

### *B. If difference in composition is not big but the effect is notably excellent*

If composition of the claimed technology is different from that of the prior art and the effect is notably improved from the prior art, inventiveness of the

11) This section is prepared by referring to 'Patent Act with Notes I', Sangjo JUNG and Sungsoo PARK, pages 355-358 (written by Youngsun CHO), Pakyoungsa (published in 2010).

claimed invention should be acknowledged in light of the purpose of the patent system seeking improvement and development of technology. Even if simple aggregation of prior arts without difference in composition has any notable synergic effect, inventiveness of invention is acknowledged in general based on the same reasoning.

### *C. If difference in effects is not big but difference in compositions is big*

Composition and effect are different in gravity depending on the field and nature of invention, and in practice, for example, in the field of machinery, electricity or electronics, composition is focused and in the field of chemistry and genome, etc., effect is focused in judging inventiveness. In the event the invention concerned has big difference in composition compared to the prior art but the effect from such composition is not big, inventiveness is judged case by case. If composition is focused in judging inventiveness, even if the invention has strong points and weak points to make effects not so notable, such invention contributes to diversification of technology and thus can be acknowledged for its inventiveness.

### *D. If difference in composition is not big and effect is not notably excellent*

If the invention concerned has no big difference in composition compared to the prior art and brings about no effect beyond expectation, it is general to say that PHOSITA may easily reach the invention. Below are examples faced frequently in practice.

**1 ) Addition of Well-Known/Commonly-Used Technology**

Well-known technology means technology of which there are a lot of documents or which is generally known to the field of technology without a need of explanation and commonly-used technology means technology that is frequently used among the generally known technology. If the prior art is used as it is or well-known and commonly-used technology is simply added, the invention concerned is deemed easy to PHOSITA.

**2 ) Substitution and application of elements of publicly known technology**

Substitution means substitution of a particular element with other elements among publicly known technical composition and application means application of method, equipment and compounds, etc. known to a certain field to other fields without making essential change thereto. In case of substitution, if the effects are notably different thereby, inventiveness is acknowledged but if the effect is only a difference in nature held by the substituted material, the invention concerned is deemed easy to PHOSITA. In case of application, difference in effects is natural and thus inventiveness is to be judged considering how difficult conceiving an idea of application from one field to another field is or what change is made to technical composition in the course of application. If the invention is familiar to both fields of technology and the effects obtained from its application are not notable, the invention concerned is likely to be deemed easy to PHOSITA.

**3 ) Aggregation of publicly known technology**

If more than two elements are combined to complete an invention, when the invention is only an addition of effects of the existing elements in practice, such is called an aggregation but if such aggregation results in synergic effects beyond aggregation, such is called combination and only the latter is recognized for difficulty in composition.

**4 ) Exercise of ordinary creativity**

This includes selection of the most optimal material among publicly known materials for achievement of objectives, optimization of numerical scope, substitution with equivalents and change of design according to specific application of technology.

## 2. Improvement of the Manner of Examining Inventiveness

The Supreme Court held that "in determining inventiveness of a patented invention citing numerous prior art references, if such references present suggestion or motivation that aggregation or combination of cited technology can lead to the patented invention, even if not, if PHOSITA can easily reach such combination in light of the technical level, technical common sense, basic tasks of

the relevant field of technology, development tendency and demand from the relevant industry, etc., inventiveness of the patented invention is denied", establishing the criteria of judging inventiveness.[12)]

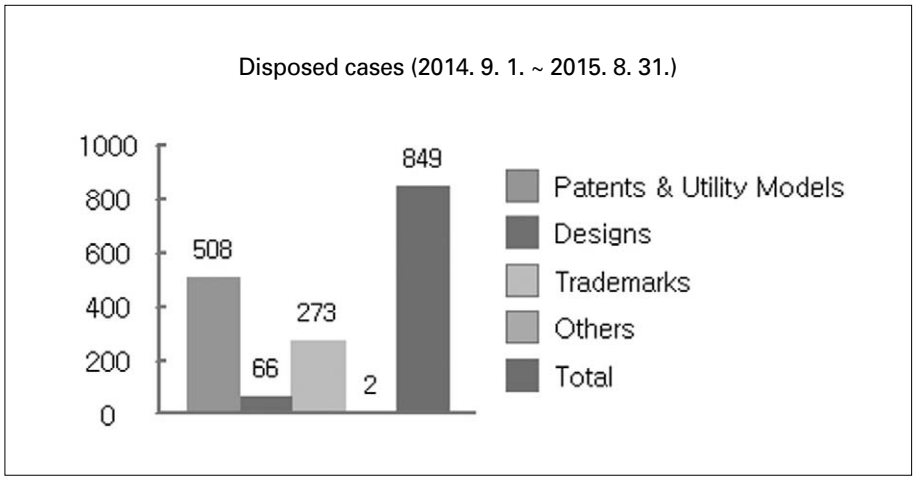
If the prior art references have suggestion or motivation that the patented invention may be obtained, inventiveness of a patented invention may be denied in accordance with the foregoing Supreme Court Decision. However, it is rare in practice that the prior art references directly present such suggestion or motivation. Accordingly, the examiner needs to examine whether PHOSITA can easily reach such combination in light of the technical level, technical common sense, basic tasks in the relevant field of technology, development tendency and demand from the industry but it is not easy. Technical level and technical common sense as of the time of patent application are in line with determination of the technical level of PHOSITA, and basic tasks in the field of technology, development tendency and demand from the relevant industry are matters of acknowledging facts based on evidences. However, examination of the level, etc. of PHOSITA has not been sufficient all the while. Rather, in practice, it was customary to judge inventiveness according to degree of difference in effects and composition by contrasting patented invention to the prior art. Recently following the foregoing Supreme Court Decision, in practice of the Patent Court, examination of technical level of PHOSITA has been strengthened in addition to cooperation from the technical examiner. It became frequent to demand sufficient evidence of technical level as of the time of patent application, and expert witness or expert examiner is often utilized. The Patent Court determined its policy to activate 'expert examiner' system under Articles 164-2 to 164-8 of the Civil Litigation Act from 2014 and to the present contracted with about 100 expert examiners such as professors, analysts and technicians engaged in the relevant field, etc.

12) Supreme Court Decision 2005Hu3284 rendered on September 6, 2007.

# Statistics of Patent Court of Korea

## 1. Disposed cases(2014. 9. 1. ~ 2015. 8. 31.)

| Patents & Utility Models | Designs | Trademarks | Others | Total |
|---|---|---|---|---|
| 508 | 66 | 273 | 2 | 849 |



## 2. Patent & Utility Model (2014. 9. 1. ~ 2015. 8. 31.)

| Refusal | Invalidation | Scope of a Right | Others | Total |
|---|---|---|---|---|
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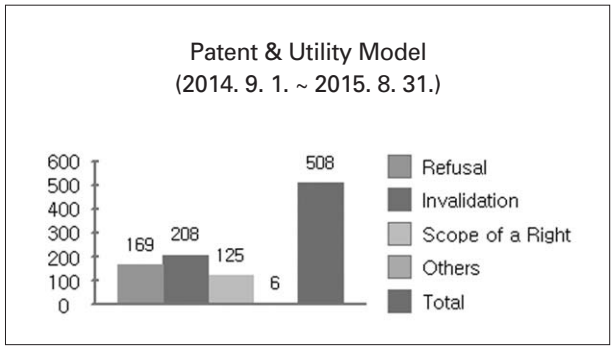


<table>
<tr><td colspan="8">Invalidation case(208건)</td></tr>
<tr><td rowspan="3">IPTAB</td><td colspan="5">Non-obviousness issues<br>189건(90.8%)</td><td rowspan="2">Others</td></tr>
<tr><td colspan="3">Obvious<br>109건(57.7%)</td><td colspan="2" rowspan="2">Non-obvious<br>80건(42.3%)</td></tr>
<tr><td colspan="2">wholly<br>92건(84.4%)</td><td>partly<br>17건(15.6%)</td><td>19건<br>(9.2%)</td></tr>
<tr><td rowspan="2">Patent Court</td><td>dismissed</td><td>reversed</td><td>others (withdrawn, etc)</td><td>dismissed</td><td>reversed</td><td>others (withdrawn, etc)</td><td rowspan="2"></td></tr>
<tr><td>77건<br>(70.6%)</td><td>10건<br>(9.2%)</td><td>22건<br>(20.2%)</td><td>26건<br>(32.5%)</td><td>28건<br>(35%)</td><td>26건<br>(32.5%)</td></tr>
</table>

## 3. Design(2014. 9. 1. ~ 2015. 8. 31.)

| Refusal | Invalidation | Scope of a Right | Others | Total |
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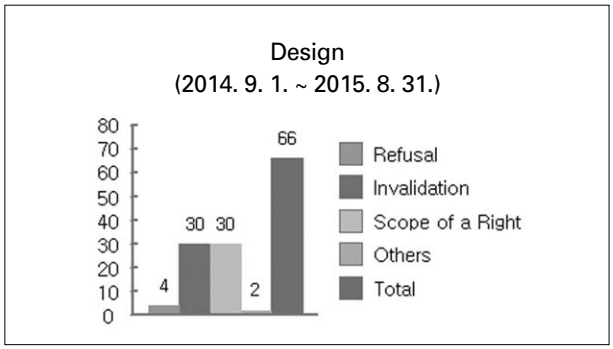


## 4. Trademark(2014. 9. 1. ~ 2015. 8. 31.)

| Refusal | Invalidation | Revocation | Scope of a Right | Total |
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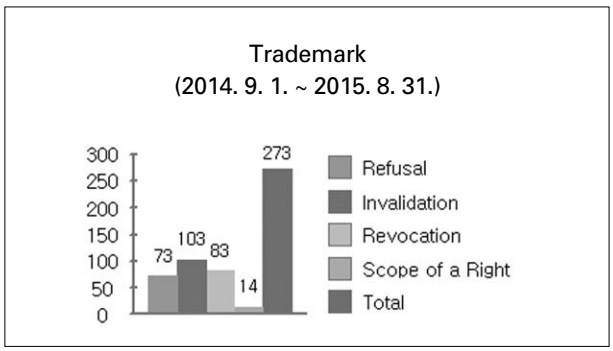
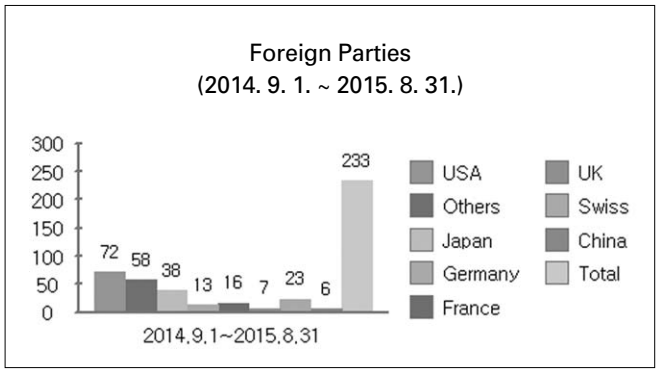


## 5. Foreign Parties(2014. 9. 1. ~ 2015. 8. 31.)

| | USA | Others | Japan | Germany | France | UK | Swiss | China | Total |
|---|---|---|---|---|---|---|---|---|---|
| 2014. 9.1. ~ 2015. 8. 31. | 72 | 58 | 38 | 13 | 16 | 7 | 23 | 6 | 233 |



# Decisions

# Electric Contact Terminal case
## [Invalidation of Patent Registration][1)]

**Boogyu KWAK***

## [Summary]

The decision acknowledged the inventive step of the patented invention in which a reflow-solderable elastic electric contact terminal includes an inclinedly formed middle portion on a bottom.

## [Judgment]

## 1. Outlined procedural history

***A.*** The plaintiff asserted that the novelty and inventive step of the patented invention in this case is denied and commenced an invalidation trial against the defendant at the Korean Intellectual Property Trial and Appeal Boad("PTAB") on February 1, 2011. The Korean Intellectual Property Trial and Appeal Boad("PTAB") dismissed the plaintiff's assertion on the grounds that the novelty and inventive step of the patented invention in this case is not denied on June 24, 2011.

***B.*** The plaintiff filed a lawsuit to cancel the decision by the Korean Intellectual Property Trial and Appeal Boad("PTAB") with the Patent Court on July 22, 2011. The Patent Court rendered a decision to cancel the IPTAB Decision on February 17, 2012 on the grounds that the inventive step of the patented invention is denied.

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*Judge, the Patent Court of Korea.

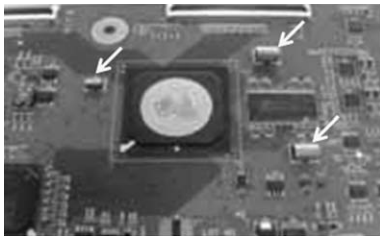
1) Patent Court Decision 2013Heo3968 (September 25, 2014).

***C.*** In response to the decision, the defendant filed an appeal with the Supreme Court on March 2, 2012, and commenced a correction trial in connection with the patented invention in this case at the Korean Intellectual Property Trial and Appeal Boad("PTAB") on February 29, 2012.

the Korean Intellectual Property Trial and Appeal Boad("PTAB") rendered a decision accepting the correction trial on July 20, 2012 and such decision was confirmed on the 23rd day of the same month. Due to the reason of foresaid decision, the Supreme Court vacated and remanded the case back to the Patent Court on April 26, 2013.

## 2. Background knowledge about electric contact terminal

The "electric contact terminal" refers to an element installed on a printed circuit board (PCB) or printed wiring board (PWB) to be electrically connected to the other parts (an electrical function), and to absorb impact with the other parts/board (a mechanical function).



[ Shape of electric contact terminal ]

For the sake of the electrical function of the electric contact terminal, an excellent electrical contact with a PCB should be formed, and a material with a high electrical conductivity should be used. For the sake of the mechanical function, the terminal should absorb impact while being hard.

A method of bonding the electric contact terminal to the PCB includes reflow soldering in which a cream-type soldering paste is applied on the PCB, the electric contact terminal is placed thereon, and the resulting structure is put into a reflow oven to melt the solder paste, and is taken out of the reflow oven to harden it, so that the electric contact terminal is bonded onto the PCB[2]. Since the electric contact terminal is very small and light[3], when the solder paste is melted

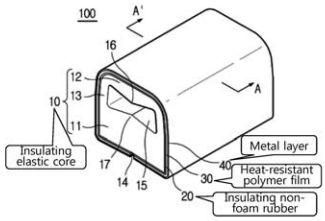
2) Unlike reflow soldering, in wave soldering, after parts such as an electric contact terminal are mounted on a substrate, the resulting structure is passed through a molten wave surface of solder to carry out soldering.

3) There are various types of electric contact terminals depending on use, and they are regarded as having a height and width of about 1 mm × 2 mm for easy understanding.

and then hardened, it may cause the electric contact terminal does not well adhere to the PCB, but delaminated or may crookedly adhere to the PCB. Minimizing such defects is regarded as a task in the field of art.

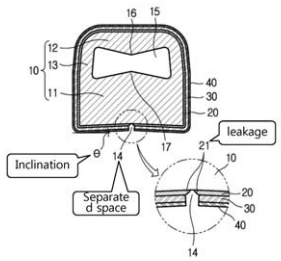
## 3. Patented invention of this case (filed on July 1, 2008)

**[Basic structure of electric contact terminal]** In order to ensure the conductivity and elasticity of an electric contact terminal, conventionally, the structure of the electric contact terminal includes an insulating elastic core having a through hole[4] therein, insulating non-foam rubber, a heat-resistant polymer film, and a metal layer. The insulating elastic core provides elasticity, the insulating non-foam rubber enhances adhesive force between the insulating elastic core and the heat-resistant polymer film, and the heat-resistant polymer film functions to surround the insulating elastic core and the insulating non-foam rubber. The metal layer may be formed by performing a plating process on the heat-resistant polymer film.



Structure of electric contact terminal

**[Problems of conventional art]** A heat-resistant polymer film passes through a mold to be compressed, so that it adheres to an insulating non-foam rubber coating layer, and at this time, leakage may occur at both ends (the middle part at a lower part of the electric contact terminal) of the heat-resistant polymer film due to the pressure of the mold. The leakage may cause the electric contact terminal to be delaminated or crooked.



Structure of patented invention

**[Means for resolving conventional problem]** Both ends (the middle part at a lower part of the electric contact terminal) of the heat-resistant polymer film are

4) It is described in the specification that the through hole is an element for concentrating weight in the lower portion.

spaced, and a lower surface of the insulating elastic core is inclinedly formed toward a middle portion so as to "receive" leakage of the insulating non-foam rubber coating layer. The detailed description of the invention discloses that the angle of inclination may range from 1° to 10°.

**[Effects of invention]** The separated space and the inclination cause the leakage of the insulating non-foam rubber coating layer to be received, facilitating reflow soldering. A "solder-rising phenomenon" at both side surfaces thereof is improved for more reliable soldering strength.

## 4. Judgment of inventive step

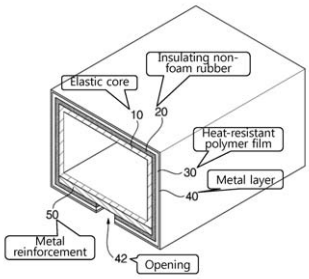
### *A. Scope of invention recited in Claim 1 in this case*

A reflow-solderable elastic electric contact terminal comprising a tube-shaped insulating elastic core including a through hole formed in a longitudinal direction in an inner portion thereof (Element 1), an insulating non-foam rubber coating layer adhered to the insulating elastic core to surround the insulating elastic core (Element 2), and a heat-resistant polymer film having one surface adhered to the insulating non-foam rubber coating layer to surround the insulating non-foam rubber coating layer, and another surface integrally provided with a metal layer (Element 3), wherein the heat-resistant polymer film is adhered to the insulating non-foam rubber coating layer such that the both ends of the heat-resistant polymer film are spaced apart from each other (Element 4), and the insulating elastic core comprises a bottom that is inclinedly formed in a scoop shape in a width direction from both ends toward a middle portion (Element 5).

### *B. Prior Art 1: "Patent '893 (Korea)"*[5]

Patent '893 is directed to "a solderable elastic electric contact terminal."

In the conventionally, since electric contact terminals are formed of only metal sheets, they cannot provide excellent elasticity below a certain




5) The patent application therefor was filed by the defendant.

height. Further, a single press mold can only form products of one shape, and the light-weight electric contact terminal formed of a metal sheet can be moved by the wind supplied in a surface mounting process, which could cause defects. Also, since insulating foam rubber is used as the core, a large amount of materials are used, resulting in high manufacturing costs, and the rate of foaming of the insulating foam rubber is not easy to adjust. In addition, extrusion production of a small-sized product (2 mm × 2 mm × 2 mm) is not easy to be carried out.

Patent '893 is provided to overcome such problems, and to manufacture an elastic electric contact terminal having good elasticity and electrical conductivity, capable of performing soldering, and having low manufacturing costs and improved production efficiency.

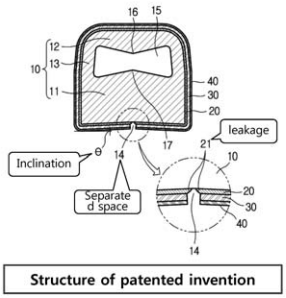
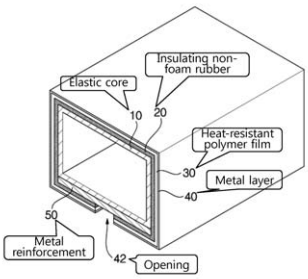
Patent '893 includes an elastic core(10), an insulating non-foam rubber coating layer(20), a heat-resistant polymer film(30), a metal layer(40), and a metal reinforcement(50). The elastic core(10) is formed of insulating non-foam rubber in a tube shape, the insulating non-foam rubber coating layer(20) functions to adhere the insulating elastic core(10) to the heat-resistant polymer film(30), the heat-resistant polymer film(30) is formed of a material having good heat resistance such as a polyimide (PI) film, the metal layer(40) is formed on one surface of the heat-resistant polymer film, and the metal reinforcement(50) gives strong adhesion after soldering as solder cream is in contact with the metal reinforcement(50) through an opening(42) during the soldering process.

According to Patent '893, since the insulating non-foam rubber is used as the elastic core, a small amount of materials are used to lower manufacturing costs, the diameter of the inner through hole can be controlled regardless of a rate of foaming to enable the control of elasticity, and a small-sized product can be easily manufactured. Also, the weight of the metal reinforcement prevents the movement of the product due to wind supplied in a surface mounting process with a vacuum pick-up process.

### *C. Comparison of Claim 1 of the invention of this case and prior art 1*

**1)** Elements 1, 2, 3, and 4 of Claim 1 of this case include the insulating elastic core(10) having a through hole formed therein in a longitudinal direction, the insulating non-foam rubber coating layer(20) adhered to the insulating elastic core to surround the insulating elastic core, the heat-resistant polymer

film(30) having one surface adhered to the insulating non-foam rubber coating layer to surround the insulating non-foam rubber coating layer, and another surface integrally provided with a metal layer(40), wherein the heat-resistant polymer film is adhered to the insulating non-foam rubber coating layer such that the both ends of the heat-resistant polymer film are spaced apart from each other. Patent '893, or prior art 1, also includes an insulating elastic core(10), an insulating non-foam rubber coating layer 20, and a heat-resistant polymer film 30 as elements, and the connection relationship is identical to Claim 1 of this invention of this case.

| Patented Invention | Patent '893 |
|---|---|
|  Structure of patented invention |  |

**2 )** Element 5 of the invention recited in Claim 1 of this case includes a bottom of an insulating elastic core inclinedly formed (hereinafter referred to as "the constitution of the inclination") in a scoop shape in a width direction from both ends toward a middle portion. Patent '893 merely discloses the electric contact terminal having a horizontal lower surface, and thus is distinguished from the invention recited in Claim 1 of this case in terms of configuration.

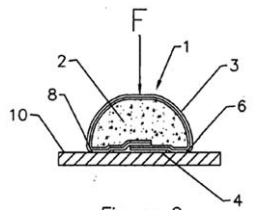
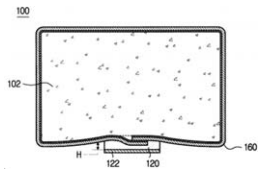
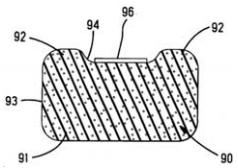
### *D. Whether "the inclination configuration" in Claim 1 of this case can be easily derived*

The plaintiff asserts that "inclination configuration" in Claim 1 of this case is common general knowledge or could have been easily derived from other prior arts, and the inventive step should be denied.

**1 )** Examining evidence submitted by the plaintiff as the basis for common general knowledge ① while the book called "Introduction of Lead Free

Micro-Soldering" theoretically describes the elements influencing soldering, "the inclination configuration" in Claim 1 of this case is not disclosed therein. ② while there are products having inclined surfaces formed at lower parts of electric contact terminals, the inclined surfaces are simply formed at the lower parts in an adhesive-type bonding manner using an adhesive component, not in a reflow soldering manner. Therefore, it cannot be deemed that "the inclination configuration" in Claim 1 of this case employing the reflow soldering manner is common general knowledge.

**2 )** In the prior arts (Patent '081, Utility Model '453, and Patent '790) submitted by the plaintiff, constitutions in which electric contact terminals have inclinations at a lower parts are disclosed.

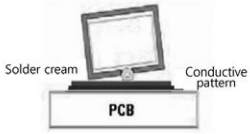
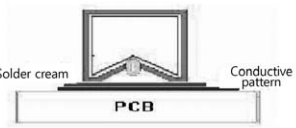
| Patent '081 (U.S.) | Utility Model '453 (Korea) | Patent '790 (U.S.) |
|---|---|---|
|  Figure 2 Prior Art |  |  |

Among the prior arts, Patent '893 is directed to an electric contact terminal employing a reflow soldering manner, and despite the difference in the detailed technical field for Patent '081, Utility Model '453, and Patent '790 being directed to electric contact terminals employing adhesives (adhesion agents), according to the evidence, it is acknowledged that an ordinary skilled person in the art of reflow soldering-type electric contact terminals could have assumed to refer to techniques related to electric contact terminals employing adhesives (adhesion agents) in the technical development.

However, considering the circumstances below, the invention recited in Claim 1 of this case is not considered to be easily derivable from the combination of "the inclined configuration" disclosed in the prior arts and Patent '893.

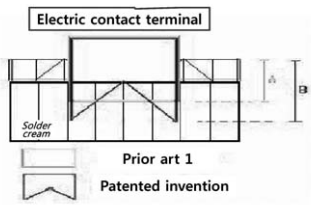
① **[Reason for forming separated space]** A separated space(14) is formed at

a bottom of the electric contact terminal recited in Claim 1 of this case because, when the heat-resistant polymer film 30 passes through a mold to be compressed, and adheres to the liquid insulating non-foam rubber coating layer(20), an outside pressure due to the mold causes leakage(21) of the liquid insulating non-foam rubber coating layer(20) sticking out of both ends of the heat-resistant polymer film(30) to be received in a separated space(14) formed by the spaced both ends of the heat-resistant polymer film(30). This is because, when leakage sticks out and hardens, and the middle portion at a bottom of the electric contact terminal protrudes, defects such as an unlevel bottom occur, and after soldering, the electric contact terminal exhibits delamination or is partially soldered, lowering the strength.

| Supplementary figures submitted by the defendant | |
|---|---|
| Leakage |  |
| When there are no or insufficient separated space and inclination |  |
| When there are sufficient separated space and inclination |  |

**[Reason for forming inclination]** "The inclination constitution" in Claim 1 of this case is to provide "further" receive the leakage(21) sticking out of the insulating non-foam rubber coating layer. Also, "the solder-rising phenomenon"[6] at both side surfaces of the electric contact terminal is improved

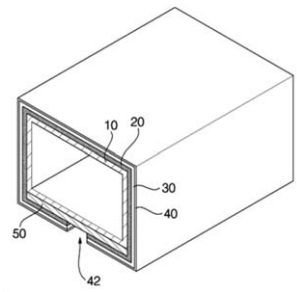
6) With respect to "the solder-rising phenomenon" disclosed in the detailed description of the patented invention of this case, the defendant asserted that the phenomenon refers to a phenomenon in which both side surfaces of an electric contact terminal are stuck more deeply in solder cream as shown in the following drawing [i.e., when an inclination is formed, the surfaces are stuck further deeply in the solder cream when the inclination is formed than when no inclination is provided, and thus the height at which the molten solder is adhered to both side surfaces of the contact terminal is greater (B > A). Accordingly, when the weight of the electric contact terminal is concentrated on both sides of the bottom of the electric contact terminal, the terminal may be stuck more deeply in the solder cream to be stably fixed.



to further enhance the soldering strength, and the delamination phenomenon is prevented.

② While Patent '893 discloses the formation of the separated space separating the both ends of the heat-resistant polymer film(30) from each other, i.e., the opening(42), the purpose of forming this is to directly contact the solder cream with the metal reinforcement(50) through the opening while performing soldering, so that strong adhesive force is maintained after soldering, and thus it is distinguished from the separated space in Claim 1 of this case in terms of purpose.

The specification of Patent '081 discloses that "the gaskets(1) rely on the compression of the gasket(1) to force portions (6), (8) of the gasket 1 to flow around the adhesive(4) or mechanical fastener to make sufficient electrical contact with the electrically conductive surface(10)," and while the purpose of the constitution of a scoop shape toward the middle portion is not clearly described, since an adhesive gasket is employed, the constitution simply seems to receive an adhesive(4) in the middle portion to prevent delamination of the force portions (6) and (8) caused by the thickness of the adhesive. Accordingly, it is not deemed that the purpose and effects are identical to "the inclination configuration" in Claim 1 of this case.



[FIG. 2 of Comparative Objective Invention 1]

Utility Model '453 discloses that when a conductive gasket(100) has a planar bottom, the thickness of a pressure sensitive adhesive(120) causes delamination and a conductive path is not formed between a conductive cloth(160) and a conductive member, and thus Utility Model '453 is provided to prevent this problem. That is, when the middle portion is formed to be recessed to compensate for the thickness of the pressure sensitive adhesive(120) in order for both edge parts to protrude further than the other parts, larger contact portions can be obtained between both edge parts and the conductive member, so that a conductive path can be stably ensured. Accordingly, the purpose and effects are not identical to "the inclination configuration" in Claim 1 of this case.

Patent '790, in order to stably maintain electrical connection of the gasket without blockage from an adhesive(96), dispose two nubs(92) at both ends of a gasket(90) and a middle portion between the nubs is formed to be inwardly

recessed to stably maintain electrical connection by the nubs regardless of the thickness of the adhesive(96). Accordingly, the purpose and effects are not identical to "the inclination configuration" in Claim 1 of this case.

③ In order to derive Claim 1 of this case from the combination of Patent '893 and the inclination disclosed in the other prior arts, recognition of the problem of Patent '893 in which the bottom of the electric contact terminal is planar and thus leakage of the insulating non-foam rubber coating layer(20) sticks out of the separated space formed on the bottom of the electric contact terminal to cause a lamination phenomenon, and the need to stick both ends on the bottom further into the molten solder to adhere them, so that soldering strength is further improved, which is referred to as a "solder-rising phenomenon" in the patented invention of this case, must be assumed. Also, in order to overcome these problems, modification of the configuration of Patent '893 with reference to the inclination disclosed in the other prior arts such that the middle portion on the bottom of the electric contact terminal is formed to be recessed must have been possible.

However, the opening(42) that is the separated space in Patent '893 is provided to bring the solder cream in direct contact with the metal reinforcement (50) when soldering is performed to strengthen the adhesive force after soldering. Also, if the structure of the opening were modified such that the opening(42) part was formed to be inwardly recessed, it would be increasingly difficult for the solder cream to come in direct contact with the metal reinforcement(50), and thus the function that the opening(42) has would deteriorate. Accordingly, an ordinary skilled person in the art would not have been motivated to introduce the inclination into Patent '893.

Moreover, all the inclinations disclosed in the other prior arts are provided to be inwardly recessed according to the thickness of the adhesive (the adhesion agent), so that the problem with broken contact between the both ends of the gasket by the adhesive (the adhesion agent) to cut off electrical flow is prevented, and thus contact areas of both ends are preferably enlarged. If it is an ordinary skilled person in the art who understands the functions and effects of the inclinations disclosed in the prior arts, from the combination of the inclinations disclosed in the prior arts and Patent '893, it is not easy to derive the constitution of the inclination which increases the soldering strength and prevent the

delamination phenomenon by making both ends of the electric contact terminal pointed or forming a scoop shape toward the middle portion to further stick the inclination into the solder cream.

Further, while "the inclination configuration" in Claim 1 of this case is provided to prevent the occurrence of delamination caused by leakage of the non-foam rubber coating layer sticking out of the separated space formed on the bottom of the electric contact terminal, the inclination in the prior arts is provided to receive an adhesive (an adhesion agent), and thus "the inclination configuration" in Claim 1 of this case for further receiving leakage of the non-foam rubber coating layer of the electric contact terminal could not have been easily derivable with reference to the inclination in the prior arts.

### *E. Sub-conclusion*

It cannot be said that the inventive step of Claim 1 of this case is denied by the prior arts.

## 5. Conclusion

Since the inventive step of Claim 1 of this case is not denied, the inventive step of the rest of dependent claims limiting or further specifying the invention in Claim 1 of this case shall not be denied.

Therefore, the decision of tribunal reaching the same conclusion as above is legitimate.

# Entecavir case
## [Invalidation of Patent Registration][1)]

**Jootag YOON***

### [Registration invalidation (Patent)[2)]] [on appeal]

Whether the inventiveness of entecavir covered by the substance patent is denied over the prior art (negative)

## 1. Disputed issue:

Whether the compound of Cited Reference 1 (2′-CDG), which belongs to nucleoside analogues[3)] like entecavir and is only different in terms of the substituent, could easily be combined with the substituent of the compound of Cited Reference 3 which is a different nucleoside analogue [the exocyclic methylene group of Madhavan 30 (blue dotted line in the below table)] to conceive the compound entecavir.

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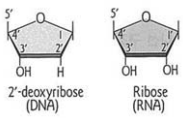
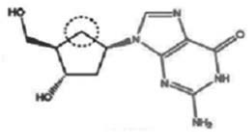
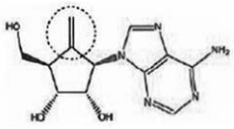
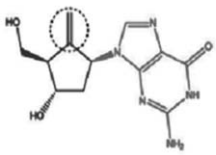
*Judge, the Patent Court of Korea.

1) Patent Court Decision 2015Heo932, 2015Heo956, 2015Heo970 (May 29, 2015).

2) The Federal District Court of Delaware held on February 11, 2013 that the inventiveness of the US substance patent which is identical to the invention of the Subject Patent is denied and thus the patent is invalid. On June 12, 2014, the U.S. Court of Appeals for the Federal Circuit affirmed the decision of the first instance that the patent is invalid and dismissed the appeal. On May 4, 2015, the U.S. Supreme Court denied the writ of certiorari.

3) A nucleoside analogue is a compound containing a modification to a natural nucleoside structure. A **nucleoside** refers to a compound where a base is bound to a pentose (see figure) in the form of a N-glycoside. A **nucleotide** is formed by combining a phosphate group with a nucleoside. Nucleotides are polymerized to form nucleic acids. Nucleic acids in which the sugar is deoxyribose are referred to as DNA (deoxyribonucleic acid), while nucleic acids in which the sugar is ribose are referred to as RNA (ribonucleic acid).



| 2′-CDG (Cited Reference 1) | Madhavan 30 (Cited Reference 3) | Entecavir (Patent) |
|---|---|---|
|  |  |  |

## 2. Judgment:

In view of the descriptions in Cited Reference 1 and the descriptions in the prior art documents at the time of the priority date, it appears that there was considerable possibility for a person skilled in the art who was trying to develop a nucleoside analogue having activity against a virus such as HSV-1, 2, etc. to select the compound in Cited Reference 1 as the lead compound.

However, it is difficult to find any particular reason why a person skilled in the art would have specially considered introducing an exocyclic methylene group at the 5′ position of the carbon ring (the position indicated by the blue dotted line in the above figure) when modifying the compound in Cited Reference 1.

Further, in light of the various circumstances, various substituents were used in the field of nucleoside analogues at the time of the priority date of the Subject Patent, but it is difficult to find any correlation between the substituents that were used and the activity. That is, it is difficult to specify, as a means for solving the technical problem of providing a nucleoside analogue that exhibits activity against viruses such as HSV-1, 2, etc., "a substituent having a correlation with activity against the above viruses." Except for Madhavan 30, an exocyclic methylene group has only been used in one nucleoside analogue having a different base, etc. Cited Reference 3 discloses more factors that negatively affect the determination of whether to introduce an exocyclic methylene group than factors that have a positive effect.

In the process of selecting 2′-CDG as the lead compound and designing and synthesizing a structurally similar compound or analogue, a person skilled in the art would try to understand the structure-activity relationship and find and use

the essential pharmacophoric moiety, which is the form of the molecule for exhibiting the pharmacological action of the compound. However, unless the essential pharmacophoric moiety for the antiviral activity of 2′-CDG is found or information regarding "the correlation between a specific substituent and the activity" is found, using the structure-activity relationship in the process of selecting 2′-CDG as the lead compound and developing a nucleoside analogue that exhibits activity against viruses such as HSV-1, 2, etc. is merely playing the role of searching for nucleoside analogues that exhibit activity against viruses such as HSV-1,2, etc. among the nucleoside analogues and determining the candidate substituents to be introduced in 2′-CDG. Once the candidate substituents are determined as above, a method for introducing the candidate substituent and synthesizing the compound should be conceived, and a process of synthesizing the compound and verifying its properties should be carried out [while it may differ depending on the subject invention and level of technology, in the case of chemical inventions which are said to be an experimental science, there is lack of predictability or practicability (see Supreme Court Decision 2001Hu65 rendered on November 30, 2001). Witness Lee testified to the effect that "when designing a compound, the synthesis method should be conceived, and the source of the synthesis method should be searched from prior art documents." In the present case, it is difficult to figure out which substituents, when introduced, exhibit activity against viruses such as HSV-1, 2, etc. at the time of the priority date of the Subject Patent, what were the standards for determining which substituent, among the above substituents, would specially undergo the processes of synthesis and property verification, etc., to what degree the exocyclic methylene group of Madhavan 30 was preferred among the potential candidates, and once the substituent is determined how much time and cost were needed to undergo the processes of synthesis and property verification, etc.

Therefore, it is difficult to find any particular reason why a person skilled in the art would have specially considered introducing an exocyclic methylene group at the 5′ position of the carbon ring when modifying 2′-CDG at the time of the priority date of the Subject Patent. Further, under the circumstances where it was difficult to figure out the substituents which could be potential candidates, the standards for selecting the substituents, etc., it is difficult to conclude that a person skilled in the art would have easily introduced an exocyclic methylene

group at the 5′ position of 2′-CDG.

## 3. Summary of the judgment:

Therefore, simply based on the evidence filed on record, it is difficult to view that the Cited References contain any suggestion, motivation, etc. for introducing an exocyclic methylene group at the 5′ position, which is merely one of the candidates in terms of the position to be modified or substituent that can be introduced. Further, in light of the level of technology at the time of the priority date of the Subject Patent, technical common knowledge, basic problems in the subject technical field, development trend, needs in the industry, etc., it is difficult to regard that a person skilled in the art would have easily selected 2′-CDG as the lead compound and introduce an exocyclic methylene group at the 5′ position to arrive at entecavir.

# Laying Gap Drainage Device case
## [Invalidation of Patent Registration][1)]

**Boohan KIM***

## [Issue]

Whether a drainage device for use in a laying gap[2)] between bridge slabs[3)] and an installation method thereof has a inventive step (positive)

## [Summary]

## 1. Patented Invention

The patented invention is Korean Patent No. 10-1235246 entitled "a support base, a drainage device for use in a laying gap between bridge slabs and an installation method thereof". The claim scope and major drawings of the corrected claim 2 (hereinafter referred to as "Claim 2 of corrected invention of this case"), which the inventive step is disputed in this case, are as follows.

### *A. Scope of Claim 2*

A drainage device for use in a laying gap between bridge slabs, comprising: a first support frame and a second support frame embedded in end surfaces of

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*Judge, the Patent Court of Korea.

1) Patent Court Decision 2014Heo7462 (August 20, 2015).

2) Typically, a laying gap means a gap which is formed in a junction between rails so as to accommodate expansion of the rails (see Civil Engineering Dictionary of Naver Knowledge Encyclopedia). In the subject case, the laying gap refers to a gap which is formed between concrete slabs as bridge decks rather than rails in order to prevent distortion of the concrete slabs which may otherwise occur when the concrete slabs are expanded by heat.

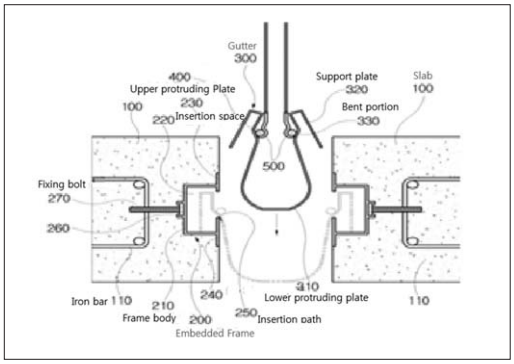
3) If the laying gap mentioned above is formed, water is naturally collected in the laying gap in case of rain. It is necessary to install a drainage device for draining the water thus collected.

bridge slabs (hereinafter referred to as "Element 1"); a gutter supported by a first groove and a second groove formed in the first support frame and the second support frame (hereinafter referred to as "Element 2"); and a first cover plate and a second cover plate installed in the first support frame and the second support frame so as to partially cover openings of the first groove and the second groove (hereinafter referred to as "Element 3"), wherein the first cover plate and the second cover plate include a first fastening portion and a second fastening portion fastened to the first support frame and the second support frame and a first cover portion and a second cover portion configured to partially cover the openings of the first groove and the second groove (hereinafter referred to as "Element 3-1"), the first fastening portion and the second fastening portion include a first fastening through-hole and a second fastening through-hole (hereinafter referred to as "Element 3-2") and a first engaging projection and a second engaging projection formed above and below the first and second fastening through-holes so as to protrude inward (hereinafter referred to as "Element 3-3"), the first support frame and the second support frame include a first fastening component and a second fastening component to which bolts inserted into the first fastening through-hole and the second fastening through-hole are fastened (hereinafter referred to as "Element 1-1") and a first engaging groove and a second engaging groove formed above and below the first and second fastening components so that the first engaging projection and the second engaging projection engage with the first engaging groove and the second engaging groove (hereinafter referred to as "Element 1-2"), the gutter includes a gutter body and a first bent plate and a second bent plate bent outward from the opposite top ends of the gutter body, the gutter body, the gutter body is bent into a fist side plate, a second side plate and a connecting plate which interconnects the lower ends of the first side plate and the second side plate (hereinafter referred to as "Element 2-1"), the first bent plate includes a first bent horizontal plate horizontally bent outward from the top end of the first side plate and a first bent-up plate bent upward from the first bent horizontal plate, the second bent plate includes a second bent horizontal plate horizontally bent outward from the top end of the second side plate and a second bent-up plate bent upward from the second bent horizontal plate (hereinafter referred to as "Element 2-2"), the lower ends of the first cover plate and the second cover plate are positioned within the height of the first bent-up plate and the second bent-up plate

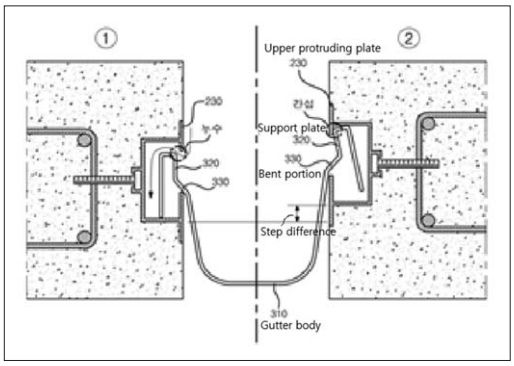
(hereinafter referred to as "Element 3-4"), and the undersurfaces of the first bent horizontal plate and the second bent horizontal plate are placed on and supported by the support frames (hereinafter referred to as "Element 2-3").

## *B. Major Drawings*

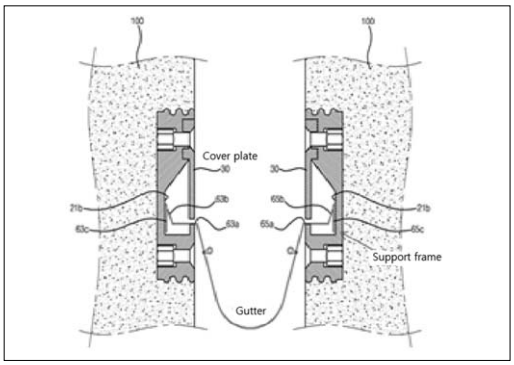
[FIG. 2] A sectional view illustrating a state in which a gutter of a conventional drainage device is being inserted into embedded frames



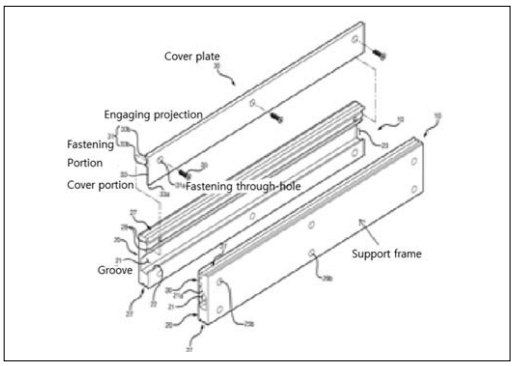

[FIG. 3] A sectional view showing a step difference generated in a conventional drainage device



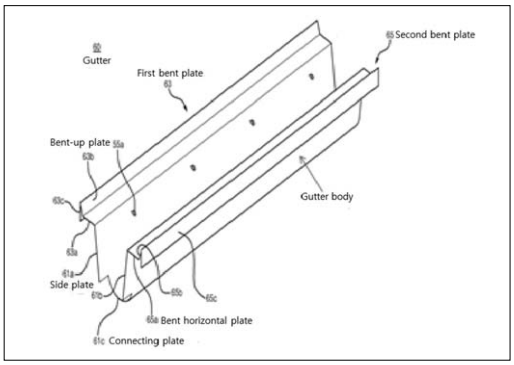
[FIG. 6f] A sectional view showing the corrected invention of this case




[FIG. 4] A perspective view showing a support base of the corrected invention of this case




[FIG. 5a] A perspective view showing a gutter of the corrected invention of this case



## 2. Plaintiff's Assertion

The plaintiffs assert, despite that the inventive step for Claim 2 of corrected invention of this case has not been denied by prior arts 1 to 4, the decision which is different from aforesaid is illegitimate.

## 3. Decision on the inventive step of Claim 2 of corrected invention of this case

### *A. Comparison of configurations and operational effects*

**1 ) Elements 1, 2 and 2-1**

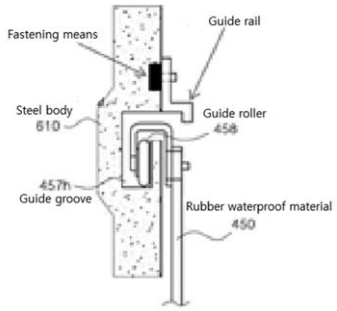
| Elements 1, 2 and 2-1 | Prior art 1 (Exhibit A No. 5) |
|---|---|
| a first support frame and a second support frame embedded in end surfaces of bridge slabs (Element 1) | A pair of embedded frames 200a is embedded in the side surfaces of the bridge slabs so that the insertion paths 250a are symmetrical with each other (see line 1 from the bottom of page 30 and line 1 of page 31). |
| a gutter supported by a first groove and a second groove formed in the first support frame and the second support frame (Element 2) | The side plates extend outward from the opposite top ends of the drain plate body 310a and are bent downward at the free ends thereof so that the side plates can be inserted into the internal spaces 220a of the frame bodies 210a through the insertion paths 220a of the embedded frames 200a. |
| the gutter includes a gutter body and a first bent plate and a second bent plate bent outward from the opposite top ends of the gutter body, the gutter body, the gutter body is bent into a fist side plate, a second side plate and a connecting plate which interconnects the lower ends of the first side plate and the second side plate (Element 2-1) | The drain plate 300a includes support plates 320a which have lower end portions supported on the lower frame bodies 210a of the insertion spaces 220a to support the opposite sides of the drain plate body 310a, and bent portions 330a positioned between the drain plate body 310a and the support plates 320a and bent obliquely inward (see lines 1 to 6 of page 31) |

In comparing the corresponding configurations, Elements 1 and 2 of Claim 2 of this invention of this case and the corresponding configuration of prior art 1 are identical in that a gutter (a drain plate) is installed in the first and second grooves (internal insertion spaces) of the first and second support frames (a pair of embedded frames) embedded in the end surfaces of the bridge slabs, so as to drain rainwater or the like falling on a bridge through a gap between the slabs.

Furthermore, Element 2-1 and the corresponding configuration of prior art 1 are identical in that the gutter (the drain plate) including a gutter body composed of a connecting plate (a drain plate body) which interconnects the lower ends of first and second side plates (bent portions) and first and second bent plates (support plates) bent outward from the opposite top ends of the gutter body is inserted into the first and second grooves (the internal insertion spaces) of the first and second support frames (a pair of embedded frames).

**2 ) Elements 1-1, 1-2, 3, 3-1, 3-2 and 3-3**

| Elements 1-1, 1-2, 3, 3-1, 3-2 and 3-3 | Prior arts 2 and 3 |
|---|---|
| the first support frame and the second support frame include a first fastening component and a second fastening component to which bolts inserted into the first fastening through-hole and the second fastening through-hole are fastened (Element 1-1) | Prior art 2: The guide rail 454 should be capable of being attached to the concrete slab surface by an anchor. If a narrow space makes it difficult to attach the guide rail 454, the guide rail 454 is fixed to the vertical surface of the lower plate by welding or fastened thereto by bolts (see the second paragraph of page 6 of Exhibit A No. 6). |
| a first engaging groove and a second engaging groove formed above and below the first and second fastening components so that the first engaging projection and the second engaging projection engage with the first engaging groove and the second engaging groove (Element 1-2) | Prior art 3: The projection formed on the upper surface of the angle iron 10 is inserted into the projection insertion groove 21 formed in the lower portion of the cover 20 (see paragraph number <7> of Exhibit A No. 7). |
| a first cover plate and a second cover plate installed in the first support frame and the second support frame so as to partially cover openings of the first groove and the second groove (Element 3) | Prior art 2: The guide groove 457h is formed inside the steel body 610. Thus, the guide roller 458 is embedded into the steel body 610 (see the sixth paragraph of page 6 of Exhibit A No. 6). |

<table>
<tr><th>Elements 1-1, 1-2, 3, 3-1, 3-2 and 3-3</th><th>Prior arts 2 and 3</th></tr>
<tr><td>the first cover plate and the second cover plate include a first fastening portion and a second fastening portion fastened to the first support frame and the second support frame and a first cover portion and a second cover portion configured to partially cover the openings of the first groove and the second groove (Element 3-1)</td><td rowspan="2">Prior art 2:<br>[FIG. 6c] Installation example of an embedded rubber waterproof material<br>  <br></td></tr>
<tr><td>the first fastening portion and the second fastening portion include a first fastening through-hole and a second fastening through-hole (Element 3-2)</td></tr>
<tr><td>a first engaging projection and a second engaging projection formed above and below the first and second fastening through-holes so as to protrude inward (Element 3-3)</td><td>Prior art 3: The projection formed on the upper surface of the angle iron 10 is inserted into the projection insertion groove 21 formed in the lower portion of the cover 20 (see paragraph number <7> of Exhibit A No. 7)</td></tr>
</table>

A) In comparing the corresponding configurations, Elements 1-1 and 3-2 of Claim 2 of the corrected invention of this case and the corresponding configurations of prior art 2 are identical in that the through-holes are formed in the first and second support frames (steel bodies and the first and second cover plates (guide rails) and in that the first and second support frames (steel bodies) and the first and second cover plates (guide rails) are combined by fastening components (fastening means) such as bolts or the like. Elements 3 and 3-1 of Claim 2 of the corrected invention of this case and the corresponding configurations of prior art 2 are identical in that the first and second grooves (guide grooves) formed in the first and second support frames (steel bodies) are covered by the first and second cover plates (guide rails) and in that the first and second cover plates (guide rails), which include the first and second fastening portions (fastening means) fastened to the first and second support frames (steel bodies) and the first and second cover portions (the L-shaped ends of the guide rails) partially covering the first and second grooves (guide grooves), are configured to prevent removal of the gutter (rubber waterproof material) from the first and second grooves (guide

grooves). Elements 1-2 and 3-3 and the corresponding configurations of prior art 3 are substantially identical in that the first and second engaging projections (projections) formed in the first and second cover plates (angle irons) are inserted into the first and second engaging grooves (projection insertion grooves) formed in the first and second support frames (covers).

B) Next, in the determination of whether it is easy to combine the above corresponding configurations of prior arts 2 and 3, in considering ① prior arts 2 and 3 are directed to a flexible joint device for bridges and identical in the technical field thereof, ② the specification for Claim 2 of corrected invention of this case does not particularly limit the shape or other elements of the engaging grooves and the engaging projections of Elements 1-2 and 3-3 and does not describe significant effects other than the improved combinability to be expected by the insertion of the projections into the grooves, and ③ the configuration of combining the adjoining members with grooves and projections is mere common general knowledge widely used in different technical fields including the corrected invention of the current case and the flexible joint device for bridges of the prior arts, it is deemed that the Elements 1-1, 1-2, 3, 3-1, 3-2 and 3-3 of Claim 2 of the corrected invention of this case can be easily derived by combining prior arts 2 and 3.

**3 ) Elements 2-2, 2-3 and 3-4**

A) Element 2-2 is a limitation that "the first bent plate includes a first bent horizontal plate horizontally bent outward from the top end of the first side plate and a first bent-up plate bent upward from the first bent horizontal plate, and the second bent plate includes a second bent horizontal plate horizontally bent outward from the top end of the second side plate and a second bent-up plate bent upward from the second bent horizontal plate". Element 2-3 is a limitation that "the undersurfaces of the first bent horizontal plate and the second bent horizontal plate are placed on and supported by the support frames". Element 3-4 is a limitation that "the lower ends of the first cover plate and the second cover plate are positioned within the height of the first bent-up plate and the second bent-up plate". Prior arts 1 to 4 do not describe or imply the configurations corresponding to the aforementioned elements.

B) In this regard, the defendants assert that Elements 2-2 and 2-3 are a mere change of shape which can be easily derived from the configuration of prior art 1 in which the support plates of the drain plate is supported in the insertion spaces (see page 31 and FIG. 2 of Exhibit A No. 5), the configuration of prior art 2 in which the guide grooves of the guide rails are partially covered (see FIG. 6c of Exhibit A No. 6) and the configuration of prior art 3 in which the upper end portions and the bent portions are formed to extend outward from the top ends of the gutter member (see FIG. 3a of Exhibit A No. 7) and element 3-4 is a mere change of shape which can be easily derived from the configuration of the water drop preventing groove of prior art 1 (see page 31 and FIG. 2 of Exhibit A No. 5), the configuration of the guide rail of prior art 2 (see FIG. 6c of Exhibit A No. 6) and the configuration of the upper wing portion of the fixing base member of prior art 3 (see FIG. 3a of Exhibit A No. 7), and there is no difference in the effect.

However, from ① prior arts 1 and 3 do not disclose the configuration of Element 2-2 regarding the first and second bent horizontal plates bent horizontally outward, the configuration of Element 2-3 regarding the first and second bent horizontal plates placed on and supported by the support frames and the configuration of Element 3-4 regarding the first and second cover plates. Prior art 2 does not disclose the configuration of Element 2-2 regarding the first and second bent plates composed of the first and second bent horizontal plates and the first and second bent-up plates, the configuration of Element 2-3 regarding the first and second bent horizontal plates placed on and supported by the support frames and the configuration of Element 3-4 regarding the first and second cover plates positioned within the height of the first and second bent-up plates. ② The operational effect, which improves the durability of the gutter by preventing rainwater or soil from entering the groove of the flexible joint device, preventing the gutter from being lifted up due to the pressure difference attributable to a vehicle speed, accommodating the expansion and contraction of the slabs with the bent horizontal plates of the gutter, cannot be expected from the prior arts ③ From the fact that prior art 1 allows the drain plates replaceable by forming the opposite sides of the upper ends of the drain plates in a bent form (see lines 1 to 7 of page 31 of Exhibit A No. 5); prior art 2 includes guide rails and guide rollers so that the rubber waterproof material, when damaged, can be independently and

rapidly replaced (see "the technical problems" and "the configuration of the invention" on page 4 of Exhibit A No. 6); prior art 3 includes a fixing base member and a gutter member in order to improve the ease of assembly of the flexible joint device (see paragraph numbers <10>, <11> and <13> of Exhibit A No. 7), there is difference to the technical idea of Claim 2 of corrected invention of this case relating to ① and ② and the Elements 2-2, 2-3, 3-4 are not easily derived from the prior arts 1 to 3. It is, therefore, the assertion of defendants shall not be accepted.

### *B. Result of Comparison*

As discussed above, when Claim 2 of the corrected invention of this case is compared with prior arts 1 to 4, Elements 1, 2 and 2-1 are identical with prior art 1; Elements 1-1, 1-2, 3, 3-1, 3-2 and 3-3 are identical with prior art 1; Elements 1-1, 1-2, 2, 2-1, 3, 3-1, 3-2 and 3-3 can be easily derived by combining prior arts 2 and 3. However, a person having ordinary skill in the art cannot easily derive Elements 2-2, 2-3 and 2-4 from the respective corresponding configurations of prior arts 1 to 4. Accordingly, the inventive step for Claim 2 of the corrected invention of this case, in which Elements 1 to 3-4 are combined as a whole, is not denied by prior arts 1 to 4.

# Electric Motor case
## [Rejection of Patent Application][1)]

**Boogyu KWAK***

## [Summary]

Decision vacating the Korean Intellectual Property Trial and Appeal Board ("IPTAB") Decision by overturning the IPTAB that the invention of the electric motor[2)] in which the leading edge[3)] of the stator[4)] is thicker than the trailing edge in order to prevent magnetic saturation[5)] and the trailing edge is thin in order to reduce inductance[6)] of the stator winding lacks an inventive step.

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*Judge, the Patent Court of Korea.

1) Patent Court Decision 2014Heo7820 (October 22, 2015).

2) This refers to the electric motor for obtaining rotational force by being supplied with electricity.

3) Leading Edge: In the invention of Claim 1, the leading edge (27) and the trailing edge (28) are defined in relation to the rotation direction of the rotor (11), in which the leading edges (27) correspond to front edges of the stator magnetic poles (18, 19) with respect to the rotation direction of the rotor (11), and the trailing edges (28) correspond to rear ends of the stator magnetic poles (18, 19) with respect to the rotation direction of the rotor (11) [see the following item 2. B. 3) D) (1)]

4) Stator: A magnet fixed in an electric motor, an electric generator, etc. The stator includes a core for supporting a winding, and a frame for attaching the core. The stator is the term relative to the term "rotor".

5) Magnetic Saturation: When magnetizing force is gradually increased when iron is magnetized, magnetic flux density is also generally increased, and the magnetic saturation refers to a phenomenon in which at a certain point, magnetic flux density is not increased even though the magnetizing force is increased. This property varies depending on the type of magnetic substance.

6) Inductance: The magnetic flux passing through the coil is changed by the change of electric current flowing in the coil itself, and electromotive force, which hinders the change of the magnetic flux, is induced in the coil itself. This phenomenon refers to a self-induction action. The self-induction action varies depending on the number of coil winding, and presence and absence of the core, and the degree of the action is indicated by inductance (H).

## [Judgment]

## 1. Background

***A.*** The Examiner in the Korean Intellectual Property Office ("KIPO") issued Decision of Rejection based on the reason that all claims in the present invention (priority date: March 3, 2009) lack an inventive step over the Cited Inventions 1 and 2 (hereinafter, claim 1 of the present invention is referred to as "the invention of Claim 1" and the remaining claims are also referred to in the same manner).

***B.*** In the procedure of Plaintiff's Appeal against the Decision of Rejection, the IPTAB also dismissed the Plaintiff's Appeal based on the reason that the invention of Claim 1 lacks an inventive step over Cited Inventions 1 and 2, and the patent application, which includes two or more claims, should be rejected if any one claim is rejected.

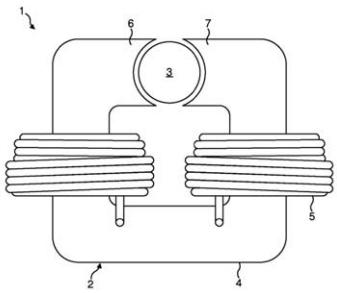
## 2. Present Invention

### *A. Technical Contents*

The electric motor(1) includes a stator(2) which is an electromagnet, and a rotor(3)[7] which is a permanent magnet.

In the related art, when the rotor(3) reaches a position where maximum torque[8] is present, magnetic saturation occurs at edges which are end portions of the magnetic poles(6, 7), and in order to prevent the magnetic saturation, the edge portions of the magnetic poles(6, 7) become thicker, but in this case, inductance of the stator winding(5) increases.

[FIG. 1 of Present Invention] Structure of Electric Motor in Related Art




7) Rotor: Collectively referring to a part that is rotated in a rotary machine such as an electric generator, an electric motor, a turbine, and a water wheel.

8) Torque: Force applied to an object to rotate the object.

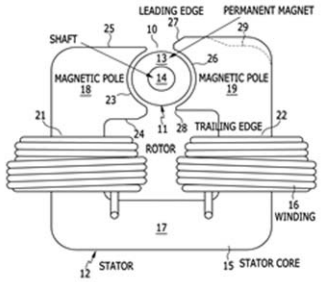
The present invention is to solve the problem shown above. The leading edge(27) of the stator is thicker than the trailing edge(28) in order to prevent magnetic saturation, and the trailing edge(28) is formed thin in order to reduce inductance of the stator winding(16).

In the present invention, with the increase in thickness of the leading edge(27), magnetic saturation of the stator core(15) at the leading edge(27) is prevented, or a saturation point is at least raised, such that restriction on a path of magnetic flux passing through the stator(12) is reduced. Therefore, the more efficient electric motor(10) can be obtained.

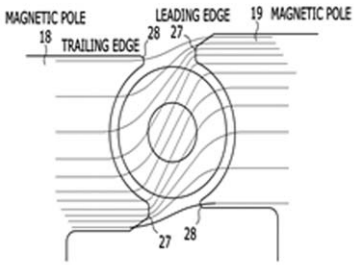
In addition, the trailing edge(28) with a small thickness is installed, such that inductance of the stator winding(16) is reduced.

Further, in the present invention, the respective magnetic pole arcs(26) of the two magnetic poles(18, 19) are slightly misaligned with each other, and the distance between the leading edges of the two magnetic poles(18, 19) is greater than the distance between the trailing edges(28). The air gap[9] between the magnetic poles(18, 19) and the rotor(11) is asymmetric, such that the rotor(11) may be parked at a position where an operation can be easily started.

[FIG. 2 of Present Invention] Electric Motor of Present Invention




[FIG. 3 of Present Invention] Magnetic Flux passing through Magnetic Poles of Electric Motor at Position where Maximum Torque is present.




## *B. Claims*

**1 )** A unidirectional electric device which includes a rotor, which is configured as a permanent magnet, and a stator (Preamble Portion), wherein the stator includes a plurality of magnetic poles (Element 1), each of the magnetic poles

9) Air Gap: Air interval between two objects. Two spark gaps, which face each other, are made in an electrode having a bead shape or a needle shape.

includes a leading edge and a trailing edge based on a rotation direction of the rotor (Element 2), the leading edge is thicker than the trailing edge in a direction normal to the rotation axis of the rotor (Element 3), the stator includes a pair of magnetic poles which is opposite to each other (Element 4), and an air gap between the leading edges of the pair of opposing magnetic poles and the rotor is greater than an air gap between the trailing edges of the pair of opposing magnetic poles and the rotor (Element 5).

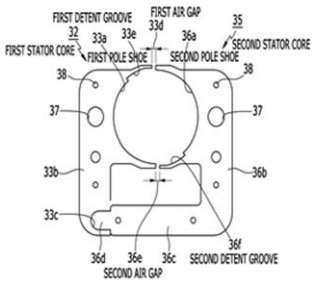
## 3. Contents of Prior Arts

### *A. Prior Art 1*

Prior Art 1 relates to a "skeleton[10] type brushless electric motor[11]" disclosed in Korean Patent Application Laid-Open No. 2002-90272 published on December 2, 2002, and an object of Prior Art 1 is to provide a skeleton type brushless electric motor capable of inhibiting a loss of eddy current[12], and increasing activation properties and efficiency.

The following items (1) to (4) are disclosed in Prior Art 1.

[FIG. 10 of Prior Art 1] Front view of Stator Core

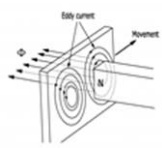



*(1)* The rotor is configured as a circular permanent magnet, a rotating shaft is rotatably coupled integrally with an axial center of the rotor, and the stator includes a first stator core(32) and a second stator core(35) which have a first pole shoe(33a) and a second pole shoe(36a),

10) It is presumed that the "skeleton" in Prior Art 1 is used to express the shape (structure) of the stator as a "skeleton", but the use of the term cannot be found in the contents of Prior Art 1 and the document of related technologies.

11) The combination of a rotor position detector, a synchronous electric motor, and a thyristor electric power converting device is referred to as the thyristor motor or the brushless electric motor.

12) Eddy Current: Electromotive forceis generated when magnetic flux is changed in a magnetic substance, and an electric current having an eddy shape flows in the magnetic substance by the electromotive force as illustrated in the figure. This is referred as the eddy current. A loss of electric power caused by the eddy current is referred to as a loss of electric current.



respectively, which are disposed to be opposite to each other at the outside of the rotor with the rotor disposed therebetween at a predetermined air gap.

*(2)* A first detent groove(33e)[13], which is enlarged from an outer diameter surface of the rotor in a radial direction of the rotor and extended in a circumferential direction in order to initially activate the rotor, is formed in an inner circumferential portion in a region adjacent to a first air gap(33d) of the first pole shoe(33a), and a second detent groove(36f), which is enlarged in the radial direction and extended in the circumferential direction, is formed in an inner circumferential portion in a region adjacent to a second air gap(36e) of the second pole shoe(36a). The first detent groove(33e) and the second detent groove(36f) are formed within a range of 40° to 50° from a vertical central line of the drawing in the rotation direction of the rotor, and formed to be rotationally symmetrical about the rotation axis of the rotor.

*(3)* A sensor accommodating unit, which accommodates and supports a position detecting sensor for detecting a rotational position of the rotor, is formed at an upper region of a PCB[14] cover. The sensor accommodating unit is formed in a section ranging from 10° to 20° in a direction opposite to the rotation direction of the rotor from a vertical central line of the rotor so as to detect in advance the magnetic poles of the rotor in consideration of a delay until an actually applied electric current reaches a peak value due to inductance components and the like when electric power is supplied to the coil.

*(4)* When the position of the magnetic pole of the rotor is detected by the position detecting sensor, a drive circuit supplies direct current electric power to any one of the first coil and the second coil based on the detection result, and thus the rotor rotates about the rotation axis.

### *B. Prior Art 2*

Prior Art 2 relates to a "compact electric motor" disclosed in Japanese Utility

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13) The detent groove appears to mean "a stop groove".

14) The PCB refers to a printed circuit board on which a circuit for controlling a motor is configured.

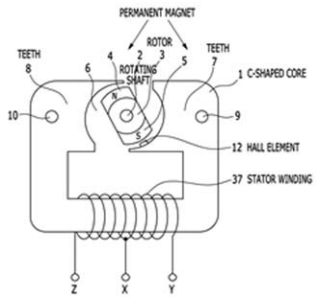
Model Application Laid-Open No. S60-128483 published on August 29, 1985, and an object of Prior Art 2 is to provide a compact electric motor of which the efficiency is improved by configuring the electric motor as a DC brushless motor using a C-shaped core.

The following items (1) to (3) are disclosed in Prior Art 2.

*(1)* The electric motor includes a rotor(6) including a C-shaped core(1), which is formed by stacking iron plates, a rotating shaft(2), a rotor core(3), and permanent magnets(4, 5), and widths of air gaps of teeth(7, 8) are changed in accordance with the rotation angle of the rotor(6).

*(2)* It is generally known that when the air gap of the electric motor is changed in accordance with the rotation angle of the rotor(6), the rotor(6) is stopped in a state illustrated in FIG. 1 or in a state in which the rotor(6) has rotated by 180° from the state illustrated in FIG. 1 by the balance of magnetic attractive force, and the rotor(6) of the electric motor is always stopped at a predetermined position of one of both sides.

[FIG. 1 of Prior Art 2] Electric Motor of Prior Art 2




*(3)* When the electric motor is operated by the electric circuit,the electric current in the stator winding(11) flows from the terminal(X) to the terminal(Z), such that the teeth(7) of the C-shaped core become N-poles, the teeth(8) become S-poles, and the rotor(6) begins to rotate in the left direction by attractive and repulsive actions of the permanent magnets(4, 5). With the rotation of the rotor(6), output of a terminal(S) and a terminal (N) of the hall element(12) is changed, and at the same time, the electric current in the stator winding(11) flows from the terminal(X) to the terminal(Y) by on/off operations of the transistors(13, 14), such that the teeth(7) of the C-shaped core become S-poles, and the teeth(8) become N-poles. Therefore, the leftward rotation of the rotor(6) is maintained by inertia of the leftward rotation and by attractive and repulsive actions of the permanent magnets(4, 5) which are newly produced.

## 4. Determination of Inventive Step

### *A. Similarity between Invention of Claim 1 and Prior Arts*

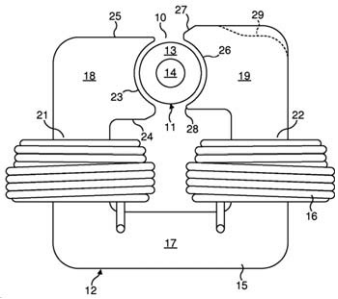
The preamble portion and Elements 1 and 4 of the invention of Claim 1 disclose the electric motor including a rotor and a stator, in which the stator has the pair of magnetic poles which is opposite to each other. Prior Arts 1 and 2 are identical to the preamble portion and Elements 1 and 4 of the invention of Claim 1 in terms of their structures and functions in that Prior Art 1 also discloses the electric motor provided with the rotor(11) and the stator(31), in which the stator(31) has the pair of magnetic poles, that is, the first pole shoe(33a) and the second pole shoe(36a) which are opposite to each other, and Prior Art 2 also discloses the electric motor having the rotor(6) and the C-shaped core(1), in which the C-shaped core(1) has the pair of teeth(7, 8) which is opposite to each other.

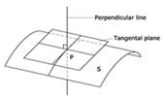
### *B. Difference between Invention of Claim 1 and Prior Arts*

*(1)* Elements 2, 3, and 5 of the invention of Claim 1 define the pair of opposing magnetic poles, in which ① the leading edge is thicker than the trailing edge in a direction normal[15] to the rotation axis, and ② the air gap between the leading edge and the rotor is greater than the air gap between the trailing edge and the rotor.

In the invention of Claim 1, the leading edge and the trailing edge are defined in relation to the rotation direction of the rotor(11), in which the leading edges(27) correspond to front edges of the stator magnetic poles(18, 19) with respect to the rotation direction of the rotor(11), and the trailing edges(28) correspond to rear ends of the stator magnetic poles(18, 19) with respect to the rotation direction of the rotor(11). That is, in

[FIG. 2 of Present Invention]




15) 

As illustrated in the left figure, when there is a plane which abuts on a curved surface S at a point P on the curved surface S, a straight line which runs through the point P and is perpendicular to a tangential plane is referred to as a normal line of the curved surface S at the point P.

FIG. 2 in the present invention, the rotor rotates clockwise.

(2) Prior Art 1 is similar to the invention of Claim 1 in that the first and second pole shoes(33a, 36a) of Prior Art 1 are thinner at portions where the first and second detent grooves(33e, 36f) are formed, and thicker at other portions. Prior Art 2 is similar to the invention of Claim 1 in that the teeth(7, 8) of Prior Art 2 have a thin portion and a thick portion.

However, the pole shoes(33a, 36a) of Prior Art 1 have "an edge with a detent groove" and "an edge without a detent groove", and from the description in the specification of Prior Art 1, "the first detent groove(33e) and the second detent groove (36f) are formed within a range of 40° to 50° from the vertical central line of the drawing in the rotation direction of the rotor, and formed to be rotationally symmetrical about the rotation axis of the rotor", it can be seen that the electric motor of Prior Art 1 rotates counterclockwise based on FIG. 10.

Therefore, "the edge with the detent groove" of Prior Art 1 corresponds to the front edge of the pole shoe with respect to the rotation direction of the rotor, and thus corresponds to the leading edge(27) of the invention of Claim 1, and "the edge without the detent groove" corresponds to the rear edge of the pole shoe with respect to the rotation direction of the rotor, and thus corresponds to the trailing edge(28) of the invention of Claim 1.

In addition, the teeth(7, 8) of Prior Art 2 have "a relatively thin edge" and "a relatively thick edge", and from the description in the specification of Prior Art 2, "when the electric motor is operated by the electric circuit, the electric current in the stator winding(11) flows from the terminal(X) to the terminal(Z), such that the teeth(7) of the C-shaped core become N-poles, the teeth (8) become S-poles, and the rotor(6) begins to rotate in the left direction by attractive and repulsive actions of the permanent magnets(4, 5). ... Therefore, the leftward rotation of the rotor(6) is maintained by inertia of the leftward rotation and by attractive and repulsive actions of the permanent magnets(4, 5) which are newly produced", it can be seen that the electric motor of Prior Art 2 rotates counterclockwise based on FIG. 1. Therefore, "the relatively thin edge" of Prior Art 2 corresponds to the front edge of the teeth(8) with respect to the rotation direction of the rotor(3), and thus corresponds to the leading edge(27) of the inventionof Claim 1, and "the relatively thick edge" corresponds to the rear edge of the teeth(7) with respect to the rotation direction of the rotor(3), and thus corresponds to the trailing

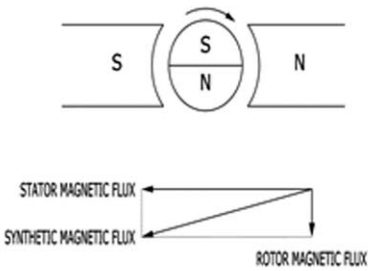
edge(28) of the invention of Claim 1.

As a result, there is a difference between the invention of Claim 1 and Prior Arts 1 and 2 in that the leading edge(27) is thicker than the trailing edge(28) in the invention of Claim 1, but in Prior Arts 1 and 2, the leading edge is thinner than the trailing edge.

### *C. Whether to Overcome Difference and Easily Derive Invention of Claim 1*

As mentioned below, it cannot be concluded that the configuration of the invention of Claim 1 can be easily derived only from Prior Arts 1 and 2.

[Reference View]
Distribution of Magnetic Flux according to Rotation of Rotor




*(1)* First, reviewing the magnetic flux distribution according to the rotation of the rotor, the rotor rotates clockwise by attractive force and repulsive force between the magnetic poles of the stator and the rotor in a state of the magnetic poles of the stator and the rotor as illustrated in the reference view at the right side. In this case, the magnetic flux is represented by synthetic magnetic flux formed by a vector sum of the stator magnetic flux and the rotor magnetic flux, and magnetic flux is biased to the upper edge of the stator N-pole and the lower edge of the stator S-pole as indicated by a vector of the synthetic magnetic flux. That is, as the rotor rotates, the magnetic flux is biased to the leading edge that is the front edge of the stator magnetic pole with respect to the rotation direction of the rotor, such that the magnetic flux increases at the front edge of the stator magnetic pole, and the magnetic flux decreases at the rear edge.

As described above, because of a phenomenon in which the magnetic flux is biased to the leading edge of the stator magnetic pole, magnetic saturation occurs at an edge which is an end of the stator magnetic pole, such that magnetic flux density is not increased any further even though intensity of magnetism is increased, and thus the magnetic saturation caused by the phenomenon in which the magnetic flux is biased has an adverse effect on rotational force of the electric

motor.

*(2)* The following description is disclosed in the specification of the present invention.

> • In the electric motor in the related art, magnetic saturation occurs at edges which are ends of the magnetic poles(6, 7) when the rotor(3) reaches a position where maximum torque is present. When the edge portions of the magnetic poles(6, 7) become thicker in order to prevent the magnetic saturation, there is a problem in that inductance of the stator winding(5) increases.
> • With the increase in thickness of the leading edge(27),magnetic saturation of the stator core(15) at the leading edge(27) is prevented, and a saturation point is at least raised. Therefore, restriction on a path of magnetic flux passing through the stator(12) is reduced, and thus the more efficient electric motor(10) can be obtained.
> • The trailing edge(28) with a small thickness is installed, such that inductance of the stator winding(16) is reduced. Because the magnetic flux passing through the trailing edge(28) is relatively small at a portion where the maximum torque is present, magnetic saturation does not occur at the trailing edge(28). Therefore, with the thin thickness of the trailing edge(28), it is possible to reduce inductance without any loss of magnetic performance.

According to the above specification, ① the invention of Claim 1 recognizes the problem that the magnetic saturation occurs at edges which are edges of the magnetic poles(18, 19) in accordance with the rotation of the rotor(11) and the problem that inductance of the stator winding (16) increases as the thickness of the edge increase, ② "the configuration in which the leading edge(27) is thicker than the trailing edge(28)" is a technical solution particularly adopted to solve the problems, and ③ the stator magnetic poles(18, 19) are formed as described above, such that the invention of Claim 1 solves the phenomenon in which the magnetic flux is biased to the leading edges(27) of the stator magnetic poles(18, 19), and mitigates the restriction on the path of the magnetic flux passing through the stator magnetic poles(18, 19), thereby preventing magnetic saturation from occurring at the leading edges(27). In the invention of Claim 1, the trailing edge(28) at which magnetic flux is not concentrated is relatively

thinner than the leading edge(27), thereby preventing an increase of inductance that can occur as the leading edge(27) becomes thick.

In comparison with the above configuration, ① in the structures of the leading edge and the trailing edge of Prior Arts 1 and 2, the leading edge is thinner than the trailing edge unlike the stator magnetic poles(18, 19) of the invention of Claim 1, ② the technical objective of Prior Art 1 is to reduce a eddy-current loss and improve activation properties, and the technical objective of Prior Art 2 is to improve efficiency of the electric motor, and as a result, Prior Arts 1 and 2 cannot recognize the technical objective to be achieved by the invention of Claim 1. In addition, Prior Arts 1 and 2 differ from the invention of Claim 1 in terms of the structure of the leading edge and the trailing edge, such that it is difficult to expect the technical effect of the invention of Claim 1.

### *D. Determination of Argument of Defendant*

The Defendant argues that the rotor (permanent magnet) can rotate clockwise even in Prior Arts 1 and 2 like the invention of Claim 1, and the leadingedge is thicker than the trailing edge when the rotor rotates clockwise in Prior Arts 1 and 2, and as a result, there is no difference from the structure of the leading edge and the trailing edge of the invention of Claim 1, such that the structure of the leading edge(27) and the trailing edge(28) of the invention of Claim 1 can be easily derived from Prior Arts 1 and 2 by those skilled in the art.

When examining the Defendant's argument, the rotor (permanent magnet) can rotate clockwise even in Prior Arts 1 and 2 like the invention of Claim 1 by changing the position of the position detecting sensor or the hall sensor in Prior Arts 1 and 2, and changing a control sequence of the electric current flowing in the stator winding as argued by the Defendant. However, in Prior Arts 1 and 2, because there is no recognition to prevent magnetic saturation by making the leading edge thicker than the trailing edge, it can be said that there is no motivation for changing the position of the position detecting sensor or the hall sensor of Prior Arts 1 and 2, and changing a control sequence of the electric current flowing in the stator winding. Therefore, it cannot be said that it is easy to change the configuration so that the rotor (permanent magnet) rotates clockwise like the invention of Claim 1, and there is no evidence to accept the ease of change otherwise.

### *E. Summary*

Because it cannot be concluded that those skilled in the art can easily derive the invention of Claim 1 from Prior Arts 1 and 2, the invention of Claim 1 does not lack the inventive step.

## 5. Conclusion

Because the inventions of Claims 2 to 10 are dependent claims which are directly or indirectly dependent from the invention of Claim 1 and define the configuration of the invention of Claim 1, the inventions of Claims 2 to 10 of course do not lack the inventive step because the invention of Claim 1 does not lack the inventive step.

Accordingly, the present invention of this case does not lack the inventive step. Thus, the trial decision of this case, which reached the different conclusion, is hereby overturned, and the IPTAB is vacated.

# Nickel Plating Composition case
## [Invalidation of Patent Registration][1)]

**Hyunjin CHANG***

## [Summary]

In the case where a the Court rescind the Intellectual Property Trial and Appeal Board("IPTAB") decision and it becomes final, the reasons for cancellation are binding on IPTAB (Article 189(3) of the Korean Patent Act). Therefore, the IPTAB is bound by the final decision of the Court unless there is an exceptional circumstance, such as the assertion of a new fact or the submission of new evidence and the like. In such a case, 'a new fact' corresponding to 'the exceptional circumstance' refers to a fact that is different from the reasons for cancellation, and 'new evidence' refers to evidence that was neither adopted nor investigated the IPTAB and the Court, and also refers to evidence having probative power sufficient to reverse the final Court decision (see the Supreme Court Decision announced on December 26, 2002, with Case No. 2001Hu96, and the like).

## [Judgment]

## 1. Background

### *A. Court Ruling to Cancel the primary IPTAB Decision*

The Defendant filed a motion for patent invalidation (2010Dang2701) with the IPTAB while arguing that the patented claim should be invalidated under Article 29(3) of the Korean Patent Act because it is substantially equivalent to the prior art, and the IPTAB decided to accept the request for invalidation.

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*Judge, the Patent Court of Korea.

1) Patent Court Decision 2014Heo7325 (August 28, 2015).

The plaintiff filed the lawsuit (2012Heo9143) to appeal against the IPTAB decision with the Patent Court. The Court canceled the IPTAB decision (hereinafter referred to as 'the Court ruling to cancel the IPTAB decision) for the grounds as follows: 'comparing Claim 1 of patent with the prior art, ① Element 4 in Claim 1 of patent shows zinc acetate, zinc sulfate, lanthanum sulfate, and cerium sulfate as a supplemental agent for conductivity, thereby adopting metallic salts, whereas the prior art does not specifically disclose metallic salts, but mentions only nonmetallic salts, such as sodium sulfate, ammonium sulfate, and the like and ② Element 5 in of Claim 1 of patent specifies sodium decane sulfonate as a stabilizer, whereas the prior art does not specifically disclose the compound, and only a gluconic acid and the like are added as a complex agent although using sulfide, such as benzenesulfonate and the like, as a stabilizer is technical common knowledge, benzenesulfonate, as an aromatic compound, is different from sodium decane sulfonate, which is an aliphatic compound, with respect to the structure and physical properties thereof; and accordingly, Claim 1 of patent cannot be deemed to be the same invention as the prior art' and the like.

### *B. Subsequent IPTAB Decision*

In Case No. 2013Dang174 (Decision of Cancellation) the Defendant submitted additional evidences concerning publicly known and commonly used technologies, and argued again that the patented claim should be invalidated under Article 29(3) of Patent Act because it is substantially equivalent to the prior art. The IPTAB accepted the Defendant's request for invalidation again.

## 2. Discussion

### *A. Element 4*

**1) Comparison of the Elements, and the Court ruling to Cancel the Primary IPTAB Decision**

A) In the Claim 1 of patent, zinc sulfate and the like are used as a supplemental agent for conductivity, whereas the prior art shows only ammonium sulfate, potassium sulfate and the like as the specific examples while disclosing that a sulfuric acid-based salt can be used as a supplemental agent for conductivity,

| Claim 1 of patent | Prior Art |
|---|---|
| [Element 4]<br>5 to 50 g/L of at least one supplemental agent for conductivity selected from the group consisting of<br>zinc acetate, zinc sulfate, lanthanum sulfate and cerium sulfate | Conductive salt should be appropriately selected according to the kind of nickel metallic salts, and a sulfuric acid-based salt, an ammonium-based salt, a boric acid-based salt, and the like can be used as the conductive salt. More specific examples thereof include ammonium sulfate, ammonium chloride, boric acid, ammonium phosphate, potassium sulfate, potassium chloride, sodium chloride, sodium sulfate, sulfamic acid, ammonium fluoride, sodium formate, or ammonium formate alone or a mixture thereof.<br>The conductive salt is included in a plating solution in a concentration of 10-200 g/ℓ, preferably 50-100 g/ℓ based on 100 g/ℓ of a nickel concentration in the plating solution. |

and does not describe zinc sulfate and the like as disclosed in the Claim 1 of patent.

B) The Court canceled the primary IPTAB decision ruling as follows. 'The prior art does not specifically disclose metallic salts limited in the Claim 1 of patent as a supplemental agent for conductivity, but discloses only nonmetallic salts such as sodium sulfate, ammonium sulfate, and the like. Thus, the two inventions are different from each other with respect to the detailed components thereof. Even when considering technical common knowledge that the salts of strong acid can be used as a supplemental agent for conductivity, the person having ordinary skill in the art("PHOSITA") could not recognize the metallic salts such as zinc sulfate and the like disclosed in the Claim 1 of patent from the nonmetallic salts disclosed as a supplemental agent for conductivity in the prior art. Thus the corresponding elements of the two inventions are not equivalent to each other'.

**2 ) Whether the new evidence is sufficient for reversing the Court ruling**

A) The IPTAB decision with regards to Element 4 is based on Exhibit Nos. A-10, 19, 20, 21, 22, and 23, and among them, Exhibit Nos. A-19 to 23 were newly submitted by the Defendant.

Exhibit Nos. A-10, and 19 to 22, which relate to a plating solution, only show, as a supplemental agent for conductivity, ammonium sulfate and

potassium sulfate (Exhibit No. A-10) alkali metal sulfate and metal sulfide salt, potassium sulfate (Exhibit No. A-19) sulfate (Exhibit No. A-20) ammonium sulfate and sodium sulfate (Exhibit No. A-21) and sodium sulfate, potassium sulfate, and ammonium sulfate (Exhibit No. A-22) and the like. The evidence does not specifically describe zinc sulfate specified in the Claim 1 of patent as a supplemental agent for conductivity. In addition, even though Exhibit No. A-23 (Doosan Internet Encyclopedia) describes that zinc sulfate is used in plating, which cannot be confirmed to be published before the application date of the patent, and based on this disclosure alone, it cannot be seen that zinc sulfate is also used in nickel plating.

Accordingly, based on the evidence above, the element wherein zinc sulfate is used in nickel plating or a nickel plating composition for pre-treatment of an electrogalvanized steel plate cannot be deemed to be a publicly known and commonly used technique. Therefore, it cannot be deemed that evidence having a sufficient probative force for reversing the Court ruling was submitted.

B) Also, the Defendant additionally submitted Exhibit Nos. B-8 and B-9 and requested the examination of Nak Gi Hong as a witness.

Exhibit No. B-9 is a patent publication relating to a method of preparing zinc sulfate and describes the use of zinc sulfate in plating with regard to the use of zinc sulfate. However, it cannot be specifically seen that zinc sulfate is used in nickel plating. In addition, Exhibit No. B-8 is an Argument prepared by Cheol Tae Lee[2] and it shows that when 'zinc sulfate is metal sodium sulfide belonging to a sulfuric acid-based salt, and if it can easily be dissociated, it can be used as an appropriate supplemental agent for conductivity. In addition, PHOSITA could sufficiently predict that, like other metallic salts or non-metallic salts, zinc sulfate is also used as a supplemental agent for conductivity of a plating solution'. However, the identity of an invention prescribed in Article 29(3) of the Korean Patent Act is distinguished from an inventive step of an invention, and in the case where there is a

2) The witness is a professor of the Department of Chemical Engineering at Dankook University, and wrote 'Material Electrochemical' which is a textbook on theory and practice concerning a metal surface treatment and plating process.

difference in technical elements between the inventions, unless the difference corresponds to the addition, deletion, change, or the like of a publicly known and commonly used technique, the elements of the two inventions cannot be deemed to be equivalent to each other based on the fact that the elements of the invention could be predicted by PHOSITA.

In addition, Nak Gi Hong[3], testified that 'zinc sulfate has been used as a supplemental agent for conductivity in nickel flash plating'. However, the witness did not present any basis or detailed case therefor.

Meanwhile, Gyeong Min Kim[4], testified as follows: "zinc sulfate is different from potassium sulfate which is the sulfate of an alkali metal in light of the fact that zinc sulfate is the sulfate of zinc which is a transition metal; since zinc is co-deposited with nickel, and thus zinc and nickel are plated together, zinc sulfate is not suitable as a supplemental agent for conductivity and zinc sulfate was not used, as a supplemental agent for conductivity, in nickel plating at the time of the filing date (February 25, 2010) of the patented invention of the subject case."

Thus, zinc sulfate or the like, disclosed in the Claim 1 of patent as a supplemental agent for conductivity is a different compound from potassium sulfate or the like disclosed in the prior art. By the testimony of Gyeong Min Kim it cannot be deemed to be widely known to or be used by the PHOSITA at the time of the filing date of the patent that zinc sulfate or the like is used, as a supplemental agent for conductivity, in nickel plating, only based on the evidence submitted by the Defendant. Furthermore, there also is no evidence for supporting the fact.

C) Accordingly, based on only the evidence newly submitted by the Defendant in the IPTAB, it is not sufficient for reversing the Court ruling. Element 4 disclosed in the Claim 1 of patent is not substantially equivalent to the

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3) The witness graduated from the Department of Chemical Engineering at Hanyang Universityin 1969 and has established Lucky Chemical Industry, Inc., Seo-Tech Ansan Co., Ltd., and the like and has engaged in plating business since around 1980.

4) The witness, who is an adjunct professor at JEI College, has given a lecture concerning the practice of plating and the like, and works for POONGWON Chemical Co., Ltd. as the head of the research center. In addition, he joined the company in 1999 and is in charge of the development work of chemicals for semiconductor surface treatment, and is a qualified technician for surface treatment.

corresponding element of the prior art.

### *B. Element 5*

| Claim 1 of Patent | Prior Art |
|---|---|
| [Element 5]<br>5 to 50 g/L of stabilizer of sodium decane sulfonate | An amine-based, citric acid-based, amino acetic acid-based compound or a mixture thereof may be used as a complex agent,... the complex agent may be any one selected from among a gluconic acid, ethylene diamine tetraacetic acid (EDTA), alkynic acid sodium, citric acid, tartaric acid, geopropionic acid ester, alkylcresol, zinc nahurate, thiourea, and imidazole, or a composite material thereof |

**1 ) Comparison of the elements, and the Court ruling to cancel the primary IPTAB decision**

A) In Element 5 disclosed in the Claim 1 of patent, sodium decane sulfonate is used as a stabilizer, whereas in the prior art, the element of a stabilizer is not present, and a gluconic acidor the like is used as a complex agent. Accordingly, the corresponding elements of the two inventions are different from each other.

B) The Court canceled the primary IPTAB decision ruling as follows. 'Benzenesulfonate was used, as a stabilizer, in a conventional nickel plating composition and the like. Although the fact that a sulfur compound or an organic or inorganic material of the sulfur compound is used as the stabilizer of a plating solution is technical common knowledge in the technical field to which the Claim 1 of patent pertains, benzene sulfonate is an aromatic compound, whereas decane sulfonate is an aliphatic compound, these compounds are different from each other with respect to the structure and physical properties thereof. Accordingly, the two compounds cannot be deemed to be equivalent to each other.'

**2 ) Whether the new evidence is sufficient for reversing the Court ruling**

A) The IPTAB decision with regards to Element 5 is based on Exhibit Nos. A-10 to

17, and Exhibit No. B-1, and among them, Exhibit Nos. A-13, and 15 to 17, and B-1 were newly submitted by the Defendant.

Exhibit Nos. A-10 to 17, which relate to a plating solution, only shows, as a stabilizer, benzenesulfonate (Exhibit Nos. A-10 and A-11), a sulfur compound (Exhibit Nos. A-12 and A-13), an organic material and an inorganic material of the sulfur compound (Exhibit No. A-14), a sulfonate-based additive (Exhibit No. A-15), sodium hydrocarbonsulfonate, potassiumperfluoroalkylsulfonate, sodium dodecylbenzenesulfonate, sodium isopropylnaphthalenesulfonate (Exhibit No. A-16), sodium vinylsulfonate, aliphatic sulfonic acid (Exhibit No. A-17) and the like. The evidence does not specifically describe sodium decane sulfonate specified in the Claim 1 of patent as a stabilizer.

Exhibit No. B-1 is only the practical guideline for examination concerning a compound invention of the Korean Intellectual Property Office.

Although the prior documents above disclose aliphatic sulfonate or some compounds belonging to a subordinate concept thereof as a stabilizer, based on only the evidence above, it cannot be deemed to be technical common knowledge of PHOSITA that sodium decane sulfonate is used as a stabilizer in nickel plating, and it also cannot be deemed that selecting the sodium decane sulfonate as a stabilizer could be directly recognized by the PHOSITA.

Accordingly, the evidence is not sufficient for reversing the Court ruling.

B) Also, the Defendant additionally submitted Exhibit Nos. B-8 and B-10 to 15 at and requested the examination of Nak Gi Hong as a witness.

Exhibit No. B-8, which is an Argument prepared by Cheol Tae Lee, shows the following: 'Using organosulfuroxide in a nickel plating process as a stabilizer is a typically used technique. Sodium dinaphthalenesulfonate, benzenesulfonate, or the like is mainly used as an aromatic organosulfur compound, and sodium vinylsulfonate or the like is mainly used as an aliphatic sulfur compound. Since sodium decane sulfonate, which is an aliphatic organic compound, also has a sulfonic acid group, it can serve as a stabilizer in a nickel plating process. Accordingly, sodium decane sulfonate is organosulfuroxide that could be considered by the PHOSITA.' However, the identity of an invention under Article 29(3) of the Korean Patent Act is distinguished from an inventive step of an invention, and in the case where there is a difference in technical elements between the two inventions, unless

the difference corresponds to the addition, deletion, change, or the like of a publicly known and commonly used technique, the elements of the two inventions cannot be deemed to be equivalent to each other based on the fact that the elements of the invention could be predicted by the PHOSITA.

In addition, Exhibit No. B-10 is the explanation concerning sulfonate from Naver Encylopedida Dictionary, and Exhibit Nos. B-11 to B-15 relate to a tin salt and tin plating and thus are different from the patented invention relating to nickel plating with respect to the technical field thereof. It cannot be deemed to be a publicly known and commonly used technique using sodium decane sulfonate in nickel plating based on only the written evidences above because decane sulfonate (decane sulfonic acid salt) does not function as a stabilizer as disclosed in the Claim 1 of patent, and the witness, Nak Gi Hong, only stated that he does not know that 'sodium decane sulfonate was used as a stabilizer in nickel plating prior to the filing date (February 25, 2010) of the patented invention'.

Meanwhile, according to the testimony of the witness, Gyeong Min Kim, it was stated that 'neither stabilizer nor a complex agent is needed for general nickel plating; in the invention of Claim 1 of patent the stabilizer is deemed to be used in order to prevent iron from being precipitated or oxidizing because iron ions continuously flow, on process, in nickel plating for pre-treatment of the cold steel plate of an electrogalvanizing process; sodium decane sulfonate was not used as a stabilizer in the field of nickel plating and the like; although sodium decane sulfonate has been used as a surfactant, in general, nickel plating is smoothly performed even without a surfactant; and the compounds exemplified as a complex agent of the prior art have ligands[5] in molecules, and it is difficult for the PHOSITA to conceive sodium decane sulfonate having no ligand from the compounds.'

Thus, sodium decane sulfonate, which is a stabilizer described in the Claim 1 of patent, is a different compound from the gluconic acid and the like disclosed in the prior art. By the testimony of Gyeong Min Kim, based on only the evidence submitted by the Defendant, it cannot be deemed that using sodium decane sulfonate as a stabilizer in nickel plating was widely known to

5) Ligand: Ligand is an ion or a molecule coordinated to and surrounding a central atom in a complex. It is also called (배위자 as another Korean term of ligand).

or used by the PHOSITA at the time of the filing date of the patented invention. Further, there is no evidence for supporting the fact.

**3 )** As a result, based on the evidence newly submitted by the Defendant in the IPTAB, it is not sufficient for reversing the Court ruling, and Element 5 in Claim 1 of patent is not substantially equivalent to the corresponding element of the prior art.

### *C. Conclusion*

Accordingly, despite that any evidence sufficient for reversing the Court ruling was not submitted, the IPTAB decision is contrary to the binding power of the Court ruling to cancel the primary IPTAB decision. Furthermore, the Claim 1 of the patent is not substantially equivalent to the prior art with respect to Elements 4 and 5 thereof, and the Claim 2 to 5, which add and define the invention of Claim 1 are not equivalent to the prior art. Thus, the patented invention does not fall under Article 29(3) of Patent Act.

# Airfryer case
## [Rejection of Trademark Application][1)]

**Hyunjin CHANG***

## [Summary]

It should be objectively judged taking into account the concept that the trademark carries, the relationship between the trademark and goods designated thereof, the recognition by general consumers or traders regarding the trademark, or the current practices of the trade whether a trademark falls into the mark consisting exclusively of signs or indications which may serve, in trade, to designate the geographical origin, quality, quantity, intended purpose, way of use under Article 6 (1)(3) of Trademark Act (Please refer to Supreme Court Judgment No. 2002Hu1140, rendered on August 16, 2004 and No. 2005Hu452, rendered on March 15, 2007, etc.)

Also a mark falls into a descriptive mark when the consumers and traders intuitively perceive the mark as exhibiting properties such as the quality, efficacy, shape, etc. of the designated goods or even a part of the designated goods. (Supreme Court Decision No. 2007Hu555, rendered on June 1, 2007, Supreme Court Decision No. 2004Hu271, rendered on October 28, 2005).

## [Judgment]

### 1. Whether the Mark shall not be registered under Article 6 (1)(3) of Trademark Act

#### *A. Composition and Concept of the Mark*

The trademark " **airfryer** " is a word mark consisting of the English word 'air' having the meaning of 'the air or the atmosphere, etc.' and the English word

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*Judge, the Patent Court of Korea.

1) Patent Court Decision 2014Heo4876 (April 10, 2015).

'fryer' having the meaning of 'frying equipment, frying pot, or frying pan, etc.' Although the mark is a coined word which is not registered in the dictionary, and the words constituting the mark are linked without spacing between the words, since both 'air' and 'fryer' are relatively easy English words, general consumers or traders are able to easily recognize that the mark is a combination of 'air' and 'fryer.' in light of the knowledge level regarding English in Korea

### *B. Properties of Designated Goods of the Mark*

Until about July 2011 when the Plaintiff launched the Plaintiff's product designated goods of the mark, 'electric fryer for household purposes,' had indicated a cooking device that fries food by heating oil with electricity. However, following the launch of the Plaintiff's product other subsequent manufacturers, including the intervenient participant for the Defendant, developed, sold, and advertised similar products one after the other. As a result, around May 13, 2014 as of the date of the Intellectual Property Trial and Appeal Board("IPTAB") decision, the fryer, which uses a method of cooking by quickly circulating hot air without using oil, established itself as a product group by being a type of electric fryer for household purposes.

Thus, when examining whether the mark exhibits the properties of the designated goods thereof, newly added fryers according to the present case should be considered as well as the previous electric fryer for household purposes. Moreover, not only making fried food 'without oil' or 'with little oil,' but also making fried food 'by using air' is the conceivable properties of the above designated goods-electric fryer.

### *C. Perception of General Consumers or Traders about the Mark*

On around May 13, 2014 as of the IPTAB decision, in addition to the Plaintiff and the participant for the Defendant, companies such as Dongyang Magic, Magic Chef, Chefline, Geithainer, Daewoong Morningcom, Mulex, Bomann, Unold, Electrika, etc. have been manufacturing and selling the fryer by using the word '에어프라이어(airfryer),' which is a transliteration of the mark into Korean, as the product name, and also by using 'airfryer' as the name referring to the fryer in many news articles and on internet pages of internet shopping malls, and shopbots.

Meanwhile, according to a consumer survey conducted by Gallup Korea in regard to perception of trademarks, 52.5% of those surveyed recognized "airfryer," and 59.7% of those surveyed recognized it as an usual name of a product. Also, a considerable number of those who were aware that "airfryer" was cooking equipment (43 out of 85 people) recognized "airfryer" as 'a product for frying food with air,' 'a cooking device that uses air,' 'a product for frying food without oil', etc. In other words, they were relatively accurately aware of the characteristics of the product. The respondents preferred the direct Korean translation of the mark, which is "air frying equipment", and the transliteration of the mark, which is "에어프라이어(airfryer)" in Korean, as the usual name of the fryer at issue [In regard to the appraisal result of the present case, the Plaintiff asserted that 43% of those surveyed who were previously not aware of "airfryer" associated "airfryer" as being irrelevant to cooking equipment, and only 12.5% preferred "airfryer" as an usual name of the fryer at issue, and whether the mark is a descriptive mark should be determined based on the recognition of those respondents who did not recognize "airfryer". However, whether a trademark falls to a descriptive mark or not should be judged based on a relationship between the trademark and designated goods thereof, and thus, the determination should be based on those respondents who are aware that "airfryer" relates to at least cooking (equipment), and on whether these respondents are able to intuitively perceive the characteristics of a product. Also, the respondents who were previously not aware of "airfryer" most preferred "air frying equipment," the direct translation of the mark into Korean, and thus the basis for determination is not to be set otherwise.]

## *D. Opinion*

Since general consumers are able to perceive the mark as a combination of 'air' meaning 'the air or the atmosphere' and 'fryer' meaning 'frying equipment or fry pan' and thus indicating 'air frying equipment,' when taking all things into consideration, it is deemed that when the mark is used in with the designated goods, 'electric fryer for household purposes,' general consumers would be able to intuitively perceive the mark means 'cooking equipment for making fried food by using air,' which is one of the characteristics of the designated goods. Therefore, the mark is a trademark consisting exclusively signs or indications,

which may serve, in trade to designate the nature of the designated goods and thus falls under Article 6 (1)(3) of Trademark Act.

The Plaintiff contends that general consumers would not be able to intuitively perceive the meaning of 'a fryer frying food with air without oil' by combining the two words because the mark is a coined mark firstly made by the Plaintiff, the words 'air' and 'fryer' generally have no connection to each other, and the operating principle of frying food with air is not easily understood by common sense. However, when considering the aspect and extent of usage of the word '에어프라이어(airfryer)' in the domestic market place, the internet, and newspapers, along with, for example, 'airoven' and 'airwasher,' which are names of other newly manufactured household electric appliances consisting of a combination of a conventional product name and "air," (Defendant's Exhibit-A No. 49, Defendant's Exhibit-B No. 33), and when considering that "airfryer" or "에어프라이어" are easily found through an internet search, even though general consumers might not easily understand the operating principle of frying food with air, it is deemed that they would naturally understand and perceive that products bearing the mark refer to 'cooking equipment that fries food by using air.' Thus, the argument of the Plaintiff is not persuasive.

## 2. Whether the Mark shall not be registered under Article 6 (1)(7) of Trademark Act

Even when the mark merely implies or emphasizes the feature of the designated goods as argued by the Plaintiff and thus does not fall to a descriptive mark falling under Article 6 (1)(3) of the Korean Trademark Act, the mark is still a mark without distinctiveness from other products based on a socially accepted idea or a mark inappropriate to be granted of exclusive rights to a particular person in regard to the public interest, and falls under Article 6 (1)(7) of the Korean Trademark Act stipulating 'a trademark which does not enable consumers to recognize whose goods it indicates in connection with a person's business' considering the concept carried by the mark, the relationship thereof with designated goods, the actual conditions of the market, and additionally, the circumstances stated below,

① According to the consumer survey regarding recognition of the trademark, examples of names that general consumers prefer as the usual name of the fryer according to the present case are airfryer, air frying equipment, hot air frying equipment, and the mark is simply a Korean transliteration or English translation of the above usual name or refers to only a main part of the usual name. Thus, when the mark at issue is used with respect to the fryer at issue, the distinctiveness thereof from other products is weak.

② As of May 13, 2014, the date of the IPTAB decision, many manufacturers have been using the Korean transliteration '에어프라이어(airfryer)' of the mark as the name of the fryer product of the present case that they are manufacturing and selling, and since '에어프라이어(airfryer)' is used as the usual name of the fryer at issue among general consumers, allowance of registration of the mark may result in allowing a specified person to possess the exclusive right of a mark that is actually used by many people in the market place.

③ The Plaintiff him/herself has been using '에어프라이어(airfryer)' as the usual name referring to the Plaintiff's product when advertising the Plaintiff's product.

④ Also, patent applications in which the title of the invention includes "AIR FRYER" were already filed by a third party before the Plaintiff released the Plaintiff's product of the present case and before the Plaintiff filed a trademark application regarding the mark, and thus, the mark is not deemed to be a coined word made by the Plaintiff.

⑤ The Plaintiff did not acquire distinctiveness of the mark derived from use of the mark.

## 3. Whether the Mark could be registered under Article 6 (2) of Trademark Act

The Plaintiff is spending a large amount of money for advertising the Plaintiff's product of the present case, and the Plaintiff's product has a dominant

market share in the market of the fryer according to the present case. However, in regard to whether such facts produced the effect that the mark is noticeably recognized among general consumers as an indication of origin of the Plaintiff's product of the present case or as an identification mark distinguished from those fryers manufactured and sold by other manufactures including the participant for the Defendant, at the time of the IPTAB decision, the following facts that: ① the period during which the Plaintiff used the mark is from around July 2011, the date when the Plaintiff's product of the present case was released, to May 13, 2014, the date of the IPTAB decision, and is thus relatively short; ② after the release of the Plaintiff's product, subsequent manufacturers and press have used '에어프라이어(airfryer)' as the usual name of the fryer at issue, and the Plaintiff him/herself also described the mark 'airfryer' or '에어프라이어' along with the Plaintiff' s trade name 'P○○' or 'Phil○○,' and used '에어프라이어(airfryer)' many times as the usual name of the fryer at issue; and ③ the consumer survey regarding trademark recognition showed that, while 66.4% of the respondents recognized products labeled "airfryer" as the Plaintiff's product, the ratio of respondents who recognized "airfryer" as an usual name of a product instead of a trademark was 59.7%, and thus, it is doubtful whether general consumers would actually recognize the mark presented without the Plaintiff's trade name as an indication of a source of the Plaintiff's product, lead to the conclusion that when based only on the acknowledged facts above and the evidence submitted by the Plaintiff, it is not deemed that the use of the mark enabled consumers to noticeably recognize whose goods the mark indicates in connection with a person's business at the time of May 13, 2014, the date of the IPTAB decision.

# Swing Shamoji case
## [Invalidation of Design Registration][1)]

**Boohan KIM***

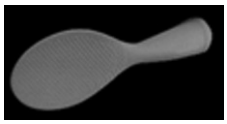
## [Summary]

If the similar features between a prior design and a registered design did not exist before the prior design, there registered design shall be invalid on the basis of its aesthetic similarity to the prior design.

## [Judgment]

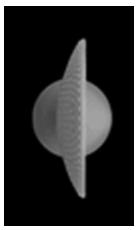
## 1. Registered and Prior Designs

### *A. Diagram of Registered Design*


(Perspective view)


(Front view)


(Rear view)


(Left side view)


(Right side view)


(Plane view)

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*Judge, the Patent Court of Korea.

1) Patent Court Decision 2014Heo6858 (April 23, 2015).

### *B. Diagram of Prior Design*

The publicized diagram on Naver's blog is as follows:

## 2. Standard of Judgment

In determining the question of similarity of the designs in contention, a judge or an examineris not to compare individual features that comprise the designs separately, but rather must consider whether an ordinary observer is able to identify differing aesthetic features by comparing and contrasting each designs' over all appearance. The most discernible features of the designs that attract the ordinary observer's attention is to be perceived as the essential features, and the question of similarity depends on whether the comparison of those features provide any aesthetic differences(please refer to Korean Supreme Court Decision 2000Hu129 held on May 15, 2001). If there are any similarities in the dominant features, the designs are to be regarded as similar despite minor differences in its precise details (please refer to 98Hu706 Decision held on November 26, 1999).

However, it is incorrect to immediately label the designs assimilar merely based on the ground of similarities in the dominant features, because the sign ificance of such similarities may be undermined if they constitute parts that the product must contain or relate to the fundamental or functional forms of the design (please refer to Korean Supreme Court Decision 2012Hu3794 held on April 11, 2013).

Mean while, it would be necessary to broadly interpret design similarities if the design was created because of or adopted in view of the motive of a registered design, and thus, an identical motive itself creates a synonymous aesthetic sense(please refer to Korean Patent Court Decision 2007Heo8559 held on September 11, 2008).

## 3. Detailed Judgment

The resembling elements of the two designs include the following:

① the egg-like elliptical shape of the body portion and its concave, carved, inner side;

② three lines composed of small sized embossing bumps on the outer edge of the body portion, and larger embossing bumps diagonally placed on the remaining central parts of the body portion;

③ the slender shaped handle formed in the bottom of the body portion, which exhibits a downward increase in diameter;

④ a cap that is combined to the handle in which a weighted substance can be placed (enabling the design to stand like a roly poly); and

⑤ the circular shape of the above cap when viewed from the bottom.

However, an apparent difference in the designs of concern is the rear part of the handle on the registered design has an inward streamline curvature whereas that of the prior design has an outward curvature.

Nevertheless, despite the aforementioned dissimilarity, it is difficult to say that the extent of dissimilarity is significant enough toextinguishthe similarity of the dominant features stated above in points ④ and ⑤. Thus, it is has not been sufficiently established that the two overall designs display distinct different aesthetic senses. Further more, in light of the fact that the features of the prior art design disclosed in the resembling elements ④ and ⑤ did not exist before the prior art design, it is appropriate to deduce that the over all aesthetical sense of the two designs are similar based on the elements ① through ⑤, despite the dissimilarity discussed above.

Therefore, the design's registration is invalid without requiring further examination on the remaining issues since the registered design falls under Section 5(1)(3) of the previous Design Protection Act.

# Articles

# The Inventive Step Determination for an Invention and the PHOSITA

**Heon LEE***

## 1. INTRODUCTION

Article 29(2) of the Korean Patent Act, pertaining to the inventive step requirement of a patented invention, states that "not with standing Paragraph1, where an invention could easily be made prior to the filing of the patent application by a person having ordinary skill in the art (hereinafter referred to as "PHOSITA") to which the invention pertains, on the basis of an invention referred to in any subparagraph of Paragraph1, no patent shall be granted for such invention." As such, the Korean Patent Act clearly expresses that the inventive step determination must be made from the point of view of "a PHOSITA".

The PHOSITA is a core concept used widely through out patent law. Firstly, as noted above, Article 29(2) of the Korean Patent Act expressively notes that the question of inventive step for inventions must be decided in view of the PHOSITA. In addition, Article 42(3)(1) of the Korean Patent Act, pertaining to sufficiently enabling specification requirements, states that the "detailed description of the invention" in a patent application describe the invention insufficient clarity and detail to allow "any person with ordinary knowledge in the technical sector to which the relevant invention belongs" to "easily make the invention." This section of the Korean Patent Act also clearly expresses that the enablement requirement be viewed from the point of view of a PHOSITA.

Even when the concept is not expressively stated in the law, the PHOSITA is frequently discussed in legal precedents and theories where the degree of technical expertise is at issue.

First, one relevant legal precedent states that "Article 42(4)(1) of the Korean Patent Act requires that each claim of a patent for which protection is sought be

*Judge, the Patent Court of Korea.

supported by the detailed description; the purpose of such requirement is to prevent a claim that is not described in the detailed description of the specification from being included in the scope of the patent, in order to avoid the unjust result of granting patent rights to a claim not disclosed by the applicant. Therefore, the matter of whether an application fulfills the requirements for sufficient description in accordance with Article 42(4)(1) of the Korean Patent Act shall be decided based on whether a PHOSITA in the relevant technical sector at the time of patent application would consider the claims to be supported by the descriptions in the patent." Therefore, the PHOSITA also serves as a criteria in judging whether a claim is sufficiently supported by the description in a patent.[1)]

Another legal precedent notes that "Article 47(2) in the Korean Patent Act, relating to amendments to the specification or drawings, requires that amended subject matter be described in the originally attached specification or diagram (hereafter "First Specification") either explicitly or if not explicitly disclosed the amendment may be understood as equivalent to having been described in the First Specification by a PHOSITA in the relevant technical field." Therefore, the PHOSITA also serves as a criteria on judging whether new matter has been introduced in the application for amendment.[2)]

In addition, an other legal precedent states that "for an accused invention to be within the scope of a patent right, each claim element described in the scope of the patented invention and the combined relationship of the claim elements must exist in the accused invention as a whole. When the accused invention includes an alteration of one or more of the described elements, if the two inventions employ the same principle of problem solving, have the same effect, and the alteration is of nature that a PHOSITA may easily devise, then not with standing the alteration, the accused invention shall be regarded as equivalent with the described claim elements of the scope of the patented invention, and therefore be within the scope of the patented invention, unless an extraordinary circumstance does exist." Therefore, a PHOSITA serves as a criteria for the known interchangeability requirement of the active requirements of the Doctrine of Equivalents.[3)]

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1) Please refer to the Korean Supreme Court Decision 2012Hu832 (September 14, 2014).

2) Please refer to the Korean Supreme Court Decision 2005Hu3130 (February 8, 2007).

3) Please refer to the Korean Supreme Court Decision 2012Hu1132 (July 24, 2014).

Further, another legal precedent states that "in the event that the scope of the patent includes characterization of an object by its function, effect, or property, the description of the scope of the patent is valid when a PHOSITA may clearly understand the patented invention from the written patent claims by considering the detailed description, diagram of the invention, and common technical knowledge at the time of filing of the application." Therefore, a PHOSITA serves as a criteria for the validity of a functional claim.[4)]

On the other hand, another legal precedent states that "in deciding whether an invention belongs to the scope of the patented invention, the invention to be compared to the patented invention does not belong to the scope of the patented invention without further need of comparison to the patented invention, if the invention includes purely prior art or if a PHOSITA may easily devise it by use of prior art." Therefore, a PHOSITA serves as a criteria in deciding whether an accused invention is a freely usable technology.[5)]

As demonstrated by these precedents, a PHOSITA is a pervasive concept in patent law, and especially in the determination of inventive step, as the range of inventive step acknowledged varies with the technical level of a PHOSITA. There is no doubt that the criteria for a PHOSITA is a significant issue to be decided. Despite the noted significance, however, insufficient deliberation has been provided to determine who "a PHOSITA" should be, and how the relevant technical level shall be determined. Further, there has been constant criticism that the lack of factual analysis regarding the technical level of a PHOSITA damages the objectivity and predictability of the inventive step determination.

In light of these considerations, this Section will review the following: (i) a PHOSITA and the relevant technical level in general terms; (ii) the matter of who a PHOSITA should be; (iii) the matter of examining and deciding the technical level of a PHOSITA; (iv) the matter of how a PHOSITA and the relevant technical level in deciding inventive step affects the decision process in patent law, specifically relating to deciding whether specification requirements have been met.

## 2. THE PHOSITA IN DECIDING INVENTIVE STEP

4) Please refer to the Korean Supreme Court Decision 2005Hu1486 (September 6, 2007).

5) Please refer to Korean Supreme Court Decision 2009Hu832 (January 27, 2011).

## *A. Definition of a PHOSITA*

### 1 ) Different views[6]

#### A) Examiner Standard

Views upholding the Examiner Standard include the following views: (1) that a third party expert with common sense is presumed to be completely familiar with prior art and, as patent law relies on the judgement of such third party, the party must be regarded, in theory, as a regulatory, abstract, and reasonable being, but such distinction, in reality, is based on the subjective opinion of an administrative patent judge or patent examiner's own technical expertise or reliance on expert advice in the relevant technical sector[7]; (2) that a PHOSITA is a comprehensively knowledgeable expert with regard to all prior art in all areas of invention, and a PHOSITA in patent practice may be interpreted as signifying a patent examiner, administrative patent judge, or judge with comprehensive knowledge on prior art of the claimed invention[8]; (3) that a PHOSITA refers to a person with relevant knowledge in the technical sector to which the invention belongs, and the patent examiners and administrative patent judges of the Korean Intellectual Property Office have ample technical knowledge in the relevant technical sector, and thus, they should be the standard for determining inventive step of an invention[9]; and (4) that the definition of a PHOSITA needs to be decided according to a specific case, and thus, in reality, patent examiners or administrative patent judges shall decide on inventive step based on the accumulated cases of examination or judgement.[10]

#### B) Fictitious Person Standard

Views upholding the Fictitious Person Standard include the following views: (1) that a PHOSITA is a fictitious person with an average technical knowledge in the technical sector to which the invention pertains, the fulfillment of which would take either perfect knowledge of existing technology or, lacking perfect knowledge of existing technology, the ability to make one's own or at least the

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7) Young-sik Song, Intellectual Property Law (Volume 1), Yookbobsa (2008), page 347.

8) Wonjoon KIM, Patent Law, Bakyeongsa (2004), page 160.

9) Nakayama Nobushiro, Chukai Tokkyo-ho (Patent Law Commentary) (Volume 1)(Third Edition), Seirinshoin (2003), page 241 (quoted by Youngsun CHO, *supra* at page 71.).

10) Takeda Kazuhiko, Kwansik KIM et al. Knowhow on Patent (6th Edition), Myunghyun Publishing Company (2002), pages 176-177.

ability to grasp the technology based on the description of the technical document and having ordinary creativity[11]; (2) that a PHOSITA does not necessitate well-round knowledgeability on general common sense, but an average figure among technical experts who are capable of grasping relevant common technical knowledge in the relevant technical sector, capable of freely exercising ordinary means and ability for research and development (experiment, analysis, etc.) and capable of obtaining technology in the relevant technical level at the time of filing of the application to make them one's own, and capable of making one's own the knowledge in the technical sector related to the task of the invention, wherein the PHOSITA here is not a specific person but a fictitious person who judges the inventive step, and the patent examiner or administrative patent judge makes judgements from the perspective of a PHOSITA instead of their own[12]; (3) that a PHOSITA is a person capable of grasping relevant common knowledge in the relevant technical sector, capable of freely exercising ordinary means and ability for research and development (experiment, analysis, etc.) and capable of obtaining technology in the relevant technical level at the time of filing of the application to make them one's own, and capable of making one's own the knowledge in the technical sector relevant to the task of the invention[13]; and (4) that given a PHOSITA is one who is average among the technical experts, which is not to mean that its standard is sufficed by an ordinary level of technical knowledge and not necessarily a high-level technical knowledge, but, given that existing technology to be considered in the judgement of inventive step includes the state of the art, a person to render judgement based on existing technology must be one with perfect knowledge of existing technology(lacking perfect knowledge, having the capacity to fully comprehend the existing technology when exposed to and make it one's own)[14].

**2 ) Stance of Legal Precedents**

As of now, there does not seem to be any Korean Supreme Court case which specifically defines a PHOSITA with regard to deciding inventive step.

11) Injong LEE, Introduction to Patent Law (11th Edition), 21c Bobkyungsa (2004), page 181.

12) Hyonam CHUN, Patent Law (11th Edition), Bobkyungsa (2005), page 246.

13) Sunhee YOON, Patent Law (Revised Edition), Bobmunsa (2012), page 159.

14) Yoshifuju Tsurasaku, YOU ME Patent Law Firm, Tokkyo-ho Gaeseol (Introduction to Patent Law) (13th Edition) Daegwangseorim (2000), page 135.

However, it is stated with regard to the specification requirements that "the phrase 'in a clear and detailed manner to ensure that any person with ordinary knowledge in the technical sector to which the relevant invention belongs can easily make the invention' in Article 42(3) of the Korean Patent Act must be interpreted as requiring a manner in which one with an average capacity to grasp technical knowledge in the technical sector to which the invention belongs may precisely grasp and reenact the invention without adding special knowledge, at the time of filing of the application." Therefore, a PHOSITA should be specifically defined as "one with an average capacity to grasp technical knowledge in the technical sector."[15)]

Meanwhile, Korean Patent Court Decision 2008Heo8150 rendered on March 19, 2010 states that "a PHOSITA in Korean Patent Law is a natural person who may obtain all relevant knowledge in the technical sector, based on the technical level at the time of filing of the application, and make one's own, and may freely exercise common means and ability for research and development."[16)]

In addition, the Korean Supreme Court held that "a doctorate dissertation, when placed in a public or university library, is meant such that the general public may recognize the described contents, in other words, a PHOSITA may comprehend it without reference to excessive experiment or special knowledge." Such decision reveals that doctorate dissertations placed in public libraries are prior art that are easy to grasp by a PHOSITA in the relevant technical sector.[17)]

**3 ) KIPO Examination Guideline**

The Korean Intellectual Property Office ("KIPO") Examination Guidelines state that "a PHOSITA is a fictitious person under the Korean Patent Act who possesses common knowledge in the relevant technical sector prior to the filing date of the application and is capable of obtaining and making one's own all relevant knowledge regarding the task of the patented invention prior to the application date, capable of using common means for research and development

15) Please refer to Korean Supreme Court Decisions 97Hu2477 (July 23, 1999), 2004Hu3362 (November 25, 2005).

16) This case was appealed to the Korean Supreme Court and the relevant case number is 2010Hu1060. However, the appeal was withdrawn on May 6, 2010.

17) Please refer to Korean Supreme Court Decision 2003Hu2072 (November 24, 2006).

including experiment, analysis and production, and capable of exercising common creativity, such as selecting appropriate material among existing materials, optimizing range of data, or substituting with equivalents. The technical level, in this instance, encompasses the technical level composed of common technical knowledge and technical knowledge in the relevant technical sector to which the invention belongs, besides the inventions listed in Article 29(1)(1) of the Korean Patent Act."[18]

**4 ) Stance of Foreign Countries**

A) The United States

Section 103 of the U.S. Patent Act clearly states that the obviousness determination shall be made with reference to "a PHOSITA," the person here being a hypothetical figure in the patent law that possesses common skills in the technical sector to which the invention belongs. It follows that such figure excludes the inventor of the invention, a genius possessing very special technical knowledge in the sector, and a novice with very little knowledge in the sector. That the obviousness determination is to be made with reference to a PHOSITA means that the decision maker shall not reach such judgement based on his subjective knowledge or skills.[19]

Although the U.S. Supreme Court has not pinned down a clear definition of "a PHOSITA," the Court in the KSR case (discussed infra) stated "a PHOSITA is not a simple automaton, but a person with a common creativity," which means that a PHOSITA entails an ability to combine the instructions of prior art as though putting a puzzle together.[20]

In addition, in the Mast, Foos, & Co. v. Stover Mfg Co. case, the U.S. Supreme Court held that, in regard to judging whether a particular modification by an inventors shall be recognized as an invention, the person making the modification must be assumed to have perfect knowledge of all relevant prior art.[21] That is to say that the inventor must be assumed to have perfect knowledge

18) Korean Intellectual Property Office, please refer to pages 3301-3302 of the KIPO Examination Guideline.

19) Martin J. Adelman, Randall R. Rader, Gordon P. Klancnik, Patent Law in a Nutshell (2nd edition), West (2013), pp.176-178.

20) 550 U.S. at 420-421.

21) 177 U.S. 485 (1900).

of all relevant prior art when his invention is under examination as to its patentability, regardless of the high implausibility that a person has perfect knowledge of all relevant prior art. In this respect, a PHOSITA as a standard of obviousness has ordinary technical level in the relevant technical sector, and assumed to have "perfect knowledge" of the prior art in the relevant technical sector.[22)]

### B) Europe

Article 56 of the EPC states that inventive step shall be decided by making reference to a "person skilled in the art," which is not crucially distinguishable from "a PHOSITA" as used in our litigation practice. An example of a relevant decision demonstrates the view that "a person skilled in the art" must be assumed to be a practitioner possessing an average level of knowledge and skills in the technical sector to which the invention pertains and common general knowledge on the application date(priority date).[23)] A PHOSITA not only has access to everything within the scope of "technical level" on the application date, but also has means and ability to conduct common procedures and experiments in the relevant technical sector.[24)]

Further, a PHOSITA can also find solutions in a closely related technical sector, and if a particular problem demands a solution from anunrelated technical sector, a PHOSITA is one who can find the solution from a non-closely related technical sector.[25)] Therefore, if a particular task demands the solution to a particular problem be found in an unrelated technical sector, then the specialist in this technical sector must be the person with reference to whom the judgment of inventive step must be made as he is the one with the eligibility to resolve the task.[26)]

### C) Japan

According to the patent examination standard in Japan, "a PHOSITA" refers to a fictitious person (1)who possess common technical knowledge in the

22) T 4/98, T 143/94, T 426/88.
23) T 4/98, T 143/94, T 426/88.
24) T 774/89, T 817/95.
25) T 176/84, T 195/84, T 560/89.
26) T 26/98, T 32/81, T 147/87.

relevant technical area up to the time of filing of the application, (2)who can use common technical means for research and development, (3)who has common creativity in selecting a material or modifying a design, and (4)who can grasp every technical matter relevant to the "technical level" in the technical sector to which the patented invention pertains. "Technical level" in this context refers to the technical level comprising the technical knowledge including common technical knowledge in the technical sector to which the patented invention pertains in addition to the inventions disclosed in each paragraphs of Article 29(1) of the Japanese Patent Act. Also, a PHOSITA is one who can grasp all technical matters in the area relevant to the technical task of the patented invention.[27)]

**5 ) Discussion**

The Examiner Standard may be seen as a perspective heavily influenced by the realistic method of practice in current examination, judgement, and litigation practice. It follows that the technical level that a PHOSITA entails is often equated to the technical level of the patent examiner or administrative patent judge or a technical level based on the judge's conviction formed on the basis of the purpose of the claims.

However, regarding the inventive step determination, a patent examiner, administrative patent judge, or judge cannot be readily viewed as a PHOSITA in the sense that "a person having common knowledge in the technical sector to which the invention pertains." Rather, a PHOSITA must be interpreted as a "fictitious person" hypothesized by a person who judges the inventive step, instead of a particular person in existence. Following such interpretation, a person who judges the inventive step (patent examiner, administrative patent judge, and judge) should not render judgement on inventive step based on one's own perspective, but hypothesize on the perspective of a PHOSITA in rendering judgement on inventive step. This interpretation may be said to uphold the legal principles revealed in major countries such as the U.S, Europe, and Japan. In addition, the Examiner Standard, on a closer look, does not reject the theoretical validity of viewing a PHOSITA as a fictitious person hypothesized in the patent law.

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27) Section 2.2(2) of the Japanese Patent Examination Guideline.

Interpreted as such, the core issue boils down to how a PHOSITA, a fictitious person, and the relevant technical level may be examined and confirmed as a fact.

### *B. Nationality of a PHOSITA*

It remains contentious whether the judgement of a PHOSITA and the relevant technical level should concern only the domestic technical level or both domestic and foreign technical levels. On this issue, there exists a view that as patent law is meant primarily to promote the industrial development of one's own country, and as it is appropriate to decide on inventive step on the domestically available technical level, the definition of a PHOSITA should be drawn in light of a "domestic" person in the art, and there is no need to concern with foreign technical level because the relevant technical levels may be different.[28)]

However, Korea has been applying internationalism from 2006, which means that all prior art, domestic or foreign, constituted valid grounds of denying inventive step of an invention, regardless of the kind of prior art. In view of this fact, the PHOSITA cannot be subsequently characterized as a "domestic" person in the art as long as a PHOSITA is construed as a person capable of accessing and grasping all prior art, domestic or foreign. Therefore, the judgement of a PHOSITA and the relevant technical level must be made in light of all technical levels, based on both domestic and foreign standards.[29)]

The Korean Supreme Court held that "the purpose of Articles 29(2) and 29(1)(2) of the Korean Patent Act is to prevent granting patent rights to an invention that may be easily derived from another invention whose description is listed in a publication publicly distributed in Korea or abroad ... [hence,] the grounds for appeal which state that judgement of inventive step of an invention must be based on a domestic expert's perspective is deemed an arbitrary assertion, and must be rejected," thereby holding that it is not only domestic technical level that should be made reference to.[30)]

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27) Section 2.2(2) of the Japanese Patent Examination Guideline.

28) *See* Hyonam CHUN, *supra* at 245.

29) Chaho JEONG, Inventive step of Patent Law, Bakyeongsa (2014), page 227.

30) Please refer to Korean Supreme Court Decision 2003Hu1512 (November 12, 2004).

### *C. Number of people consisting a PHOSITA*

An example of the EPO's decision demonstrates that it may be more appropriate, at times, that a team of people, such as a research team or a production team, may be more aptly hypothesized as a PHOSITA than would be a single person.[31] Especially in areas demanding a high level of technology, a team of experts in the relevant technical sectors would appropriately constitute "a PHOSITA."[32]

In addition, according to the Japanese Patent Examination Guideline, it may be more appropriate to consider a PHOSITA a "team of experts" from multiple technical sectors than a single individual, with regard to some inventions.[33]

On the contrary, another view contends that a PHOSITA must be a single natural person, not a juridical person or plurality of persons, given that a combination of two separate common knowledges may not be common knowledge for a single natural person, and members of general public who do not belong to a research group may be disadvantaged in patent acquisition if a PHOSITA is not assumed to be a single natural person.[34]

Korean Patent Court Decision 2005Heo2182 rendered on April 7, 2006 revealed the view that "a PHOSITA must be construed as a single natural person who is a technical expert instead of a plurality of experts from various technical sectors."[35]

## 3. THE RELEVANT TECHNICAL LEVEL OF A PHOSITA

### *A. Main contention*

The range of acknowledgement of inventive step varies with the technical level attributed to a PHOSITA. Generally, if the technical level of a PHOSITA in the technical sector to which a patented invention pertains is deemed advanced,

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31) T 164/92, T 986/96.

32) T 147/87, T 99/89.

33) Section 2.2.(2) of the Japanese Patent Examination Guideline

34) See Yoshifuji Tsurasaku, YOU ME Patent Law Firm, *supra* at 136, Yeokang YOON, "Study on the "ordinary skilled person in the art" in patent law", Industrial Property Right Volum 30, Korea Intellectual Property Society (2009), page 97

35) Later appealed to the Korean Supreme Court under case number 2006Hu1070, but dismissed for not submitting a grounds for appeal on June 21, 2006.

it is considered relatively easy for one to derive the patented invention from the prior art, and if the technical level of a PHOSITA in the technical sector to which a patented invention pertains is deemed not advanced, it is considered relatively difficult for one to derive the patented invention from the prior art. In light of this, attributing technical level to a PHOSITA is a significant matter in that it is directly related to deciding inventive step of a patented invention.

However, in patent examination, tribunal proceeding,and litigation practice in Korea, there has been a tendency to take the technical level of a PHOSITA to mean the technical level of an examiner or administrative patent judge or technical level based on the judge's conviction formed on the overall scope of the claims. Such tendency seems to be related to the Examiner Standard having been the prevailing standard of practice for a long time with regard to the interpretation of a PHOSITA.[36)]

The Examiner Standards has met with the following criticisms over the years. First, inventive step of a patented invention is among the legal matters regarding the validity of patent, which must be characterized based on the reports of the range and contents of prior art, the difference between prior art and the claimed invention, and evidence of the technical level of a PHOSITA in the relevant technical sector. Especially when the technical level of a PHOSITA is not to be treated as a factual matter, there lies a danger of technical level of a PHOSITA being taken to mean that of the judge or of the technical examiner[37)] and patent investigator[38)] whose role is to assist the judge in technical areas, which may inadvertently yield the skewed result of deciding on an invention's inventive step at the time of the judgement instead of the time of filing of application.[39)]

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36) *See* Youngsun CHO, *supra* at 81.

37) The Korean Patent Court operates a technical examiner system to assist the judges with the professionalism related to the technological field. If deemed necessary by the Court, the Court may allow a technical examiner to participate in a hearing, the technical examiner may ask questions to the relevant parties regarding technical issues upon receiving approval by the judge, and provide its opinion during the completionof the trial (Section 54.2 of the Court Organization Act). There are currently 17 technical examiners working at the Korean Patent Court.

38) Section 54(3) of the Court Organization Act stipulates that the Korean Supreme Court and the Court at each level may employ examiners. Thus, patent examiners currently work at the Korean Supreme Court and other Courts that handlea lot of patent infringement cases including the Seoul High Court and the Seoul Central District Court.

39) Dongsoo HAN, "Method of Judging the Existence of an Inventive Step of an Invention", Jurisdiction Volume 12, Korean Jurisdiction Research Foundation (2010), pages 270-271.

In addition, in patent examination, proceeding, and litigation practice, the examiner or administrative patent judge's own technical level or a technical level based on the judge's conviction formed on the overall scope of the claims is often treated as the technical level of a PHOSITA. Such treatment needs to be reconsidered, however, given the necessary regard for legal stability, objectivity, and principle of pleading surrounding the burden of proof and, above all, the significance of "a PHOSITA" as a key fact in a patent dispute. Especially as a patent examiner has the burden of proof to establish the lack of inventive step in the examination procedure, it may be realistically inevitable that the examiner takes one's own level of technical cognizance as the technical level of a PHOSITA. However, it may be deemed inappropriate that a tribunal proceeding or litigation, which aims to review the legal validity of the patent examination under an adversary system, decides with reference to the same perspective on a PHOSITA.[40)]

Further, whereas a PHOSITA must be determined based on facts, which necessitates characterization based on education or experience, our current practice does not involve any confirmation of facts relating to a PHOSITAas of now and merely referring to it as an abstract concept or in the conclusion of a court judgement. Some point out that such practice has resulted in a perspective of a PHOSITA being taken as that of a judge or a technical examiner.[41)]

There appears to be no doubt that the technical level of a PHOSITA is a matter to be treated as a required fact that needs to be substantiated pursuant to relevant procedural law, and that rendering judgement on inventive step without defining the technical level of a PHOSITA practically results in replacing the judgement of a PHOSITA with that of a judge, administrative patent judge, or a patent examiner himself. Therefore, it is an obvious criticism pursuant to relevant procedural law that the technical level of a PHOSITA must be treated as a matter of fact and substantiated with evidence, and must not be neglected for realistic reasons such as efficiency or increase in the stress of trial procedure. Further, strengthening the factual analysis regarding the technical level of a PHOSITA as previously noted in this Section is anticipated to play a pivotal role

40) *See* Youngsun CHO, *supra* at 65.

41) Raok WOO, "Inventive step and Ex Post Facto Determination Pursuant to the Patent Act", New Prospect in Corporate and Intellectual Property Law, Bobmunsa (2011), page 613.

in improving the objectivity and predictability of the inventive step determination.

The Korean Supreme Court recently made a crucial ruling relating to this issue. The Court emphasized the need for a factual analysis of the technical level of a PHOSITA by holding that "in deciding inventive step for an invention based on whether it may be easily invented in view of prior art pursuant to Article 29(2) of the Korean Patent Act, there must at least be an examination of the scope and contents of the prior art, an examination of the difference between the prior art and the invention, and evidence of the technical level of a PHOSITA, and based on such examination, whether the invention examined against the prior art may be easily invented by a PHOSITA, notwithstanding the recognized differences between it and the prior art, based on the technical level at the time of filing the patent application."[42]

The following sections proceed to discuss the facts that should be claimed and substantiated to determine the technical level of a PHOSITA and the elements to be considered in such an analysis in order to propose a valid standard for determining the technical level of a PHOSITA.

### *B. Foreign Standards*

#### 1 ) The United States

Determining the technological level of a PHOSITA requires an objective determination based on the evidence presented. In the U.S., the factors to be considered in determining this technological level were laid out by the Federal Circuit Court of Appeals in *Envtl. Designs, Ltd. v. Union Oil Co.*[43] In this ruling, the Court recognized that this technological level should not be determined randomly by the courts or examiners, so it set forth a set of factors to guide examiners and the courts in their determinations. These factors consist of ① the educational level of the inventor; ② the types of technical problems encountered in the art; ③ the prior art solutions to these problems; ④ the speed with which innovations are made in the art; ⑤ the sophistication of the technology; and ⑥ the educational level of active workers in the field. These factors form the basis

42) Please refer to Korean Supreme Court Decision 2007Hu3660 (November 12, 2009).
43) 713 F.2d 693, 697, 218 USPQ 865 (Fed. Cir. 1983).

for evaluating the technological level of a PHOSITA in patent litigation, where some or all of the factors are taken into account depending on the content of the patent or the nature of the dispute.[44]

A review of the U.S. case law reveals that the parties assert specific details(education, work experience, etc.) regarding the technological level of a PHOSITA and engage in a fact finding process by presenting evidence in case of conflict.

For example, in *KSR International v. Teleflex*,[45] the plaintiff's expert witness opined at trial that "a PHOSITA would be one with an undergraduate degree in mechanical engineering (or an equivalent amount of industry experience) who has familiarity with pedal control systems for vehicles," while the defendant's expert witness opined that a PHOSITA would be someone "who hasa minimum of two (2) years of college level training in mechanical engineering and two-three years' of work experience spanning at least one complete pedal design cycle." The district court found that the difference between the two expert opinions was negligible and ruled that, in this case, a PHOSITA was someone "with an undergraduate degree in mechanical engineering or an equivalent amount of industry experience who has familiarity with pedal control systems for vehicles" and further noted that the defense agrees with the plaintiff's expert's opinion in general. This finding was later upheld by the Supreme Court.

Furthermore, the District Court of New Jersey in *Eli Lilly and Co. v. Actavis Elizabeth LLC*[46] held the following regarding a PHOSITA:

The parties' proposed definitions of the level of skill in the art are substantially similar. Essentially they agreed that a person having ordinary skill in pharmaceutical chemistry or psychiatric medicine as of January 1995…would have at least a M.D. or a Ph.D. in chemistry, pharmacology, or the biological sciences, and at least 3-5 years of experience in the development of drug products and therapies for psychological disorders. The parties' dispute centers on whether this hypothetical person of skill in the art must also have had two or

44) Youngsun CHO, A Comparative Analysis of the International Standard Relating to Inventive step Determination in Patent Litigation, Korea University Research Management System (2010), pages 38-39.

45) 298 F.Supp. 2d 581 (2003).

46) D. New Jersey (Cite as: 2010 WL 3210516)(Aug. 12. 2010.)

more years of post-doctoral experience in research relating to the behavioral pharmacology of ADHD.

The critical difference between the parties' definition is that Plaintiff asserts that the person of skill in the art must have "experience in the development and clinical use of drug products and therapies for psychological disorders." Plaintiff argued that "[e] xperience in clinical use of drugs for psychological disorders is necessary because it (i) provides perspective on how patients respond to medications and the drive to develop agents in the field, and (ii) allows one to evaluate the biology of the disorder in the human, not just in an animal model." The Court agrees with Plaintiff.[47]

**2 ) Germany**

While the German courts follow the EPO's problem and solution approach, they also utilize the PHOSITA standard in inventive step determinations during patent litigation and patent invalidation actions through the fact finding process. To utilize this standard, they rely on expert witness examinations consisting of inquiries into the: ① educational level or period of experience for a worker in the field; ② the measures it would take a PHOSITA to reach the current invention from the prior art; ③ whether a PHOSITA would have the motivation to take these measures; and ④ whether there were any special circumstances which positively or negatively influenced the decision to take these measures.[48]

## *C. Considerations when determining the technological skill level of a PHOSITA*

**1 ) A PHOSITA's educational level or work experience**

As shown above, the U.S. Federal Circuit Court of Appeals (hereinafter "CAFC") has held that a determination of the technological skill level of a PHOSITA requires examination of the educational level of the PHOSITA, resulting in the trial courts examining the education or work experience of an ordinary worker in the relevant field. German courts also acknowledge that the level of education or work experience of an ordinary worker in the field is an

47) *See also* Minjung PARK, "the Technical Level of a Person of Ordinary Skill in the Art", Research on Patent Litigation Volume 6, Korean Patent Court (2013), pages 119-135.

48) *See* Youngsun CHO, *supra* at 29.

important consideration.

The CAFC holds that the inventor's level of education should be considered as a criteria for determining the level of education for a PHOSITA. This does not necessarily mean that the inventor is a PHOSITA, but instead means that the inventor must be considered a worker in the field. Therefore, evaluating the level of education of the inventor necessarily means that the average level of education of workers in the field must be a consideration.[49)]

Traditionally, Korean courts have rarely, if ever, attempted to determine a PHOSITA by education or work experience, making such rulings extremely difficult to find. But recently, theories based on the above U.S. cases have called on the Korean courts to specify the level of education or work experience of a PHOSITA. They opine that, at trial, ① if the parties' definition of a PHOSITA is substantially similar, either the parties can agree to treat it as an undisputed fact or the courtcan state in its ruling that the parties' opinions about the definition is substantially similar and can therefore rule on a definition based on commonalities between both parties' definitions; and ② if the parties' definitions are substantially dissimilar, while basing its ruling on both parties' opinions as supported by the evidence, the court can also take into consideration literature on prior art, expert witnesses, the inventor's testimony and statements, and inquiries directed at industry associations, in the determination.[50)]

However, there are also those who counsel caution and careful deliberation before allowing the use of education and work experience to help determine the ordinary level of skill in the art. They state that, in U.S. practice, there is criticism regarding the lack of explanation as to the connection between the defined PHOSITA and the conclusion, and that in light of such criticism, if a connection between the skill level of the ordinary person in the art and the conclusion cannot be made, then the more appropriate skill level is the skill level of the technological field before the invention. They posit that this is especially appropriate in the modern multi-disciplinary technological environment, where a natural person based PHOSITA determinations can lead to overly simplistic non-obviousness determinations. In such a multi-disciplinary field, they argue for a determination of the technical level of the technical sector prior to the filing

49) *See id.* at 83.

50) *See* Minjung PARK, *supra* at 107-108.

date of the patent, which would also lead to a determination of the average skill level of workers in the relevant field.[51)]

Upon consideration, as the Korean Patent Act describes a PHOSITA as, "an imaginary person having knowledge in the relevant field before the filing date of the patent application, including all relevant information with regard to the purpose of the proposed invention, enough to personally research or create inventions using any and all available means, including testing, analysis, assembly and so forth, in addition to having a normal level of inventiveness sufficient enough to identify raw materials among the publicly known raw materials, optimize the relevant numerical range, and substitute equivalents,"[52)] simply using education, qualifications, work experience and a few other criteria as the basis for defining a PHOSITA seems to be a contrivance. When taken together with the criticisms of the U.S. courts' failure to connect their determination of a PHOSITA with their conclusions[53)], there seems to be a genuine need to critically question whether Korea should wholly implement the U.S. method of defining a PHOSITA by education, work experience, and the like. However, on a fact finding basis, identifying the technological skill level of a PHOSITA through the use of education or work experience seems to be an appropriate method. While this method may seem contrived, it is inevitable, as a fictional person must be created during the course of patent litigation. Furthermore, recent patent litigation in Korea has shown the court to be increasingly emphasizing findings of fact based on expert and inventor testimony, industry association briefs, factual inquiries, and other such investigations and examinations, as opposed to simply relying on evidentiary documents.[54)] Another point which should not be overlooked is the practical benefits that result from attempting to detail the characteristics of a PHOSITA through such tangible elements, as it allows for more objectivity and a better

51) *See* Raok WOO, *supra* at 613.

52) Korean Intellectual Property Office, Patent and Utility Model Examination Guideline, refer to pages 3301-3302.

53) Joseph P. Meara, "Just who is the PHOSITA? Patent law's mysterious personage", 77 Wash. L. Rev. 267 quoted by Raok WOO, *supra* at 596.

54) Heon LEE, "Current Trend in the Korean Patent Court's Inventive step Determination", please refer to the seminar material by the Korean Intellectual Property Trial and Appeal Board dated May 12, 2015.

examination of the inventive step of a patent.[55]

Therefore, the Korean courts should, as a matter of policy, have the parties specifically state their opinions about the education level, work experience, and the like of a PHOSITA, and provide documentation supporting their positions. If the presented opinions and materials show no substantial difference, then the record should show that the parties do not dispute the definition of the PHOSITA, and the resulting ruling can reflect this. On the other hand, if the parties' opinions differ substantially, then a ruling based on the submitted exhibits is necessary, but further investigation via the previously mentioned methods (such as examination of literature on prior art, expert witnesses, the inventor's testimony and statements, and inquiries directed at industry associations) may be warranted. However, if such evidentiary materials are to have any meaning towards establishing the technological skill level of a PHOSITA, the subject of the inquiry must contain within their reply or testimony an assessment of their own level of technological skill in the art during their studies at the undergraduate level of the relevant technical sector, along with supporting evidence, and their annual experience level of technological skill in the art through their work after graduation, along with an explanation of how they acquired such skill.[56]

Furthermore, as the level of education or work experience for a PHOSITA varies widely among technical sectors, careful consideration of the particulars of the field is required.[57] In terms of practical problem solving ability, relying more on practical work experience than education seems advisable.[58]

**2 ) Well-known and widely used art and common technical knowledge**

The standard for establishing the skill level of a PHOSITA is using well-

55) In investigations and examinations with regard to inventive step determinations, the Court is not obligated to inquire about the relevant PHOSITA. Not with standing the foregoing, an examination of the case law revealed that the Court frequently inquired about inventive step without reference to the fictional person standard. This is partially a result of misinterpreting the standard, but also a result of lack of materialization of the concept.

56) *See* Minjung PARK, *supra* at 108.

57) In U.S. case law, a PHOSITA for most technological fields is someone possessing a bachelor's degree, or a small amount of work experience in the field. However, biological engineering and related fields usually demand a master's or doctoral degree. *See* Chaho JEONG, *supra* at 212.

58) *See* Youngsun CHO, *supra* at 84.

known and widely used art.While there are no references to well-known and widely used art in the Patent Act, nor are there Supreme Court rulings defining the term, well-known and widely used art plays an important role in actual inventive step determinations.[59] The Korean Intellectual Property Office's handbook for patent examiners defines "well-known art" as prior art for which large amounts of literature exists, or is known by industry, or is so well-known as to not require any examples to explain. "Widely used" art is defined by the same handbook as well-known art that is often used.[60] The Korean Patent Court, referring to well-known and widely used art, has held that, "well-known art is art generally known in the field, and widely used art is well-known art that is widely used. As for the question of whether the art in question is well-known and widely used, an objective judgment must be made by considering the content of the art in question, the nature and usage of known literature on the topic, how widely known and how often it is in use, and other similar factors."[61] Inventive step determinations are made by comparisons to prior art, in an environment where lots of well-known art exists, so in some sense the totality of well-known art in a given field constitutes the average level of skill in that field.[62]

With regards to the recognition of well-known and widely used art, the Korean Supreme Court stated in a cancellation of a tribunal decision case that "unless the art is so well-known and widely used as to be considered common knowledge or anevident fact well-known to the court, the well-known and widely used art requires verification and the court may determine*sua sponte* as to whether or not an allegation of fact is true by referring to the evidence presented, the record, and other such materials to form their beliefs on what should be considered well-known and widely used art."[63] While well-known and widely used art does not always have to be recognized through evidence, if an element

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59) *See* Taeil PARK, "A Review of Recent Korean Patent Court Decisions Relating to Well-known and Widely Used Art", Patent Litigation Research Volume 5, Korean Patent Court (2010), refer to page 62.

60) *See* Korean Intellectual Property Office, Patent and Utility Model Examination Guideline, refer to page 3316.

61) Please refer to Korean Patent Court Decision 2007Heo3752 (December 21, 2007) (affirmed for expiration of appeal period).

62) *See* Sangjo JEONG and Sungsoo PARK, Patent Law Annotation I, Bakyeongsa (2010), refer to page 357.

63) The Korean Supreme Court Decision 2006Hu3052 (May 29, 2008).

of a patent falling under well-known and widely used art relates to a unique aspect of the patent in question's purpose, or if the parties conflict on whether something falls under well-known and widely used art, then an evidentiary justification for recognizing it as well-known and widely used art is proper.[64]

The next consideration is whether the relevant technical sector's common knowledge should be included in the determination of the PHOSITA's technological level of skill. Conceptually speaking, common knowledge is understood to be, "within the field of prior art, the average or common level of technical skill among persons having ordinary skill in the art at the time of filing of the application,"[65] but in practice, common knowledge is not strictly differentiated from well-known and widely used art. As written above, the Korean Patent Court defines a PHOSITA as, "an imaginary person having knowledge in the relevant field before the filing date of the patent application, including all relevant information with regard to the purpose of the proposed invention," and thus, common knowledge of the relevant field at the time of filing of the applicationalso constitutes a part of the technological level of skill of the PHOSITA. Furthermore, as patent litigation trials adoptthe adversarial system, conflicts over common technical knowledge can also become a subject for verification.

**3 ) Characteristics of the Relevant Technical sector**

When evaluating the technological level of skill of a PHOSITA, the characteristics of a technical field in question must be taken into account, and the expertise required and complexity of the technical field can become the prima facie standard of evaluation.

Furthermore, when evaluating the technological level of skill of a PHOSITA, careful consideration must be paid as to the extent a PHOSITA can infer other technology.In fields such as electrical or mechanical engineering, a specified set of skills can easily imply knowledge and usage of the many more skills used by the field, as the field itself implements a fairly narrow set of natural laws.

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64) *See* Dongsoo HAN, "Method of Proving a Well-known and Widely Used Art in a Cancellation of a Tribunal Decision Case and Secondary Issues to be Considered in the Inventive Step Determination of an Invention," Supreme Court Decision Commentary Volume 76, Supreme Court Library of Korea (2008), refer to pages 395-398.

65) *See* Taeil PARK, *supra* at 63.

However, other fields such as chemical and biological engineering may not allow for the easy implication of skills outside the specified range, and these questions are also distinct from the questions of required technical expertise and complexity.

Even when the levels of complexity and expertise required are identical, different fields can have different results. In computer programming, for example, if the solution to a problem A implements algorithm B, and the inventor specifies a special function or command that utilizes algorithm B, then a PHOSITA of computer programming can easily infer the nature of the problem without any further information by utilizing his knowledge about problem A and how it relates to algorithm B. On the other hand, in the case of bioengineering or organic chemistry, a small difference in molecular structure or chemical composition can result in extremely large changes to the usage, so the possibility that a PHOSITA is able to operate outside of the field expressly referred to in the specifications is quite limited. In the former case, the technological level of skill of a PHOSITA can be categorized as high. In the latter case, as the technological level of skill can be categorized as low, a correspondingly low level of development or effort can cross the threshold of inventive step.[66]

**4) Examples of solutions in the prior art**

The problems presented by the field, the prior art's solutions to those problems, the speed at which technological evolution occurs in the field, and other such considerations also inform the evaluation of the technological level of skill of a PHOSITA. Technological progress can be considered the accumulation of problem solving know how. Within a specialty field, evaluating the various types of problems encountered and the method, speed, and completeness of solutions presented by the prior art can be a valuable measure with which to evaluate the technological level of skill of a PHOSITA, in addition to being an integral part of determining the speed of technical evolution in the field. Once a specific problem is identified, if no solution is presented for a long time, or any existing solutions do not solve the problem completely, then inferring that a PHOSITA possesses a low level of technological skill may be appropriate. However, if many diverse solutions are sought and found within a relatively

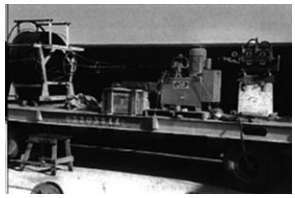
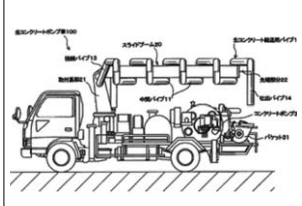
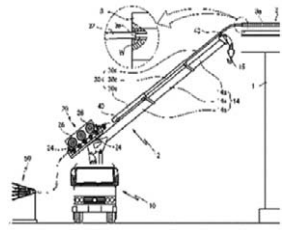
66) *See* Youngsun CHO, *supra* at 40-41.

short amount of time, then it is easy to infer that a PHOSITA has a high technological level of skill. Of course, this does not mean that this is a uniform method of defining the technological level of skill of a PHOSITA, as the type of skill, or the difficulty of the technical problem to be solved, can lead to different results depending on the specific circumstances of the field in question. In reality, patent applications and granted patents relating to the field, along with the number of existing technologies in the field, can be useful circumstantial facts with which to infer the technological level of skill.[67]

Take, for example, Korean Patent Court Decision 2014Heo1778 rendered on August 22, 2014, where the patent in question was one involving a "device to insert fiber optics", where a telescopic transfer tube was utilized to install fiber optic cable into a distant fiber optic cable channel. The patent in question solved the problem of having to directly install fiber optic cable into channels located within distant concrete beams.[68]

The primary cited invention (prior art) presented in this case was a device in the same category as the patented invention at issue, both being "devices to insert fiber optics," where the patented invention utilized a telescopic transfer tube while otherwise being the same as the primary cited invention. The secondary cited inventions (prior art) were devices such as fire trucks and cement pump trucks, which utilize telescopic transfer tubes to transfer various substances such as fire suppressants and cement. The diagrams of the primary and secondary cited inventions, along with the patented invention, are provided below.

In this matter, the court requested clarification on how previous fiber optic

| Primary Cited Invention | Secondary Cited Invention | Patented Invention |
|---|---|---|
|  |  |  |

67) *See id*. at 41.

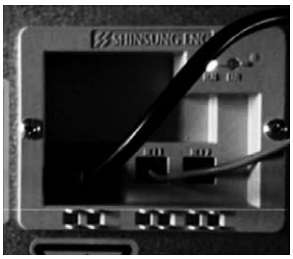
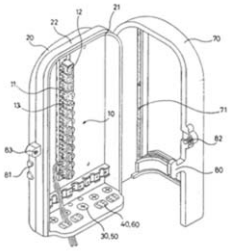
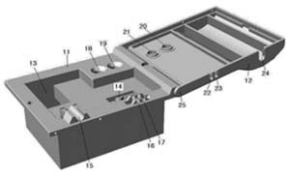
68) The decision above was affirmed after expiration of the appeal period on September 12, 2014.

cable insertion devices operated when the insertion point was far away, in addition to the circumstances and the duration in which the patented device in question was developed and conceived. Using both parties' submitted materials as a basis, the court found that previous devices would either move the entire insertion device up to the distant area, use a crane to lift the coil of fiber optic cable, or connect a pipe between the end of the insertion device and the distant insertion point. The court further found that all of these previous solutions had flaws, such as equipment wear or operator hazards, which were unaddressed for a long period of time. These findings led to the court's conclusion that the solution presented by the patented invention would be difficult to reach for a PHOSITA. In other words, for a long period of time, a specific problem posed within the field in question was left either wholly unsolved or unsatisfactorily solved because of significant issues, resulting in a determination that a person having ordinary skill in this art possess a low level of skill.

However, in Korean Patent Court Decision 2013Heo7076 rendered on January 17, 2014, the patented device in question was a, "protective box for a fan filter unit's telecommunications relay," which was invented to solve the problem of fan filter units failing because of telecommunications cables detaching from a telecommunication port, or a power line detaching from a power port. In order to solve this problem, the patented invention installed a protective cover over a housing that secures telecommunications and power cables.[69)]

The primary cited invention (prior art) in this case, as a terminal box for fan filter units, was identical to the patented invention in question and in the same technical sector, except it lacked a protective covering. The secondary cited invention (prior art) was in a related field, as it was a telecommunications panel with a protective covering. The diagrams of the primary and secondary cited inventions, along with the patented invention in question, is provided below.

69) The decision above was affirmed after the expiration of the appeal period on February 4, 2014.

| Primary Cited Invention | Secondary Cited Invention | Patented Invention |
|---|---|---|
|  |  |  |

The issue in this case revolved around whether it would be difficult for a PHOSITA to think of placing a protective cover on a terminal box for a fan filter unit. The Court found that, based on the parties' submitted evidence, ① placing protective panels on telecommunications panels was a well-known and widely used technique, ② locations where fan filter unit terminal boxes were installed were places approachable only by persons with safety training and disconnected power lines and telecommunication wires was such a rare occurrence that securing these wires was of low importance, and ③ only a short amount of time (a matter of months) had passed between the awareness of the problem of disconnected wires and the creation of the patented invention's solution of utilizing a protective cover. On this basis, the Court held that a PHOSITA would easily arrive at a similar solution.

## 4. THE PHOSITA IN THE CONTEXT OF THE SPECIFICATION'S WRITTEN DESCRIPTION REQUIREMENT

### *A. Main Contention*

There is a contention as to whether the level of technological skill possessed by a PHOSITA as required by an inventive step determination (Article 29(2) of the Korean Patent Act) and the level of technological skill possessed by a PHOSITA as required by the written description requirements of the specification (Article42(3)(1) of the Korean Patent Act)should be determined similarly or differently.

### *B. Dualistic Theory*

Opinions arguing for a different determination of the level of technological skill of a PHOSITA for inventive step determinations and the specification's written description requirement differ. These opinions include the following:

① A PHOSITA in an inventive step determination should be perfectly knowledgeable about all relevant prior art, while a PHOSITA in a specification's written description requirement evaluation should be an average worker in the relevant field, where this average should be based on the entire pool of workers in the field, including any researchers and the inventor himself, and it is this average worker that creates the benchmark for the specification's written description requirement. The requirement is satisfied if this average worker, without any special knowledge, can fully understand the invention and replicate it based on the specification provided.[70]

② The PHOSITA as referred to by Article 42(3) of the Korean Patent Act versus the reference in Article 29(2) of the Korean Patent Act should be interpreted differently. The PHOSITA described in Article 42(3) of the Korean Patent Act is fully knowledgeable in all aspects of relevant prior art in the field, while the PHOSITAdescribed in Article 29(2) of the Korean Patent Act also includes instances where a person having ordinary skill in a specific part of the technological field in question could easily invent the device.[71]

③ A PHOSITA in an inventive step determination focuses on the ease with which a device is invented, and as such, is a theoretical entity possessing, or is able to possess, knowledge of all prior art. In terms of whether the invention is described in enough detail, however, a PHOSITA can be said to possess a lower level of standard knowledge than the theoretical entity in an inventive step determination, as the role here is simply to determine whether the disclosure requirement is satisfied. To this end, as the specification is a technology disclosure document, all persons having ordinary skill in the art must be able to create and deploy the device through the specification. This should also mean that even persons having ordinary skill in a specific part of the art are able to

70) *See* Wonjun KIM, *supra* at 160, 257.
71) *See* Injong LEE, *supra* at 345-346.

create and deploy the device, and if they cannot, the written description requirement is not met.[72]

④ It is reasonable to refer to "ordinary" as, "within the invention's relevant technological field, a normal or average level of technological skill," for the purposes of the specification's written description requirements pursuant to Article 42 of the Korean Patent Act, and in the inventive step determination pursuant to Article 29(2) of the Korean Patent Act, "ordinary" should signify "normal knowledge of the most advanced technologies in the specific technological field in question." As such, an ordinary level of technological skill for an inventive step determination should mean the highest level of technological skill in a specific technological field, and for the written description requirement of the specification, an ordinary level of skill should signify the average level of technological skill amongst the workers of a specific technological field.[73]

### *C. Unitarian Theory*

The Unitarian Theory asserts the need for a unified definition of the technological skill level of a PHOSITA for both inventive step and the specification's written description requirement. However, the theory includes viewpoints that slightly differ from each other. These differing opinions include the following:

① The notion of a PHOSITA is almost identical between its use in an inventive step determination and the specification's written description requirement determination, wherein the only difference between the two lying in the numerical scale of the theoretical persons defined by the term. When judging the degree of difficulty in creating the invention in an inventive step determination, if at least one PHOSITA in question can easily create the invention, the invention is obvious regardless of whether other persons having ordinary skill in art could not have easily created the invention. To the contrary,

72) Jonghwan HWANG, Patent Law (Revised 7th Edition), Hanbit Intellectual Property Center (2005), page 263.

73) *See* Yeokang YOON, *supra* at 95.

when evaluating the sufficiency of a patent specification, the recorded details must be sufficiently detailed enough to allow all persons having ordinary skill in the art to easily and fully understand, create, and deploy the device. If even one of these theoretical persons are unable to do this, then the specification does not meet the requirements.[74)]

② The technological level of skill of a PHOSITA is rightly identical for both inventive step and the specification's written description requirement determinations. In order to adjust the restrictiveness of the patent grant based on the scope and societal contributions of the invention, the specification's written description requirement can be harshly determined if inventive step was easily established, or inventive step can be harshly determined if the specification's written description requirement was easily met.[75)]

③ The technological level of skill of a PHOSITA should be identical for both inventive step and the specification's written description requirement determinations, but the materials with which the technological level of skill should be based on can be different. This is because in an inventive step determination, a PHOSITA should be assumed to have access to the sum total of prior art in the field, but when evaluating whether a specification meets the requirements, a PHOSITA should not have to access any prior art outside of those cited in the specification.[76)]

### *D. Analysis*

In both inventive step determinations and the specification's written description requirement determinations, a unified definition of a PHOSITAis needed.

First, as the Korean Patent Act states the phrase, "a PHOSITA in which the invention belongs," when defining the requirements of both inventive step and the specification's written description, defining this common phrase identically holds closely to the intent of the law. The phrase, "technological level of skill of a

74) *See* Hyonam CHUN, *supra* at 353.
75) *See* Youngsun CHO, *supra* at 75-81.
76) *See* Chaho JEONG, *supra* at 215-217.

PHOSITA" is also one of the most prominently amorphous concepts in patent law, so the need for a clear and singular definition is obvious. When this phrase is interpreted differently based on need and circumstance, the stability and predictability of the law is damaged.[77]

Second, the questions of whether all prior art in a field can be considered in an inventive step determination and whether a PHOSITA can easily recreate the invention in question via the cited prior art are clearly different. The dualistic theory states that an inventive step determination's PHOSITA is a professional possessing the totality of knowledge of the field's prior art, and further states that this theoretical person is wholly different from the specification's written description requirement's PHOSITA. However, defining a PHOSITA as a "professional who possesses the totality of knowledge of the prior art of the invention's field" can be seen as simply citing the need to use all published prior art in the field for an inventive step determination. The question of whether a PHOSITA can, from that prior art, easily reach the patented invention, can be restated as: when the technological skill level of a PHOSITA is determined, can a professional having standard technical knowledge of the field and exhibiting ordinary creativity easily arrive at the patented invention? Therefore, as the difference between an inventive step determination and a specification's written description requirement determination is simply a matter of different groupings of prior art, it is unreasonable to say that the technological skill level of a PHOSITA is different for each determination.[78]

Third, in actual tribunal proceedings for cancellation of a rejection decision, invalidation proceeding, and appeals regarding the aforementioned proceedings, there is a fairly large amount of situations where both the specification's written description is insufficient and the invention is found to be obvious. In these situations, a fair number of applicants or patent holders argue that the detailed information contained within the specification easily allow for a PHOSITA to understand and recreate the invention, while in terms of inventive step, argue that the PHOSITA possesses a technological skill level so low as to be unable to easily invent the device in question. This logical disconnect is possible under a dualistic theory of a PHOSITA, where the technological skill level of this

77) *See* Youngsun CHO, *supra* at 75.

78) *See* Minjung PARK, *supra* at 82.

theoretical person is low in an inventive step determination leading to an acknowledgement of inventive step and the technological skill level is high in terms of a specification's written description requirement, leading to toleration of abstract and broad description, thereby leading to results that are clearly unreasonable.[79)]

## 5. CONCLUSION

In this work, arguments about the exact nature of a PHOSITA were presented, after which methods with which to evaluate and determine the technological skill level of a PHOSITA were explored. Finally, both the PHOSITA and the technological skill level of such a theoretical person were examined in the combined contexts of inventive step determinations and the specification's written description requirement. As opined above, a "PHOSITA" is a core term in patent law having direct influence in inventive step determinations. Given this importance, further research in this aspect of patent law is hoped for by the author.

79) *See* Youngsun CHO, *supra* at 78.

# Scope and Grounds of Claims Construction in Factual and Legal Proceedings
## - From Markman I (1995) to Teva v. Sandoz (2015) -

**Chunwoo SOHN***

## 1. Introduction

Claim construction is the most frequent yet fundamental exercise in patent litigation. As former judge Giles S. Rich of the US Court of Appeals for the Federal Circuit ("CAFC") appropriately described, "To coin a phrase, the name of the game is the claim,"[1] claim construction indeed plays a critical role in all patent cases. Despite its importance, claim construction remains one of the most challenging and confounding tasks to US judges.[2] The CAFC, which is recognized as one of the most influential courts in the field of intellectual property, proclaimed claim construction to be within the purview of the court through its en banc decision in markman I[3] in 1995, and has actively exercised this authority. Although the US Federal Supreme Court had a chance to reel in the authority of the CAFC by accepting the appeal of markman I decision, the CAFC's exercise of authority was passively left intact in markman II. With the implicit blessing of the US Federal Supreme Court, the CAFC issued several decisions that shared the same purport as markman I but were not consistent with each other regarding the scope of the CAFC's claims construction authority. Eventually, the CAFC declared its full and exclusive power regarding claim construction through its Cybor en banc decision in 1998. As concerns over the CAFC's exercise of authority heightened over the next sixteen years, the CAFC

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*Judge, the Patent Court of Korea.

1) Giles S. Rich, The Extent of the Protection and Interpretation of Claim-American Perspectives, 21 Int'l Rev. Indus. Prop. & Copyright L. 497, 499(1990)("To coin a phrase, the name of the game is the claim.").

2) Edward D. Manzo (Editor-in-Chief), Patent Claim Construction in the Federal Circuit, Thomson Reuters WESTLAW(2014 Edition), p.2.

3) For convenience of discussion, in this paragraph, cases are identified with only representative names, and specific case numbers and other details will be provided below.

came to declare that the doctrine of *stare decisis* applies to its claim constructionauthority through the Lighting Ballast en banc decision in 2014. The very next year, in 2015, the US Federal Supreme Court issued the Teva en banc decision. Hereinafter, the evolution of claim constructionapproaches will be examined through US court decisions by focusing on Teva, followed by an examination of the scope and grounds of review for claim construction by the District Court (factual proceedings) vs. the CAFC (legal proceedings) in the context of distinguishing questions of fact from questions of law. Finally, this paper will discuss the implications on judicial practice in Korea.

## 2. Teva Pharmaceuticals v. Sandoz ("Teva")

### *A. Facts of the Case*

**1 )** Teva Pharmaceuticals ("Teva") is the patent holder to the "manufacturing method of Copaxone" (US Patent No. 5800808[4], "Patent"), which is a drug for treating multiple sclerosis.

**2 )** The claim at issue in the Patent reads as follows: "A method of manufacturing copolymer-1, comprising reacting protected copolymer-1 with hydrobromic acid to form trifluoroacetyl copolymer-1, treating said trifluoroacetyl copolymer-1 with aqueous piperidine solution to form copolymer-1, and purifying said copolymer-1, to result in copolymer-1 having a molecular weight of about 5 to 9 kilodaltons."

**3 )** The active substance of Copaxone is copolymer-1 or glatiramer acetate, which is a polypeptide consisting of alanine, glutamic acid, lysine, and tyrosine, but is difficult to specify as a certain polypeptide. Although the Patent claim limited the amount of the active ingredient in Copaxone to "a molecular weight of 5 to 9 kilodaltons ("kDa")," the specification[5] of the invention did

4) The patent is scheduled to expire on September 1, 2015. It is considered one of the Top 10 blockbuster drugs whose patent is expiring in 2015 (Pharmaceutical News, http://www.pharmnews.co.kr/square/member_data_view.asp?dir=square&part=회원자료&num=420, as of January 13, 2015).

5) The previous Patent Act (prior to amendment as Law No. 12753 on June 11, 2014) had stipulated "detailed description of the invention". However, Article 42 of the current Patent Act stipulates "description of invention," which shall be followed hereinafter.

not specify what method was to be used to measure this molecular weight.

An average molecular weight can be measured by three methods that are technically widely used, as follows: ① "peak average molecular weight"(Mp): a molecular weight of the molecule that is most prevalent is used as the average molecular weight; ② "number average molecular weight"(Mn): a value obtained by dividing the total molecular weight by the number of the molecules is used as the average molecular weight; and ③ "weight average molecular weight"(Mw): the average molecular weight is calculated by considering the ratio of molecules of a certain weight to the total number of molecules in a solution. The formula for the average molecular weightMw is expressed as follows:

$$\bar{M}_{\mathrm{w}}=\int_0^{\infty} Mw(M)\mathrm{d}M=\int_0^{\infty} M^2 n(M)\mathrm{d}M/\int_0^{\infty} Mn(M)\mathrm{d}M$$

**4)** Teva brought a patent infringement lawsuit against Sandoz, which was seeking to launch a generic version of Copaxone.

**5)** For reference, in US civil proceedings, fact-finding is in principle within the authority of first instance courts. Thus, appellate courts review factual findings of first instance courts according to the standard of "clear error review" but are at liberty to review matters of law without being bound by the lower courts' conclusions of law. This is referred to as "de novo review."[6]

### *B. Summary of Each Party's Argument*

**1)** Summary of Argument by Plaintiff (Teva): The method of molecular weight calculation used in the specification is the first method (peak average molecular weight) among the aforementioned methods. A person having ordinary skill in the art ("PHOSITA") would naturally understand the average molecular weight mentioned in the specification as "peak average molecular weight (Mp)."

6) National Court Administration, Foreign Judicial System Research (1) -Appeals Operation Model of Each Country-(2012), pp. 38-39.

**2)** Summary of Argument by Defendant (Sandoz): There are largely three different methods for calculating an average molecular weight of a polymer in a solution and the average molecular weights differ significantly depending on which calculation method is used. Even though the claim limited the amount of the active ingredient in Capoxone to "a molecular weight of 5 to 9 kDa," the description of the patented invention may include other forms of average molecular weight, possibly resulting in different molecular weights. Thus, the meaning of molecular weight in the specification is fatally indefinite.

Interpretation of the molecular density data (table) in the specification showed that the value actually calculated using the first method (peak average molecular weight (Mp)) did not match the value indicated in the description of the invention. Accordingly, the invention is invalid for failing to satisfy the patentability requirement of "definiteness."

### *C. The District Court[7] Decision*

Testimony by Teva's expert witness that "a PHOSITA would construe average molecular weight in the specification as molecular weight measured according to the first method (peak average molecular weight) and would understand that slight shifts may occur when calculating molecular density data from chromatography[8]" was accepted, and the District Court held the Patent to be valid because the claim was sufficiently definite.

### *D. The CAFC[9] Decision*

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7) Teva Pharmaceuticals USA, Inc. v. Sandoz, Inc., 876 F.Supp.2d 295 (S.D.N.Y. June 29, 2012).

8) Chromatography: a technique for separating a mixture of samples using the phenomenon that different substances travel at different speeds when the mixture is dissolved in a mobile phase and carried through a stationary phase. It is also known as a technique for separating pigments using an absorbent. Chromatography was invented by a former-Soviet Union botanist Mikhail Tsvet in early 20th century, who separated the chlorophyll in plant leaves by passing plant juices through a glass tube filled with finely ground calcium carbonate, which gave this technique its name. (In Greek, "chromas" means "color", and "graphein" means "to record.") Naver Knowledge Encyclopedia, Basic Chemistry Lexicon for High School Students (http://terms.naver.com/entry.nhn?docId= 945332&cid=47337&categoryId=47337, as of January 15, 2015).

9) Teva Pharmaceuticals USA, Inc. v. Sandoz, Inc., 723 F.3d 1363 (Fed. Cir. July 26, 2013).

The CAFC conducted a de novo review of all aspects of the District Court's claim construction including its subsidiary findings of fact, and concluded the claim to be invalid on grounds that the term "molecular weight" recited in the claim was indefinite.

The CAFC's position was that even though an appeal is a legal proceeding, the appeals court may review a lower court's erroneous claim construction under the de novo rule because claim construction is a legal question. Because a claim that includes the expression "average molecular weight," which may differ in value depending on the measurement method used, is indefinite, the District Court improperly construed the claim, notwithstanding, however, that claims that expressed the amount of a substance using a "range of molecular weight" instead of average molecular weight cannot be deemed to be invalid since a definite value has been provided. As a result, the CAFC held only some claims to be invalid.

### *E. US Federal Supreme Court's Decision (January 20, 2015)*

**1 ) Issues**

The US Federal Supreme Court addressed the issues of whether crediting the testimony of a certain expert as a basis for claim construction is a matter of fact-finding, and whether the appeals court, which reviews matters of law, is bound by the lower court's decision where claim construction includes matters of fact pursuant to Rule 52(a)(6)[10] of the Federal Rules of Civil Procedure("FRCP"), which requires appeals courts to base their decisions on findings of fact by lower courts, absent a clear error in the findings of fact.

**2 ) Majority Opinion**

A) Construction of patent claims may include fact-finding matters. Although determining the technical understanding of a PHOSITA is an issue of legal interpretation, when there is a dispute over a PHOSITA's understanding, the decision of which expert's testimony to credit becomes a matter of fact-finding. Accordingly, since an appeals court may disregard a finding of fact

10) Findings of fact, whether based on oral or other evidence, must not be set aside unless clearly erroneous and the reviewing court must give due regard to the trial court's opportunity to judge the witnesses' credibility.

by the lower court only in the presence of clear error, the decision of the CAFC, which overlooked the need for such deference and chose to newly construe the claim, is improper.

B) FRCP Rule 52(a)(6) applies to all facts (whether ultimate or subsidiary). Even though exceptions to FRCP Rule Article 52 may be allowed, the instant case does not fall under such exceptions.

In markman II[11],the US Supreme Court held that claim construction is within the purview of the court and not the jury, and did not acknowledge the CAFC to be an exception to FRCP Rule 52 in deciding factual matters. Rather, in markman II, the US Supreme Court pointed out that claim construction by a judge was akin to interpretation of other documents such as deeds, contracts and tariffs by a judge. Interpretation of such documents is solely a question of law in cases where the terms used therein are "used in their ordinary meaning". However, in cases where such documents include "technical words or phrases not commonly understood," interpretation of such documents becomes a question of fact. If extrinsic evidence assists in construing the meaning of such technical terms, ascertaining factual matters would be performing a constructive function. Also, the court held that disputes over subsidiary facts should be resolved as part of claim construction. FRCP Rule 52 requires that an appeals court review aforementioned disputes according to the standard of clear error. Such clear error review is particularly important in patent cases, because a judge, who presides over a lower court proceeding and listens to arguments, has relatively more opportunities than an appeals court judge, who mainly reads briefs submitted by each party, to approach sophisticated scientific problems and principles.

C) The defendant (Sandoz) argues that distinguishing matters of law from matters of fact is highly challenging, and that it is far simpler for an appeals court such as the CAFC to fully review claim construction by the District Court rather than applying both standards. However, the CAFC has been able to distinguish questions of fact from questions of law for a long time, and the

11) Markman v. Westview Instruments, Inc., 517 U.S. 370 (1996).

efforts of the CAFC in seeking to treat matters of fact and matters of law identically have brought about complicated issues.

D) Also, questions still remain as to how the clear error standard should be applied in reexamining subsidiary facts in claim construction. If the lower court only examined intrinsic evidence, the court's decision would solely be a matter of law, and the CAFC, under the de novo rule, would be able to offer its own claim construction. However, if the lower court needs to examine extrinsic evidence in order to understand background technology or the meaning of terms as used in the relevant technology at the time of application, and such subsidiary facts become subject to dispute, the court would need to discover subsidiary facts based on extrinsic evidence. The lower court would first reach a conclusion regarding the factual dispute and then construe the claim based on such discovered facts. The final claim construction would be a legal conclusion that may be newly determined by the CAFC. However, in order for the CAFC to overturn the lower court's finding regarding the factual dispute, a clear error must be found in the factual finding.

Even though findings of fact may only have a very minor impact on the court's final legal decision regarding the meaning of patent terms, the findings may still have a decisive impact on the final legal question regarding the appropriate meaning of the terms in the context of the patent specification. Nevertheless, the final claim construction remains a legal question. "An issue does not lose its factual character merely because its resolution is dispositive of the ultimate constitutional question."[12] This is similar to a judge, without a jury, determining whether a defendant's confession was made voluntarily. For example, the legal determination of the "voluntariness of a confession" may differ depending on subsidiary facts, such as whether the police committed coercion as alleged by the defendant. An appeals court would carefully reexamine the lower court's fact-findings regarding coercion (and may even issue its own findings regarding the voluntariness of confession depending on the results of such reexamination). The appeals court's review of the lower court's findings of facts that underpin claim construction should

12) Miller v. Fenton, 474 U.S. 103, 113(1985).

be limited to those that are clearly erroneous.

E) In the instant case, the District Court credited the explanation provided by the plaintiff's expert and rejected the opposing explanation provided by the defendant's expert in determining facts related with the question of "how a PHOSITA would construe molecular weight represented by a curve derived from chromatography data." Based on such fact-finding, the lower court reached a legal conclusion that figure 1 could not be deemed as undermining the plaintiff's argument that "molecular weight" recited in claim 1referred to molecular weight calculated by the first method. While reviewing the lower court's finding, the CAFC rejected the explanation of Teva's expert, but did not determine whether the lower court's decision was clearly erroneous.

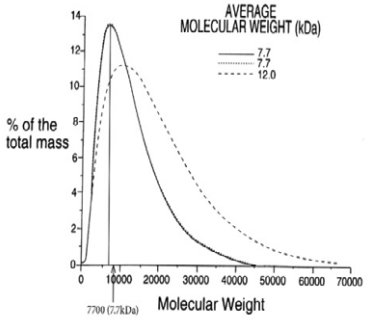
F) In the example presented in the right-hand table, the average molecular weights calculated by each of the three methods would be as follows:

| Molecular Weight | Weight |
|---|---|
| 4 | 6 |
| 3 | 8 |
| 3 | 9 |

① peak average molecular weight(Mp): 6
② number average molecular weight(Mn): 7.5
[(Total weight)75/10(molecular weight)]
③ weight average molecular weight(Mw): more than 8
(depending on how much extra weight is given to the heavier molecular weight)

Teva argued that the term "molecular weight" used in the Patent is to be calculated using the first method (peak average molecular weight). Sandoz refuted the argument by alleging that even according to figure 1, Teva's assertion was incorrect. Rather, figure 1 suggested that the term in the Patent was not calculated using the first method, according to Sandoz. The average molecular weight of the first sample in Figure 1 was labeled to be 7.7, which would mean that 7.7kDa was the molecular weight

Fig. 1 (some additions have been made in order to emphasize that the peak of the curve with a solid line does not exactly match with 7.7kDa)



of the most prevalent molecule in the sample. However, Sandoz pointed out that according to the curve, the molecular weight of the most prevalent molecule in the sample was not 7.7kDa but actually slightly less than that (approximately 6.8). The first molecular weight curve did not peak exactly at 7.7kDa, and Sandoz argued that figure 1 showed that the "molecular weight" specified in the claim did not refer to a value calculated by the first method, thus rendering the claim indefinite. In the District Court case, Teva's expert testified that a PHOSITA would construe that a slight shift may occur in the peak of the curve if the molecular weight distribution curve is derived from a chromatography as in figure 1, and that this explains the difference between the peak of the curve (approximately 6.8) and labeled molecular weight in the figure (7.7). In contrast, the expert for Sandoz testified that such shifts do not occur. The District Court's finding on how a PHOSITA would construe the representation of molecular weight by a curve created from chromatography data is a question of fact. Based on its fact-finding, the District Court concluded that figure 1 does not undermine Teva's argument that molecular weight is calculated according to the first method. On the other hand, the CAFC rejected the explanation by Teva's expert that a PHOSITA would observe that the curve did not peak exactly at 7.7kDa and construe this as a shift in the curve's peak.

Further, although the CAFC should have accepted the findings by the lower court absent clear error, it did not determine whether the lower court's opposing conclusion was clearly erroneous and did not accept such explanation. Even though the CAFC may only review findings of fact in the presence of clear error, it erred by not following the requirement. The CAFC's decision is reversed and remanded.[13)]

**3 ) Dissenting Opinion**

While it is agreed that the clear error standard of review should apply to fact-finding, interpretation of documents that include questions of fact would be an exception thereto and claim construction would not be included herein. The CAFC's de novo review of claim construction, which is a question of law, was proper. The process of a statute being finalized through the complicated

13) Justice Breyer delivered the opinion of the Court, in which six Justices including Chief Justice Roberts joined. Justice Thomas filed a dissenting opinion, in which Justice Alito joined.

deliberation process of the bicameral congress does not reflect an individual lawmaker's personal intent and is similar to the evidentiary review procedures by a District Court jury for claim construction. In other words, accepting evidence related with construction of specifications and claims shares practically identical logical structures with the process of enacting statutes. Unlike deeds, contacts and tariffs, a patent specification is a public document that holds *erga omnes* power and acts as a boundary for rights and obligations (similar to statutes). Claims resemble statutes in that they provide rules that bind the public based on power delegated by the state. The CAFC's *de novo* rule of review helps to ensure that construction of claims is not distorted by specific evidence provided in a given case. The question of a PHOSITA in claim construction is more akin to legal conclusion than fact-finding and should be reviewed *de novo* outside the realm of FRCP Rule 52(a)(6). The need for uniformity in claim construction favors de novo review based on subsidiary evidence. Uniformity is important to our patent system because the boundary of a patent must be defined in order to protect the patent holder, to encourage the inventive spirit of others and ultimately to have patented inventions contribute to society. If the boundary of patents varies from case to case, the enterprise and experiments of third parties would be exposed to the uncertainty of possibly falling within the scope of another's patent protection. The prevention of harm from such unpredictability is also important grounds that justify this dissenting opinion regarding the Court's position on claim construction. Following the majority opinion would blur the distinction between fact and law, and uncertainty will grow if sound principles that establish this boundary cannot be established. The majority opinion finds no support in either the historical understanding of fact-finding or considerations of policy that have served as our guide in confronting the difficult question of fact-law classification. Even if fact-finding regarding the skill level of a PHOSITA is flawed, it would merely be a reference in determining the understanding of a PHOSITA, and not evidence for fact-finding. The majority opinion improperly extends legal theories such as inventive step that applies to fact-finding to claim construction. Furthermore, the majority opinion fails to present a clear standard for determining what a question of fact or a question of law is.

Even if the District Court credited the testimony of the expert in its construction of the scientific underpinnings of the plaintiff's claim, this is not

fact-finding as used in FRCP Rule 52(a)(6).Therefore, the CAFC's de novo review of the legal findings of the District Court was proper, in dissent to the majority opinion.

## 3. Review of US Practice and Court Decisions

### *A. Who is to Construe Claims - markman*[14]

**1 )** The plaintiff markman's patent related to an inventory-control system, which tracked the movement of clothing during the dry cleaning process using a keyboard and data processor (including bar codes readable with optical detectors). The defendant West view, an operator of dry cleaning establishments, also used a keyboard, processor and a list of invoices for the dry cleaning services on bar coded tickets. At issue was how to construe the term "inventory" as used in the context of "maintain an inventory" and "detect and localize spurious additions to inventory" under claim 1[15] of the plaintiff's patent. During the District Court trial, an expert on terms of the above invention testified that the term "inventory" referred to "flow of money" or "invoices," and the jury credited this testimony and rendered the verdict that the defendant's product infringed the plaintiff's patent. Regarding the defendant's Motion for Judgment as a Matter of Law("JMOL"),

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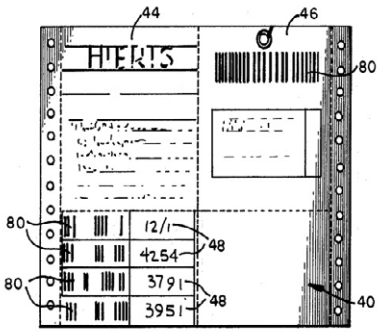
14) Markman v. Westview Instruments, Inc., 53 F.3d 967(Fed. Cir. 1995)(en banc); referred to as Markman I for sake of distinction from the subsequent Federal Supreme Court decision.

15) Claim 1. The inventory control and reporting system, comprising: a data input device for manual operation by an attendant, the input device having switch means operable to encode information relating to sequential transactions, each of the transactions having articles associated therewith, said information including transaction identity and descriptions of each of said articles associated with the transactions; a data processor including memory operable to record said information and means to maintain an inventory total, said data processor having means to associate sequential transactions with unique sequential indicia and to generate at least one report of said total and said transactions, the unique sequential indicia and the descriptions of articles in the sequential transactions being reconcilable against one another; a dot matrix printer operable under control of the data processor to generate a written record of the indicia associated with sequential transactions, the written record including optically-detectable bar codes having a series of contrasting spaced bands, the bar codes being printed only in coincidence with each said transaction and at least part of the written record bearing a portion to be attached to said articles; and, at least one optical scanner connected to the data processor and operable to detect said bar codes on all articles passing a predetermined station, whereby said system can detect and localize spurious additions to inventory as well as spurious deletions therefrom.

Fig. 2 Embodiment of Receipt and Bar-coded Tag Printed according to Invention




the District Court held that the term "inventory" used in the claim refers to articles of clothing and not flow of "transactions" or "dollars," and that claim 1 required a system capable of detecting whether a piece of clothing was lost during dry cleaning and tracking cleaning tickets that could identify further information about the article of clothing. The defendant's system was not capable of such tracking because it did not contain information specific to pieces of clothing, and the fact that the defendant's system only contained an inventory of invoices and cash was undisputed. The District Court concluded that the defendant's product was unable to provide "a means to maintain an inventory total" or to "detect and localize spurious additions to inventory." Nevertheless, the District Court held that the defendant's product did not infringe the plaintiff's patent because the testimony by the defendant's expert was contrary to the clear meaning intended in the specification, drawing , prosecution history and the lawsuit, and was also contrary to the ordinary and customary meaning of the term.

**2)** The CAFC considered claim construction to be a matter of law within the purview of the court, and supported the District Court's decision to dismiss the plaintiff's claims based on a de novo review of the District Court's construction of claim terms. The first step in determining patent infringement is to determine the meaning and scope of the claim allegedly infringed, followed by the second step of comparing the properly construed claim with the alleged infringing product. The commonly known claim construction becomes an issue in the appeals court under the first step. The description of an invention describes the invention in a manner that would enable a PHOSITA to make or use the invention. The purpose of claim construction is to define and explain terms used in a claim by using the description as a dictionary. The patentee becomes his own lexicographer. The language included the description of an invention cannot reincorporate an already

excluded right. That would be the function and purpose of a claim. Meanwhile, even though extrinsic evidence assists the court in determining patent related matters by explaining scientific principles or technical terms, it may not be used for the purpose of construing disputed claims.[16] Terms used in a claim should be interpreted based on intrinsic evidence such as the claim itself, descriptions and prosecution history. Claim construction is a question of law purview to the court. The District Court ① did not abuse its discretion in accepting extrinsic evidence such as expert testimony presented by the plaintiff, and ② properly rejected extrinsic evidence contradictory to the prosecution history and description of the invention. Regarding the phrase "detect and localize spurious additions to inventory as well as spurious deletions there from" in claim 1, because money and invoices do not move during the dry cleaning process, there is no need to identify the location thereof. Because the electronic signal attached to the cleaner's inventory is logically related with the articles of clothing, construing the term "inventory" to mean "money" is inconsistent with the plaintiff's definition of "inventory." Therefore, the District Court's claim construction is found to be proper.

**3 )** Plaintiff markman appealed to the Federal Supreme Court[17]. Noting that the construction of claims including the technical terms therein is exclusively within the province of the court considering existing precedents, propriety of determination by a judge and the importance of maintaining uniformity in handling patents, the Federal Supreme Court unanimously affirmed the CAFC's decision, which held that the patentee's right to trial by jury was not denied even if the District Court rejected the jury's verdict, determined the meaning of the term in the claims, and found the patent to be not infringed.

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16) The CAFC pointed out that extrinsic evidence, even though not useless, should not be used to remove ambiguity of terms written in the patent, but should be used to assist the court in becoming familiar with unfamiliar terms. ("Extrinsic evidence, therefore, may be necessary to inform the court about the language in which the patent is written. But this evidence is not for the purpose of clarifying ambiguity in claim terminology. It is not ambiguity in the document that creates the need for extrinsic evidence but rather unfamiliarity of the court with the terminology of the art to which the patent is addressed.")

17) Markman v. Westview Instruments, Inc., 517 U.S. 370(1996), referred to as Markman II by the CAFC.

However, the Federal Supreme Court did not offer any explicit comments regarding the CAFC's position that claim construction is a question of law to be decided by a judge.

## *B. Claim Construction Procedures*

### 1 ) markman Hearing[18)]

A) Following markman I and II, courts started to utilize claim construction procedures in the pre-trial stage in order to interpret claims according to methods presented in the aforementioned decisions. US Federal District Courts, as first instant courts, exercise a wide discretion regarding how a markman hearing is conducted, and in practice utilize a variety of methods. The timing of claim construction significantly impacts patent litigation procedures. When claims are construed early in the judicial process, more focus can be placed on examination of evidence, issues become simplified, and the chances of mediation or settlement increase. On the other hand, claim construction early in the litigation process may run the risk of being based on incomplete records and resulting in an interpretation that fails to resolve the ultimate question of infringement. Therefore, many Federal District Courts perform claim construction at about 6 to 7 months from the first case management hearing.[19)] Federal District Courts adopt and enforce Patent Local Rules, which stipulate the claim construction procedures described above.[20)]

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18) Peter S. Menell, Lynn H. Pasahow, James Pooley, Matthew D. Powers, Steven C. Carlson and Jeffrey G. Homrig, Patent Case Management Judicial Guide - Second Edition, Federal Judicial Center, 2012(http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2114398, hereinafter "the Guide"), pp. 5-26.

19) Complex Litigation Committee of the American College of Trial Lawyers, Anatomy of a Patent Case, Second Edition, Bloomberg BNA(2012), pp.98-99.

20) Currently, about 25 Federal District Courts have adopted and apply Patent Local Rules. (Northern District of California, Southern District of California, Northern District of Georgia, District of Idaho, Northern District of Illinois, Southern District of Indiana, District of Maryland, District of Massachusetts, District of Minnesota, District of Eastern Missouri, District of New Hampshire, District of New Jersey, Eastern District of New York, Northern District of New York, Southern District of New York, Eastern District of North Carolina, Central District of North Carolina, Western District of North Carolina, Northern District of Ohio, Southern District of Ohio, Western

B) For example, the Northern District Court of California's procedure for claim construction is as follows.

| Claim Construction Proceedings | Deadline |
|---|---|
| • Exchange proposed claim terms<br>• Meet and confer and identify disputed terms to 10 or less | 14 days from claiming invalidity |
| • Exchange preliminary claim constructions | 21 days from exchange of terms |
| • Joint claim construction statement | 60 days from claiming invalidity |
| • Claim constructiondiscovery | 30 days from joint claim construction statement |
| • Opening claim construction briefs | 45 days from joint claim construction statement |
| • Responsive claim construction briefs | 14 days from submission of opening brief |
| • Reply claim construction briefs | 7 days from submission of responsive brief |
| • Claim construction hearing | 2 weeks from submission of reply brief |

C) The courts also actively encourage parties to use materials such as multimedia presentations, video, etc. that may help visualize one or more claim terms. Some examples of key questions during these proceedings are: ① why do I need to construe this term, ② how is your proposal different from what the other party is proposing, ③ what is the origin of the common meaning of this term, ④ (if the claim is narrowly construed) is it necessary to find any intentional wavier of rights, and ⑤ how does your extrinsic evidence apply to the patent term.

D) Following a markman Hearing, US Federal District Courts issue a claim construction order regarding how the claim terms are to be construed. Even if the CAFC disagrees with a decision on claim construction, rather than holding a separate review dedicated to claim construction, the CAFC reviews the claim construction decision as a part of the proceeding for the appeal

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District of Pennsylvania, Western District of Tennessee, Eastern District of Texas, Northern District of Texas, Southern District of Texas, Eastern District of Washington, and Western District of Washington).

against the District Court's final decision. Once a US Federal District Court concludes its claim construction, the parties are obligated to argue their cases according to the court's construction, and may have to bear litigation costs (legal fees) or be subject to penalties upon failure to do so.[21] An example of a claim construction decision by the Eastern District Court of Texas, famous for hearing a large number of patent cases, is as follows.

*(1) Skill level of PHOSITA*[22]

> The parties agree in the preliminary infringement hearing that the level of a PHOSITA is as follows:
> "A person with at least 4 years of experience in the field of energy management and control systems, or has an undergraduate degree in mechanical engineering or electrical engineering and has at least 2 years of experience in the field of electric and mechanical systems related with energy management and control systems. Additional education may partially substitute experience and practical experience may partially substitute education."

*(2) Agreed Terms*

*(3) Disputed Terms*

① From its review based on the above standards and evidence, the Court defines the terms as follows.

> "home mode" means "operating: 1) under parameters consistent with the presence of a person; or 2) based on the calculation, made from data received, that a person or device is approaching, or is within, a predefined distance"
> "away mode" means "operating: 1) under parameters consistent with the absence of a person; or 2) based on the calculation, made from data received, that a person or device is moving away, or is beyond, a predefined distance"

21) Manzo, supra note 2, at 940.

22) Abbreviation of "a person ordinarily skilled in the art," used hereinafter to refer to the skilled artisan.

② Ambiguity in the language of a claim does not necessary mean that the claim is indefinite. In cases where the specification provides a proper guide for construction, a PHOSITA would be able to construe the claim as meaning that "the price charged to transmit energy would be predictable for a certain period of time." During the markman Hearing, the Court discussed energy cost regulation plans with the parties' experts, who agreed that prices were disclosed not only in the State of Texas but also in other states, and that such disclosed prices were provided in a manner so that the "time interval" could be known. Thus, the Court construes the claim as follows:

> "an existence of a time interval for energy transmission pricing" means "a period of time which the price charged to transmit energy can be determined"

**2 ) Scope of Review**

A) Unlike Korean civil appeals, which are conducted as a continuation of first instance trials, cases brought to the US Federal Court of Appeals are treated as legal proceedings relying only on the fact-findings by the lower court. Therefore, determination of facts is carried out by the District Court (first instance), whereas the appeals court reviews whether the District Court, as the finder of fact, has properly applied the law based on the specific factual background. FRCP requires deference to the District Court's findings of fact, which is, in principle, presumed to be proper and correct. FRCP Rule 61 declares that any error of a District Court is subject to review by an appeals court only when refusal of such review affects substantial rights and that procedural flaws that do not harm the practical rights of the parties in any stage of the proceedings shall be disregarded, according to the so-called principle of harmless error. Accordingly, the scope and standard of review of the appeals court depends on not only whether the first instance proceeding was a jury trial or not but also whether the grounds for the alleged error in the first instance decision are questions of fact or questions of law. If an improper application of law is at issue, the case would fall entirely under the scope of review by the appeals court. Matters regarding the exercise of the lower court's discretion may be reviewed in terms of possible abuse of such discretionary powers, but fact-finding by the lower court judge cannot be disregarded unless

clearly erroneous.[FRCP Rule 52(a)]. Fact-finding is completely different from application of law. In the presence of a clear error in a judge trial, i.e., if the judge's fact-finding is underpinned by a legal misconstruction or is without any evidentiary support, a decision based on such fact-findingwill be reversed. Cases where questions of fact are mixed with questions of law would be treated as a purely legal question and also be subject to full review by the appeals court. In the case of a jury trial, fact-finding by a jury is excluded from review except for extremely exceptional cases relating to guaranteed constitutional right to receive a trial by jury, and thus fact-finding by the jury would not be subject to review by the appeals court.[23)]

B) The standard of review used by the CAFC in considering the sufficiency of evidence of the District court's decision reflects the level of deference shown by the CAFC to the fact-finding by the finder of fact. If the fact-finder is a jury, the standard of review must also uphold the rights provided under federal and state constitutions to receive trial by jury. Specifically, with regards to a jury trial, the CAFC must determine ① whether the lower court decided questions of law improperly and ② whether the lower court's decision must be reversed due to such an error. As such, in order to identify the scope of review by an appeals court, it is necessary to distinguish questions of fact from questions of law. Fact-finding is within the unique province of the District Court, while interpretation of law is within the unique province of an appeals court. Therefore, dividing questions of fact from questions of law is the main tool for separating jurisdictions of the District Court and the appeals court.[24)]

C) Regarding what standard of review should apply when the CAFC reviews claim construction by the District Court, even the CAFC's decisions are divided into ① cases finding the District Court's decision to be improper only when the claim construction was clearly erroneous[25)] and ② cases that

23) Jaechul LEE, Principles of Law of the Case in US Appeals Proceedings, Case Proceedings Research IV, Comparative Law Proceedings Study Group(2000), p. 271.

24) Gyuho LEE, Scope of Review of Appeals Proceedings in US Federal Courts and Comparison of Factual Proceedings in First Instance Trials between Korea and the US, Judicial Research No.6 (December 2008), Judicial Research Support Foundation, p.53.

determined the meaning of the claim through a fresh review without being bound by the construction of the District Court.[26] Such inconsistency continued to remain a problem even after markman I and II.

D) Then, in 1998, the CAFC, in its en banc decision in Cybor Corp. v. FAS Technologies, Inc. ("Cybor"), adopted the standard of de novo review under which claim construction is a purely legal issue and the appeals court is free to conduct its own new review without being bound by the lower court's finding.[27]

In determining patent infringement, the court first ① determines the meaning and scope of a claim, and then ② compares the properly construed claim with the alleged infringing product. markman I held that because claim construction is purely a legal issue, the CAFC could review de novo the claim construction of the lower court. In arriving at this conclusion, the CAFC utilized certain extrinsic evidence and rejected other unnecessary evidence to construe claim terms as a legal question based on the specification to resolve disputes, and through this process realized that the court does not determine priority on certain evidence over others or decide factual issues based on evidence. The court's search for extrinsic evidence that helps the court construe claims is a necessary process, and the District Court's claim construction based on useful extrinsic evidence is still based on the language of the claim and invention description. Therefore, claim construction still remains a legal issue, open to de novo review. Regarding the question of whether "construing the meaning of technical terms for which expert testimony has been provided is a legal question to be exclusively determined by the court or whether it is the role of the jury as guaranteed by the 7th Amendment[28]," the Federal Supreme Court in markman II held that claim

25) Eastman Kodak Co. v. Goodyear Tire & Rubber Co., 114 F.3d 1547, 1556(Fed Cir. 1997); Wiener v. NEC Elecs. Inc., 102 F.3d 534, 539(Fed. Cir. 1996); Metaullics Sys. Co. v. Cooper, 100 F.3d 938, 939(Fed. Cir. 1996).

26) General Am. Transp. v. Cryo-Trans, Inc., 93 F.3d 766(Fed. Cir. 1996).

27) 138 F.3d 1448(Fed. Cir. 1998)(en banc), aforementioneddecisions including Eastman Kodak Co. were all repealed.

28) "[i]n Suits at common law, where the value in controversy shall exceed twenty dollars, the right of trial by jury shall be preserved..."

construction was "exclusively within the province of the court," and granted the CAFC the role of obtaining national uniformity in claim construction, which cannot be properly performed by the CAFC if bound by deference to fact-finding decisions of lower court judges regarding claim construction. Because the Federal Supreme Court did not discuss the review standard applicable to the CAFC, markman II may be read as only mentioning the roles of the judge versus the jury in a factual proceeding. However, the CAFC's decision in markman I was affirmed in its entirety by markman II, which, even if narrowly construed, affirms the significance of markman I as the controlling authority on review standards of the CAFC.

**3 ) Post-Cybor**[29]

Even after Cybor, arguments between those for and against the CAFC's standard of de novo review remained heated, as summarized in the table below.

| Pro De Novo Review | Con De Novo Review |
|---|---|
| 1. Uniform, consistent and final construction of patent terms is now possible.(De novo review maintains national uniformity, consistency, and finality to the meaning of claim terms) | 1. District Court judges can devote significant time and effort to claim construction.(District Court judges are best able to devote the time and resources necessary to effectively construe claims, can weigh credibility, etc.) |
| 2. Decrease in reversal rate [In practice, reversal rates have dropped significantly since Phillips / the Federal Circuitisal ready affording "informal deference" to District Courts-The vast majority of patent cases still settle and parties are not focused on the standard of review] | 2. Cause high reversal rates, low predictability, less certainty, waste of judicial resources and increase of litigation cost [De novo review has led to a high reversal rate, less certainty, less predictability, a waste of judicial resources and increased litigation costs as parties unwilling to settle until after appeal |

29) Jeffry M. Fisher and Alex Reese, Claim Construction How Should the Supreme Court Weigh In?, Farella Braun+Martel LLP, 2014 (www.fbm.com/files/Uploads/Documents, last visitedMarch 25, 2015).

| Pro De Novo Review | Con De Novo Review |
|---|---|
| 3. Deference to Supreme Court's Markman II opinion (De novo review is an effective implementation of the Supreme Court's Markman opinion, which recognized claim construction as alegal issue.) | - The Supreme Court recognized in Markman that claim construction is a "mongrel" practice that involves both legal and factual determinations / Rule52(a) expressly requires deference be afforded for factual determinations] |
| 4. Difficulty in distinguishing questions of fact from questions of law [It is impossible to separate "legal" and "factual" issues, so best to treat everything as legal issue ("claim construction is a legal statement of the scope of the patent right") and afford no deference to district court.] | 4. Deference toFRCP Rule 52(a) and fact-finding[While it may be difficult to separate "legal" and "factual" issues, Rule52(a) expressly requires deference be afforded for factual determinations. - fact issues include whether claim term has specialized meaning to PHOSITA(person with ordinary skills in the art); who qualifies as PHOSITA; whether to credit one party's expert testimony over another party's; what would PHOSITA glean from prior art, etc.] |
| 5. Similar to statutory construction (Analogous to statutory construction) | 5. Similar to contract interpretation (Analogous to contract interpretation and obviousness determinations where District Courts given deference on fact issues.) |
| 6. The CAFC is a court specializing in patent appeals(Federal Circuit was established as "specialist" court to handle patent appeals/ achieving uniformity, consistency and finality in claim construction is consistent with its core function.) | 6. Decrease in appeals (Changing the standard of review will affect a large number of decisions and ultimately lead to more cases settling and fewer cases being appealed) |
| 7. Does not affect most cases (Changing the standard of review will affect only a small number of decisions and will create peripheral litigation over what is a "legal" vs. "factual" determination.) | |
| 8. Real problems are poorly drafted claims and contradictory claim construction methods.(The real problems are poorly drafted claims and contradictory claim construction methodologies/ abandoning the de novo standard of review will make these problems worse.) | |

Thereafter, the CAFC in its en banc decision in the Lighting Ballast case[30] reaffirmed its position that the de novo review is applicable to claim construction, as had been declared in Cybor. The majority opinion emphasized that the principles proclaimed in Cybor, which had been issued fifteen years before, enabled the pursuit of national uniformity and consistency and finality in the scope of patents; that even though the standard of de novo review had been applied to hundreds of cases, Congress had not sought to amend the decision; and that the principle of *stare decisis* shall apply because Cybor cannot be deemed as inapplicable. Further, the majority opinion rejected the distinction between fact and law since it may lead to inconsistencies between facts and application of law to facts, which may give rise to new uncertainties. Also, FRCP Rule 52(a)(6) was found not to apply.[31]

### *C. Grounds for Claim Construction*

#### 1 ) Principle on Construing Terms used in Claims

The CAFC has construed terms used in claims in their ordinary and customary meaning that is generally used[32] or the ordinary and customary meaning as understood by a PHOSITA contemporaneous to the time of application.[33] The PHOSITA's construction of a claim term would be based not only on the context specific to the claim at issue but also on the context of the entire patent including the description of the invention.[34] The PHOSITA's construction of a term in the patent specification would be according to the meaning of the term in their relevant field of art. The court aims to construe and interpret such terms in the same manner as the terms used by the inventor to

30) Lighting Ballast Control LLC v. Philips Elec. North America Corp., 744. F.3d 1272(Fed. Cir. February 21, 2014). The first instance court, the Northern District Court of Texas, found the plaintiff's patent to be valid according to the jury's verdict after 4 days of jury trial. However, the CAFC panel reviewed the claim and concluded the plaintiff's claim invalid for indefiniteness, reversing the lower court's decision. The plaintiff petitioned for an en banc review, which was accepted. This was later repealed by Teva.

31) Judge Newman's opinion was joined by Judges Lourie, Dyk, Prost, Moore, and Taranto. Judge O'Malley's dissenting opinion was joined by Chief Judge Rader and Judges Reyna and Wallach, resulting in a 6:4 majority opinion. (Judges Chen and Hughes did not participate in the decision.)

32) Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1582(Fed. Cir. 1996).

33) Innova/Pure Water, Inc. v. Safari Water Filtration Systems, Inc., 381 F.3d 1116(Fed. Cir. 2004).

34) Multiform Desiccants, Inc. v. Medzam, Ltd., 133 F.3d 1473(Fed. Cir. 1998).

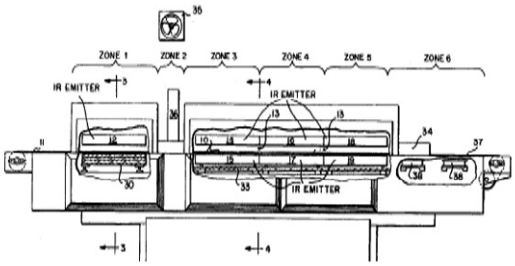
describe his invention (inventor's lexicography) are construed and interpreted by others in the same technology field.[35]

**2 ) Pre-Phillips Cases**

A) Evidence that may underpin claim construction is divided into intrinsic and extrinsic evidence. Intrinsic evidence is limited to the claim, the specification, and prosecution history, while extrinsic evidence includes expert witness testimony, inventor testimony, dictionaries, treatises, and prior art, among others.[36] The problem is priority between intrinsic and extrinsic evidence, i.e., whether intrinsic evidence should be examined first in claim construction or whether extrinsic evidence such as dictionaries should be considered before intrinsic evidence is reviewed so that the ordinary and customary meaning of the claim is determined based on an understanding of extrinsic evidence.

Prior to CAFC's Phillips decision in 2005, the CAFC's decisions were a mix of contextualist and literalist approaches. **Contextualist approach** construes a claim based on the context of the invention as described in the specification, and therefore, the "description of the invention" and "figures" in the specification play the most critical role in construction of claim terms. The contextualist approach is based on the belief that the ordinary meaning of a claim should be determined from a perspective based on intrinsic evidence, as was the approach traditionally followed by the CAFC prior to Texas Digital Sys. v. Telegenix, Inc.[37] in 2002.[38]

Vitronics Patent Drawing 2




B) In Vitronics Corps. v. Conceptronic, Inc., the plaintiff Vitronics, a maker of

35) Phillips v. AWH corporation, 415 F.3d 1313(Fed. Cir. 2005)(en banc).

36) Markman I, 52 F.3d at 979, 980.

37) Texas Digital Systems, Inc. v. Telegeniz, Inc., 308 F.3d 1193(Fed. Cir. 2002).

38) Soomi LEE, "Limiting the of Scope of Patent Right due to Requirements on Preparing Specifications", *Judicial Research*, Vol.14, No.2(July 2011), Inha University, p.63.

machines used in soldering electronic devices to circuit boards, had a patent on solder reflow process[39] for soldering surface mounted devices ("SMD") on printed circuit boards (PCB) moving through a multi-zone oven. In this process, the solders[40] were placed on the PCB, and the parts to be soldered were placed on top thereof. As the PCB passed through various heated zones (Zone 1 through 6) on a conveyer belt, the solder paste would melt in the final and most heated zone, to attach the parts to the PCB. During the short time of passing through the last zone, the solder paste is heated to melting temperatures while the devices are kept below the "solder reflow temperature," and this temperature difference allows the solder paste attach the devices to the board. In this case where possible infringement of the plaintiff's patent[41] by the defendant's product was at issue, the "solder reflow temperature" in the plaintiff's patent was the temperature reached by the solder during reflow at the last stage in the soldering process and was also expressed as a "peak solder reflow temperature," which did not mean the "liquidus temperature," which is the temperature at which the solder first

39) Solder reflow: refers to the process of melting the solder to attach metals.

40) Alloy consisting of 25%~95%Sn and the rest of Pb and used for soldering. Solder with 40~50% of Sn is most widely used. The process temperature is 182℃ and soldering is easy due to low melting point, but the material is too soft and lacks strength. Solder with 95% or more Snis used in canned food because of risk of lead poisoning. SeeIllustrated Mechanical Lexicon, Naver Knowledge Encyclopedia.

[Reference] Solder Reflow Process

41) Claim 1. A method for reflow soldering of surface mounted devices to a printed circuit board comprising: moving a printed circuit board having solder and devices disposed on a surface thereof through a first zone and in close proximity to a first emitting surface of at least one nonfocused infrared panel emitter, said first emitting surface being at a first panel temperature; moving said board through a second zone and in close proximity to a second emitting surface of at least one nonfocused infrared panel emitter, said second emitting surface being at a second panel temperature lower than said first panel temperature; and moving said board through a third zone and in close proximity to a third emitting surface of at least one nonfocused infrared panel emitter, said third emitting surface being at a third panel temperature higher than said second panel temperature, said third emitting surface heating said board and said solder to a solder reflow temperature for a period of time sufficient to cause said solder to reflow and solder said devices to said board while maintaining the temperature of said devices below said solder reflow temperature.

starts to melt. If the device temperature remains below the solder temperature, the defendant's machine would infringe the plaintiff's patent. The plaintiff argued that the "solder reflow temperature" referred to the "peak reflow temperature," which is approximately 20℃ higher than the melting point and a temperature where the solder is completely molten and flow freely. In contrast, the defendant disputed that "solder reflow temperature" was 183℃, which is the same as the liquidus temperature of the solder, known as 63/37(Sn/Pb).

The description of the invention provided that "[t]hus, to effect reflow soldering without damaging the board, the solder must be allowed to reach a temperature of at least 210℃., but the board cannot reach a temperature of 225℃," and also specified the temperature of 210℃ in the preferred embodiment, as claimed by the plaintiff. Because the claim specified that the board temperature must be maintained below "aforementioned solder reflow temperature", if the solder reflow temperature is the liquidus temperature, the preferred embodiment would fail to fall under the claim. Accordingly, the "solder reflow temperature" in the claim could be deemed to refer to "the peak reflow temperature." Among the evidence examined by the District Court, ① the defendant's expert witnesses testified that "solder reflow temperature" in claim 1 was synonymous to the liquidus temperature, and also submitted technical documents and treaties supporting such testimony. Also, ② the plaintiff's Chief Engineer testified that the "solder reflow temperature" was 183℃ and meant liquidus temperature, but later on testified that he did not mean that the term was used in that meaning in the plaintiff's patent, and that it referred to "peak reflow temperature" in the plaintiff's patent. ③ The defendant submitted documents written by a worker, which specified that reflow occurred at 183℃.However, in the latter part of the same document, it was also written that most solder makers recommend temperatures higher by about 15 to 25℃ so that a melting point that can completely liquefy the solder is achieved. The District Court found the above evidence credible and found "solder reflow temperature" to mean 183℃, and held that the defendant's product did not infringe the plaintiff's patent.

In most cases, when intrinsic evidence alone is sufficient to dispel ambiguities in the claim, the CAFC has held it improper to rely on extrinsic

evidence[42], and that the claim, the description of invention, and the prosecution history comprise public record of the patentee's claim and are more credible grounds for the public at large than extrinsic evidence. In other words, competitors would review the public record related with claim construction, and can identify the scope of the invention. If extrinsic evidence introduced during the lawsuit is allowed to amend such public record, such rights would become meaningless.

The plaintiff's description of invention clearly defines "peak reflow temperature" as being different from "liquidus temperature" and specifies that while the liquidus temperature of the solder is approximately 190℃, the peak reflow temperature is approximately 210~218℃. Furthermore, even though the preferred embodiment has the solder heated up to 210℃, the board is maintained at approximately 195℃, which is lower than the peak reflow temperature (210℃) but higher than the liquidus temperature(190℃). Therefore, in order to construe the description of the invention harmoniously with the preferred embodiment, the "solder reflow temperature" in claim 1 should be construed as meaning the peak reflow temperature rather than liquidus temperature. Construing the solder reflow temperature as liquidus temperature would result in the preferred embodiment falling outside the scope of the claim. The District Court's decision is legally improper in that it was unnecessarily based on extrinsic evidence even though the claim at issue could be clearly construed based on the description of the invention. The CAFC reversed and remanded the District Court's decision by stating that the District Court judge appears to have relied on the testimony presented by the defendant, even though the lower court's reasoning is not available on record.

C) Meanwhile, in Texas Digital, the CAFC emphasized the importance of dictionaries, encyclopedias, and treaties. Claim terms are to be construed in their ordinary and customary meaning as understood by a PHOSITA at the time of application, and objective resources such as dictionaries, encyclopedias, and treaties provide sufficient information on how a PHOSITA understands a claim term. Just as the claim, the description of invention, and

42) In most situations, an analysis of the intrinsic evidence alone will resolve any ambiguity in a disputed claim term. In such circumstances, it is improper to rely on extrinsic evidence.

intrinsic records remain unchanged from the time of patent granting, dictionaries, encyclopedias and treaties that were available at the time of patent application are objective sources that would have served as reliable grounds to a PHOSITA in construing terms of the claim. Such resources reflect an undistorted, ordinary construction that is not affected by expert testimony, events related with intrinsic records of the invention, the parties or the lawsuit.[43] Furthermore, such resources provide the court with the most meaningful information in construing technologies and professional terms used by a PHOSITA to explain the technology. This function as an information source to the court is valid not only to judges of factual proceedings but also to appeals court judges regardless of the stage of the lawsuit. Because words possess several dictionary meanings, intrinsic records should be used to verify which dictionary meaning matches the term used by the inventor. If one or more dictionary definitions match the terms used in intrinsic records, the claim term would be construed to include all matching meanings. However, if the description of the invention uses a term in a meaning inconsistent with ordinary and customary meanings, then the dictionary definitions that do not match should be excluded. Furthermore, if the inventor restricted the scope of a term by using abbreviated or restricted terms, the scope thus excluded from the term should also be deemed to have been clearly excluded from the claim. By examining dictionaries, encyclopedias, and treaties to identify possible meanings of claim terms and by using intrinsic records to identify the meaning(s) that match the purpose of the word used by the inventor, the entire scope of configuration intended by the inventor may be accurately determined, and it would be possible to easily exclude unimportant or unintended configurations from the description of the invention.

In sum, Texas Digital could be understood as instructing a **literalist approach** that requires the judge to discover the ordinary and customary meaning of the term before examining intrinsic evidence such as the description of the invention, drawings, etc. and to consider such ordinary and

43) The Texas Digital decision classified extrinsic evidence into objective dictionaries, encyclopedias, and treaties that existed at the time of patent application and evidence provided ex-post such as expert testimony, and placed emphasis on the former.

customary meanings in construing claims, and that requires priority to be placed on dictionary definitions unless specific claim terms have been separately defined in the description of invention or the prosecution history, or the specification clearly expresses an intent to forego the ordinary and customary meaning of the term.[44]

**2 ) Phillips Case**

A) The plaintiff Phillips owned a patent relating to "steel frame module used to form criminal detention facilities" consisting of a total of three steel panels, i.e., one internal plate partially bent in a triangular shape for connective purposes and two outer steel plates. A screen aimed at blocking impact was referred to as "baffles." Claim 1 included elements such as "further means disposed inside the shell for increasing its load bearing capacity comprising internal steel baffles extending inwardly from the steel shell walls." In figure 6, "$\alpha$" represents the angle of the "baffle." The plaintiff brought a lawsuit against the defendant seeking injunction against patent infringement.

Fig. 2

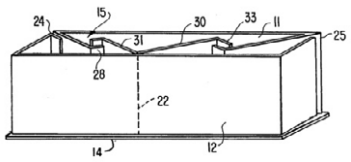
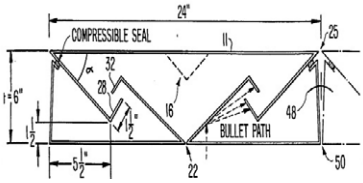



Fig. 2




B) The meaning of the term "baffle" used in claim 1 became the main issue of contention. While the "baffles" in defendant's products extended at an angle of 90° from the wall, the plaintiff's patent description including claim 1 did not clearly specify an angle for the baffles. If "baffles" in claim 1 were construed as including a 90° angle, the defendant's product would be infringing the plaintiff's patent.

C) The District Court held that even though the term "baffle" has a function and structure, because the structure of the term is not sufficiently explained, the claim should be deemed as a "means-plus-function" claim as defined in

44) Soomi LEE, supra note 38, at 63.

Article 112(6) of the Patent Act. Even the description of the invention and the drawings only present baffles that are not perpendicular to the wall. Therefore, the baffle in the plaintiff's patent should extend inside from the wall in an oblique manner or in an acute angle, and fails to prove that the defendant's product infringes the plaintiff's claim. Accordingly, the District Court dismissed the plaintiff's infringement argument.

D) The plaintiff appealed to the CAFC, and the CAFC panel[45] found that the District Court erred in finding the term "baffle" to be a means-plus-function claim because the claim provided sufficient explanation of the structure. Nevertheless, the CAFC construed the term "baffle" restrictively to exclude a structure where the baffle is extended from the wall at a 90° angle. The plaintiff's patent specification described the baffle to be positioned at an angle that would deflect bullets that penetrated the outer panel. Nowhere in the specification was it mentioned that the baffle is to be installed at a 90° angle to the wall. Also considered was prior art which presented baffles installed at 90° angles from the wall. The CAFC found that the description of the plaintiff's invention clearly disclosed the baffle that is not perpendicular to the wall, without any room for misunderstanding. The dissenting opinion pointed out that since the dictionary meaning of the baffle, i.e., "something for deflecting, checking, or otherwise regulating flow," should be adopted, and the District Court's decision should be reversed.

E) The plaintiff requested an en banc rehearing, which the CAFC accepted.

The CAFC en banc[46] agreed that the term was not a means-plus-function claim. Among extrinsic evidence, the dictionary, particularly a technical dictionary, was deemed as one of many tools that could assist the court in determining the meaning of a specific term as used by a PHOSITA. Even expert testimony was considered to provide technical background, explain how the invention worked, or to enhance the court's understanding of the technical features from the PHOSITA's point of view. However, unsupported assertions by experts as to the definition of a claim were considered not useful

45) Phillips v. AWH Corp., 363 F.3d 1207 (Fed. Cir. 2004).

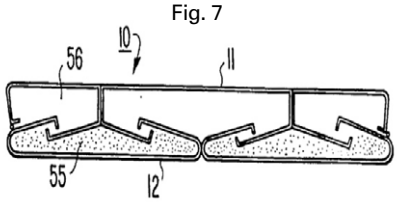
46) Phillips v. AWH Corp., 415 F.3d (Fed. Cir. 2005)(en banc).

to a court. Problems regarding extrinsic evidence includes the following: ① Extrinsic evidence regarding the definition of a term is not a part of the patent, and does not have the specification's virtue of being created at the time of patent prosecution for the purpose of explaining the scope and meaning of the patent; ② Even though claims are written as construed by a PHOSITA, extrinsic publications would not have been written by a PHOSITA and therefore fail to properly reflect a PHOSITA's construction; ③ Documents or testimony prepared by experts during a lawsuit were prepared for the purposes of a litigation, and may be subject to distortions not present in intrinsic evidence; and ④ Improper reliance on extrinsic evidence may change the meaning of the claim as determined by public record including the claim and prosecution history.

The CAFC pointed out that over-reliance on dictionaries during claim construction may lead to the following problems: ⓐ Focus would be placed on the abstract meaning of the term rather the term's meaning in the context of the patent, eventually becoming removed from the context of the specification; ⓑ Regular dictionaries are a collection of all definitions that are used in various different fields and not just in certain technology areas. Therefore, a dictionary definition may offer the patent a wider-than-proper scope of protection; ⓒ There is no guarantee that a technical dictionary or treaties will use the term in the same manner as used by the patentee, and in fact, patents, which describe novel objects or substances, are often inconsistent with technical literature; ⓓ The same term may be defined differently depending on the dictionary, and the scope of protection for the claim should not change according to the court's choice among dictionaries with different definitions that are not based on the patent specification or depending on the preference for a particular editor; ⓔ Authors of dictionaries and technical literature may simplify the meaning of terms to most effectively communicate the meaning to the general public, and as a result, a meaning that is irrelevant to the claim term may be selected; and ⓕ A gap may exist between the patentee's responsibility to explain the claim and the aim of the dictionary editor who must collect all possible definitions of a certain term. Therefore, sources in the public domain that may be used as a basis for claim construction include both extrinsic as well as intrinsic evidence. But if extrinsic evidence such as dictionaries are given priority over patent

specifications, this would be contradictory to CAFC precedents, which have instructed that the specification is the single best guide to term construction and the dictionary that defines the explicit and implicit meanings of a term. Also, the CAFC also found that dictionaries may be referenced to understand the meaning of a technical term used in a claim as long as the dictionary definition is not contradictory to a definition construable or identified by the description of the invention, and thus clarified dominance of intrinsic over extrinsic evidence. Also, in the confrontation between the position that the claim is the only means of determining the scope of the patent and the position that claim terms may only be defined in a way that is harmonious to the entire specification, the CAFC has instructed that while claim terms should be construed from the perspective of the description of the invention, the claim should not be constructed as being limited to a specific embodiment or specific reproduction of the invention.

Fig. 7




Claim 1 of the plaintiff's patent should be construed as requiring that the baffle: ① be made of steel; ② be equipped with the load-bearing capability; and ③ extend inwardly from the wall. Both parties would construe the dictionary definition of a "baffle" as an "object that checks, impedes or obstructs the flow of something,"[47] and a PHOSITA would understand the term "baffle" used in the plaintiff's patent according to its ordinary and customary meaning. Claim 2 of the plaintiff's patent, which is a dependent claim, reads that baffles are "oriented with the panel sections disposed at angles for deflecting projectiles such as bullets able to penetrate the steel plate,"[48] which makes it likely that the patentee did not contemplate that the term "baffle" already contained that limitation. Also, claim 17, which is an independent claim, states that baffles are "projecting inwardly from the outer shell at angles tending to deflect projectiles that penetrate the outer shell,"[49]

47) Objects that check, impede or obstruct the flow of something.

48) Oriented with the panel sections disposed at angles for deflecting projectiles such as bullets able to penetrate the steel plate.

49) Projecting inwardly from the outer shell at angles tending to deflect projectiles that penetrate the outer shell.

which would be an unnecessary limitation if a PHOSITA construes a baffle to perform such a function inherently. Claim 6, which is a dependent claim, reads "the internal baffles of both outer panel sections overlap and interlock at angles providing deflector panels extending from one end of the module to the other."[50] If the "baffles" recited in claim 1 were inherently placed at specific angles, or interlocked to form an intermediate barrier, claim 6 would also be redundant. Even though the description of the plaintiff's patent explains how the baffle blocks the flow of bullets or other projectiles, and the patent states that one advantage of the invention over prior art is that efficient response to powerful weapons becomes possible using a low-cost structure, the claim explains that the baffle is not limited to the blocking of bullets and other projectiles or other functions that were not implied in the specified features. The description of an invention must implement or support all claims, and the written function of blocking bullets or projectiles supports claims 2, 6, 17, and 23. Furthermore, a baffle may also perform the function of providing support to the structure, connecting or overlapping intermediary defense barriers, blocking noise or heat, and providing small compartments for rocks or gravel that could stop bullets or projectiles(Figure 7).Considering such diverse functions, the baffle should not be construed restrictively, as being limited only to the functions written in the description of the invention.

The defendant argued that a "baffle" that extends perpendicular to the wall cannot block or impede the flow of bullets or projectiles, and therefore that a "baffle" cannot be construed as including an extension at a right angle. However, the CAFC found that ① even though the description of the invention states that the "baffle" provides the function of blocking the progress of projectiles, this cannot be grounds for interpreting that all embodiments thereof must perform the function of blocking the flow of projectiles; ② the "baffle" does not necessarily function only to block the flow of projectiles because other parts of the description explain how baffles may be overlapped or interlocked to form intermediary barriers; and ③ the fact that the description of the invention presents several purposes of the invention supports the fact that the invention in the claim need not satisfy

50) The internal baffles of both outer panel sections overlap and interlock at angles providing deflector panels extending from one end of the module to the other.

each and every individual purpose written in the description of the invention. Accordingly, the CAFC found that the term "baffle" need not to be construed as excluding an extension at a perpendicular angle and dismissed the defendant's argument by vacating the District Court's non-infringement decision and remanding the case to the District Court for further review regarding infringement.[51)]

F) In principle, the scope of protection of a patent should be determined based on ordinary and customary meaning of terms used in the claim. According to Phillips, ordinary and customary meanings are to be construed by placing priority on intrinsic evidence such as description of invention rather than on extrinsic evidence. The Phillips decision is significant in that it instructed that claim terms should be construed in the context of the specification because the terms do not exist in isolation from other parts of the specification, but that the term should not be construed limited to embodiments disclosed in the description of the invention, and that the scope of protection should be determined by considering the patent in its entirety.[52)] Phillips thus reaffirmed that the starting point of claim construction must be determination of the ordinary meaning of the claim that gave rise to the dispute in the first place.[53)]

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51) To this opinion by the court, the first dissenting opinion (Judges Lourie and Newman) stated that even though they agreed with the conclusion of the majority opinion regarding "specification vs. dictionary," the "baffle" as used in the plaintiff's patent could not be deemed to mean a 90° angle because: 1) the description of the invention does not specify the angle of the "baffle"; 2) the description of the inventions clearly shows that the "baffle" is to change the direction of bullets;and 3) the "baffles" illustrated in the figures are not at 90° angles. Accordingly, the defendant's product did not infringe the plaintiff's patent. A second dissenting opinion (Judges Mayer and Newman) also was added, pointing out that the CAFC's position that claim construction was purely a matter of law without any factual elements was pointless and erroneous. This dissenting opinion criticized the CAFC, which was established to pursue consistency and predictability in the field of patents, for disregarding its role as an appellate courtand pursuing to enhance the CAFC's own importance and thus creating mayhem in procedures. Under the name of uniformity, Cybor held that claim construction does not involve questions of fact and that the CAFC is unbridled by the efforts or expertise of the district court, which in effect replaced the jury verdict, which was pejoratively referred to as a black box, with the black hole of the CAFC and allowed the CAFC to emit "legal" pronouncements by way of "interpretive necromancy," according to this dissenting opinion.

52) Soomi LEE, supra note 38, at 65.

53) The Guide, supra note 18, at5-61.

## 4. Implications toKorean Courts

### *A. Grounds for Claim Construction*

#### 1 ) General Principle

The Supreme Court of Korea has instructed that because the scope of protection of a patent claim is determined by what is written in the claim, the description of the invention or figures in the specification need not supplement or restrict claim construction as long as the claim can be clearly construed based on its own language. However, the Supreme Court of Korea has also held that because the technical meaning of an invention as described by a claim is inherently difficult to accurately construe without reference to the description of the invention and attached figures, in determining whether an invention in a patent application is un patentable, claim construction shall be conducted objectively and reasonably based on the ordinary and customary meaning of the language used in the claim but also referencing the description of the invention or attached figures in the specification at the same time.[54] This is referred to as the principle of literal interpretation and the principle of consideration of description.

#### 2 ) Judicial Review of Claim Construction

Under current Korean judicial practice, it is difficult to focus on arguments or hearings for claim construction. Claim construction is approached by parties as a point to be argued or proven as a premise in order to find a patent invalid or infringed (confirmation of the scope of right) rather than as a matter to be argued and proven independently in its own right. The court's deliberation is often carried out to accommodate this approach. In particular, the invention is often introduced briefly, followed immediately by comparisons with prior art in cases where the validity of a patent is disputed, or by comparison between the patented invention and the alleged infringing product (invention to be confirmed) in cases where infringement is at issue. However, claim construction should precede any conceptual exercise of determining patent validity or infringement.[55] Accordingly, a separate hearing or procedure dedicated to claim

54) Supreme Court Decision 2005Hu520 (September 21, 2007).

55) Manzo, *supra* note 2, at 15.

construction needs to be adopted in patent litigation procedures in Korea. If the court completes its review of claim construction and presents its position on claim construction in the form of a preparatory order similar to a claim construction order issued by the US Federal District Courts, parties would be able to organize their arguments and evidence according to such construction, which could also be utilized for mediation or settlement.

Claim construction is ultimately the task of the judge, given that it is clearly not a scientific or technical question. However, claim construction has a problem of low predictability, in that claim construction may differ depending on the judge. For the sake of more scientific, predictable, and legitimate claim construction, some have pointed out the need to refocus on the purpose of claim construction, which is to determine the objective meaning as would be construed by a PHOSITA based on objective evidence and extrinsic evidence according to appropriate rules of construction. By focusing on the objective meaning of the claim that would be construed by a PHOSITA regardless of a lawsuit, the public would be able to construe the meaning of a claim more quickly regardless of litigation, and the burden on the courts regarding claim construction can be reduced gradually.[56)]

**3 ) Use of Extrinsic Evidence**

What if the technical extent of an invention remains ambiguous even when the claim, the description of the invention, and the drawings have been considered? Regarding this question, some Korean precedents[57)] have instructed that in cases where the technical scope of an invention itself cannot be specified even based on the claim, description of the invention, or description of figures because some elements of the invention at the time of application were abstract or ambiguous, the patentee is not entitled to exercise the scope of protection for his invention. Other decisions[58)] cite the above precedent but also add technical common sense at the time of application as another source for claim construction together with the description and drawings of the invention. According to these precedents, in cases where the invention still remains ambiguous even after

56) *Id*. at 73.

57) Supreme Court Decision 2000Hu235 (June 14, 2002).

58) Intellectual Property Judicial Proceedings(3rd Edition), p. 205.

examination of such additional sources, the content or the scope of protection of the invention can no longer be determined, and even if the examiner overlooks such indefiniteness and grants the patent, the scope of protection for the patent would remain indefinite. None of the above precedents proposes any type of extrinsic evidence as grounds for claim construction.

However, the Supreme Court of Korea has instructed using extrinsic evidence in some areas, including in the determination of "identity of problem solving principle" under the doctrine of equivalents.

The Supreme Court of Korea held[59] that determination of the identity of the problem solving principles between two inventions should be based on practical study of what is the essence of the technological thought that underpins the means of problem solving unique to a patent compared to prior art considering what is written in the description of the invention and publicly known technology at the time of application, rather than extracting a part of the configuration written in the claim. The determination of the identity of problem solving principles should be based on intrinsic evidence such as the problems of the prior art technology, the means of problem solving, and the purpose and effects of the inventions as written in the description of the invention, but when necessary, additional review of extrinsic evidence such as the prosecution history or other publicly available evidence should be conducted to objectively isolate the problem solving principle.[60] Even in Japan, publicly known technology at the time of application plays an instrumental role in determining the problem and the means of problem-solving. Technology in the public domain to be considered for such purposes is not limited to the existing technology written in the specification, but some have opined that publicly known technology identified by circumstances other than the specification should only be considered as grounds for reducing the scope of equivalence by acknowledging

59) Supreme Court Decision 2012Hu1132 (July 24, 2014); also Supreme Court Decision 2007Hu3806 (June 25, 2009) of similar purport.

60) Dongsoo HAN, Meaning and Determination of "Identify of Problem-Solving Principle in Both Inventions" among Requirements for Infringement by Equivalents, Commentary on Supreme Court Cases, No.80(2009 First Half), Supreme Court Library of Korea, p.649, Taeksoo JEONG, Active Requirement for Infringement by Equivalents, *Judicial Research* No. 30, Judicial Development Foundation(December 2014), pp.374-75.

the identify of essential parts.[61]

If the use of extrinsic evidence in determining the scope of protection of a patent claim is deemed as a matter that occurs only after the claim is construed, then consideration of extrinsic evidence for determining the scope of protection may be deemed as being a separate activity from the consideration of such evidence for the sake of claim construction itself. However, since determination of the scope of protection of a claim also uses the principles of claim construction, the grounds for determination thereof would have no reason to be different from those for claim construction. In cases where a PHOSITA finds it difficult to construe the meaning of a claim even when considering the description and drawings of the invention, extrinsic evidence such as prior art, dictionaries, encyclopedias, and expert testimony needs to be utilized.[62] The reason that the Supreme Court of Korea does not specifically mention extrinsic evidence in its decisions regarding the general principles of claim construction is unclear, but the aforementioned Phillips decision should not be construed as supporting this position. Phillips purports to first examine intrinsic evidence such as specifications and prosecution history in direct contrast to Texas Digital, which construed the claim by first considering extrinsic evidence such as dictionaries and encyclopedias. However, Phillips should not be understood as holding a negative view on the use of extrinsic evidence itself.[63]

The "Guide," which is referenced by judges of the US Federal District Court, provides the following drawing to explain claim construction. Different types of evidence are listed vertically, but this order only represents the priority of

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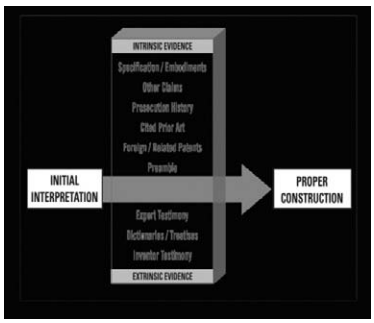
61) Yoshiyuki Tamura, "Significance of Requirements for Essential Parts under the Doctrine of Equivalents - Is the Doctrine of Equivalents a System to Relive True Inventions?", Theories of Patent Law, Yoobigak (2009), p. 102.

62) Kyoungtae KANG, System for Interpreting Scope of Claim, *Special Law Research* Vol. 11 (2014), Special Judicial Proceedings Study Group, p. 596 stating that "Sources other than the specification such as prosecution history or prior art may also be referenced."

63) Texas Digital emphasized the importance of dictionaries, encyclopedias, and treaties among extrinsic evidence as objective sources with almost no room for distortion but did not place the same value on other extrinsic evidence such as expert testimony. Therefore, there is little ground to deem that the above decision found that "construction should be based on extrinsic evidence such as dictionaries and witnesses." [Patent Court of Korea, Study Group of Intellectual Property Proceedings, *Intellectual Property Judicial Proceedings*(3rd Edition) Pakyoungsa (2014),p.207, fn. 18.]

consideration among different types evidence and does not exclude extrinsic evidence from the scope of consideration. Phillips played the most decisive role in establishing the priority among different types of evidence considered in claim construction.

In cases where the ordinary and customary meaning of terms used in a claim can be construed simply based on intrinsic evidence, there would be no need to use extrinsic evidence. However, in cases where terms cannot be construed based on only intrinsic evidence, the claim should be construed by utilizing extrinsic evidence rather than declaring that the scope of patent protection is indefinite. If the use of extrinsic evidence renders the ordinary and customary meaning of terms construable and the claim can be interpreted, the scope of protection for the invention would also be definable with greater ease.



[The Guide 5-59]

## *B. Scope of Review of Legal Proceedings in Claim Construction*

**1)** In markman, the judge of the factual proceedings (first instance court) found differently from the jury's verdict. On the other hand, in Teva, the conclusion reached by the judge of the factual proceedings was different from that reached bythe judge of the legal proceedings. markman declared that claim construction was to be conducted by a judge, and the significance of Teva is that it proclaimed the standard of review to be followed by the CAFC, which decides questions of law, when reviewing the findings by a judge of factual proceedings.

US appeals courts seldom conduct de novo review of a case. The primary function of appeals courts is to correct any error committed by the district court, and the correction would be different depending on how matters of fact are separated from matters of law. Usually, fact-finding by the lower court is reviewed by the appeals court narrowly and deferentially. In contrast, legal findings are reviewed freely and independently.[64] The last logical step in

64) National Court Administration, Foreign Judicial System Research (11), p. 67.

reaching a decision is determining the ultimate fact by applying relevant general legal principles to the historical facts discovered. The ultimate fact is also referred to as an essential fact that is arrived at through inference from evidence or testimony that underpins the final judgment or legal conclusion. The appeals court may expand its role by exercising its authority to classify such ultimate facts as questions of law and pointing out errors in the legal findings of the lower court. However, the scope of review by the appeals court, in a sense, is limited by the restriction on reviewing findings of fact, constraints in time, and the Federal Supreme Court's greater deference to the fact-findings of the District Court.[65] The deference to the District Court's fact-finding authority shown by Federal Supreme Court decisions described above could be understood in this context.

**2 )** Under Articles 423 and 451(1) of the Civil Procedure Act stipulating reasons for re-trial, a petition for appeal to the Supreme Court of Korea may only be filed on grounds of violating the Constitution, laws, administrative decrees or rules that affected the decision of a lower court. Pursuant to these provisions, the Supreme Court of Korea, which is a court of review for legal issues, determines whether the lower court's decision involved any violation of rules of evidence, incomplete deliberation, or omitted decisions. (Article 451(1)9 of the Civil Procedure Act.) Although a jury cannot be involved in claim construction in Korea as in the US, adoption of evidence and fact-finding are within the exclusive authority of the lower court, which is a court of factual proceeding. Thus, parties are not allowed to introduce new evidence during an appeal to the Supreme Court to dispute findings of fact by a lower court.[66] Article 426 of the Civil Procedure Act also stipulates that facts properly found by the lower court's decision shall bind the Supreme Court. This principle appears to correspond to US FRCP Rule 52(a)(6), which prescribes that a reviewing court must not set aside findings of fact unless clearly erroneous. For reference, with regard to the jury trial system introduced only in criminal procedures in Korea, the Supreme Court recently held that "in criminal hearing procedures conducted according to a jury trial format introduced to

65) National Court Administration, Foreign Judicial System Research (11), pp. 74-76.

66) Supreme Court Decision 2008Da74048 (December 24, 2008).

enhance the democratic legitimacy and credibility of the judicial system, the collective opinion presented by a jury, consisting of knowledgeable citizens selected through strict selection procedures, to the court regarding findings of fact has the effect of a recommendation to assist the judge of the factual proceeding, who has exclusive authority on adoption of evidence and fact-finding under the principles of practical immediacy of trials and court-oriented trials. In a case where the jury, after participating in the entire fact review process including examination of witnesses, delivers a unanimous verdict of not-guilty based on evidencea doption such as credibility of the witness and findings of fact and this verdict is also consistent with the subjective judgment of the judge and is accepted without change, the lower court's decision based on the evidence adoption and fact-finding conducted through such procedures needs to be given even greater deference based on the purport and spirit of the principles of practical immediacy of trials and court-oriented trials, unless substantial circumstances that are sufficiently reasonable and clearly contrary to the decision materialize in the appeals proceedings through examination of new evidence." Accordingly, in a case where the first instance trial conducted as a jury trial resulted in a unanimous verdict of not-guilty and the court accepted the verdict and found the defendant not guilty of the charges of robbery and infliction of bodily injury, but the appeals court reversed the lower court's decision and found the defendant guilty after conducting an additional witness examination of only the victim, the Supreme Court reversed and remanded the decision deeming that the appeals court's conclusion was improper for violating the principles of practical immediacy of trials and court-oriented trials, and for misconstruing the legal theory of evidence-based trials.[67]

**3 )** Supreme Court Decisions 92 Hun Ga 11 and 93 Hun Ga 8, etc. (consolidated) rendered on September 28, 1995, which was before the establishment of the Patent Court of Korea, addressed the issue of whether Article 186(1) of the Patent Act may be deemed to infringe upon the people's right to receive review by the court regarding factual aspects of an administrative adjudication and whether such discrimination was legitimate. In this regard,

67) Supreme Court Decision 2009Do14065 (March 25, 2010).

the court that filed the request for constitutional review expressed its position that "[t]he current structure for second appeals for patent cases (including design cases)deprives the public of its right to receive a trial by judge guaranteed under Article 27(1) of the Constitution. Therefore, the legal provision subject to this review is unconstitutional." However, the Minister of Justice provided an opposing opinion that "[b]ecause our Constitution has no provisions at all regarding the distinction between "factual proceedings" and "legal proceedings," which are concepts generally used for teaching or judicial practice, a case where the factual proceedings of a patent case remains outside the trial jurisdiction of a court cannot be concluded to be unconstitutional simply for this reason. Also, because even in patent cases, the Supreme Court, which is the second appeals court, conducts a de facto review on whether the Patent Tribunal's fact-finding was improper in terms of rules of evidence and rule of thumb, in the same manner as in regular cases, fact-finding in a patent case does not completely lie outside the trial jurisdiction of the court."[68)]

68) The Minister of Commerce and Industry provided the opinion that "Under the premise that a guarantee of an opportunity for factual-proceedings by a judge is a part of the right to receive trial, even if Article 186 of the Patent Act is a statute that limits such right, this is based on the legislative policy judgment that it is more reasonable for the sake of accuracy of fact-findings, speediness of procedures and litigation economy to have a tribunal comprised of experts be in charge of fact-finding of technical aspects of a patent disputes rather than a court consisting only of judges, due to the special nature of patents in terms of technology and expertise. The restriction is constitutional because the method of such restriction is not against the principle of proportionality in terms of appropriates, minimum damage and balance of legal interests." The Head of the Korean Intellectual Property Office offered the position that "In cases where facts must be found based on evidence, the fact-finding process as well as the facts disputed between the parties must be verified in order to review the propriety of fact-finding by examining questions such as whether the first instance fact-finding was proper and compliant with evidence examination rules under procedural statutes, whether the process of fact-finding is consistent with logic and the rule-of-thumb, whether violation of the rule of evidence, insufficient grounds, contradictory grounds, incomplete review or non-performance of the duty to clarify, etc. exists in the procedures and methods of fact-finding. Therefore, in order for the Supreme Court, which is the final and conclusive court, to review whetherstatutory violations have been committed, it would have to review whether facts were found properly. The petitioner's argument that the aforementioned provision of the Patent Act was eliminating the right to receive trial by a judge with regards to fact-finding in patent cases is wrong in that it fails to properly construe the substance of the trial by being excessively focused on a logic of formality. (*omitted*) Article 27(1) of the Constitution delegates that matters regarding the content and procedures of trial be

Addressing the above issue, the Constitutional Court held that "Articles 101(1) and (2) of the Constitution stipulate that judicial power lies with the court consisting of judges and that the court is to be organized into the Supreme Court, which is the highest court, and courts of each level. Also, the first part of Article 107(3) of the Constitution stipulates that an administrative adjudication may be conducted as a procedure preceding a judicial trial. This is a specific expression of the separation of the three branches of government, which is adopted by the Constitution as a fundamental principle to prevent abuse of state power and to secure the liberty and rights of the people. Judicial actions, which review and judge all legal disputes, may only be conducted by the court, whose highest court is the Supreme Court (Article 101(2) of the Constitution), unless otherwise delegated by the Constitution itself. Also, this indicates that an administrative adjudication is only possible as a procedure preceding a judicial trial by the court. However, the adjudication decision of the Korea Intellectual Property Office ('KIPO') on appeal is clearly an administrative adjudication when considering the entity delivering the decision, and only when the court is able to review both the factual and legal aspects of such administrative adjudications can the judicial authority and trial authority regarding patent cases be said to belong to the court. However, Article 186(1) of the Patent Act excludes the court from

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determined by law with regards to the right to receive trial. Accordingly, the type and content of trials, level of trials and appeal procedures, division of authority among different actors involved in finding questions of fact and questions of law are matters that have been delegated to legislative discretion so that the legislator selects as a legislative policy the most appropriate means of guaranteeing the right to receive trial in a maximum and practical manner. The current patent tribunal system has maintained a special administrative dispute system where two levels of administrative adjudications are reviewed by the Supreme Court ever since the adoption of the Constitution based on the consideration that trials involving patents require a high-level of professional and technical judgment. Even though the fairness of the adjudication may weaken somewhat because of the adjudication body is not a court but an administrative institution, this is supplemented by adopting a quasi-judicial procedure for the adjudication, while an expert tribunal within the administrative branch with knowledge and capabilities regarding professional technology fields come to share the role of fact-finding, which enables the comparison of the ideals of appropriateness, speed and economy pursued by a litigation system with the ideals of fairness, so that both ideals may be realized in a harmonious manner. Accordingly, this is a constitutional system that actually guarantees the people's right to receive trial in practice with regards to disputes involving industrial property rights including patents."

conducting review of factual and legal aspects of the administrative adjudication and allows the Supreme Court, as the final and conclusive legal proceeding, to review only the legal aspects of the case. As a result, the appeal adjudication of the KIPO, which should only function as a procedure preceding a judicial trial, ends up functioning as the de facto final and conclusive proceeding for fact-finding. This cannot but be declared to be against Articles 101(1) and 107(3) of the Constitution, which stipulate that the trial function for all legal disputes shall belong to the courts with the Supreme Court as the highest court…. Discrimination against the right to receive a trial by a court on matters of fact that results from Article 186(1) of the Patent Act is an infringement on the essential parts of the right to receivea trial guaranteed by the Constitution to parties in dispute, regardless of whether the means of such discrimination contribute somewhat or does not contribute at all to the achievement of the legislative purpose, i.e., reasonableness and timeliness of litigation. Therefore, it is difficult to find such discrimination reasonable and therefore, Article 186(1) of the Patent Act is in violation of Article 11(1) of the Constitution which provides for the principle of equality." Considering that questions of law in the patent tribunal's decisions were already subject to review by the Supreme Court, the essence of the above decision by the Constitutional Court is that the factual aspects also needed to be reviewed by a judge, as provided for by the right to receive trial. The Patent Court of Korea, which was established on March 1, 1998, needed to satisfy this right of the people to receive a court's review even on factual aspects of patent litigation.

### *C. Implication on Judicial Practice in Korea*

Recently, the Korean Patent Court's utilization of extrinsic evidence such as expert testimony and expert review committees as well as appraisals and verifications for claim construction, determination of the skill level of a PHOSITA, and examination of inventive steps hasbeen increasing. Further, testimony by foreign experts has also been increasing in cases involving patents of foreign inventors. Adoption of such extrinsic evidence results in patent cases appearing more akin to a court-oriented trial in that the results of such extrinsic evidence are shared and the parties are then given an opportunity to exchange

arguments based on such evidence. Claims construed based on evidence disclosed to the parties, who are then provided with a chance to present arguments thereon, are more likely to generate a greater sense of procedural satisfaction among the parties and greater acceptance of trial results among the parties compared to claim construction conducted without examination of evidence and according to standards undisclosed to the parties.

Greater use of evidence would allow more room for outcomes to differ depending on the effort and capabilities of the parties or their counsel. From the perspective of the need to maintain uniformity in the scope of patents, which is publicly granted, as was emphasized by the dissenting opinion of Teva, such variability may seem undesirable. However, while patents carry a public aspect as a right recognized by the state, the actual practice of the patent as a right is a private matter. Therefore, in a litigation where the exercise of a patent or the validity of a patent is at issue, principles of litigation procedures such as the pleading principle should basically apply as well. In order to maintain uniformity inclaim construction of patents, US Congress reached a legislative decision to confer exclusive appellate jurisdiction on the CAFC.[69] In the same manner, uniformity of patent construction would be most desirably achieved by concentrating the jurisdiction over patent trials. A trial judge would consider testimony of experts of the relevant technology field in order to construe the claim, and in the process, when contradictory testimony is presented, the decision of which expert's testimony to credit in construing the claim and determination of the scope of patent protection or the inventive step of the claim should be deemed within the province of the fact-finding court. Subsequent legal proceedings would review the fact-finding court's decision for any clear errors with deference to the fact-finding decision of the lower court, absent any clear error. In this sense, the conclusions of Teva offer much insight to Korean courts. Given the established practice in the US Federal District Courts of conducting markman hearings for claim construction and disclosing the courts' claim construction findings through a claim construction order, the majority opinion of Teva is significant not only in terms of legal theory as discussed above, but also in emphasizing deference to the claim construction procedures of the US Federal District Courts.

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69) Markman II, 517 U.S. at 390.

## 5. Conclusion

According to the majority opinion of Teva, even though legal proceedings need not be bound by the findings of the factual proceedings in a case where the terms in a claim are "used in their ordinary meaning," in cases where professional and technical terms are used in the claim, the appeals court should show deference to the claim construction of the lower court, which has been arrived at through the judge's free evaluation of evidence including expert testimony and arguments exchanged between the parties. The majority opinion in Teva brought major ramifications to the courts around the world, which had mainly subscribed to the position that claim construction was a question of law. For claim construction in Korea, Teva's opinion also has a ramification on the question of whether it is better for judges to reach conclusions on their own with the assistance of technical examiners or patent examiners, or to increase use of evidence such as expert testimony. Utilizing assistance provided by technical experts that is not disclosed externally on the one hand and reaching conclusions based on an understanding of the technology obtained through arguments and evidence presented by the parties on the other hand both have inherent advantages and disadvantages. However, Korean courts have tended to rely more on the former approach than the latter approach. Given the strong pursuit of global standards across borders in the field of patents and the reality that patent litigation is not an exception to such globalization trend, there is a need for Korean courts to strengthen court procedures relating to understanding and reviewing technologies based on arguments and evidence presented by the parties. Nevertheless, immediate adoption of the majority opinion of Teva in Korean courts would be difficult given that current court procedures do not provide sufficient procedures that are dedicated to claim construction. Out of deference to registered patents but also in order to identify the objective meaning of the patent claims, there is a need to hold a separate hearing dedicated to claim construction. Indeed, the Patent Court of Korea has recently started to hold hearings for claim construction on a pilot basis.[70] This author hopes that such claim construction procedures continue to be implemented by the Patent Court and that the results thereof are reflected in subsequent court procedures.

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70) This author conducts a claim construction hearing on a pilot basis in cases that he presides over.

Together with the adoption of such procedures, if the courts of legal proceedings start to restrain their judgment on fact-findings by lower courts rather than practicing unlimited review of the lower courts' conclusions on claim construction, both the courts addressing questions of fact and the parties will have an incentive to focus more on the proceedings of the lower courts, which may lead to decreased motivation for appeal. Placing greater fact-finding authority and greater responsibilities on the lower courts would also be one of the fundamental ways of strengthening factual proceedings in Korea, which is a major task faced by the entire judicial branch.

# Incomplet Invention[1)]

**Jootag YOON***

## I. Summary of Case

### 1. History of Case

The plaintiff requested a trial for invalidation of a patent at the Intellectual Property Trial and Appeal board (IPTAB) against the defendant on reasons that, "With respect to the present patented invention entitled Power Saving Apparatus (Patent Registration No. 419312), the invention is not sufficiently described to permit one ordinary skilled in the art to easily implement the invention."

The IPTAB dismissed the plaintiff's request on the grounds that, "The present patented invention is sufficiently described to permit one ordinary skilled in the art to easily implement the invention."

The plaintiff argued that, "Since the present patented invention is not an invention that could be industrially used, the registration thereof should be invalidated according to Article 29 (1) of the Korean Patent Act," and filed a case under number "Patent Court 2014Heo1785", requesting revocation of the above trial decision.

### 2. Present patented invention

**Claim 1:** An **electric power saving apparatus** comprising:

a metal or **plastic housing** 10 having an inner wall on which a ceramic layer 11 radiating a rotating electromagnetic wave and using sericite as a main material is coated and in which an outwardly guided wave is shielded;

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*Judge, the Patent Court of Korea.

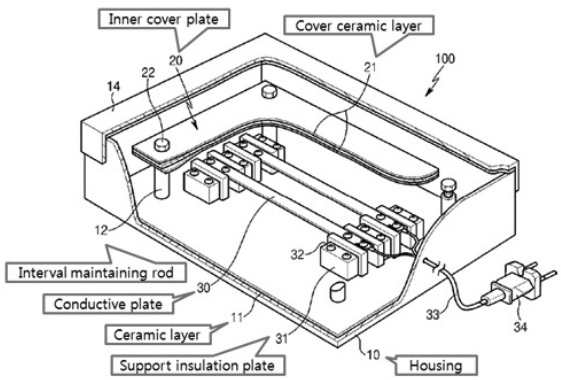
1) Related Patent Court Decision 2014Heo1785 (November 20, 2014).

an **inner cover plate** 20 supported on an interval maintaining rod 12 of a certain height in an internal space in the housing 10 and performing resonant absorption by repeating absorbing and diverging the rotating electromagnetic wave radiated from the ceramic layer;

a **conductive plate** 30 accommodated on a support insulation plate 31 to allow intrusion of the rotating electromagnetic wave guided in a free space between the inner cover plate 20 and a bottom plate; and

an electric wire 33 guiding the rotating electromagnetic wave of the conductive plate 30 to the outside of the housing 10 to be connected to a power base line.

**Claim 2:** The electric power saving apparatus of claim 1, wherein the inner cover plate 20 has a size forming a certain space from the inner wall of the housing 10.




## II. Determination of the judgment

### 1. Legal principles needed for determination

An invention that is patentable should be a complete invention, and a complete invention refers to an invention specifically and objectively configured such that one ordinary skilled in the art to which the invention pertains can repeatedly implement the invention to obtain the intended technical effect.

Whether an invention is a complete invention or not should be determined by considering the entirety of the purpose, structure, and effect of the invention described in the specification based on the technical level at the time of filing (refer to Supreme Court Decision 93Hu1810 issued on 1994. 12. 27 and Supreme Court Decision 2012Hu3312 issued on 2013. 2. 14.). When an invention is not complete, the invention cannot be said to be an "invention having industrial applicability" as stipulated in the main text of Article 29 (1) of the Korean Patent Act.

## 2. Detailed determination

### *A. Technical effects intended by the patented inventions of claims 1 and 2 of the subject case*

Considering the detailed description of the present patented invention, the technical effects intended to be achieved by the patented inventions of claims 1 and 2 of the subject case are "to provide an electric energy saving apparatus for saving electric energy, in which the rotating electromagnetic waves supplied to the conductive plate installed in the space by placing the ceramic layer on the inner wall of the housing and the conductive plate having a function of absorbing resonance of the rotating electromagnetic wave in an intermediate space,thereby reducing resistance of the conductive plate and preventing consumption of a current amount due to the resistance."

### *B. Solution to achieve the technical effects*

Considering the detailed description of the invention and the drawings of the subject case, a technical structure as a solution to achieve the technical effects of the patented inventions of claims 1 and 2 of the subject case includes ① a rotating electromagnetic wave is radiated from the ceramic layer, ② the radiated rotating electromagnetic wave is repeatedly absorbed and diverged by the resonance absorption function of the inner cover plate, ③ the rotating electromagnetic wave repeatedly absorbed and diverged as above is absorbed by the conductive plate, ④ the rotating electromagnetic wave absorbed by the conductive plate creates crystal binding of new atoms in a wire, ⑤ a new alternating magnetic field makes heat energy that has been lost due to the

existing resistance in the wire flow back to the rotating electromagnetic wave to be restored into effective energy, ⑥ the rotating electromagnetic wave resultantly reduces various types of resistance in the wire, and ⑦ the resistance is reduced as above and thus consumption of current due to the resistance is prevented, thereby saving electric energy.

### *C. Whether the intended technical effects are achieved*

① When the frequency of a radiator radiating far infrared rays and the intrinsic frequency of a substance are the same, the far infrared rays are absorbed by the substance. Then, in the substance that has absorbed the far infrared rays, vibrations of molecules and atoms forming the substance occur due to resonance[2]. Accordingly, the temperature of the substance increases(the energy of the far infrared rays is transferred to the substance), ② The absorption of infrared rays by molecules having a strong covalent bond occurs in a range of about 2.5$\mu$m ~25$\mu$m, the absorption of infrared rays by molecules having a strong ionic bond occurs in a range of about 10$\mu$m ~30$\mu$m, and molecules having a strong metallic bond[3] tend to reflect the infrared rays, ③ Mean while, when the temperature of a conductive plate, that is, a conductive body[4], increases, vibrations of atoms forming the conductive plate increase and thus the number of collisions against the free electrons increases, thereby increasing the resistance. In light of the above, it is difficult to admit that the technical effect stated in item "A" above is achieved via only the descriptions and illustrations of the specification of the patent invention of the subject case including the solution

2) Resonance: Resonance is a phenomenon wherein energy of an object increases as an amplitude of the object having a particular frequency increases when an external force having the same frequency is applied to the object. It is also referred to as sympathetic vibration.

3) Metal bond: Metals such as pure gold, iron, copper, or aluminum are formed of one type of atoms. Electrons on the outermost orbit of a metal atom are weakly bonded to a core, which are referred to as free electrons. As the free electrons freely move inside a metal crystal, they offset a repulsive force between cations to maintain the bond, which is referred to as a metal bond.When a voltage is applied to the metal, the free electrons move toward a positive (+) electrode and the cations vibrate (severely vibrate as a temperature increases) and interfere with a flow of the free electrons. The interference with a flow of free electrons as described above is referred to a "resistance".

4) Conductive body: A conductive body refers to a substance that allows a current to readily flow through it. For example, silver, copper, aluminum, or iron, which all have a small electric resistance, is mainly used as a conductive body.

stated in item "B" above (There is no evidence to prove the occurrence of a physical phenomenon that is different from the laws of nature such as items ② and ③ above. Furthermore, even from the specification of the patented invention of the subject case, it is difficult to understand the principle according to which the intended technical effects of the patented invention of the subject case can be obtained in spite of the laws of nature such as items ② and ③ above[5]).

(In addition, the defendant additionally argued the principle of the present patented invention to the effect that, "A difference in the temperature of the upper portion and the lower portion of the conductive plate is generated, a magnetic field is generated by a convection phenomenon inside the conductive plate due to the temperature difference, and when the intensity of the magnetic field exceeds a certain level, an induced current is generated by electromagnetic induction." However, it does not seem that the technical structure on which the above argument is based is either described in the specification of the present patented invention or is understandable by one or ordinary skill in the art based on the specification of the present patented invention. Thus, no determination is made as to whether the above argument is correct.)

Also, it is difficult to consider that the achievement of the technical effects of item "A" above is objectively proved via only the evidence the defendant submitted.

### *D. Conclusion*

Therefore, since the patented inventions of claims 1 and 2 of the subject case do not seem to be specifically and objectively configured enough to achieve the intended technical effects, it is difficult to consider that the above inventions are complete. As a result, the patented inventions of claims 1 and 2 of the subject case do not have industrial applicability.

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5) The attorney for the defendant mentioned on the pleading date to the effect that "the achievement of power saving effect through the reduction of resistance by absorption of a rotating electromagnetic wave, whichisthe effect of the patented invention of the subject case, was not described via physical and chemical principles enough to allow one ordinary skilled in the art to understand it."

# III. Explanation

## 1. General principle regarding an incomplete invention

### *A. Meaning of incomplete invention*

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. Since the invention signifies a technical concept as a problem solving means, though it is an idea, the invention should not be a mere conception or idea, but it should have a certain degree of specificity. An invention that lacks specificity is a so-called incomplete invention, and thus a rejection ground and an invalidation ground are established.[6]

### *B. Determination criteria on incomplete invention*

**1 ) Courts' view**

According to Supreme Court Decision 93Hu1810 issued on 1994. 12. 27. and Supreme Court Decision 2012Hu3312 issued on 2013. 2. 14., "An invention that is patentable should be a completed invention, and the completed invention refers to an invention specifically and objectively configured such that one ordinary skilled in the art to which the invention pertains can repeatedly implement the invention to obtain the intended technical effect. Whether an invention is complete or not should be determined by considering the entirety of the purpose, structure, and effect of the invention described in the specification based on the technical level at the time of filing."

Also, according to Patent Court Decision 2000Heo7038 issued on 2001. 7. 20. , "Whether an invention is complete should be determined separately from whether the specification description requirements are met. A so-called incomplete invention that fails to be a complete invention lacks specific means to solve a problem of the invention or it is clearly impossible to solve a problem via only the solving means presented in the incomplete invention. An invention is generally regarded to be incomplete when the invention falls under any ofthe

6) Patent Court Intellectual Property Litigation Practice Study Group, Intellectual Property Litigation Practice Third Edition, Pakyoungsa (2014), p. 147.

following subparagraphs: ① any invention lacking a certain constituent element when the invention requires a plurality of constituent elements, ② any invention failing to present a solving means although a problem to be solved is known, ③ any invention presenting a problem to be solved and a solving means but no effect is obtained when the invention is implemented using the means, ④ any invention failing to present use of the invention, ⑤ any invention completing implementation of technical concept of the invention, but a result of the implementation results in a danger state that is not publicly acceptable. When a certain patent application fails to meet the specification description requirements stipulated by Article 42 (3) of the Korean Patent Act, it cannot be determined that the application is an incomplete invention."

**2 ) Categorization of determination criteria**

Referring to the above precedents, the types of an incomplete invention may be categorized as follows.[7), 8)]

① a case in which only a simple purpose or idea is presented without an implementation method [Patent Court Decision 2002Heo7575 issued on 2004 .1. 30. (concluded)]

② a case in which a part or all means to achieve the purpose of an invention are missing so that the purpose of the invention is actually unattainable (decision 93Hu1810 above)

③ a case in which a presented problem solving means is too vague to be implemented or the purpose of the invention cannot be achieved without the means only [Patent Court Decision 2005Heo6030 issued on 2006. 6. 21. (Affirmed by Discontinuation Trial of Supreme Court Decision 2006Hu2127 issued on 2006. 10. 27.)

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7) "Introduction to Patent Law" written by Yoshihuzi Kousaku, revised by KumagaiKenichi, and translated by YOUME Patent & Law Firm, 13th Edition (2000), pp. 82-83, shows groups categorized according to a generally similar standard.

8) Other types may be included.

④ a case in which a repetitive representation of an invention is impossible [Supreme Court Decision 2002Hu2488 issued on 2004. 10. 28. and Patent Court Decision 2001Heo4722 issued on 2002. 10. 10. (concluded)]

⑤ a case in which no support is presented even when an invention specifically presents a structure of the invention, but requires detailed support such as experimental results so that the presented structure is admitted as a solving means (mainly issued for chemical inventions)(Supreme Court Decision 2001Hu65 issued on 2001. 11. 30., etc.[9])

⑥ a case in which one ordinary skilled in the art cannot easily obtain microorganisms or genes in microorganism and gene technology related inventions or microorganisms or genes are not deposited in a designated depository (Supreme Court Decision 91Hu1656 issued on 1992. 5. 8., etc.[10])

### *C. Handling of incomplete invention*

According to Supreme Court Decision 2002Hu2488 issued on 2004. 10. 28.,

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9) In general, for inventions related to mechanical apparatuses, it is often easy for one ordinary skilled in the art to clearly understand and easily implement theoperationand effect of an invention from the structure of the invention. Contrary to the above, for chemical inventions, which are referred to as a so-called science of experiments, although there may be differences according to the content and technical level of an invention, the anticipation or implementation possibility is remarkably low. Accordingly, if experimental examples with experimental data are not described, it is difficult for one ordinary skilled in the art to clearly understand the effect of the invention and easily implement the invention so that the invention is difficult to be considered to be a complete invention. Particularly, for pharmaceutical use inventions requiring a description of a pharmacological effect, unless there is a special situation, for example, a case in whicha pharmacological mechanism indicatingthe pharmacological effect described in the specification is clearly revealed before filing an application, only if a particular substance has such as a pharmacological effect is described as experimental examples with pharmacological data, or such a fact is described in detail enough to replace the experimental examples, it may be considered thatthe invention is complete and simultaneously the specification description requirements are met. In spite of thenecessity for a description of experimental examples, supplementation of non-description in the original specification through a later amendment deviates from the range of the description of the specification, that is, the subject matter of thespecification is changed.

10) When an obtainment process for a heterologous human EPO genome DNA and an EPO manufacturing process using the same are described in detail in the specification of a cited

"Even when one ordinary skilled in the art to which the present invention pertains repeatedly implements the invention according to the description of the specification, an intended plant variety of the present case may not be obtained. Thus, reproducibility of the invention is not admitted, and the filed invention of the present case cannot be considered to have been completed at the time of filing, thereby violating the regulation of the main text of Article 29 (1) of the Korean Patent Act." According to the above decision, an incomplete invention has no industrial applicability and thus the incomplete invention violates the main text of Article 29 (1) of the Korean Patent Act.

In addition, according to the Examination Guidelines[11] of the Korean Intellectual Property Office, when it is admitted that a detailed means to solve the problem of an invention is missing or solving a problem via only the presented problem solving means is clearly impossible, a proposed invention is treated as one that does not qualify as an invention and thus is rejected on the grounds of "not being an invention having industrial applicability" according to the main text of Article 29 (1) of the Korean Patent Act.

### *D. Reference time and object of determination of incomplete invention*

According to Supreme Court Decision 93Hu1810 issued on 1994. 12. 27., "An invention that is patentable should be a complete invention, and a complete invention refers to an invention specifically and objectively configured such that one ordinary skilled in the art to which the invention pertains can repeatedly implement the invention to obtain the intended technical effect. Whether an invention is a complete invention or not should be determined considering the entirety of the purpose, structure, and effect of the invention described in the specification based on the technical level at the time of filing."

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invention, but a DNA sequence of the heterologous human EPO genome DNA is not clear and the heterologous human EPO genome DNA is not deposited at a designated depository so thatthe heterologous human EPO genome DNA cannot be easily obtained, the cited invention is not a completed invention because the technical structure is not specifically and objectively described in the specification such that one ordinary skilled in the art to which the invention pertains can obtain an intended technical effect by repeatedly implementing the invention based on thedescription of the specification.

11) Korean Intellectual Property Office, Patent/Utility Model Examination Guidelines (2014), pp. 3104-3105.

The above decision shows that the determination regarding an incomplete invention should be made according to the technical level at the time of filing, and an incomplete invention is determined based not only on the claims, but also on the entirety of the specification including the purpose, structure, and effect of the invention described in the specification.

The decision shows that that an invention that is incomplete signifies that an invention described in the specification or illustrated on the drawings is incomplete based on the specification, not that an inventor fails to practically complete the invention by the time of filing. As a result, the decision has the same effect as the theory[12] that, if a specification hiding a point of an invention was submitted at the time of filing, the invention is considered to be an incomplete invention.

### *E. Proof of effect*

However, even when a problem solving principle related to whether a purpose is achievable via a problem solving means was not explained based on theoretic grounds such as the laws of nature, that is, a technical level at the time of filing, if an applicant or a patent owner proves the effect of an invention via reliable proof, it may be difficult to consider the invention to be an incomplete invention.[13]

In connection with a pharmaceutical use invention, it was ruled in the

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12) Yoshihuzi Kousaku, op. cit. (Note 8) p. 286; Jaewoong LEE, "Recent Trend of Supreme Court Decisions (2) - mainly about chemical related fields", Intellectual Property 21(2003. 1.), p. 209.

13) Patent Court Decision 2002Heo5715 (October 8, 2004) (Supreme Court Decision 2004Hu3157 (September 8, 2006) concluded by dismissal of appeal) ruled that "The present invention is on an assumption of the existence of an experimental natural phenomenon, and considering the claims only, it cannot be said that implementation of the invention is impossible…(omission)…The new hydrogen atom model shown in the specification of the present invention is merely a theory suggested to academically support an experimental natural fact and is not an object to be protected by being included in the claims of the present application, but a newly suggested theory to overcome a theoretical limitation of the hydrogen atom model according to the past quantum theory. Therefore, if the above new hydrogen atom model breaches the hydrogen atom model according to the past quantum theory, it cannot be said via theabove fact thatthe invention violates the laws of nature andthe implementation of the invention is impossible so that theinvention does not have industrial applicability."

decision[14] that, "For pharmaceutical use inventions requiring a description of a pharmacological effect, unless there is a special situation, for example, a case in which pharmacological mechanism indicating the pharmacological effect described in the specification is clearly revealed before filing an application, only if a particular substance has such as a pharmacological effect is described as experimental examples with pharmacological data, or such a fact is described in detail enough to replace the experimental examples, it may be considered that the invention is complete and simultaneously the specification description requirements are met." Consequently, the above decision shows that completion of a pharmaceutical use invention should be determined based on whether the "pharmacological effect" corresponding to the problem solving principle is clarified or the "pharmacological effect" as an effect of the invention is proved.

## 2. Resolution of issue

### *A. Type of incomplete invention in question*

In the present case, it is considered whether an invention falls under case ③ presented as a type of an incomplete invention, that is, "a case in which the purpose of the invention cannot be achieved without the problem solving means only."

### *B. Purpose, structure, and operation/effect of the invention described in the specification*

In the judgment, the technical effect and structure (the solving means to achieve the technical effect) intended by the invention described in the specification of the present patented invention are first identified.

Next, it is identified that the problem solving principle intended to be used by the problem solving means conflicts with the law of nature (considered to be a technical level recognized by one ordinary skilled in the art at the time of filing), that is, the conductive plate that is made of metal has a metallic bond so as to have a tendency of reflecting infrared rays, and when far infrared raysare

14) Supreme Court Decision 2001Hu65 (November 30, 2001) and Supreme Court Decision 2005Hu1417 (March 30, 2007), etc

absorbed by the conductive plate, the temperature of the conductive plate increases so that the resistance thereof increases accordingly. Thus, via only the descriptions and illustrations of the specification of the present patented invention including the solving means described in the specification, it cannot be said that the technical effect intended by the invention, that is, "the resistance of the conductive plate decreases and consumption of a current amount due tothe resistance is prevented, thereby saving electrical energy," is achieved.

### *C. Argument regarding a problem solving principle not described in the specification*

The defendant additionally argues the principle of the present patented invention to the effect that, "A difference in the temperature of the upper portion and the lower portion of the conductive plate is generated, a magnetic field is generated by a convection phenomenon inside the conductive plate due to the temperature difference, and when the intensity of the magnetic field exceeds a certain level, an induced current is generated by electromagnetic induction." However, in the judgment, no further determination is made because the technical structure on which the above argument is based is either described in the specification of the present patented invention or is easily understandable by one or ordinary skill in the art based on the specification of the present patented invention.

The above determination can be said to follow the effect of the above decision 93Hu1810, that is, "determination should be made considering the entirety of the purpose, structure, and effect of the invention described in the specification."

### *D. Proof of effect*

Also, according to the judgment, it is determined that it is difficult to consider that obtainment of the technical effect described in the specification of the present patented invention is objectively proved via only the evidence presented by the defendant.

### *E.Conclusion of the judgment*

According to the judgment,it is determined that, since the patented

inventions of claims 1 and 2 of the subject case do not seem to be specifically and objectively configured enough to achieve the intended technical effect, it is difficult to consider that the above inventions are complete. As a result, it is determined that the patented inventions of claims 1 and 2 of the subject case do not have industrial applicability.

## IV. Meaning of the judgment

The judgment is related to the issue of whether an invention falls under "the case in which the purpose of the invention cannot be achieved via only the problem solving means", from among the types of an incomplete invention. According to the judgment, a technical effect intended by an invention described in the specification and a problem solving means to achieve the technical effect are identified. Then, since a problem solving principle of the problem solving means conflicts with the laws of nature, it is determined that the above technical effect is difficult to be achieved via only the descriptions and illustrations of the specification. Also, an argument regarding the problem solving principle that is not described in the specification is not allowed. Finally, it is determined whether the obtainment of the technical effect described in the specification has been proved by evidence.

The judgment may be an example showing that, even when an inventor has practically completed an invention by the time of filing, if the specification fails to clearly disclose the invention, the completion of the invention cannot be admitted. However, in connection with the completion of the invention, it seems to be difficult to determine whether an invention falls under "the case in which the purpose of the invention cannot be achieved via only the problem solving means."

A case in which an effect described in the specification of a patented invention is dubious is one of the frequently disputed issues in practice and has many aspects regarding an incomplete invention, informalities, responsibility for proof in terms of inventiveness, degree of proof, or materials for determination. In the future, the development of legal principles through various discussions in this regard and the accumulation of detailed examples is expected.

# Means-Plus-Function Claim

**Boohan KIM***

## I. Definition of Means-Plus-Function Claim

A means-plus-function claim is a claim that recites a function of an element necessary to achieve an objective or effects of an invention without specifying the element itself[1]. In addition, the means-plus-function claim is a claim in which all or some of essential elements of an invention are described with functional terms. Here, a "functional term" means that an essential element of an invention is described without reciting a physical structure directly and specifically (hereinafter, such expression is referred to "structural term") and instead the element is described with indirect or abstract terms about features, effects, and characteristics thereof[2], which are not general expressions briefly describing a certain technical configuration in a technical field to which the invention pertains[3]. Instead of the "means-plus-function claim", the Supreme Court uses a "case where a claim is described with functional terms, such as features, effects, characteristics, and the like[4]."

In a means-plus-function claim, "function" indicates an "action done by a constituent element of an invention or effects thereof"[5], or an "action leading to a specific result"[6].

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*Judge, the Patent Court of Korea.

1) Patent Court Study Group of Intellectual Property Proceedings, Intellectual property judicial proceedings, (Vol.3), Pakyoungsa, 2014, 257.

2) As a view suggesting that further review is necessary as to whether it is appropriate to recite a function instead of an element and recite a result or effects instead of an element are dealt in the same way, Jang Wan Ho "Study on duality of interpretation of claims", Journal for the 10th anniversary of Patent Court, Patent Court (2008), 345 at 54.

3) Wonkyu PARK, "Study on Means-Plus-Function Claim", Sabob nonjip Vol. 45, Supreme Court Library 2007, 543.

4) Supreme Court Decision 2007Hu4977 (July 23, 2009), and the like.

5) Wonkyu PARK, "Study on Means-Plus-Function Claim", Sabob nonjip Vol. 45, Supreme Court Library (2007), 545 (shown above).

6) Woonho KIM, "About Interpretation of So-Called Means-Plus-Function Claim", Special Act Study Vol. 9, Jurisdiction Development Foundation (2009), 767.

The means-plus-function claim is used when the Applicant wants to broaden the scope of the claim so as to include all elements performing functions described in the means-plus-function claim. Or the means-plus-function claim is also used when it is difficult to draft the claim with structural terms due to features of an invention. Particularly, in a software-related invention or a business method invention, most of technical configurations are immaterial so that it is difficult or impossible to draft a claim in a physical structure when a software technology may be described only with functional terms. Similarly, it may be very difficult to draft a claim with physical structures in a life science-related invention. In addition, it may provide clearer and better understanding on the technical idea of the invention by drafting a claim in functional terms, rather than structural terms in the case of mechanics, electronics, and chemistry-related inventions.

The main problems of the means-plus-function claim are to identify such claim, determine if the claim is allowable under description requirements for specification, and decide how the claim should be interpreted. Hereinafter, we will discuss the aforementioned problems, similar cases in foreign countries and any other relevant issues.

## II. Criteria for Determination of Means-Plus-Function Claim[7)]

### 1. Problem

A means-plus-function claim is a claim including functional terms and means to achieve such function. In some cases, a claim including functional terms and means is not regarded as a means-plus-function claim. On the contrary, in other cases, even if a claim is not drafted in the format of a means-plus-function claim, such claim may be regarded as a means-plus-function claim. Therefore, it is necessary to check criteria for determination of a means-plus-function claim.

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7) Wonkyu PARK, "Study on Means-Plus-Function Claim", Sabob nonjip Vol. 45, Supreme Court library (2007), 544~549 (shown above).

## 2. Criteria for Determination

### *A. Description of Functions*

Description of functions is an essential element of a means-plus-function claim. However, if a means is described without reciting a function, but rather implying the function in a claim, such description may also be regarded as a means-plus-function claim. For example, when a claim discloses a "transportation means" without reciting a function thereof, it is considered as a claim including certain function and means if the "transportation means" is understood to have a function of moving a specific subject from one location to a different one.

### *B. Description of Means and the Like*

In general, a function is described along with the recital of a means, a device, and steps which are necessary to perform the function. However, descriptions about the device and the like are not essential elements composing the means-plus-function claim. Thus a claim may not be a means-plus-function claim even with descriptions about a device and the like. On the contrary, it may be a means-plus-function claim without descriptions about a device and the like.

For example, a claim disclosing 'inorganic salt which is capable of keepinga mixture of carbohydrate and protein in a colloid suspension in water' does not recite a means or the like. However, given the text that claim limits a 'function of keeping a mixture of carbohydrate and protein in colloid suspension in water', the claim may correspond to a means-plus-function claim.

### *C. Lack of Description of Technical Configuration*

Even when all or some essential constituent elements of an invention are described with functional terms in a claim, the claim may not be considered to be a means-plus-function claim if all technical configurations necessary to achieve functions of the constituent elements are described. It is because the functional terms in this case are added merely to specifically describe the technical configuration in a functional way.

In addition, despite functional terms, if a person skilled in the art to which the invention pertains is able to clearly understand a technical configuration

described with the functional terms as a specific structure, the functional term shall be considered to indicate the technical configuration, and thus, the claim does not correspond to a means-plus-function claim. In this case, the term described with functional terms may often correspond to a term which briefly describes well-known knowledge in a technical field of the invention.

Supreme Court Decision 2007Hu4977, rendered on July 23, 2009, reads "… regarding 'a conversion means for converting externally input voice or characteristics of a voice prepared in advance based on property information on a body type of a person' disclosed in claim, which is Element 2 of the judgement of the original court, Element 2 is not a configuration which includes a so-called functional termbecause specific technical configurations of a voice conversion means could be clearly understood by a person of ordinary skill in the art to which the invention pertains (hereinafter, referred to as 'a person skilled in the art') solely from the claims based on common general knowledge as of the invention's priority date …", and it is an example of the case described above.

## *III. Means-Plus-Function Claim in Other Countries*[8)]

## 1. Means-plus-function claim in U.S.

### *A. History*

The Supreme Court of the United States ruled that a means-plus-function is valid in the Continental Paper Bag case[9)]. However, it overturned its decision and ruled a means-plus-function is invalid in the Halliburton case[10)] because the scope of the claims cannot be confirmed if a means-plus-function is used for an important element. As fierce criticism is growing in public regarding the Halliburton decision with argument that it requires too much obligation from the Applicant, the Congress reformed the United Patent Law in 1952 to prevent an unduly rigid court decision and then recognized the means-plus-function claim.

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8) For a detailed discuss on overseas cases, refer to Chaho JUNG, "View on Interpretation of Means-Plus-Function Claim", Patent Litigation Study Vol. 2, Patent Court 2002, 190-197; and Woonho KIM, "About Interpretation of So-Called Means-Plus-Function Claim", 767~781 (shown above).

9) Continental Paper Bag Co v. Eastern Paper Bag Co., 201U.S.405 1908.

10) Halliburton Oil Halliburton Cementing CO. v. Walket, 329 U.S. 1 1946.

### *B. Stipulation in the U.S. patent law*

The sixth paragraph of 35 U.S.C.112 stipulates that "… an element in a claim for a combination may be expressed as a 'means or step for performing a specified function' without the recital of structure, material, or acts in support thereof, and a means-plus-functionclaim shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof."[11]

### *C. Description Requirements and Interpretation of Means-Plus-Function Claim in the U.S.*

According to the above requirement in the patent law, a means-plus-function claim is allowable. However, it should satisfy general description requirements, such as enablement, best mode, definiteness, and the like. If a structure, material, or action necessary to support a functional term described in a claim is not shown in the specification, a person skilled in the art is not able to implement it, and thus the claim would be rejected for violation of the enablement requirement set forth in the first paragraph of 35 U.S.C 112. In addition, if a claim is indefinite or unclear and inconsistent with the specification, the claim would be rejected for violation of the definiteness requirement set forth in the second paragraph of 35 U.S.C. 112.

The United States Patent and Trademark Office (USPTO) took the position that any prior art performing a function disclosed in a claim can be considered as a ground of lack of novelty during examination of a means-plus-function claim, and thus, the sixth paragraph of 35 U.S.C. 112 is not applied to examination of requirements of a patent. However, in the Donaldson case[12], the United States Court of Appeals ruled in 1994 that the sixth paragraph of 35 U.S.C. 112 are applied to an examination process in the USPTO and in determination of validity and infringement in a court, and therefore, examination criteria of the USPTO has been revised. As such, once a claim is determined as a means-plus-function

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11) The original text is as follows.

"An element in a claim for a combination may be expressed as a means or step for performing a specified function without the recital of structure, material, or acts in support thereof and such claim shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof"

12) In re Donaldson Co., 16 F.3d 1189, 29 USPQ 2d 1845(Fed. Cir.) 1994.

claim, a structure, material, or act shown in the detailed description of the invention and an equivalent thereof are used as determination criteria in a patent examination process and in a process of determining infringement of a patent.

## 2. Means-plus-function claim in Japan

### *A. Allowability of a means-plus-function claim*

In Japan, there is no stipulation on a means-plus-function claim like the U.S. patent law. However, it is generally understood that a means-plus-function claim is allowable if constituent elements are definite as a whole and a specific means for achieving functions thereof is disclosed in the detailed description of the invention.

The Japanese Patent Act was revised in 1994 regarding description requirements to delete the conventional requirement stating "the claims should disclose only matters indispensable for the invention" (Article 36 (5) (ii))[13] and add a new requirement stating "the claims should disclose all matters necessary to specify the invention so as to enable the Applicant to be given a patent" (Article 36 (5)). Due to such revision, a means-plus-function claim has become allowable more broadly.

### *B. Interpretation of a means-plus-function claim*

In Japan, a means-plus-function claim is interpreted differently depending on whether such interpretation is for requirements of a patent or infringement of a patent right.

To determine requirements of a patent, not only a specific element of an example embodiment described in the specification, but also a product performing a function thereof should be examined. Therefore, even when an element in an exemplary embodiment has novelty but a different specific element included in functional terms has been published before an application date of the invention, the invention could be rejected due to the lack of novelty

13) It is a requirement as the same as Article 42 (4)-3 of the old Korean Patent Act (before revision as of January 3, 2007; Law No. 8179).

and inventive step unless theclaims of the invention are reduced to features of exemplary embodiments. However, if it is clear that a specific product among all products having the function and features is excluded by taking into consideration common general knowledge as of an application date of the invention, the claims are interpreted without considering the specific product.

To determine infringement of a patent right, a means-plus-function is interpreted by limiting the claims within a range in which a person skilled in the art is able to implement exemplary embodiments based on the detailed description of the invention. That is, if the scope of the claims is unduly broad compared to the disclosure of the specification, the scope of protection of any element based on a technical idea rather than the disclosure of the specification is limited.

### 3. Means-plus-function claim in the European Patent Convention

The European Patent Convention (EPC) does not have any stipulation related to a means-plus-function claim like the U.S. patent law. However, Article 84 of the EPC does not require a claim to be described as a constituent element. Rather, it requires a claim to express a matter to be protected, and thus, it is understood that a means-plus-function claim is allowable.

The OHIM Board of Appeal takes the position that a means-plus-function claim is allowable for limited cases when a the scope of the invention cannot be limited or defined more precisely without functional terms, and it does not require excessive burden to examine the claim.

## IV. Allowability of Means-Plus-Function Claim

### 1. Legal stipulations and allowability of a means-plus-function claim

Article 42 (4)-3 of the previous Korean Patent Act (before revision as of January 3, 2007; Law No. 8179) stated “a claim must be described with matters indispensable for the invention”, and thus it may be construed that only a

function of an element needs to be disclosed in a claim without specifying the element. However, after Supreme Court Decision 97Hu1337 is rendered on October 2, 1998 stating "a term unclearly describing an element of the invention is principally unallowable in a claim, and even a so-called functional term describing a function or effects of the invention is not allowable in spite of such description unless the element of the invention seems clear throughout the whole context", a means-plus-function claim has become allowable if an element of the invention is clear throughout the whole specification, such as the description and drawings of the invention.

Article 42 (6) of the Korean Patent Act, which was revised on January 3, 2007 by Law 8197 and gone in effect since July 1, 2007, stipulates "when the claims are drafted under Article 2 (4) of the Korean Patent Law, a structure, method, function, material necessary to define the invention to thereby clarify a matter to be protected, or a relationship of combination thereof need to be disclosed[14]", and this revision eliminates the existing legal constraints on a means-plus-function claim which was allowable due to a previous judicial precedent.

## 2. Means-plus-function claim and lack of clarity[15]

A means-plus-function claim may not be supported by the description of the invention when a technical range thereof is too broad. Also, the means-plus-function claim may be rejected for lack of clarity when denotation of the invention is unclear.

### *A. Required to be supported by the description of the invention (Article 42 (4)-1 of the Korean Patent Act)*

Regarding this requirement, a Supreme Court decision[16] reads "Article 42 (4)-

14) This requirement has been partially modified on June 11, 2014, by Law 12753 to read "according to the second provision, a structure, method, function, material regarded necessary to specify the invention and a relationship of combination thereof must be specified in the claims so as to clarify a matter to be protected".

15) Woonho KIM, "About Interpretation of So-Called Means-Plus-Function Claim", 783~786 (shown above).

16) Refer to Supreme Court Decision 2006Hu3588 (March 15, 2007).

1 of the Korean Patent Act aims to prevent a patent right from being given to any invention not published by the Applicant when a matter not disclosed in the detailed description of the specification is disclosed in a claims. Whether a claim is supported by the detailed description of the invention needs to be determined according to whether a person skilled in the art is able to recognize based on common general knowledge as of the filing date of a patent application that the detailed description discloses a matter corresponding what is disclosed in the claim."

A means-plus-function claim may be rejected for lack of clarity described above in the case where a structure or act corresponding to a function is not disclosed in the detailed description of the invention or where, even if so, the structure or act is not sufficiently described sothe scope of the claims is unduly broad.

### *B. Required the invention to be described clearly and briefly (Article 42 (4)-2 of the Korean Patent Act)*

In the case of a means-plus-function claim, if it is hard to understand specific elements of the claim in spite of the detailed description of the invention or if the scope of the claim is inconsistent with the detailed description of the invention, the invention is considered unclear and thus shall be rejected for lack of clarity.

### *C. Supreme Court decision about lack of clarity in a means-plus-function claim*

**1 ) Supreme Court Decision 97Hu1337, rendered on October 2, 1988**

⋯ as a general rule, a term unclearly describing an element of the invention is unallowable in claims, and even a so-called functional term describing a function or effects of the invention is unallowable unless the element of the invention seems clear throughout the whole context. ⋯claim 1 discloses compound "⋯. characterized in that oligonucleotide consists of nucleotide units which are identical to one another and abundant enough to influence the unique hybridization⋯." However, it defines oligonucleotide only with a functional term of a comprehensive concept showing chemical characteristics of oligonucleotide, and the nucleotide disclosed in the claim is not specified even if the detailed description such as exemplary embodiments of the invention is considered. Therefore, the element is not clear as a whole, and it is considered

that the claim is too broad and not supported by the detailed description of the invention, and ….

⇒ This decision recognizes the validity of a means-plus-function claim but declares that even the means-plus-function claim needs to satisfy description requirements.

**2 ) Supreme Court Decision 2005Hu1486, rendered on September 6, 2007**

… when a matter specified based on a function, effects, and characteristics thereof is included in the claims, such disclosure is valid if a person skilled in the art is able to clearly understand that an invention is protected based the disclosure by considering the detailed description, drawings, and common general knowledge as of an application date….

⇒ This decision declares that the detailed description, drawings, and common general knowledge as of an application date as well as the claims should be considered to determine clarity of the claims.

## V. Interpretation of Means-Plus-Function Claim

### 1. Necessity of claim interpretation

In order to determine whether an invention satisfies requirements of a patent, such as novelty and an inventive step, it is necessary to confirm what is disclosed in the claims as a premise. In addition, Article 97 of the Korean Patent Act stipulates that the scope of protection of a patented invention is determined based on what is disclosed in the claims, and thus, it may be necessary to confirm the scope of protection of a patented invention for determination of infringement or for confirmation of the scope of a right in patent infringement litigation and in a trial to confirm the scope of a right.

For claim interpretation, conventional principles have been suggested as follows: a literal text-based principle that the claims need to be interpreted based on literal text disclosed in the claim; a reference principle that the claims need to be interpreted with reference to the detailed description or drawings of the invention; an prosecution reference principle that the claims need to be interpreted in consideration of the Applicant's opinion and the KIPO's views

presented in the process of filing an application and giving a patent right; a common knowledge reference principle that the claims need to be interpreted with reference to common knowledge as of an application date; and the like.

A means-plus-function claim should be interpreted for the above reasons, and the interpretation principles described above are applied thereto. Hereinafter, we will discuss claim interpretation focusing on decisions of the Supreme Court.

## 2. Supreme Court decision regarding interpretation of means-plus-function claim

### *A. Case in which literal text-based principle is emphasized for determination as to requirements of a patent*

***Supreme Court Decision 2004Hu1090, rendered on April 15, 2005***

… both of the present invention and the prior art share the same objective that a disposable pant used for absorbing various kinds of human excreta is designed to prevent leakage of the absorbed excreta, and a side member limited by an action or function of "providing elasticity from a user's hip" in the present invention is construed to include any elements performing the action or function, and it is reasonably understood that the prior art discloses a side member which performs the same function as that of the side member disclosed in the present invention, and thus it is reasonable that the original court rejected the present invention for lack of novelty by interpreting of the scope of the claims thereof, as in the judgment of the original court, and comparing it with the prior art, and …

### *B. Case in which a reference principle is emphasized for determination as to requirements of a patent*

***Supreme Court Decision 2007Hu4977, rendered on July 23, 2009***[17]

… when a determination is made as to whether an invention of a patent application satisfies requirements under Article 29 (1) and Article 29 (2) of the

17) Regarding explanation about this decision, Dongsu HAN, "How to Confirm Contents of Invention When Claims Are Expressed in Functional Manner", Supreme Court Decision Commentary No. 83 (the second half of 2009), Supreme Court Library (2010), 583~623.

Korean Patent Act or, in other words, has novelty and involves inventive step, contents of the invention need to be confirmed as a premise to be compared with a specific invention under Article 29 (1) of the Korean Patent Act. In addition, a matter to be protected by a patented invention is disclosed in the claims. Thus, contents of the invention has to be confirmed based on what is disclosed the claims, and it should not interpret the claims in a too limited range or in a too broad range based on other disclosure in the specification, such as the detailed description or drawings thereof. This interpretation principle is applied even when the claims are described with reciting a general structure, method, or material, but also with so-called functional terms, such as functions, effects, and characteristics (see Supreme Court Decision 2005Hu1486, rendered on September 6, 2007). Therefore, if an invention is specified in a patent application by a function, effects, characteristics, and the like, the invention is principally construed to mean any invention having the same function, effects, characteristics, and the like; however, technical meanings of matters disclosed in the claims can be clearly understood only when the detailed description or drawings of the invention are considered, and thus, if it is an exceptional case, for example, a case where a term disclosed in the claims has a special meaning and the meaning is defined or explained in the detailed description or drawings of the invention, it is required to consider not only the general meaning of the term but also technical definition sought by using the term, interpret the term reasonably, and then confirm contexts of the invention (see Supreme Court Decision 97Hu990, rendered on December 22, 1998, and Supreme Court Decision 2006Hu3625, rendered on October 25, 2007).

… the 'determination means for determining a body type of a character according to manipulation of a player' disclosed in the invention of claim 15, which is Element 1 of the judgement of the original court is an 'element including a function or characteristic-based term. Principally, it should be understood to mean "any element performing an action or function of determining a body type of a character according to manipulation of a player'. However, according to other disclosure in the specification, such as the detailed description and drawings thereof, the body type of a character is defined or described to indicate height and weight of a character, and the determination means for determining a body type of the character is described as a 'feature of determining height and weight of a character in a manner that a player

arbitrarily extends the character in a vertical and horizontal direction by manipulating a manipulation key' and 'a feature of selecting a body type of a default character by a player on a character selection screen.' Therefore, Element 1 is construed to mean determining a body type of a character by selecting or making the body type according to manipulation of a player. However, Element 1 includes a 'feature of determining a body type of a character by selecting a character on a character guide screen' disclosed in Cited Invention 1, and thus, it has been published in Cited Invention 1.

Regarding the 'conversion means for converting an externally input voice or characteristics of a voice prepared in advance based on attribute information about a body type of a character' in the invention of claim 15, which is Element 2 of the judgement of the original court, Element 2 does not include a so-called functional term since a person skilled in the art to whom the patent applied invention pertains is able to clearly recognize specific technical configurations solely with the claims thereof based on common general knowledge as of the invention's priority date. In addition, corresponding elements in Cited Inventions 1 and 2 have a voice conversion means, but there is a difference between Cited inventions 1 and 2 and the present invention in that a conversion parameter is based on information on gender or age, rather than attribute information about a body type, such as height, weight, and the like. Yet, this difference could be easily adapted and changed by a person skilled in the art without difficulty, and thus, Element 2 could be easily achieved from Cited Invention 1 and 2. Furthermore, the 'means for outputting voice with converted characteristics as voice of a character' in claim 15, which is Element 3 of the judgement of the original court, has been published in Cited Inventions 1 and 2 as well.

Therefore, the invention of claim 15 could have been easily conceived by a person skilled in the art from Cited inventions 1 and 2, and thus, it is rejected for lack of novelty. The original court was not right in which a meaning of Element 1 in the invention of claim 15 is construed in a limited range of the 'feature of determining height and weight of a character in a manner that a player arbitrarily extends a character in a vertical and horizontal direction by manipulating a manipulation key', which is one of configurations shown in examples of the specification, and then the original court considered that Element 1 is merely well-known knowledge converted into a game program. However, the decision that the invention of claim 15 lacks novelty is reasonable, and …

### *C. Case in which literal text-based principle is emphasized for determination of infringement*

***Supreme Court Decision 2000Hu2583, rendered on June 28, 2002***

… the invention of claim 1 of this case has no limitation regarding the support member ③, and the specification of this case discloses that "various types of a support member may be used in the present invention."

The support member may be made of any material, but preferably of organic polymer or several other insulating materials. … a supporting member to be used in some cases may be a conventional rectangular container which, for example, consists of side walls, an end wall, and a base plate. Given the descriptions that "this container …. may be separated into a plurality of compartments, the above support member ③ may be a member which is adhered with gel to protect a conductor and in an unlimited structure (however, the preferable structure is a rectangular container having a plurality of compartments), and thus, the connection case of invention (A) may be included in the support member in the invention of claim 1 of this case. …

### *D. Case in which the reference principle is emphasized for determination of infringement*

***Supreme Court Decision 2007Hu883, rendered on June 14, 2007***[18)]

… the scope of the claims of the patented invention needs to be determined by confirming a technical configuration expressed by a term recited in the claims with reference to the detailed description and drawings of the invention when the term does not provide understanding about details of the technical configuration. … it is clear that the term 'buffer' described in claims 1 and 5 of a patented invention of this case (hereinafter, referred to as 'the invention in claims 1 and 5 of this case') means an element which absorbs shock to an axle in the case of riding inline skates and does not transmit the shock to a permanent magnetic, but the term itself does not provide understandings about details of the technical configuration. The detailed description of the invention does not disclose materials of the buffer but discloses a structure thereof in which 'buffer wings having a decent level of elasticity are disposed on a circumference of the buffer, and there is a buffer space between the buffer wings and the permanent

18) Supreme Court Decision 2005Hu834 rendered on the same day is made with the same intention.

magnetic to securely absorb external shock', and therefore, the technical configuration expressed by the buffer disclosed in the invention of claims 1 and 5 of this case may be considered a structure having buffer wings or any structure similar thereto. Therefore, the cited invention used in the judgement of the original court, which do not have an element corresponding to the buffer disclosed in the invention of claims 1 and 5 of this case, may not fall into the scope of the invention of claims 1 and 5 of this case ···

### *E. Case in which the scope limitation principle is emphasized for determination of infringement*

··· in the case where the scope of patent right is determined by the disclosure in claims of a specification and a technical range is clear enough solely based on the disclosure of the claims, it is principally not possible that interpretation of the claims is limited by other disclosure in the specification; however, in the case where literal interpretation of the claims is clearly unreasonable in light of other disclosure of the specification, for example, a case where some of matters literally construed to be included in the claims are not supported by the detailed description of the invention or a case where some thereof are considered to be excluded from the scope of a patent with intention of the Applicant, it is possible to interpret the scope of the patent in a limited range by considering contexts of an applied technical idea, other disclosure of the specification, intention of the Applicant, and legal stability for a third party, and (Supreme Court Decision 2001Hu2856, rendered on July 11, 2003) ···

··· according to the above legal principle and the intention, the exemplary embodiments, and the effects disclosed in the detailed description of the patented invention of this case, it is reasonable to construe a meaning of the "ground wire detecting means" among elements in the invention of claim 1 to be an element which 'automatically' detects whether there is any grounded power line among power lines fed to a consumer and which power line is grounded, and to restrictively construe the "control means" to be an element which, based on a result of determination of a grounded power line, 'automatically' connects a ground wire inside of a device to the detected grounded power line by using a switching means. Therefore, the judgement of the original court was reasonable in which an apparatus of the Defendant does not fall into the scope of right of the patented invention of this case since the ground wire detecting means disclosed

in the apparatus of the Defendant is identical or equivalent to the ground wire detecting means disclosed in the invention of claim 1 and the automatic control means disclosed in the invention of claim 1 is not included in the apparatus of the Defendant, and …

## 3. Review on judicial precedents

Some decisions (Supreme Court Decision 98Hu2522, rendered on June 29 in 2001, Supreme Court Decision 2005Hu2465, rendered on January 12, 2007, and Supreme Court Decision 2009Hu92, rendered on April 23, 2009) read "… is a functional term, so, in consideration of the detailed description and drawings of the invention, a meaning thereof may be ….". Whether to refer to the detailed description and drawings of the invention may always matter in the case of a means-plus-function claim, but there is even a Supreme Court decision that emphasizes a literal text-based principle for determination as to requirements of a patent and for determination of infringement. Given the above, it needs to be understood that the detailed description or drawings of the invention are considered in the case of a means-plus-function claim because there are many cases where a meaning of a matter disclosed in the claim can be clearly understood only when the detailed description or drawings of the invention are considered.

Some decisions (Supreme Court Decision 2003Hu2072, rendered on November 24, 2006) read "…since it is difficult to clearly confirm the scope of a right, the scope of a right needs to be recognized based on specific elements, such as examples disclosed in the specification and drawings …" Regarding such Supreme Court decisions, there are different views: the first view[19] in which the decisions are considered to provide a guideline indicating that a decision should be made based on exemplary embodiments; and the second view[20] in which it is preferable to limit the scope of protection of a means-plus-function claim to specific configurations (exemplary embodiments) disclosed in the specification and drawings. In Korea, unlike the U.S., there is no relevant stipulation and thus

19) Kidong JU, "Scope of Special Claim", Bupjo, Tongkwon 609, Korean Lawyers Association (2997), 93.

20) Chaho JUNG, "View on Interpretation of Means-Plus-Function Claim", 199 (shown above).

it is reasonable to interpret a means-plus-function claim in the same way as that applied for other claims. Supreme Court Decision 2007hu4977, rendered on July 23, 2009, reads "…matters disclosed in the claims are principally construed to mean any invention having the same function, effects, characteristics, and the like. However, technical meanings of the matters disclosed in the claims can be clearly understood with reference to the detailed description or drawings of the invention, and thus, in an exceptional case, for example, a case in which a distinct meaning of aterm disclosed in the claims is defined or described in the detailed description or drawings of the invention, contents of the invention should be confirmed by considering not only a general meaning of the term, but also a technical definition sought by using the term, and then objectively and reasonably interprets what the term means. …The judgement of the original court was not right in which Element 1 disclosed in the invention of claim 15 of this case is construed to be a 'feature of determining height and weight of a character in a manner that a player arbitrarily extends the character in a vertical and horizontal direction by manipulating a manipulation key' and Element 1 is regarded as well-known knowledge converted into a game program, but…" As shown above, it is deemed that the detailed description and the like of the specification need to be considered in order to precisely understand a technical meaning of a matter disclosed in claims.

Regarding criterion for determining a case in which a literal text-based principle or a reference principle is emphasized to interpret a claim, the Supreme Court's view[21] is as follows. Principally, a literal text disclosed in claim is interpreted based on the common knowledge level of a person skilled in the art. However, the literal text is interpreted by itself in the case where interpretation on the common knowledge level of a person skilled in the art conforms to interpretation of other literal text disclosed in the claims so that contents of the invention can be clearly understood, and the literal text is interpreted in consideration of the detailed description of the invention in the case where interpretation on the common knowledge level of a person skilled in the art is contradictory to other literal text disclosed in the claims, where a meaning of the literal text is not clear in light of the level of common general knowledge as of the

21) Byungsik KIM, "Case Where the Detailed Description of the Invention Needs to Be Considered To Interpret Claims", Patent Litigation Study Vol. 6, Patent Court (2013), 307.

filing date of an application, or where the claims are not enough to provide understanding of contents of the invention since the literal text is defined or described in the detailed description of the invention, the meaning of the literal text is interpreted in consideration of the detailed description of the invention. It is considered that the above view is appropriate.

When it comes to claim interpretation used for determination as to requirements of a patentand for confirmation of an effective scope of a patent with regard to a case in which the scope limitation principle is applied in response to determination of infringement (Supreme Court Decision 2002Hu130, rendered on November 28, 2003), there is a view[22] in which both of them are different in an objective and an interpretation principle and cannot always conform to each other. In this view, even if a matter disclosed in claims is unnecessary to be protected or is not truly invented, it is not appropriate to recognize that the matter falls within the scope of protection and it is reasonable that the scope of protection needs to be understood in a duly limited range. To determine requirements of a patent, although the claims include well-known knowledge or the specification lacks clarity, it is not allowed to exclude the well-known knowledge or confirm the abstract of the invention within a range in which a lack of clarity would not occur. If the abstract of the invention is confirmed, it is considered that the Examiner allows the Applicant to arbitrarily change an expressed intention and it may lead to an unreasonable consequence to a point where a patent is provided to an invention which fails to satisfy patent requirements. However, both in the process for determination as to requirements of a patent and in the process for confirmation of the scope of claims, shape of the invention should be considered identical, and a literal text disclosed in the claims should be construed identical in the two processes.

Regarding this, there is a view[23] in which it is preferable to solve a problem with rejection of the scope of the claims, rather than interpretation of the claims in the cases, for example, where exercise of a patent right is not allowable for an invention lacking in novelty on the ground that 'the scope of well-known

22) Sangjo JUNG co-authored with Sungsu PARK, Patent Law Commentary I, Pakyoungsa 2010, 1144-1148 (part written by Kyuhyoen HAN).

23) Kyungtae KANG, "System of Interpretation of Claims – Mainly about Review on Dual Claim Interpretation – ", Special Law Study Vol. 11, Study Group of Special Litigation Proceedings 2014, 589-599.

knowledge is rejected', where exercise of a patent right is not allowable for an invention not having an inventive step on the ground of free-to-work technology theory, where exercise of a patent right is rejected in an infringement case by allowing misuse of rights, and where exercise of a patent is rejected if Article 42 (4)-2 of the Korean Patent Act (enablement requirement) is violated.

Given that claim interpretation is for clearly confirming technical configurations and the scope of the invention by interpreting the same and that claims needs to be interpreted identically for determination as to requirements of a patent and for determination of infringement, it is considered that using an expression 'exercise of the right is not allowable' is preferable, rather than using an expression 'the scope of a right is interpreted in a limited range.'

## VI. Relevant Problems

### 1. Certainty of a means-plus-function claim and a cited invention

In a trial to confirm the scope of a patent right, the description of a cited invention to be compared with a literal text disclosed in the claims is usually drafted, so that an uncertainty issue of the cited invention hardly occurs. However, in the case where the claims of a patented invention are drafted using functional terms, the uncertainty issue may occur even when the description of a cited invention is made corresponding to a literal text in the claims. It is because a patented invention in a mean-plus-function claim is understood based on what is disclosed in the claims by considering the detailed description and drawings of the invention and common general knowledge as of an application date, so only when the description of a cited invention is drafted well enough to enable comparison with the patented invention, the cited invention can be considered to be specified in detail.

Regarding this, Supreme Court Decision 2011Hu1494[24], rendered on November 15, 2012, reads "when it comes to requesting a trial to confirm the

24) Regarding commentary on this decision, Youngson YOO, "Criteria as to Whether Confirmation Subject Invention Disclosed in Functional TermIs Specified", Supreme Court Decision Commentary No. 94 (the second half of 2012), Supreme Court Library (2013), 546~569.

scope of a patent right, it is considered that a cited invention is specified in detail only when the description of the cited invention is drafted enough to enable comparison with a patented invention of this case. In addition, although it is not necessary to disclose all specific configurations of a target product in order to specify the cited invention, a specific element corresponding to a constituent element of the patented invention and being necessary to determine a difference between the cited invention and the patented invention should be disclosed. In particular, when elements of the cited invention are described with so-called functional terms, such as functions, effects, characteristics, and the like, it is viewed that the elements of the cited inventions are specified well enough to a point where the cited invention can be compared with the patented invention, only when the elements are described well enough to enable a person skilled in the art to clearly understand technical meanings of the elements based on the description and drawings of the cited invention."

## 2. Means-plus-function claim and the doctrine of equivalents[25)]

As shown above, 35 U.S.C.112(6) stipulates that "the scope of a means-plus-function claim is interpreted within a range of structure, material, or acts disclosed in the specification and equivalents thereof."

To determine a structure disclosed in the specification and an equivalent thereof, it is necessary to see if a structure of an accused product performs a full function in a substantially identical manner. In the U.S. patent law, an equivalent is determined to be literal infringement at the time of an application date, while the doctrine of equivalents is about determination about infringement, which is made on the basis of the equity principle at the time of infringement. Regarding a means-plus-function claim, the U.S. Supreme Court may make a decision based on the doctrine of equivalents as well as under the above stipulation in the U.S. patent law[26)].

Since there is no such stipulation related to an equivalent in the Korean Patent Act, the question is whether the doctrine of equivalents can be applied to

25) Woonho KIM, "About Interpretation of So-Called Means-Plus-Function Claim", 773~774, 800~801 (shown above).

26) Warner-Jenkinson Company, Inc. v. Hilton Davis Chemical Co., 520 U.S. 17 1997

a means-plus-function claim.

The doctrine of equivalents may not be applied to a means-plus-function claim in Korea for reasons as follows: ① using a means-plus-function claim broadens the scope of the claims, so, if the doctrine of equivalents, which extends the scope of protection of a patent right, is applied, it would compromise equality and legal stability; ② since a means-plus-function claim is specified as an action of an invention, the invention would be changed if any element acts differently, and thus, it does not satisfy the substitutability requirement; and ③ it is easy to specify an invention, compared to a case where a constituent element is specified as shape of a product.

However, even the means-plus-function claim is expressed in text, so if the scope of protection of the claim is limited to the text, unfairness may be found. In addition, if another means having the same effects is developed after an application date and it is neglected, it may be also unfair, and thus, it is considered that the doctrine of equivalents is able to be applied even to a means-plus-function claim.

## 3. Means-plus-function claim and parameter Invention

A parameter Invention is an invention that refers to a physical, chemical, or biological feature value (parameter), which is created newly compared to a general numerical limitation invention or to an invention which specifies a constituent element of an invention by using a newly found correlation of plural variables[27]. There is a judicial precedent[28] stating that "if an invention specifying a product based on properties or characteristics thereof is compared with a cited invention specifying a product based on different properties and characteristics, both of them shall be generally considered identical or similar using different technical expressions when the properties or characteristics disclosed in the claims of a patented invention is substitutable and, according to the substitution, it is found that the properties and characteristics disclosed in the claims of the patented invention is identical or similar to corresponding properties and

27) Patent Court Study Group of Intellectual Property Proceedings, Intellectual property judicial proceedings, (Vol.3), Pakyoungsa, 2014, 186.

28) Supreme Court Decision 2001Hu2658 (June 28, 2002).

characteristics disclosed in the cited invention or when exemplary embodiments disclosed in the specification of the patented invention are identical or similar to those of the cited invention. Thus, it is hard to consider that the patented invention has novelty and involves an inventive step.

Even the parameter invention is a claim expressed based on properties or characteristics, so it may be viewed as a kind of a means-plus-function claim. However, if the parameter's properties or characteristics are considered as 'functions', then it is to understand denotation of the 'function' too broadly[29]. In addition, the scope of the parameter invention is not limited not only to texts which is considered based on the detailed description of the specification, just like the case of a means-plus-function claim, but also to any material indicating a parameter disclosed in the claims and any material having the same properties or characteristics as those of the parameter disclosed in the claims. For this reason, the parameter invention is different from a means-plus-function claim. Therefore, an interpretation principle similar to that applied to a numerical limitation invention is applied to a parameter invention, and thus, the parameter invention should be considered distinguishable from a means-plus-function claim[30].

## VII. Conclusion

A means-plus-function claim refers to a claim in which an element of an invention is described functionally, and the means-plus-function claim is used in a software-related invention because it is hard to make the claims by using only structural terms. In the U.S., a means-plus-function claim is defined in the patent law, and structure, material, and act disclosed in the detailed description of the invention and an equivalent thereof are considered for determination of patent infringement. In Japan, a means-plus-function claim is not defined nor stipulated in the patent law, so the means-plus-function claim is allowable according to

29) Sungjun CHOI, "Invention Specifying Product Based On Properties or Characteristics", Law & Technology Vol. 3, No. 1 (January in 2007), 112.

30) Changsu PARK, "Observation of Means-Plus-Function Claim In Comparative Method, and Interpretation Criteria", Patent Litigation Study Vol. 5, Patent Court 2011, 138.

interpretation and is interpreted differently for determination as to requirements of a patent and for determination of infringement. Under the Korean Patent Act, a means-plus-function claim is allowable, but it has to satisfy other requirements, especially the specification requirements, required by the Korean Patent Act. The means-plus-function claim needs to be interpreted according to a literal text-based principle, a reference principle, and the like. In a trial to confirm the scope of a right of a means-plus-function claim, a confirmation subject invention should be described such that a person skilled in the art can clearly understand technical meaning of elements by considering the description and drawings of the confirmation subject invention and common general knowledge. The doctrine of equivalents may be applied even in the case of a means-plus-function claim. It needs to consider that a parameter invention is not a kind of a means-plus-function claim, but an invention similar to a numerical limitation invention.

# Novelty Requirement for Numerical Limitation Inventions

**Jongsun CHOI***

## I. INTRODUCTION

"Numerical limitation invention" means an invention that limits the numerical range with respect to an element having a numerical range of, for example, temperature, combination ratio, etc.[1] "Numericals" are unique in that they are the publicly known attribute that the limited element has ("Feature 1") and that a person of ordinary skill in the art ("POSITA") commonly attempts optimization or improvement of them ("Feature 2").

Feature 1 sometimes serves as the basis for categorizing numerical limitation inventions as a type of selection invention when the only difference from the prior art lies in the numerical range. Feature 2 cannot establish inventiveness of the constitutional element unless the new numerical range demonstrates a quantitatively superior or qualitatively different effect, as numerical limitations can be derived through routine and repetitive trials.

The Supreme Court's previous standards for determining the novelty and the inventiveness of numerical limitation invention were criticized as inappropriate for not providing any significant difference for the two distinct requirements for patent ability. The Supreme Court Decision No. 2011Hu2015 dated May 24, 2013 (the "Subject Decision") set forth standards for determining the novelty of numerical limitation inventions that are clearly distinguishable from the standards for inventiveness.

I will examine below the standard for determining novelty of numerical limitation inventions as set out in the Subject Decision and compare them to the standards under the U.S. patent law, European Patent Convention ("EPC"), Japanese patent Law and the Patent Cooperation Treaty ("PCT").

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*Judge, the Patent Court of Korea.

1) Patent Court Intellectual Property Litigation Practice Study Group, Intellectual Property Litigation Practice (3rd. Ed.) PAKYOUNGSA (2014) 182.

# II. Novelty of Numerical Limitation Inventions

## 1. Summary of the Supreme Court Decision

### *A. Gist of the ruling*

- The invention titled "sputtering target and transparent conductive film" according to the Application No. 10-2004-7000529 (the "Subject Invention") claims in claim 1 "a sputtering target comprising a hexagonal crystal layered compound comprising indium oxide and zinc oxide, expressed as $In_2O_3(ZnO)m$(m is a whole number between 2 and 7) ("Element 1") and further comprising 0.01 to 0.2 atomic% of an oxide of a third element ("Element 2") having valence at least +4." The compared invention in JP Patent Publication No. 1997-71860, a prior art reference cited by the KIPO examiner at prosecution stage as a ground for denying the novelty of the invention according to claim 1, related to "a sputtering target comprising a hexagonal crystal layered compound expressed as $In_2O_3(ZnO)m$ (m=2 ~ 7) and 20at% or less[2] (with respect to the entire positive ion atoms) of an oxide of a third element (e.g., Zr, Ge, Sn, Ti, Si) having valence at least +3." The only difference between the two inventions lies in the numerical range relating to the content of an oxide of a third element.

- When the invention claimed in an application does no more than to impose numerical limitations on the scope of a constitutional element of an invention publicly disclosed before the filing date, unless it achieves some difficulty in constitution or extraordinary effect or threshold value, the application would be denied for claiming an invention that is substantially identical to a publicly disclosed invention and thus lacking novelty. (Supreme Court Decision 2000Hu1283 dated November 10, 2000[3])

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2) The cited invention states that the range is preferably 0.1~15at%, more preferably 0.5~10at%.

3) The patent invention related to a contact material for sewage processing and was no more than a numerical limitation applied to some of the constitutional elements of the cited invention described in a foreign publication before its filing date. There was no difficulty in constitutionor extraordinaty effect or threshold value of such numerical limitation is recognized. Based on the foregoing, the

- A POSITA could have known without difficulty at the time of the filing of the Subject Invention that a sputtering target comprising zinc oxide and indium oxide demonstrate superior etching effect than conventional materials (ITO), adding metal oxides with valence at least 3 to IZO family compounds may reduce volume resistivity but does not demonstrate sufficient etching ability on transparent conductive film, etc. Therefore, a POSITA could have easily selected the numerical range that exhibits superior volume resistivity and etching ability such as the one specified in Element 2, by selecting appropriate content ratios of the oxide of a third element through repeated trials in adding such oxide having valence at least 3 to IZO family compounds in the cited invention. So there is no difficulty in the constitution of the invention.

- Difference in the effect ▶ According to the specifications describing the two inventions, the Subject Invention according to claim 1 of the subject patent shows low volume resistivity and thus is unlikely to have discharge or target rupture issues when the film is made, and the transparent conductive film made using this invention exhibits a superior effect in terms of the etching processing ability. Meanwhile, the transparent conductive film shows excellent conductivity, humidity and heat resistance when obtained according to the compared invention Also, the compared invention can manufacture a target free of discharge or rupture issues. ▶The two inventions demonstrate the identical effects of reducing the volume resistivity and thereby preventing discharge or target rupture when removing the film. ▶The invention according to claim 1 of the subject patent demonstrates the effect of "superior etching processing ability," but no such effect is expressly disclosed in the cited invention. ▶The components of the compounds in claim 1 of the subject patent and the cited invention are identical; their composition range and the organization also can be regarded as falling within the same category; and the use is identical (as sputtering target) the effects are not significantly different

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court ruled that the patent invention is regarded as substantially identical to the cited invention in terms of the technical constitution, considered as publicly known technology, and not regarded as valid and enforceable regardless of the final result of the invalidation trial. As such, the court ruled that the confirmation subject invention did not need to be compared with the patent and did not fall within the scope of the patent.

and thus the effect of the Subject Invention in claim 1 is inherent in the cited invention. Further, A POSITA could have easily known that the IZO materials have better etching effect when a metal oxide having valence at least 3 is added, the transparent conductive film does not show sufficient etching ability., etc., so a POSITA could easily predict that when an oxide of a third element with valence at least 3 is added, a certain numerical range demonstrates lower volume resistivity or higher etching abilityas in the case of the invention according to claim 1 of the subject invention. Therefore, it is difficult to regard the foregoing effect of the invention according to claim 1 of the subject invention as an extraordinary or qualitatively different effect over the compared invention. ▶The specification of claim 1 of the subject patent does not specifically state that a superior effect is achieved around the maximum value of the numerical range, 0.2at%, and the examples do not describe the lowest and highest limits of the numerical range have threshold value. Further, as the specification does not contain descriptions that would enable a POSITA to recognize that the limited numerical range exhibits a quantitatively superior effect, the novelty of the subject numerical limitation invention cannot be determined based on the technical meaning of the numerical limitation demonstrated by experimental data generated later in time.

- In sum, the invention according to claim 1 of the subject patent does no more than to further apply numerical limitations to the scope of a constitutional element of the compared invention which was publicly disclosed before the subject invention was filed. The numerical limitation does not achieve any difficulty in the constitution of the invention, and no extraordinary (qualitatively different) effect or threshold value is recognized. Therefore, the subject invention is identical to the compared invention in terms of the technical constitution and thus lacks novelty.

### *B. Ruling (reversed and remanded)*

- If an invention described by applying numerical limitations to the scope of constitutional elements is distinguishable from a prior art only by the existence of the numerical limitation or the scope thereof, novelty would be denied in the case where ▶the numerical limitation is specifically disclosed in publicly

known invention (Standard 1) ▶ if not, such numerical limitation is no more than a well-known/commonly used means that can be appropriately selected by a POSITA and achieves not new effect (Standard 2), novelty is denied.[4] ▶ when it is said that the limited numerical range is specifically disclosed in a publicly known invention, it includes caseswhere there is a literal description of the numericals within the numerical range in examples, etc., in the prior art reference described in the publicly known invention (Standard 1-1) or wherea POSITA can recognize the numerical range directly from the prior art reference based on the descriptions in the prior art reference and the common technical knowledge at the time of the filing (Standard 1-2) ▶ Meanwhile, when the numerical range has technical meaning as a means for achieving a different objective from that of the publicly known invention and achieves a qualitatively different effect or shows a remarkable difference in the effect within the numerical range compared to the numerical values outside the range, the numerical range cannot be said to have been specifically disclosed in the publicly known invention or that it was a well-known/commonly used means that can be appropriately selected by a POSITA (Standard 3).

- The numerical limitation on the content of the third element oxide to "0.01 to 0.2at%" in **claim 1 of the subject patent** would constitute a technical means selected to achieve **excellent etching processing ability** of the transparent conductive film manufactured using this target, while reducing the volume resistivity of the sputtering target. Meanwhile, the specification of the **cited invention** explains that the ratio of a third element oxide to 20wt% is limited

4) Young-sun Yoo, "Standard for Determining Novelty of Numerical Limitation Inventions" Supreme Court Decision Commentary No. 96 (1st, 2013) Supreme Court Library (2013), p.536 states "this concept is consistent with the Supreme Court Decision Oct. 13, 2011, 2010Hu2582 which did not recognize the numerical limitation on a preferred/optimum range as a special constitutional element, stating "in inventions that numerically limit the scope of constitutional elements, if such numerical limitation merely presents an appropriate scope or form for practicing the invention without any special technical meaning in and of itself, amounting to nothing more than a simple numerical limitation that can be selected and practiced appropriately by a POSITA, then a POSITA would be able to accurately understand its meaning and reproduce it without undue experimentation or special additional knowledge. Therefore, such case would not constitute a violation of Article 42, Paragraph 3 of the previous Patent Law, even when the specification does not describe the reason for or the effect of the numerical limitation.""

to 20at% because once it exceeds 20at%, conductivity is seriously deteriorated due to the scatteringof ions in the transparent conductive film obtained from the target." Accordingly, the technical purpose for limiting the content of a third element oxide to "20at%" in the **cited invention** was only to prevent "conductivity deterioration" and **it does not disclose or imply the technical idea of claim 1 of the subject patent, i.e., that etching ability could improve depending on the content of a third element oxide**.

- In sum, the above-mentioned numerical limitation on the content of a third element oxide in claim 1 of the subject patent has technical meaning as **a means for achieving an objective different** from that of the compared invention, and the resulting effect, i.e., **achieving excellent etching ability** of the transparent conductive film while lowering the volume resistivity of the sputtering target, is **qualitatively different from the effect of the compared invention**. Therefore, **it cannot be said that the numerical range is specifically disclosed in the compared** invention or that the numerical limitation is no more than a well-known/commonly used technical means that can be appropriately selected by a POSITA. The novelty of the invention according to claim 1 of the subject patent is not denied based on the cited invention.

## 2. Views on the Subject Decision

For sake of convenience, I refer to the following views as View 1 and View 2 in the order discussed below.

### *A. View 1*[5]

As numerical limitation inventions may be regarded as a type of selection invention, the "standard for determining novelty" set forth in Supreme Court Decision 2008Hu736, 743 dated October 15, 2009[6], was equally applied to numerical limitation inventions. Accordingly, the court held that if the limited numerical range is specifically disclosed in a publicly disclosed invention, its novelty would be denied.

5) Young-sun Yoo, article mentioned earlier, 536-537

6) When a constitutional element is expressed in a prior or publicly known invention as a generic

Next, the court concluded with regard to the "substantial identity of the invention" that, considering the Supreme Court decision 2010Hu2179[7), 8)] dated April 28, 2011, the examination guidelines in Korea, U.S., Europe and discussions in Japan, etc., altogether, when the numerical limitation was no more than a well-known and commonly used means that could have been properly selected by a POSITA and did not achieve any new effect, its novelty should be denied.

Further, the Subject Decision equally applied the meaning of "specific disclosure" set forth in the Supreme Court decision with regard to the "standard for determining novelty of selection inventions," and held that "when it is said that a limited numerical range is specifically disclosed, it includes cases where a POSITA could directly recognize the numerical range from prior art references based on the

concept, in order to deny the novelty of a so-called selection invention which has all or part of its constitutional element expressed only as a specific concept included within the scope of such generic concept, the prior art should specifically disclose the specific concept that constitutes the selection invention. This includes, in addition to literal descriptions of the selection invention in the prior art reference describing the prior invention, cases where a POSITA can directly recognize the existence of the selection invention from the prior art reference based on the descriptions in the prior art reference and the common technical knowledge at the time of filing.

7) The identity of invention prescribed by Article 29, Paragraph 3 of the previous Patent Law (before amendment of March 3, 2006, Law No. 7871) under the expanded first-to-file rule is different from the inventiveness of the invention. While it should be determined based on whether the technical constitution of the two inventions, the effect of the invention should be considered as well.Even if the technical constitution is not identical, if the difference is no more than the addition/deletion/modification of well-known/commonly used technology as a specific means for achieving the objective,then the two inventions should be regarded as substantially identical, but if the difference in the technical constitution of the two inventions is more than the foregoing, they cannot be regarded as identical even when the difference can be easily derived by a POSITA.

8) Regarding Article 29, Paragraph 1 of the Patent Law, the Supreme Court Decision dated Oct. 15, 2004, 2003Hu472 stated "the identity of inventions under Article 29, Paragraph 1 of the Patent Law should be determined by whether the two inventions are identical in terms of the technical constitution described in the patent claims, and considering the effect of the inventions. Even if there is a difference in the technical constitution, if such difference is so minor that it is no more than the addition/deletion/modification of well-known/commonly used technology as a specific means for achieving the objective, and no new effect is generated, then the two inventions should be regarded as identical." See also Supreme Court Decision rendered on Jan. 14, 2005, No. 2003Hu2805, etc.

descriptions in such references and common knowledge at the time of the filing, in addition to literal disclosures, i.e., description of the numerical values within the limited numerical range in prior art references."

The Subject Decision established a generally applicable rule for "determining the novelty of numerical limitation inventions" and as a specific rule, further explained, "if the numerical invention is used as a means of achieving a different technical objective than that of a publicly disclosed invention and its effect is qualitatively different or remarkably different within the range compared to the values outside the limited range in the publicly disclosed invention, etc., it cannot be said that the numerical range was specifically disclosed in the publicly disclosed invention or that the numerical limitation was no more than a well-known/commonly used means that could be properly selected by a POSITA. In sum, the Supreme Court held thatinventiveness would be recognized when there is a qualitatively different or remarkably superior effect, and in such case, novelty should also be recognized as a matter of course, accordingly, it does not constitute a "specific disclosure" or "well-known/commonly used means as a prerequisite to establishing substantial identity."

Meanwhile, other than cases where inventiveness is recognized when novelty is recognized, there may be cases where inventiveness is denied, so the court used the term "etc."

According to this View 1, Standard 1 is the legal principle relating to selection inventions as set out by the Supreme Court, Standard 2 is the legal principle set forth by the Supreme Court relating to substantial identity, and Standard 3 is a supplemental legal principle relating to the specific matter at hand.

### *B. View 2*[9]

The Subject Decision is meaningful in that it prescribed the standard for determining novelty for the first time. It is also interesting in that the legal principle was structured based on the standard for determining novelty of selection inventions but also

9) Heekee LEE, "Method for Determining Novelty of Numerical Limitation Inventions" Patent Law Society (presented in June 2013) 6.

embraced the standard for determining inventiveness (i.e., qualitative difference in the effect). This resulted in basically removing any difference from the standard for determining inventiveness of numerical limitation inventions (i.e., if novelty is established under the standard set forth in the Subject Decision, inventiveness would be recognized as well.)

Further, it should be well noted that the Subject Decision, applying the "substantially identity" standardwhich is the standard currently adopted for determining novelty, concluded that the numerical limitation invention is not a well-known/commonly used meansthat could have been appropriately selected by a POSITA if the numerical range is a meaningful technical means for achieving a different objective from that of the publicly known (prior art) inventions and the effect is qualitatively different.

## 3. Standards in Korea, U.S., European Patent Convention, Japan and Patent Cooperation Treaty

As View 1 noted, the standard for determining novelty of numerical limitation inventions set forth in Subject Decision is a combination of legal principles concerning novelty of invention (identity of invention), inherent disclosures in prior art and selection inventions, so the relevant areas need to be reviewed comprehensively.

### *A. Korea intellectual Property Office's Patent/Utility Model Examination Guidelines (amended June 2014)*

**4.2 Specifying a cited invention**

4.2.3 Invention described in a distributed publication

In principle, an invention described in a distributed publication should be specified based on matters clearly described in the publication. Even if not clearly described, however, matters that may be considered de facto described in the publication may be used to specify the invention.Matters that may be considered de facto described means matters clearly recognizable to a POSITA based on the common technical knowledge/known technology at the time of the distribution of the publication.

### 4.3 Method of determining novelty

When the invention according to a claim and a cited invention are completely identical or substantially identical, the claimed invention is not novel.

Inventions are substantially identical when there is no newly produced effect because the difference in the concrete means for solving problems is caused by mere addition, conversion or deletion of well-known or commonly used art and any difference between the claimed invention and the cited invention is non-essential and does not substantially affect the technical idea of the claimed invention.

(Supreme Court Decision No. 2001Hu1624, dated February 26, 2003)

#### 4.3.1 Determining novelty of numerical limitation inventions

When a claim invention is identical to the cited invention except for the numerical limitation(s), its novelty shall be determined as follows:

(1) In the case where no numerical limitation is found in the cited invention while new numerical limitation is included in the invention described in the claims, the invention is regarded as novel. If the numerical limitation can be selected by a POSITAin view of the common technical knowledge at the time of filing or it can be derived from a cited invention, the claimed invention may be denied.

(2) In the case where the numerical range of the invention described in the claims falls within the numerical range disclosed in a cited invention, the claimed inventions' novelty is not immediately denied solely on that basis and it may be regarded as novel if the numerical limitation has threshold value. In order to establish such threshold value of the numerical limitation, a remarkable effect of the range of the numerical limitation should be demonstrated across the entire numerical range compared to the effect obtained using numerical values outside that range, and the following requirements should be met: (i) the technical meaning of the numerical limitation should be described in the detailed description of the invention section, (ii) the embodiments in the detailed description section or supplemental materials should prove that the end values of the range of the numerical limitation has threshold value. In general, experimental data covering values both outside and inside the numerical range should be presented, thereby objectively verifying that the range has threshold value.

(3) In the case where the numerical range of invention described in the claims includes the numerical range of the cited inventions, novelty may be denied immediately.

(4) In general, in the case where the numerical range of the claimed invention is different from that of cited invention, the claimed invention would be regarded as novel.

**4.4 Cautionary considerations in determining novelty**

(1) if an invention described in the claims and the cited invention are express in terms of a generic concept and a specific concept, respectively, novelty should be determined as follows:

(2) In general, if the invention described in the claims is express in terms of a specific concept and a cited invention is expressed as a generic concept, the claimed invention has novelty. However, when an invention expressed as a specific concept can be clearly derived from the cited invention which is expressed as a generic concept based on **the common technical knowledge of that time of filing**, the claimed invention's novelty may be denied by specifying the invention expressed as a specific concept as the cited invention. It cannot be concluded that an invention expressed as a specific concept can be directly derived simply based on the fact that the specific concept belongs to a generic concept or that the elements of the specific concept can be drawn from the generic term.

- If the invention for preparing a chemical compound was not developed at the time of the filing, it cannot be concluded that the compound was inevitably disclosed in the prior art solely based on the fact that the name of the chemical compound was disclosed in the prior art. [Examination Guidelines for Organic/inorganic Chemical Compounds and Ceramics. (Jan. 2012) 40]

The KIPO's Examination Guidelines show some inconsistencies, as it states as a matter of general legal principle on novelty that the content of the cited invention should be specified in consideration of the common technical knowledge at the time of the publication, while the content of the cited invention is determined based on the common technical knowledge at the time of the filing in the case of numerical limitation inventions and selections inventions. The Guidelines require amendment in this regard.

## *B. U.S.*

**1 )** The relevant portion of the Manual of Patent Examining Procedure (MPEP)[10), 11)] of the United States Patent and Trademark Office (USPTO) states as follows:

> 2121.01 The Use of Prior Art in Rejections Where Enablement is in Question
>
> "In determining that quantum of prior art disclosure which is necessary to declare an applicant's invention 'not novel' or 'anticipated' within Section 102,[12)] the stated test is whether a reference contains an 'enabling disclosure'... ." *In re Hoeksema*, 399 F.2d 269, 158 USPQ 596 (CCPA 1968). The disclosure in an asserted anticipating reference must provide an enabling disclosure of the desired subject matter; mere naming or description of the subject matter is insufficient, if it cannot be produced without undue experimentation. A reference contains an "enabling disclosure" if the public was in possession of the claimed invention before the date of invention. "Such possession is effected if one of ordinary skill in the art could have combined the publication's description of the invention with his [or her] own knowledge to make the claimed invention."
>
> 2131.01 Multiple Reference 35 USC 102 Rejections
>
> Normally only one reference should be used in making a rejection under 35 U.S.C. 102.[13)]

10) Downloaded on Nov. 30, 2014.

11) For certain portions of the USPTO's MPEP and EPO's Guidelines for Examination such as "2131.03 Anticipation of Ranges" or "8. Selection Inventions" and introduction of Japanese court decisions and views,with the writer refers to the earlier mentioned article by Young-sun, while partially modifying and supplementing omitted portions.

12) The patent law provision regarding novelty, which corresponds to Article 29, Paragraph 1 of Korean patent law. See Attachment 1 for detail.

13) A rejection may be issued under 35 USC 102 based on multiple cited references, if additional cited references are being used for the following purposes:
(A) To prove that the basic cited reference includes "enabling disclosure";
(B) To explain terms used in the basic cited reference; or
(C) To prove a feature not disclosed in the cited reference is inherent.

III. "To serve as an anticipation when the reference is silent about the asserted inherent characteristic, such gap in the reference may be filled with recourse to extrinsic evidence. Such evidence must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill."[14]

2131.03 Anticipation of Ranges

I. A SPECIFIC EXAMPLE IN THE PRIOR ART WHICH IS WITHIN A CLAIMED RANGE ANTICIPATES THE RANGE

II. PRIOR ART WHICH TEACHES A RANGE OVERLAPPING, APPROACHING, OR TOUCHING THE CLAIMED RANGE ANTICIPATES IF THE PRIOR ART RANGE DISCLOSES THE CLAIMED RANGE WITH "SUFFICIENT SPECIFICITY"

When the prior art discloses a range which touches or overlaps the claimed range, but no specific examples falling within the claimed range are disclosed, a case by case determination must be made as to anticipation. In order to anticipate the claims, the claimed subject matter must be disclosed in the reference with "sufficient specificity to constitute an anticipation under the statute." What constitutes a "sufficient specificity" is fact dependent. If the claims are directed to a narrow range, and the reference teaches a broader range, other facts of the case, must be considered when determining whether the narrow range is disclosed with "sufficient specificity" to constitute an anticipation of the claims. Compare *ClearValue Inc. v. Pearl River Polymers Inc.*, 668 F.3d 1340, 101 USPQ2d 1773 (Fed. Cir. 2012) with *Atofina v. Great Lakes Chem. Corp*, 441 F.3d 991, 999, 78 USPQ2d 1417, 1423 (Fed. Cir. 2006).

In *ClearValue*, the claim at issue was directed to a process of clarifying water with alkalinity below 50 ppm, whereas the prior art taught that the same process works for systems with alkalinity of 150 ppm or less. In holding the claim anticipated, the court observed that "there is no allegation of criticality or any evidence demonstrating any difference across the range." Id. at 1345, 101 USPQ2d at 1777.

In *Atofina*, the court held that a reference temperature range of 100-500 degrees C

14) Such evidence must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill.

did not describe the claimed range of 330-450 degrees C with sufficient specificity to be anticipatory, even though there was a slight overlap between the reference's preferred range (150-350 degrees C) and the claimed range. "[T]he disclosure of a range is no more a disclosure of the end points of the range than it is each of the intermediate points." *Id.* at 1000, 78 USPQ2d at 1424. Patentee described claimed temperature range as "critical" to enable the process to operate effectively, and showed that one of ordinary skill would have expected the synthesis process to operate differently outside the claimed range.

If the prior art disclosure does not disclose a claimed range with "sufficient specificity" to anticipate a claimed invention, any evidence of unexpected results within the narrow range may render the claims unobvious. See MPEP§716.02*et seq*. The question of "sufficient specificity" is similar to that of "clearly envisaging" a species from a generic teaching.[15]

III. PRIOR ART WHICH TEACHES A VALUE OR RANGE THAT IS VERY CLOSE TO, BUT DOES NOT OVERLAP OR TOUCH, THE CLAIMED RANGE DOES NOT ANTICIPATE THE CLAIMED RANGE

[A]nticipation under§102 can be found only when the reference discloses exactly what is claimed and that where there are differences between the reference disclosure and the claim, the rejection must be based on§103 which takes differences into account. *Titanium Metals Corp. v. Banner*, 778 F.2d 775, 227 USPQ 773 (Fed. Cir. 1985) Claims to titanium (Ti) alloy with 0.8% nickel (Ni) and 0.3% molybdenum (Mo) were not anticipated by, although they were held obvious over, a graph in a Russian article on Ti-Mo-Ni alloys in which the graph contained an actual data point corresponding to a Ti alloy containing 0.25% Mo and 0.75% Ni.

15) 2131.02 Genus-Species Situations

II. A REFERENCE THAT CLEARLY NAMES THE CLAIMED SPECIES ANTICIPATES THE CLAIM NO MATTER HOW MANY OTHER SPECIES ARE NAMED

III. A GENERIC DISCLOSURE WILL ANTICIPATE A CLAIMED SPECIES COVERED BY THAT DISCLOSURE WHEN THE SPECIES CAN BE "AT ONCE ENVISAGED" FROM THE DISCLOSURE

**2 )** The Court of Appeals for the Federal Circuit (CAFC) held recently that for a prior art to anticipate a claim, it should expressly or inherently disclose all constitutional elements of the claim,[16] and inherent anticipation does not require that a POSITA understand the inherent disclosure at the time the prior art was made public.[17] Inherent anticipation is appropriate only when the cited reference inevitably includes certain constitutional element(s) of the patent not mentioned in the prior art.[18]

The CAFC does not adopt the standard of substantial identity expressly or implicitly, and states that the anticipated inherent features or results should be consistent, necessary and essential, and may not be a mere possibility or correlation.[19]

### *C. European Patent Convention*

**1 )** The relevant portion of the Guidelines for Examination in the European Patent Office (Nov. 2014)[20] established and operated pursuant to the European Patent Convention states as follows:

> **Chapter VI - Novelty**
>
> 1. State of the art pursuant to Article 54(2)[21]
>
> It should be noted that in considering novelty, it is not permissible to combine separate items of prior art together. It is also not permissible to combine separate items belonging to different embodiments described in one and the same document, unless such combination has specifically been suggested.

16) Orion IP, LLC v. Hyundai Motor America 605 F.3d 967,975 C.A.Fed. (Tex.), 2010.

17) SmithKline Beecham Corp. v. Apotex Corp. 403 F.3d 1331, 1343 C.A.Fed., 2005. April 08, 2005; Schering Corp. v. Geneva Pharmaceuticals 339 F.3d 1373, 1377 C.A.Fed., 2003. August 01, 2003

18) King Pharmaceuticals, Inc. v. Eon Labs, Inc. 616 F.3d 1267, 1274 C.A.Fed. (N.Y.), 2010. August 02, 2010.

19) Donald S. Chisum, 1 Chisum on Patents § 3.02[1][b], § 3.03[2][b].

20) Downloaded on Nov. 30, 2014.

21) This provision relates to novelty and corresponds to Article 29(1) of Korean Patent Law. See Attachment 2 for detail.

2. Implicit features or well-known Equivalents

A document takes away the novelty of any claimed subject-matter derivable directly and unambiguously from that document including any features implicit to a person skilled in the art in what is expressly mentioned in the document.[22] Thus, when considering novelty, it is not correct to interpret the teaching of a document as embracing well-known equivalents which are not disclosed in the documents; this is a matter of obviousness.

3. Relevant date of a prior document

In determining novelty, a prior document should be read as it would have been read by a person skilled in the art on the relevant date of the document. By "relevant" date is meant the publication date in the case of a previously published document and the date of filing (or priority date, where appropriate) in the case of other earlier European patent applications.

4. Enabling disclosures of a prior document

Subject-matter described in a document can only be regarded as having been made available to the public, and therefore as comprised in the state of the art, if the information given therein to the skilled person is sufficient to enable him, at the relevant date of the document, to practice the technical teaching which is the subject of the document, taking into account also the general knowledge at that time in the field to be expected of him.

6. implicit disclosure and parameters

In the case of a prior document, the lack of novelty may be apparent from what is explicitly stated in the document itself. Alternatively, it may be implicit in the sense that, in carrying out the teaching of the prior document, the skilled person would inevitably arrive at a result falling within the terms of the claim.

22) A document takes away the novelty of any claimed subject-matter derivable directly and unambiguously from that document including any features implicit to a person skilled in the art in what is expressly mentioned in the document.

8. Selection inventions

Selection inventions deal with the selection of individual elements, sub-sets, or sub-ranges, which have not been explicitly mentioned, within a larger known set or range.

(i) In determining the novelty of a selection, it has to be decided, whether the selected elements are disclosed in an individualised (concrete) form in the prior art.

(ii) A sub-range selected from a broader numerical range of the prior art is considered novel, if each of the following three criteria is satisfied (see T 198/84 and T 279/89):

(a) the selected sub-range is narrow compared to the known range;

(b) the selected sub-range is sufficiently far removed from any specific examples disclosed in the prior art and from the end-points of the known range;

(c) the selected range is not an arbitrary specimen of the prior art, i.e. not a mere embodiment of the prior art, but another invention (purposive selection, new technical teaching).

An effect occurring only in the claimed sub-range cannot in itself confer novelty on that sub-range. However, such a technical effect occurring in the selected sub-range, but not in the whole of the known range, can confirm that criterion (c) is met, i.e. that the invention is novel and not merely a specimen of the prior art. The meaning of "narrow" and "sufficiently far removed" has to be decided on a case-by-case basis. The new technical effect occurring within the selected range may also be the same effect as that attained with the broader known range, but to a greater extent.

(iii) In the case of overlapping ranges (e.g. numerical ranges, chemical formulae) of claimed subject-matter and the prior art the same principles apply for the assessment of novelty as in other cases, e.g. selection inventions. (See T 668/89).(see T 666/89).It has to be decided which subject-matter has been made available to the public by a prior art disclosure and thus forms part of the state of the art. In this context, it is not only examples, but the whole content of the prior art document which has to be taken into consideration.

As to overlapping ranges or numerical ranges of physical parameters, novelty is destroyed by an explicitly mentioned end-point of the known range, explicitly

mentioned intermediate values or a specific example of the prior art in the overlap. It is not sufficient to exclude specific novelty destroying values known from the prior art range, it must also be considered whether the skilled person, in the light of the technical facts and taking into account the general knowledge in the field to be expected from him, would seriously contemplate applying the technical teaching of the prior art document in the range of overlap. If it can be fairly assumed that he would do so, it must be concluded that no novelty exists. In T 26/85, the skilled person could not seriously contemplate working in the area of overlap, since the prior art surprisingly contained a reasoned statement clearly dissuading him from choosing said range, although the latter was claimed in said prior art.The criteria mentioned in (ii) above can be applied analogously for assessing the novelty of overlapping numerical ranges (see T 17/85). As far as overlapping chemical formulae are concerned, novelty is acknowledged if the claimed subject-matter is distinguished from the prior art in the range of overlap by a new technical element (new technical teaching), for example a specifically selected chemical residue which is covered in general terms by the prior art in the overlapping area, but which is not individualised in the prior art document.

If this is not the case, then it must be considered whether the skilled person would seriously contemplate working in the range of overlap and/or would accept that the area of overlap is directly and unambiguously disclosed in an implicit manner in the prior art.

Among the requirements for novelty under the above guidelines, the requirement that the selected specific scope should not be a simple embodiment of a prior art but a different invention (description of a new technology) was based on a strong emphasis on Features 1 and 2 of numerical limitation inventions, and Korea's Supreme Court precedents before the Subject Decision as well as the previous decision(s) of Japan's Tokyo High Court (see Section II-3.D. 2, *infra*) also took similar positions.

**2 )** The EPO boards of appeals' decisions relating to the above Guidelines are provided below.

① The technical content of a document is deemed disclosed to the POSITAat the time it was disclosed.[23)]

② In considering novelty, a prior art reference should be interpreted in light of the common technical knowledge of the date of its disclosure. Common technical knowledge which did not exist at the time of the disclosure but arose thereafter may not be used to interpret such document.[24)]

③ New effect is not an essential condition for novelty. By taking into consideration the difference in the level of technology, however, it may be concluded that the patented invention is a different invention (a conscious choice), not a sample arbitrarily chosen from prior art.[25)]

④ The patented invention (claim 7) relates to a shampoo comprising 8~25wt% negative ion detergent and 0.001~0.1wt% positive ion polymer. Prior art shampoo comprised 5~25wt% negative ion detergent, 0.1~5wt% positive ion polymer, etc. Such prior art did not disclose any special rules to be complied with in combining the elements or rules guiding a POSITAnot to follow the technical disclosures in the prior art regarding the composition falling within the range that overlap with the patent invention. Prior art specifically disclosed a composition having 0.1wt% positive ion polymer in defining the range. Therefore, the patent invention is not novel.[26)]

⑤ The patent invention comprises a magnetic recording layer having a thickness of 0.05~0.01$\mu$m, prior art comprises a magnetic recording layer having a thickness of 0.1~3.0$\mu$m. Prior art states in relation to signal output that, if the magnetic recording layer is too thin, output would be insufficient, and thus, the minimum thickness of the magnetic recording layer is at least 0.1$\mu$m, preferably 0.5$\mu$m. It did not consider the range of 0.1~0.5$\mu$m as the best example and considered a range corresponding to 0.1$\mu$m and below as workable. Therefore,

23) T 0677/91(1992. 11. 3.).
24) T 0229/90(1992. 10. 28.).
25) T 198/84(1985. 2. 28.).
26) T 666/89(1991. 9. 10.).

the thickness range of 0.1㎛ and 0.05~0.1㎛ claimed by the subject patent is novel.[27)]

⑥ Prior Art Reference 7 does not contain any general teaching that derives the composition according to the claims of the subject patent from the composition described as a Markush type claim disclosing three substituent variables. So a POSITA could only derive the claimed composition from Reference 7 through an arbitrary and accidental combination of the substituents. The claims of the subject patent have novelty over Reference 7.[28)]

⑦ The subject patent relates to LEDs[29)] comprising a light source that emitsorange light having a wavelength of 580~620nm, and the prior art[30)] relates to LEDs comprising a light source that emit red light having a wavelength of 600~640nm. The two inventions overlap in the range of 600~620nm. Novelty is denied based on the clear disclosure of 600nm in the prior art.[31), 32)]

⑧ The subject patent relates to a method for creating crystals at 300~660.4℃ and the prior art involves temperatures 350~800℃. The temperature ranges described in the two inventions overlap about 70%. There is no basis to conclude that a POSITA would consider it obvious that the prior art should only be practiced at the higher 30% of the range disclosed (the non-overlapping part). 660.4℃ is the melting point of aluminum, and the subject patent described a range in which aluminum would be in solid state. There is no reason to conclude that a POSITA would not seriously consider solid aluminum in practicing the

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27) T 26/85(1988. 9. 20.).

28) T 536/95(1997. 6. 3.).

29) Strong light ray is passed through the organs for the purpose of (medical) diagnosis.

30) US 20050168980 A1 (The LEDs 46 are preferably configured to emit red light having a predominant wavelength of between 600 nm and 640 nm. In a highly preferred embodiment, the LEDs 46 are configured to emit red light having a predominant wavelength between 620 nm and 640 nm.)

31) T 1740/10(2011. 10. 26.).

32) The trial decision stated that the colors for the wavelength range specified by the subject patent was from yellow to orange, and the colors for the wavelength range specified by the prior art was orange to red, and thus, the colors of the light did not provide an accurate basis for comparing the two inventions.

prior art, and the idea that the prior art intended to implicitly exclude the use of solid aluminum is not consistent with the selection of 350℃ as the lower limit of the temperature. As there is no reason to conclude that a POSITA would not practice the prior art over the entire range including the portion which overlaps with the subject patent, the subject patent is not novel.[33]

## *D. Japan*

**1 )** The relevant portion of the Japan Patent Office's Examination Guidelines[34] for Patents and Utility Models state as follows:

> 1.5.3. Recognizing cited inventions under each Item in Article 29, Paragraph 1[35]
>
> (3) "Prior art disclosed in publications"
>
> ① "Prior art invention disclosed in publications" is recognized on the basis of the descriptions in the publications. In interpreting the descriptions, it is permissible to take into consideration the common technical knowledge,[36] and matters derived from descriptions in the publications by a POSITA based on the common technical knowledge at the time of the fling of the subject application may be used as a basis for recognizing prior art described in publications. In other words, "prior art

33) T 2381/09(2014. 3. 13.)

34) Downloaded on Nov. 30, 2014.

35) Provision relating to novelty, which corresponds to Article 29, Paragraph 1 of the Korea Patent Law.
特許法第 29条 第1項 産業上利用することができる発明をした者は、次に掲げる発明を除き、その発明について特許を受け ることができる.
一 特許出願前に日本国内において公然知られた発明
二 特許出願前に日本国内において公然実施をされた発明
三 特許出願前に日本国内又は外国において頒布された刊行物に記載された発明

36) Japan amended the Guidelines and changed the reference point from "common technical knowledge at the time the publication was distributed" to "common technical knowledge at the time of filing" in December 2003. The reason for the amendment was to harmonize the provision with the operation of the international phase under the PCT.
(See http://www.jpo.go.jp/tetuzuki/t_tokkyo/shinsa/kankoubutu_kijun.htm) Other provisions were not amended, and thus state that the publicly known invention can be reviewed based on the common technical knowledge at the time of the publication, while publicly practiced inventions may be reviewed based on the common technical knowledge at the time of it was publicly practiced. (Part II, Chapter 2, 1.5.3.)

inventions disclosed in publications" means inventions that may be derived by a POSITA from matters described in the publications and their equivalents.

② Further, when it is not clear that a POSITA is able to manufacture the product invention or use the process invention based on the descriptions in the publications and the common technical knowledge at the time of filing of the subject application, the invention may not be used as a cited invention.[37]

(4) Inventions expressed as a generic concept and a specific concept

② In the case where a cited reference is expressed as a generic concept, it does not disclose the specific concept. Therefore, the cited invention is not recognized as an invention expressed as a specific concept. [If, however, the invention expressed as a specific concept can be derived by considering the common technical knowledge, it may qualify as a cited reference. It cannot be concluded that the invention expressed as a specific concept can be derived from the cited reference (or is described in the cited reference) merely because the terms of the specific concept can be listed from the terms of the generic concept of the cited reference.]

1.5.5 Determining novelty

(2) As for inventions according to claims which in form or in substance contain alternative elements in relation to matters for specifying the invention claimed, if one of the alternatives is chosen and compare the claimed invention and the cited invention and no difference is found, the claimed invention lacks novelty.

**2 ) Japanese courts have issued the following decisions:**

① Patent law grants a right to exclude others as a compensation for disclosing the invention. Accordingly, if an invention is described in a

37) Accordingly, for example, when a publication discloses the name or the chemical formula of a chemical substance, but does not disclose enough to enable a POSITA to prepare the chemical substance by considering the common technical knowledge at the time of filing, then the chemical substance may not be used as a "cited reference." (This does not mean that a patent reference having Markush type claims including the chemical substance as an alternative does not fulfill the enablement requirement under Article 26, Paragraph 4 of the Patent Law.)

publication distributed before the filing date or the priority date, or if it is identical to what is described in the publication **in light of the common technical knowledge of that time**, the invention is not patentable. (Patent Law, Article 29, Paragraph 1, Item 3)[38]

② The so called "selection inventions" may be patentable when a later filed invention is expressed as more specific concepts of the elements of the earlier invention, which are not disclosed as examples in the earlier invention, and the effects achieved by the elements expressed as specific concepts are qualitatively different or remarkably superior.[39]

③ While the subject patent specifies the limitation that the diameter of the metal phosphate particle used in the processing liquid is 5$\mu$m, the cited invention only specifies that the metal phosphate particles were finely scattered, etc.It is concluded that it was known, i.e., common technical knowledge, at the time of the filing of the subject patent that good results were obtained when the size of the phosphate particles used in the processing liquid was 3.5~5$\mu$m or smaller. Assuming such technology level, a POSITA could understand easily without special efforts from the description "finely scattered" in relation to metal phosphate in the cited invention that the size of such metal phosphate particles was 5$\mu$m or smaller. Therefore, cited invention should be regarded as disclosing the technical feature that the size of the phosphate particles is 5$\mu$m or smaller.[40]

④ Subject invention 1 specifies the acetic acid vinyl content in the ethylene/acetic acid vinyl copolymer as 20 to 36wt%. In this regard, Exhibit 1[41] states that the acetic vinyl content in ethylene/acetic acid copolymer is preferably 10 to 50wt%, and more preferably, 15 to 40wt%. … Subject invention 1 and Exhibit 1 are identical in that the acetic vinyl content in ethylene/acetic acid

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38) Intellectual Property High Court 2011. 12. 22. 平成 Year 22 (行ケ) No. 10097, Intellectual Property Court, 2011. 12. 22. 平成 Year 22 (行ケ) No. 10311.

39) Intellectual Property High Court 2011. Feb. 28. 平成 Year 21(行ケ) No. 10430

40) Intellectual Property High Court, 2006. Feb. 28. 平成 Year 17(行ケ) No. 10406.

41) The EVA resin used in the subject invention preferably has acetic acid vinyl content of 10~50wt% and more preferably 15~40wt%.(本発明に用いられるＥＶＡ樹脂は、酢酸ビニル含有率が１０～５０重量％であることが好ましく、より好ましくは１５～４０重量％である。また)

vinyl copolymer is 20 to 36wt%... Therefore, it can be concluded that the earlier decision that the two inventions are different was erroneous.[42]

⑤ When the subject invention and cited invention 1 are compared, they are identical in that they are both related to baked cake containingα and α trehalos.[43] While the subject invention "contains α and α trehalos at least 0.1wt% of the total weight of the raw ingredients," cited invention 1 does not clearly specify the α and α trehalos content. The two inventions are prima facie nonidentical. When an invention discloses a numerical limitation in its summary, even when the numerical range falls within a range disclosed in prior art, if the numerical limitation has a special technical meaning, i.e., the numerical values alone have a threshold value and demonstrates a remarkably superior effect compared to prior art, the invention would have novelty over prior art. If not, novelty should be denied.[44]

⑥ The trial decision's conclusion is that the subject invention and the cited invention are identical and thus the subject invention is not patentable under Article 29, Paragraph 1, Item 3 of the Patent Law. Such conclusion was based on the finding that the gel composition ratio in the alkaline reaction mixture overlapped with the range recognized in the earlier discussed decision (which was not disputed by the parties). If so, it is clear that when the effect of the subject invention, i.e., the degree of crystallization and w content (W/L content) of xeolite, is compared with that of the cited invention it must be recognizable that "no special effect is found as a result of the limitation on the range of the gel composition ratio in the alkaline reaction mixture applied by the subject invention."[45]

⑦ When the summary of the invention adopts the numerical limitation and the numerical range falls within the numerical range of a prior art invention, if

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42) Intellectual Property High Court 2014. September. 25. 平成 25(行ケ) No.10339

43) White crystalline disaccharide obtained from yeast or certain bacteria. Used as a substitute for sugar to bake cookies.

44) Tokyo High Court 2004. April. 28. 平成 13年(行ケ) No. 67

45) Tokyo High Court 2000. May 31. 平成 11年(行ケ) No. 158.

the numerical limitation is found to have special technical meaning, i.e., the numerical range has threshold value and shows a special and superior effect compared to prior art, the invention should be regarded as novel over the prior art.[46]

As discussed above, the Tokyo High Court's decisions ⑤, ⑥ and ⑦ considered the technical meaning of the numerical limitation in determining the novelty of numerical limitation inventions. However, Intellectual Property High Court decisions were not found to that effect, and rather, adopted a different point of view as shown in decision ③.

**3 ) Relevant Japanese court decisions**

A) If the prior art did not contain any numerical limitation or the scope was wide and overlapped with the numerical limitation in the claim at issue, novelty would be questioned but this alone would not be sufficient to deny novelty. If the overlapping range is recognized in the prior art only in an abstract manner, the subject invention may be regarded as a selection invention. If the prior art presents examples which specifically fall within the limited numerical range, novelty is denied notwithstanding the numerical limitation. Even when it does not fall specifically within the limited numerical range, if there is no great improvement, etc., inventiveness would be denied. Further, if no more than a natural connection is found, even if the specifically applicable matter is not disclosed, novelty should be denied for lack of selection.[47]

B) When the numerical range in a numerical limitation invention partially overlaps with publicly known technology (same in the case where it is included within the scope of the latter) and the other specified features of the inventions are identical, the recent trend of the JPO and the courts is not to immediately deny novelty based on the identity of the constitution but to recognize the possibility of a selection invention. Thus, the technical meaning

46) Tokyo High Court 2000. May 31. 平成 11年(行ケ) No.158

47) By 中山信弘 and 3 others (Translation by Korea Patent Law Society), Patent Court Decisions 100 (4th Ed.), "Recognizing Inventiveness of Numerical Limitation Inventions" (portion written by 松本直樹), PAKYOUNGSA (2014), 115.

of the numerical limitation for the overlapping portion is reviewed. Meanwhile, if even one of the examplesin the public reference is included in the numerical limitation invention, it has been a long-established practice to deny novelty without reviewing the technical meaning of the numerical limitation.[48]

C) (Mentioning Tokyo High Court decisions, etc.) when the numerical range of the subject invention is included within the numerical range disclosed in the cited inventions, novelty is not immediately denied simply based on the inclusion. Considering the technical meaning of the numerical limitation, if the effect of the numerical limitation is found to be qualitatively or quantitatively different from that of the cited invention, novelty is recognized. If the numerical range of the subject invention includes the numerical range disclosed in the cited invention, novelty is immediately denied.[49]

D) Court may find that the public example does not contain an express disclosure but contains an implied disclosure. It may have been possible to broadly recognize the disclosure if an undisclosed numerical limitation may be regarded as nothing more than "common technical knowledge" and thus as good as disclosed. The Intellectual Property High Court has not adopted such reasoning to date.[50]

### *E. Patent Cooperation Treaty*

Relevant portions of the PCT International Search and Preliminary Examination Guidelines[51] state as follows:

48) 竹田稔 (editorial) review, 特許審査・審判の法理と課題, 社團法人發明協會(2002), 307~308 (portion written by 梶崎弘一).

49) 竹田稔 (editorial) review, supra, 318~319 (portion written by 今村令英子).

51) Downloaded on Nov. 30, 2014.

52) [Translator's note: The original English language of the Guidelines reproduced here in the original Korean language article.]

**Factors considered in determining novelty**

**Methodology**

12.01 For the purposes of the opinion given by an international preliminary examination, the invention, as defined by a claim, lacks novelty if every element or step is explicitly or inherently disclosed within the prior art, including any features implicit to a person skilled in the art. Inherency requires that the extrinsic evidence relied on by the examiner must make clear that the missing descriptive matter is necessarily present in the reference, and that it would be so recognized by persons skilled in the art. Inherency, however, may not be established by probabilities or possibilities.[52] The mere fact that a certain thing may result from a given set of circumstances is not sufficient.

12.02 The prior art disclosure must enable a person skilled in the art to carry out the claimed invention. When determining whether a particular document is enabling and therefore defeats novelty, knowledge from outside the prior art document may be considered where appropriate. [The following two practices are presented in the Appendix:

① The prior document must provide a sufficient disclosure on the "relevant date" of the claim being searched or examined.Authorities following this practice require the prior document, together with knowledge generally available on the effective date of the document, to provide a sufficient disclosure of every element or step of the claimed invention to a person skilled in the art.

② Authorities following this practice consider knowledge that became available after the publication date of the prior document but before the relevant date of the claim being searched or examined to determine whether the prior document provided a sufficient disclosure of every element or step of the claimed invention to a person skilled in the art.]

12.03 For the assessment of novelty, the examiner should apply the following steps:

(iii) assess whether each and every element or step of the claimed invention was explicitly or inherently disclosed in combination by the document, to a person skilled in the art, on the date of publication of the document.

**Inherent or Implicit Disclosure**

12.04 Lack of novelty may be apparent from what is explicitly stated in a published document, or it may be apparent from an inherent or implicit teaching of the document.

Alternatively, lack of novelty may be implicit in the sense that, in carrying out the teaching of the prior document, the skilled person would inevitably arrive at a result falling within the terms of the claim.

**Generic vs. Specific Disclosures**

12.09 An item of prior art that discloses a genus does not always anticipate a claim to a species falling within the genus. In other words, if a claim under examination recites a specific example, and that specific example is not explicitly named but falls within a generic disclosure found in an item of prior art, the claim is not anticipated unless the specific example is identified with sufficient specificity in the item of prior art. If the item of prior art identifies the claimed example with sufficient specificity, that example lacks novelty no matter how many other species are additionally described in the item of prior art.

**Ranges**

12.10 A specific example in the item of prior art which is within a claimed range anticipates the range claimed. Where an item of prior art discloses a range which touches, overlaps or is within the claimed range, but does not disclose a specific example falling within the claimed range, a case by case determination must be made as to the novelty of the claim. In order to anticipate the claim, the claimed subject matter should be disclosed with sufficient specificity in the item of prior art. If the claim is directed to a narrow range, the item of prior art discloses a broad range, and the claimed narrow range is not merely one way of carrying out the teaching of the item of prior art (for example, there is evidence that the effect of the selection (for example, unexpected results) occurred in all probability only within the claimed narrow range), depending on the other facts of the case, it may be reasonable to conclude that the narrow range is not disclosed with sufficient specificity in the prior art in order to anticipate the claims (a selection invention). The unexpected results may also render the claims unobvious.

## 4. Comprehensive review

### *A. Whether "substantially identical" should be included as the basis for denying novelty*

U.S., EPO and the PCT take a stricter approach and does not recognize substantial identity as a basis for denying novelty. Japan also takes a similar position, additionally including only matters that may be regarded as equivalent to those disclosed in the prior art by a POSITA considering common technical knowledge.

Meanwhile, Korea's Supreme Court and Korean Intellectual Property Office adopted a broader view, including the concept of "substantial identity" as in the case of expanded first to file applications …. As discussed above, the Subject Decision adopted the concept of "substantial identity" by concluded novelty is denied when the numerical limitation is not specifically disclosed in the publicly known invention if it is no more than well-known/commonly used means that can be appropriately selected by a POSITA and no new effect is achieved (View2), not only when the numerical range is specifically disclosed in the prior art reference (View 1).

Considering, however, that numericals are always inherently present in the constitution of prior art references to which numerical limitations apply; the use of well-known/commonly used means are limited to cases where it achieves no new effect; well-known/commonly used means are also a type of common technical knowledge, etc., it would be very rare for a numerical range according to a numerical limitation invention to be regarded as a well-known/commonly used means,in the case where it is not directly recognizable from the descriptions in the prior art or the common technical knowledge at the time of filing. As such, it does not seem significantly different from the position taken by the US, EPO, Japan, etc., that allows inherent disclosures recognized based on common technical knowledge.

### *B. Disclosures in prior art*

Indetermining the technical content disclosed in prior art, Korea, U.S. and Japan consider the common technical knowledge at the time of filing, the EPO considers the technical knowledge at the time the prior art references were

published. The PCT states in the alternative that the common technical knowledge at the time of the disclosure of the prior art reference or the filing of the subject patent, may be considered.

Further, Korea, U.S., Japan, EPO and the PCT all recognize inherent or implicit disclosure. U.S. and the PCT recognize inherent disclosure of element if the element in fact exists in the prior art reference and if it would be so recognized by persons of ordinary skill/skilled in the art. The EPO's "directly and unambiguously derivable" and Japan's "equivalents to matters disclosed in the publication" appear to describe similar positions, although worded differently.

The standard used by Korean courts with respect to selection inventions or numerical limitation inventions, i.e. "if the existence of the selection invention (the numerical limitation in the numerical invention) recognizable directly from a prior art reference based on the description in the prior art reference and the common technical knowledge at the time of filing" (Standard 1-2) also does not appear to be significantly different, as it seems to recognize implicit disclosure of an element if a POSITA can immediately recognize the existence of the element based on the disclosure in the prior art reference and the common technical knowledge, assuming the disputed element in fact exists in the prior art reference.

### *C. Sufficient or specific disclosure of selection inventions*

Korea, U.S., Japan, EPO and the PCT all deny novelty when prior art sufficiently and specifically discloses the selection invention (Standard 1).

What does it mean to sufficiently or specifically disclose a numerical range in a numerical limitation invention.

First, Korea, U.S., EPO, Japan and the PCT all find specific disclosure and deny novelty in cases where the prior art discloses an example that falls within the numerical range prescribed by a numerical limitation invention.

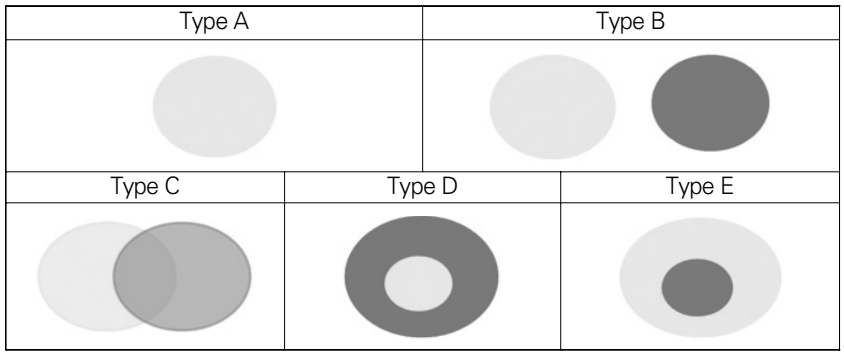
As for other forms of specific disclosure, the following explanation according to View 1 is helpful in understanding the general concept.

According to the legal principle set forth in the Subject Decision, the novelty of each type of numerical limitation inventions (light gray refers to the numerical range according to a numerical limitation invention, darker gray refers to the numerical range disclosed in prior art) would be determined as follows:

1) For types A and B, there cannot be a case where the numericals in a numerical limitation invention are specifically disclosed in prior art, so the novelty cannot be denied based on specific disclosure. Novelty is denied, however, if the numerical limitation is merely a well-known/commonly used means and does not achieve any different effect.

2) Meanwhile, as for type E, the numericals in a numerical limitation invention would be inevitably disclosed in prior art, and thus, its novelty is always denied.

3) Meanwhile, as for types C and D, novelty should be determined by whether there is specific disclosure of the numericals (or a subset of the numerical) in the numerical limitation invention. As in the case with types A and B, even if the numerical range is not specifically disclosed in prior art if the numerical limitation is merely a well-known/commonly used means and does not achieve any different effect, its novelty would be denied. [Such case, however, would be rare because if a numerical limitation is merely a well-known/commonly used means, such numericals (at least some of them) should be regarded as specifically disclosed in prior art.]



View 1 finds that a numerical limitation invention is disclosed in prior art when a numerical range disclosed in prior art falls within a numerical range according to the numerical limitation invention (Type E). Accordingly, specific disclosure will be found in Types C and D as well, if the prior art discloses as a preferred example a numerical range that is included within a numerical range disclosed in a numerical limitation invention.

In other countries, the EPO, for example, denies novelty by finding specific disclosure when an end value or an intermediate value is clearly mentioned in type C and such value falls within the numerical range according to the numerical limitation invention (T 1740/10 decision found that novelty was lacking when a numerical limitation invention related to a device for emitting light having a wavelength of 600~640nm and the prior art, 600nm.)

Meanwhile, the U.S. takes the position that "the disclosure of a range is not a disclosure of each mid-point within the range, and thus, not the disclosure of the end points. [In Atofina v. Great Lakes Chem. Corp., the court concluded that the novelty of the claimed temperature range of 330~450℃ is not denied by prior art disclosing temperatures 100~500℃ or preferably 150~350℃ (Type C).]

Further, the Japanese Intellectual Property High Court 平成 Year 25 (行ケ) Decision No.10339 ruled that in a Type D case where the acetic acid vinyl acid content in an ethylene/acetic acid vinyl copolymer was 20 to 36wt% according to a numerical limitation invention, and the prior art disclosed acetic acid vinyl content of 10 to 50wt%, preferably 15 to 40 wt%, they two inventions were identical in the range of 20 to 36wt%.

It is difficult to draw a general conclusion as the specific cases discussed above involved different technical fields or subjects of numerical limitations, but while the EPO, US and Japan have identical/similar standards involving sufficient or specific disclosure, the specific application of such standard different somewhat in practice.

It appears from the foregoing that specific or sufficient disclosure of numerical ranges should be determined, as set forth in the EPO's Examination Guideline, by going back to the circumstances that triggered the concept of specific disclosure, and considering on a case-by-case basis the unique features of the relevant technical field and determining whether a POSITA would seriously contemplate the application of such numerical range.

Focusing on Types C and D, in addition to cases where the prior art discloses

examples or numerical ranges falling within the numerical range according to a numerical limitation, the following cases would be regarded as specific disclosures. First, in the absence of special circumstances, numerical limitations would involve some deviation, although details may vary depending on the technical field. As such, if each of the end points of the ranges disclosed in the numerical limitation invention and the prior art are not sufficiently apart from each other to overcome such deviation, they should be regarded as disclosing substantially identical numerical ranges. Further, even if the foregoing condition is met, if there are only a limited number of alternatives within the numerical range disclosed in the prior art due to the unit or method of the numerical limitation, the entire numerical range may be regarded as specifically disclosed. Furthermore, if the prior art describes the effect as being superior towards one of the lower or higher end of the numerical range, the end point toward which the effect becomes superior would be regarded as specifically disclosed.

In other words, after considering various circumstances customarily considered by a POSITA in applying numerical, such as the unique features and common knowledge in the technical field of the prior art, technical meaning of the numerical range, nature of the upper and lower limits, deviations or errors accompanying the numerical limitation, unit and method for the numerical limitation, etc., if it appears that a POSITA would have seriously contemplated the application of numericals within the numerical limitation invention, the numerical range according to the numerical limitation invention is deemed specifically disclosed.

### *D. Requirements regarding enablement of prior art disclosure*

In relation to the enablement of technical disclosures in prior art references, the U.S. and Japan require that a POSITA should be able to practice the invention at the time the subject patent application was filed, without undue experimentation (Japan allows consideration of the common technical knowledge at the time of filing). The EPO requires that a prior art be enabled to be practiced by taking into consideration the common technical knowledge at the time the prior art was published. The PCT states that technical disclosures in prior art references should be enabled based on the common technical knowledge at the time of the publication of the prior art or the filing of the

subject patent application.

Korea's previous KIPO Examination Guidelines require that prior art inventions be enabled as of the filing date.

Technical disclosures in prior art references that cannot be practiced by a POSITA based on the common technical knowledge at the time the subject patent application filed cannot be said to have been fully in the public domain. Therefore, they cannot be used as grounds for denying novelty.[53)]

### *E. Overview of legal principles regarding novelty of numerical limitation inventions*

According to the legal principle set forth in the Subject Decision, novelty would be determined by considering whether the numerical range in the numerical limitation invention was specifically disclosed in prior art, etc., without having to consider the technical meaning of the numerical range, similar

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53) In this regard, the Supreme Court has issued the following decisions: ① Supreme Court Decision Dec. 23, 1997 No. 97Hu433 "an idea described in publications under Article 5, Paragraph 1, Item 2 of the previous Utility Model Law (Law No. 4209 enacted Jan. 13, 1990, prior to its amendment) refers to ideas of which the content is described in the publication, i.e., described to enable a POSITA to easily practice the invention based on such description. As such, an idea is regarded as described in publications only when its constitution is disclosed. For example, if only the outer appearance is disclosed in a photograph when the unique features are hidden inside, the idea is not regarded as described." ② Supreme Court Decision Dec. 8 2002 98Hu270: "the reference provided for determining novelty or inventiveness of an idea or the idea itself must be clearly described in terms of their entire technical constitution, and even if the description is insufficient due to the incompleteness of the invention (idea) or lack of supporting materials, if a POSITA could very easily understand the technical content based on his experience, it may qualify. (First part) A POSITA would have been able to understand the technical content very easily based on his experience by combining the explanation in the drawing(s) and the explanation provided in the catalogue Plaintiff's Exhibit 4. Thus, Plaintiff's Exhibit 4discloses the technical content sufficiently to enable a POSITA to easily practice in accordance with the description. (Last part) The lower court correctly decided indetermining the novelty of the subject registered utility model that the cited utility model described inPlaintiff's Exhibit 4 qualifies as a prior art reference." In later decisions, the Supreme Court's legal principle in the former part of the decision in the First part of ② was repeated (Supreme Court Decision Feb. 14, 2013 No. 2012Hu146; Supreme Court Decision June 14, 2012 No. 2012Hu320, etc.) but the legal principle in the last part of the decision in the Last part of ② or the legal principle set for in decision ① were not reproduced in any later decision. Therefore, it cannot be concluded that the Supreme Court requires enabling disclosure in relation to technical disclosures in prior art references.

to the way inventiveness was determined.

Sometimes the effect of the numerical limitation is reviewed in order to determine pursuant to Standard 2 whether the numerical limitation is merely a well-known/commonly used means that can be appropriately selected by a POSITA and achieves no different effect. It does not mean the effect of the numerical limitation invention is compared with that of the prior art. Rather, the effect of the prior art invention without the numerical limitation is compared with that of the prior art invention with the numerical limitation.

Further, the "numerical limitation" in Standard 2 may be categorized as a simple "numerical limitation" that, according to the legal principles regarding inventiveness, can be selected by a POSITA through conventional and repeated experimentation and does not generate a quantitatively superior or qualitatively different effect. There is a difference, however, that the numerical limitation should be a well-known/commonly used means. Even when the optimization or improvement of the numerical range is regarded as falling within the scope of ordinary creativity of a POSITA, numerical ranges obtained through such optimization/improvement would not always be regarded as a well-known/commonly used means. Therefore, a numerical range should first be recognized as widely known and used in order to be used as a ground for denying novelty.

As for the supplement Standard 3, View 2 adopts the standard for determining novelty of selection inventions as well as the standard for determining inventiveness (qualitatively different effect, etc.), resulting in a legal principle that is not different from the standard for determining inventiveness of numerical limitation inventions. As View 1 correctly notes, Standard 3 is a principle specifically relating to the circumstances of the Subject Decision, and it should be regarded as a statement noting that the invention according to claim 1 of the Subject Patent Application achieved a different effect that not only establishes novelty but inventiveness as well. It should not be interpreted as adopting the legal principle for determining inventiveness of selection inventions or numerical limitation inventions for novelty of numerical limitation inventions.

## III. CONCLUSION

The Subject Decision is meaningful in that it has clearly established the legal principle for determining novelty of numerical limitation inventions. I hope to see various cases in the future to more specifically address and further specify the legal principle prescribed in the Subject Decision and continue an active discussion on this issue.

# Distinctiveness in the Composite Trademarks

**Hyunjin CHANG***

## 1. Introduction

Article 6(1) of the Trademark Act provides that trademark registration may be granted to marks other than generic marks (subparagraph 1); customary marks (subparagraph 2), descriptive marks (subparagraph 3), conspicuous geographical names (subparagraph 4), common surnames or names (subparagraph 5), simple and commonplace signs (subparagraph 6) and any other marks lacking any identifying power (subparagraph 7). Trademarks are marks used to identify goods related to one's own business from other goods and thus have to have distinctive power telling one's own goods from other goods and each subparagraph of the foregoing provision is understood to list marks that lack distinctive power.

Requiring distinctiveness for a trademark to be registrable is the same under the foreign legal system but the Korean trademark examination criteria and court cases have applied strict standards to distinctiveness of claimed trademarks and accordingly, trademarks registered overseas have been frequently rejected in Korea.[1] The Korean examination criteria and court cases require that composite trademarks consisting of marks lacking distinctive power to generate new concept or new distinctive power and strictly interpret and apply such requirement, and further, the standards of distinctive power acquired from use are high so that such requirement functions as an obstacle to application and registration of marks in Korea.

However, as the number of trademarks increases and words favored for connection with image of goods are limited, selection of words usable as

*Judge, the Patent Court of Korea.

1) According to the Patent Court's decisions rejecting trademark registration rendered after 2010, in 38 cases among 55 cases in which the court rejected claims for lacking distinctiveness with respect to trademarks including English letters for which registration is sought, the plaintiffs asserted that the claimed trademarks were registered in foreign countries.

trademarks in the industry becomes narrower and therefore, the world tends to widely acknowledge distinctive power with respect to composite trademarks.

Below, I will review whether the Korean practices are still proper in examining distinctive power of composite trademarks in light of the change in circumstances surrounding trademarks and try to seek new criteria of judging distinctiveness.

## 2. Article 6(1) of the Trademark Act and the Distinctiveness

### *A. History of Article 6(1) of the Trademark Act*

The enacted Trademark Act (Law No. 71, November 28, 1949) provides in its Article 5(1) that trademarks which are not registrable include marks the same with or similar to marks widely and customarily used for the same type of goods (subparagraph 5), marks only descriptive of nature of the goods or picturing the goods on which the marks will be used (subparagraph 6) and marks consisting solely of conspicuous geographical names, drawings, abbreviations or symbols (subparagraph 7). The Trademark Act was amended in its entirety in 1973 (Law No. 2506, February 8, 1973), providing for the trademark registration requirements and trademarks which are not registrable as the same with the current act and provides in Article 8(1), subparagraphs 1 to 7 for trademarks which are not distinctive and in newly inserted Article 8(2), acquisition of distinctiveness from use of marks. The provisions are changed currently to Article 6 of the Trademark Act amended in its entirety in 1990 (Law No. 4210, January 13, 1990).

### *B. Structure of Article 6(1) of the Trademark Act*

Article 6(1) of the Trademark Act provides, "trademark registration may be granted, except a trademark falling under any of the following subparagraphs", allowing trademark registration unless the trademark is one of those listed in each subparagraph and provides for a very limited list of marks lacking distinctiveness in each subparagraph that are 'any trademark consisting solely of a mark indicating in a common way the ordinary name of the goods' (subparagraph 1), any trademark consisting solely of a mark indicating in a common way the origin, etc. of the goods (subparagraph 3), any trademark

consisting solely of a conspicuous geographical name, the abbreviation thereof or a map (subparagraph 4), any trademark consisting solely of a mark indicating in a common way a common surname or name (subparagraph 5) and any trademark consisting solely of a simple and ordinary mark (subparagraph 6) and on the other hand, in subparagraph 7, provides for any trademark, other than those as referred to in subparagraphs 1 through 6, which does not enable consumers to recognize whose goods it indicates in connection with a person's business (subparagraph 7), that is, marks lacking distinctiveness.

The foregoing provision provides for trademarks consisting solely of a mark but with respect to the provision, the court has held, "even if a trademark consisting solely of a descriptive mark of a product is combined by a conspicuous letter, symbol or shape, etc., if such letter, symbol or shape, etc. is just incidental or auxiliary or as a whole, recognized as a descriptive label, such trademark shall be seen a trademark consisting solely of a descriptive mark under Article 8(1)3 of the old Trademark Act"[2] or "even if a conspicuous geographical name, etc. is combined with a customary mark, description of type of business or a descriptive mark, etc. lacking distinctive power, only the combination of a geographical name and a customary mark, etc. cannot be seen to give rise to a new distinctiveness unless the words comprising the mark generate a new concept away from the original geographical name, customary mark, description of type of business or descriptive meaning or coin entirely new words, and then in this case, the provision the provision of Article 8(1)4 of the old Trademark Act is not precluded'[3], expanding application of the provision for trademarks consisting solely of marks in each subparagraph to the composite trademarks.

Further, Article 6(1), subparagraphs 1 to 6 of the Trademark Act lists trademarks lacking distinctiveness as examples, and thus if a trademark, even though it does not fall within the foregoing provision, lacks distinctiveness or it is not proper to allow a person to exclusively own the trademark in light of the public interest, trademark registration is denied as 'a mark lacking distinctiveness' under Article 6(1) 7 of the Trademark Act.[4]

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2) Supreme Court Decision 90Hu465 (January 25, 1991).

3) Supreme Court Decision 2000Hu181 (April 26, 2002).

4) Practice of Intellectual Property Litigation, edition 3 (2014), page 533, Intellectual Property Litigation Practice Study of the Patent Court

### *C. Distinctiveness*

As to whether a trademark is considered distinctive, there are several judging standards: (i) appearance of a trademark should tell one's own goods from other goods in the trade, (ii) one's own goods and other goods should be identified and their sources should be identified in the trade and (iii) it should not be seen unfair to grant exclusive right to a certain person considering composition of a trademark, descriptive power of goods and a competitor's necessity for free use, etc.[5), 6)]

The court cases[7)] have understood the distinctive power as a concept all-inclusive of identifying power of one's own goods from other goods and properness of exclusivity by holding as to denial of trademark registration under each subparagraph of Article 6(1) of the Trademark Act that 'such a mark is necessary in the ordinary course of logistics of goods and thus anyone needs and desires to use the mark and thus such mark cannot be allowed to be used exclusively by a certain person considering the public interest and if such mark is allowed as a trademark, it is difficult to identify one's own goods from the same type of other goods'.

## 3. Distinctiveness of the Composite Trademarks

### *A. Korean Practices*

Court cases as to distinctiveness of composite trademarks have held, 'if a trademark is recognized as a conspicuous geographical name, the trademark falls under Article 8(1)4 of the Trademark Act'[8)] or 'auxiliary shapes added to the trademark are not sufficient to grant special conspicuousness from overall

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5) Trademark Act, edition 2 (2014), pages 203-204, Sun-hee Yoon

6) Marks like generic names or customary marks which cannot essentially indicate source of one's own goods and other goods are seen as a matter of 'narrow distinctive power' and in case of marks like a conspicuous geographical name, etc. that are essentially indicative of sources but competitors or consumers need to freely use in respect of the relevant goods making it unfair to grant exclusive right to a certain person, 'broad distinctive power' standards are applied (*Distinctive Power of Trademarks and New Approaches Thereto*, Jong-shik Choi, Intellectual Property 21, Issue No. 99 (April 2007), page 189).

7) Supreme Court Decision 2002Hu1140 (August 16, 2004) and other decisions.

8) Supreme Court Decision 82Hu33 ( January 24, 1984).

observation of the trademark and the trademark as a whole is just a descriptive mark'.[9] Then Supreme Court Decision 90Hu465[10], January 25, 1991 made the criteria more specific by holding that "even if a trademark consisting solely of quality mark is combined by a letter, symbol or shape, etc. having special conspicuousness, if such letter, symbol or shape is only incidental or auxiliary or the trademark is recognized as a descriptive mark of quality from the overall observation, such trademark shall be deemed a trademark consisting solely of quality description under Article 8(1)3 of the old Trademark Act." Supreme Court Decision 98Hu1518, November 26, 1999[11] making the criteria more stringent held that 'even if a conspicuous geographical name, etc. is combined with a customary mark, description of type of business or a descriptive mark, etc. lacking distinctive power, only the combination of a geographical name and a customary mark, etc. cannot be seen to give rise to a new distinctiveness unless the words comprising the mark generate a new concept away from the original geographical name, customary mark, description of type of business or descriptive meaning or coin entirely new words', and then with respect to composite trademarks composed of marks lacking distinctive power under Article 6(1) of the Trademark Act, the court cases have consistently denied distinctive power pursuant to each subparagraph of Article 6(1) of the Trademark Act unless 'the combination generates a new concept away from the original conspicuous geographical name or descriptive meaning or builds new distinctive power'.[12]

Such attitude of the court cases is reflected upon the examination criteria of the Korean Intellectual Property Office ("KIPO") under which trademarks consisting solely of marks lacking distinctive power are deemed distinctive when such combination results in a new concept or builds new distinctive power (Trademark Examination Criteria 8.1.1), even if generic names are combined

9) Supreme Court Decision 84Hu37 (February 24, 1987).

10) With respect to composite trademarks "THE FINE ART OF FLYING" and "AIR FRANCE" of which registration was sought for freight transportation service, etc. as designated goods, the court held that the former is a descriptive mark and the latter, incidental and thus descriptive as a whole.

11) The same case with Supreme Court Decision 2000Hu181 (April 26, 2002) on the distinctive power of registered mark "(주)코리아리서어치 + KOREA RESEARCH CO., LTD."

12) Supreme Court Decisions 2010Hu3226 (March 10, 2011) and 2011Hu958 (December 13, 2012), etc.

with other distinctive letters, symbols or shapes, etc., if such combined parts are only incidental or auxiliary to the entire composition of trademarks or are recognized as trademarks descriptive of nature including quality in the overall view, distinctiveness is not acknowledged, and if distinctive parts such as shapes, etc. among the entire composition of trademarks do not surpass generic names, etc., the combined parts shall be deemed incidental or auxiliary (Trademark Examination Criteria 1.2.2).

## *B. Foreign Enactments and Court Cases*

### 1 ) U.S.A.

#### A) Trademark Law

Article 2 of the Lanham Act (the U.S. Federal Trademark Law) provides, "no trademark by which the goods of the applicant may be distinguished from the goods of others shall be refused registration on the principal register on account of its nature except in case falling under each of the following subparagraphs" and provides in paragraph (e) that trademark which consists of marks that are merely descriptive, primarily geographically descriptive, merely a surname or functional as a whole is not registrable.[13)]

#### B) Descriptive v. Suggestive

In telling which trademarks are descriptive or suggestive, the U.S. court has applied (i) imagination test by which a trademark is seen suggestive when much imagination is needed considering how much imagination general consumers need to extract direct information of the relevant goods by looking at the trademark, (ii) competitor's need test by which a trademark is seen suggestive if

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13) 15 U.S.C §1052

No trademark by which the goods of the applicant may be distinguished from the goods of others shall be refused registration on the principal register on account of its nature unless it? (e) Consists of a mark which (1) when used on or in connection with the goods of the applicant is merely descriptive or deceptively misdescriptive of them, (2) when used on or in connection with the goods of the applicant is primarily geographically descriptive of them, except as indications of regional origin may be registrable under section 1054 of this title, (3) when used on or in connection with the goods of the applicant is primarily geographically deceptively misdescriptive of them, (4) is primarily merely a surname, or (5) comprises any matter that, as a whole, is functional.

there is rare connection between the trademark and the relevant products or there are many choices of trademarks and thus competitors have rare need to use the trademark to describe their products and (iii) competitor's use test to see whether a competitor has used the trademark to describe the same or similar products in the trade.[14), 15)]

### C) Distinctiveness of Composite Trademarks

In the U.S. practice, trademarks combining several descriptive but not distinctive words are not denied of their distinctive power in principle and as a whole, if descriptive meaning of a designated product is not felt, the distinctiveness is accepted.[16)]

The USPTO's Trademark Examination Criteria says that 'when two descriptive words are combined, judgment as to whether the combined marks have descriptive meaning depends on whether such combination of words gives a new and unique commercial image. If each component maintains descriptive meaning of the relevant products or service, combination itself becomes descriptive. However, if combination of words creates a simple mark

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14) Zatarains, Inc. v. Oak Grove Smokehouse, Inc., 698 F.2d 786, 217 U.S.P.Q. 988 (5th Cir. 1983); McCarthy, McCarthy on Trademarks and Unfair Competition, 4th Edition §11:51

15) Practice of Judging Distinctiveness of Composite Trademarks under the U.S. Court Decisions and Trial Decisions, Tae-ho Jung, Invention Patent Vol. 37, Issue No. 10 (October 2012) page 39: Examples cases of deeming marks suggestive include 'King Size' (King-Size, Inc. v. Frank's King Size Clothes, Inc., 547 F.Supp. 1138)(S.D.Tex.1982) of a tailor shop business for tall and big men, www.firstjewelry.com for internet jewelry shop business (First Jewellery, Inc. v. Internet Shopping Network, 53 U.S.P.Q.2d 1838)(S.D.N.Y.2000), "The Money Store" case for money lending service (Money Store v. Harriscorp Finanee, Inc., 689 F.2d 666) (7th Cir.1982) and "Pizza Rolls" case for snack rolls of pizza flavor (Jeno's, Inc. v. Commissioner of Patents and Trademarks of the U.S., 227 U.S.P.Q. 227)(D.Minn.1985).

16) Ibid., pages 37 and 38: Court decisions on composite trademarks such as In re Wells Fargo & Co., 231 U.S.P.Q. 116(T.T.A.B. 1986) acknowledging distinctiveness of service mark "EXPRESS SAVINGS" for banking service, In re Warner Electric Brake & Clutch Co., 154 U.S.P.Q. 328 (T.T.A.B. 1967) acknowledging distinctive power of "ELECTRO-MODULE" for electro-magnetic brakes, Minnesota Mining & Mfg. Co. v. Johnson & Johnson, 454 F.2d 1179, 172 U.S.P.Q. 491 (C.C.P.A. 1972) (Baldwin, J. concurring) acknowledging distinctive power of "SKINVISIBLE" for transparent adhesive tape of medical and surgical use, and Firestone Tire & Rubber Co. v. Goodyear Tire & Rubber Co., 186 U.S.P.Q. 557 (T.T.A.B. 1975), aff'd, 189 U.S.P.Q. 348 (C.C.P.A. 1976) acknowledging distinctive power of "BIASTEEL" for steel belted bias tires (tires made of steel strengthened by metal belt).

which is unique and not descriptive or if the combined marks apply to the products and have a unique and unrecognizable meaning, even the marks consisting of simple descriptive components can be registered. If there is evidence that the combined marks themselves are jointly used to form the descriptive expression of the product or service, there is no need to analyze the respective components.'[17]

**2) Germany/EU**

A) Trademark Act

Article 8(2) of the German Trademark Act provides, '1) trademarks with no distinctive power with respect to products or services, 2) trademarks consisting solely of signs or marks that are descriptive of nature, characteristics, number, use, value, geographical source, manufacturing date, provision of service or any other characteristics of products or services in the trade and 3) trademarks consisting solely of signs or marks which became routine for description of products or services due to general use of language or faithful and continuous trading customs' are not allowed to be registered.[18]

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17) TMEP 1209.03(d) Combined Terms

When two descriptive terms are combined, the determination of whether the composite mark also has a descriptive significance turns upon the question of whether the combination of terms evokes a new and unique commercial impression. If each component retains its descriptive significance in relation to the goods or services, the combination results in a composite that is itself descriptive. However, a mark comprising a combination of merely descriptive components is registrable if the combination of terms creates a unitary mark with a unique, nondescriptive meaning, or if the composite has a bizarre or incongruous meaning as applied to the goods. Then there is evidence that the composite mark itself has been used together to form a phrase that is descriptive of the goods or services, it is unnecessary to engage in an analysis of each individual component.

18) Sec 8. (2) The following shall not be registered:

1. trademarks which are devoid of distinctive character with respect to the goods or services;
2. trademarks which consist exclusively of signs or indications which may serve, in trade, to designate the kind, quality, quantity, intended purpose, value, geographical origin, the time of production of the goods or of the rendering of the services, or to designate other characteristics of the goods or services;
3. trademarks which consist exclusively of signs or indications which have become customary in the current language or in the bona fide and established practices of the trade for designating foods or services;

(http://bundesrecht.juris.de/markeng/)

Article 7(1) of the EU Trademark Act does not permit trademark registration when the trademarks are (b) not distinctive at all, (c) composed solely of marks describing type, quality, quantity, purpose, effect and origin of products or services or indicating characteristics of products or services or (d) composed solely of customary marks in the current language or in the trading practices established in good faith.[19)]

### B) Distinctiveness of Composite Trademarks

German court cases held that if a competitor's need for free use cannot be specifically accepted as a ground for judging whether claimed trademarks are distinctive, trademark registration cannot be rejected only by abstract possibility of a competitor's need for free use thereof. In the past, such possibility was also considered in considering whether there is a need for free use in the future but in the case of "**CAPRI-SONNE**", the court held 'in the island of Capri, tangerines have not been grown sufficiently to product sufficient fruit juice drink and such growing is not possible in the future and thus necessity for free use is difficult to be recognized' and thereafter, distinctiveness is determined considering whether there is necessity for free use in practice.[20)]

The Community Trademark and Design Court (CFI)[21)] has seen a descriptive mark combined with another mark which is not itself descriptive as distinctive

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19) COUNCIL REGULATION (EC) No 207/2009
Article 7 Absolute grounds for refusal
1. The following shall not be registered:
(b) trade marks which are devoid of any distinctive character;
(c) trade marks which consist exclusively of signs or indications which may serve, in trade, to designate the kind, quality, quantity, intended purpose, value, geographical origin or the time of production of the goods or of rendering of the service, or other characteristics of the goods or service;
(d) trade marks which consist exclusively of signs or indications which have become customary in the current language or in the bona fide and established practices of the trade;
(https://oami.europa.eu/tunnel-web/secure/webdav/guest/document_library/contentPdfs/law_and_practice/ctm_legal_basis/ctmr_en.pdf)

20) Distinctiveness and Need for Free Use of a Trademark, Jong-shik Choi, Korea University Law School (2007), pages 63-67.

21) The examples are quoted from Research on Establishment of the Examination Criteria of Trademarks Composed Solely of Marks Lacking Distinctiveness, Tae-ho Jung, Graduate School of Korea University (2009).

as a whole in principle as it held with respect to mark "**DOUBLEMINT**"[22] for cosmetics, etc. as designated products distinctive since the mark can be interpreted as 'double mint flavor' or 'various mint flavors', etc., not making consumers sense the nature of the designated products but being a suggestive coined mark and with respect to mark "**EUROCOOL**"[23] for storage and preservation of cold and frozen products as designated service, held that examination of the trademark by disassembling and observing the components was a mistake and the mark is suggestive and distinctive trademark to give consumers positive image as a whole inducing repetitive purchase. However, the trademark combining descriptive marks alone is acknowledged to be distinctive if it is a syntactically unique juxtaposition, uniquely coined or generates meaning beyond the combination of its components.[24]

### 3) Japan

#### A) Trademark Act

Each subparagraph of Article 3(1) of the Japanese Trademark Act has similar provisions with the Korean provisions with respect to distinctiveness of trademarks (except for subparagraph 4 in respect of conspicuous geographical names).[25]

On the other hand, with respect to the intent of Article 3(1)6 of the Japanese Trademark Act equivalent to Article 6(1)7 of the Korean Trademark Act, the

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22) CFI, T-193/99, 31 January 2001

23) CFI, T-34/00, 27 February 2002

24) Guidelines for Examination in the OHIM on Community Trademarks Part B sec

25) 第三条　自己の業務に係る商品又は役務について使用をする商標については、次に掲げる商標を除き、商標登録を受けることができる。(Article 3 Any trademark to be used in connection with goods or services pertaining to the business of an applicant may be registered, unless the trademark:)

一　その商品又は役務の普通名称を普通に用いられる方法で表示する標章のみからなる商標

(i) consists solely of a mark indicating, in a common manner, the common name of the goods or services;

二　その商品又は役務について慣用されている商標

(ii) is customarily used in connection with the goods or services;

三　その商品の産地、販売地、品質、原材料、効能、用途、数量、形状(包装の形状を含む。)、価格若しくは生産若しくは使用の方法若しくは時期又はその役務の提供の場所、質、提供の用に供する物、効能、用途、数量、態様、価格若しくは提供の方法若しくは時期を普通に用いられる方法で表示する標章のみからなる商標

conventional view is that the provision of subparagraph (6) is a general comprehensive and basic provision whereas the provisions of subparagraphs (1) to (5) are example listing provisions[26] but in practice, in applying the provisions of subparagraphs (1) to (5), both identifying power between one's own products and other products and a competitor's need for free use are considered but in applying subparagraph (6), the identifying power of one's own products from other products is only considered.[27]

### B) Distinctiveness of Composite Trademarks

The Japanese Trademark Act has a structure of trademarks consisting 'solely of _____' but with respect to composite trademarks consisting of marks that lack distinctiveness, each subparagraphs is applied to deem that if indistinctive mark forms the major recognizable part with letters or shapes, etc. simply added or incidentally affixed thereto, making the trademark as a whole as indistinctive, the trademark is generally seen indistinctive in common theory and court cases.[28]

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(iii) consists solely of a mark indicating, in a common manner, in the case of goods, the place of origin, place of sale, quality, raw materials, efficacy, intended purpose, quantity, shape (including shape of packages), price, the method or time of production or use, or, in the case of services, the location of provision, quality, articles to be used in such provision, efficacy, intended purpose, quantity, modes, price or method or time of provision;

四　ありふれた氏又は名称を普通に用いられる方法で表示する標章のみからなる商標

(iv) consists solely of a mark indicating, in a common manner, a common surname or name of a juridical person;

五　極めて簡単で、かつ、ありふれた標章のみからなる商標

(v) consists solely of a very simple and common mark; or

六　前各号に掲げるもののほか、需要者が何人かの業務に係る商品又は役務であることを認識することができない商標

(vi) is in addition to those listed in each of the preceding items, a trademark by which consumers are not able to recognize the goods or services as those pertaining to a business of a particular person.

(http://www.japaneselawtranslation.go.jp/law/detail/?id=45&vm=04&re=01)

26) Ibid, Tae-ho Jung, (Note 21), page 94

27) Ibid, Tae-ho Jung (Note 21), Page 124, Decision 知財高載 平成17年(2005) 10714号 held that the trial decision did mistake by mentioning the public interest other than distinguishing power between one's own products and others while deeming trademark "citric acid cycle" for meat products, etc. as designated products as falling under subparagraph 6.

28) Ibid, Tae-ho Jung (Note 21), page 91

However, in specific cases[29], with respect to trademark "森田ゴルフ株式会社" combining a geographical name and a name of type of business, its distinctiveness is acknowledged as it is not recurrent in general[30], and with respect to trademark "728 TEX" combining generic name of fabrics and number 728, differently from the trial decision that does not acknowledge distinctiveness, the trademark was observed as a whole and then number 728 was deemed to allow recollection of the business name of the trademark user and the number has not been routinely used and thus the trademark has distinctiveness.[31] Composite trademarks are observed as a whole and judged as to their distinctiveness.

## *C. Criteria of the Distinctiveness of Composite Trademarks and Problems Thereof*

**1) Cases determining the distinctiveness of composite trademarks:[32]**

(i) With respect to the claimed trademark " 

" of which designated product is coffee, the first-trial court denied its distinctiveness pursuant to subparagraph 4 since the trademark is a combination of a geographical name 'GEORGIA' and a shape of coffee cup that has no distinctive power of coffee and thus will be recognized as a geographical name "GEORGIA" and the first-trial court decision was upheld[33]; (ii) with respect to the trademark "**SUPER8**" of which designated product is hotel business, its distinctiveness was denied pursuant to subparagraph 7 because it is a combination of a descriptive mark 'Super' meaning the highest class and simple and frequent number 8 and thus does not result in a new concept or build new distinctiveness;[34] (iii) with respect to trademark "**GENECHIP**" of which designated product is medical diagnostic test kit, etc., the trademark is coined words which are not enlisted in the dictionary but it is a combination of "GENE" meaning genes and "CHIP"

29) Mentioned examples are quoted from the same article by Tae-ho Jung (Note 21), pages 102 and 110.

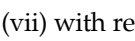
30) 平成7年6月13日 東京高平成6年 第180号 判例速報242-6885

31) 東高判 昭和34年7月14日 昭和32年 34(取270)

32) All the trademarks were alleged to have been registered in multiple foreign countries.

33) Supreme Court Decision 2001Hu958 (December 13, 2012).

34) Supreme Court Decision 2010Hu3226 (March 10, 2011).

meaning semiconductor pieces to be easily sensed and recognized by consumers and the trade as "diagnostic reagent or diagnostic equipment using or utilizing gene chips" and thus is just a descriptive mark;[35] (iv) with respect to trademark "**Q-LAB**" of which designated product is material inspection service, it is not distinctive pursuant to subparagraphs 3 or 6 since it is a combination of "Q", a simple and frequent mark and "Lab", an abbreviation meaning a laboratory which has no distinctive power since material inspection service is usually conducted in a laboratory, etc. and thus lacks distinctiveness in respect of the materials inspection service,[36] (v) with respect to "**GPSONE**" of which designated goods are wireless phone GPS software, etc., its distinctiveness is denied pursuant to subparagraph 7 by the reason that it is a combination of "GPS", an abbreviation of global positioning system that lacks distinctiveness of the designated goods and "ONE", very simple and frequent mark, and the combination does not build a new concept[37]; (vi) with respect to "  " of which designated product is cosmetics, etc., its distinctiveness is denied pursuant to subparagraph 6 by the reasons that it is a combination of a circle and two capital alphabet letters being simple and frequent marks and thus it consists solely of simple and frequent marks;[38] and (vii) with respect to trademark "  " of which designated product is automated system technology service, etc., its distinctiveness is denied pursuant to subparagraph 3 by the reason that it is a combination of 'Safety' meaning 'safe' and 'Net' meaning communications network giving consumers sense of 'automated system technical service through safe communications network' and it is difficult to see that combination of alphabet "P" and shape '  ' builds a new concept or surpasses the recognition of English letter.[39]

**2)** According to the foregoing examples, the Korean court cases in judging distinctiveness of composite trademarks, (i) examine individual components forming a composite trademark to judge whether they are distinctive; (ii) deny its distinctiveness in principle unless the combination of marks that

35) Patent Court Decision 2003Hur6210 (April 1, 2004) (final and conclusive).
36) Patent Court Decision 2005Hur8357 (February 23, 2006) (final and conclusive).
37) Patent Court Decision 2005Hur9725 (March 10, 2006) (final and conclusive).
38) Patent Court Decision 2007Hur715 (May 31, 2007) (final and conclusive).
39) Patent Court Decision 2008Hur2091 (June 12, 2008) (final and conclusive).

lack distinctiveness results in a new concept or builds new distinctiveness; (iii) do not accept that a new concept or new distinctiveness is generated only by literal meaning of components or a concept sensed from the combination of components (iv) even if a distinctive mark is included, if the combination does not generate a new concept beyond the concept formed by indistinctive mark or does not surpass such recognition, distinctiveness is still denied.

**3)** However with respect to court cases acknowledging distinctiveness of composite trademarks in strict manner, the following criticism is possible:

A) Not meeting the purpose of the trademark system and extremely limiting freedom of selection of trademarks

The purpose of the Trademark Act is to contribute to the development of industry and to protect the interests of consumers by maintaining the business reputation of those persons using trademarks through the protection of trademarks (Article 1). Trademark system grants trademark right to a trademark user to protect his/her credit accumulated on the trademark and to save search cost of consumers, protecting interest of consumers, whereas the trademark system does not grant trademark right to marks that are needed in manufacture and sale of goods in the trade, forming fair market order and finally contributing to development of the industry. The trademark system is triggered from application and registration of a trademark by its user and thus the user's freedom to select trademarks should be guaranteed to the maximum. However, recently as the number of registered trademarks increases and preferred words to be associated with image of products are limited, choice of words usable as a trademark in the trade becomes narrow and a trademark close to a descriptive mark or a simple trademark is highly likely to be easily recognized by consumers of the products and thus is favored by trademark users seeking advertisement effect at low cost and thus a considerable number of trademarks of which registration is sought belongs to the category of composite trademarks consisting of indistinctive trademarks.

As seen in the foregoing, the U.S.A. and Germany, etc. acknowledge distinctiveness of composite trademarks unless they have no distinctiveness arising from such combination, and in judging distinctiveness, conduct specific review as to whether a competitor needs free use of the trademark so that

distinctiveness is not denied by discretionary judgment.

In view of the intent of the trademark system, the reality that usable trademarks gradually decrease and international tendency about distinctiveness of composite trademarks, the Korean practice about composite trademarks excessively limit trademark users' freedom of choosing trademarks, block entrance to the market, rather hindering competition and is worried that the system is operated in the direction not meeting the original intent.

### B) Contrary to the principle of observation of trademarks as a whole

Consumers and the trade assume trademarks to be recognized and used as a whole and thus in respect of composite trademarks, they should be observed as a whole in judging their distinctiveness. However, the court cases observe components of the composite trademarks, determine whether the components are distinctive and then judge whether the combination results in a new concept.[40] Even if individual components of the composite trademarks are not distinctive, the claimed trademark is a trademark combined as a whole and thus the court should review when composite trademarks as a whole are used in the trade, whether the trademark functions to distinguish one's own product and others and whether a competitor necessarily needs to freely use the trademark in connection with the relevant products but nevertheless, the court has tended to judge distinctiveness of individual components but neglected judgment of distinctiveness arising from the combination.[41]

### C) The standards of the distinctiveness in the composite trademarks are too high.

The court cases require in respect of composite trademarks composed of indistinctive marks to result in a new concept or build new distinctiveness. In

40) Consistent approach since Supreme Court Decision 85Hu107 (February 10, 1987).

41) On the other hand, there are some cases precluding disassembly of components and judging a trademark as a whole to acknowledge its distinctiveness. For example, Patent Court Decision 2006Hur5461 (December 7, 2006) held with respect to the trial decision that trademark "SCplus" for computers, etc. as its designated goods is a combination of a frequent mark "SC" and a descriptive mark "plus" and this is not distinctive that there is no possibility of disassembling and calling components of the trademark and the trademark viewed as a whole is acknowledged to be distinctive.

specific cases, with respect to "경남국립대학교"[42] of which designated service is statistics information provision, etc., "피자생각"[43] of which designated service is pizza restaurant business and "노컷뉴스(**no-cut news**)"[44] of which designated service is radio broadcasting business, etc., distinctiveness was denied but with respect to "**F1**"(2007Hur135) of which designated product is scale and "**THE CITY SEVEN 7**"(2006Hur10517) of which designated service is construction, etc., distinctiveness was recognized.[45]

Multiple court cases have not seen composite trademarks as generating a new concept or building new distinctiveness so long as composite trademarks are simple combination of meaning of components or only have concepts sensed therefrom. In other words, composite trademarks are required to have a totally new meaning beyond the ordinary meaning of individual components.[46]

However, composite trademarks are newly coined words or new marks resulted from combination of components and thereby are highly likely to generate a new image to consumers. For example, combining contrasting words like '오래된 미래 (old future)' or 'sugar & spicy' or combining words that are not usually combined like 'Mini Bank'[47], 'Phone & Fun'[48], 'Wonderbody', the composite trademarks may form a new image distinguishable from individual components and have distinctiveness as a trademark.

Accordingly, distinctiveness of composite trademarks should not be easily denied unless the composite trademark has already been used in the trade or by consumers and thus cannot function as an identifying mark of one's own products from others, competitors need to freely use the trademark, substitution with other mark is not likely and thus monopolistic and exclusive ownership by a certain person hinders the public interest. In practice, the standards of a new concept or distinctiveness have been set so high that composite trademarks

42) Patent Court Decision 2010Hur8160 (April 13, 2011).

43) Patent Court Decision 2011Hur5991 (September 2, 2011).

44) Patent Court Decision 2006Hur9784 (January 24, 2007).

45) Among 220 cases in which distinctiveness of a composite trademark was questioned in the trademark registration rejecting cases from 2005 to the present which are searched on the decision search system, the plaintiff (trademark applicant) succeeded only in 38 cases.

46) When applying such criteria, a trademark composed of a conspicuous geographical name is difficult to be acknowledged distinctive even when it combines with another mark.

47) Patent Court Decision 2008Hur13336 (April 16, 2009).

48) Patent Court Decision 2006Hur6419 (November 15, 2006).

composed of indistinctive marks are mostly denied of distinctiveness and this needs to be reconsidered.

D) The applicant is required to prove the distinctiveness at the stage of trademark registration.

Article 6(1) of the Trademark Act provides that "trademark registration may be granted, except a trademark falling under any of the following subparagraphs" and in addition thereto, considering that it is difficult to evidence existence of abstract distinctiveness of trademarks under the legal system requiring registration, the examiner of the KIPO can be said to have responsibility of evidencing that the claimed trademark falls under each subparagraph of Article 6(1) of the Trademark Act.

In practice relating to composite trademarks, if the examiner evidences that components of composite trademarks fall under each subparagraph of Article 6(1) of the Trademark Act, the applicant for trademark registration should produce counterevidence that the composite trademark is distinctive as a whole beyond a simple combination of components. It is very difficult to evidence distinctiveness in a state that the composite trademark is not yet in use. Moreover, such requirement is inconsistent with the viewpoint that it is sufficient if claimed trademarks have abstract distinctiveness at the stage of trademark registration.

E) The scope of Article 6(1) 1 to 6 is excessively expanded.

As seen in the foregoing, Article 6(1) of the Trademark Act provides that distinctiveness is denied of any trademark consisting solely of a mark indicating in a common way the ordinary name of the goods' (subparagraph 1), any trademark consisting solely of a mark indicating in a common way the origin, etc. (subparagraph 3), any trademark consisting solely of a conspicuous geographical name, the abbreviation thereof or a map (subparagraph 4), any trademark consisting solely of a mark indicating in a common way a common surname or name (subparagraph 5), any trademark consisting solely of a simple and ordinary mark (subparagraph 6) and provides that trademarks 'consisting solely of a mark indicating in a common way' (subparagraphs 1, 3 and 5) and trademarks 'consisting solely of __' (subparagraphs 4 and 6) as being denied of distinctiveness.

Therefore, even if some of the components of a composite trademark fall under subparagraphs 1 to 6 of Article 6(1) of the Trademark Act, except for some cases in which descriptive marks are combined in a common way, the composite trademark as a whole combining other marks is difficult to meet the literal meaning of a trademark marked in a common way (subparagraphs 1, 3 and 5) or a trademark consisting solely of __ (subparagraphs 4 and 6).

However, the court cases do not judge whether a composite trademark as a whole falls under each subparagraph of the foregoing provision but rather examine whether individual components fall under each subparagraph and then determine that such trademark falls under the foregoing subparagraphs if the combination does not result in a new concept or build distinctive power.[49] It is doubted whether expansion of the applicable scope of subparagraphs 1 to 6 of Article 6(1) of the Trademark Act is consistent with the purpose of the Trademark Act.

### F) Distinctiveness is typically determined without considering actual recognition in the trade about composite trademarks.

As to whether a trademark has distinctive power, it is said that the court cases do not consider whether the trademark is registered overseas[50], the trademark is descriptively used in the trade or it is probable to be used in the future[51], and are not bound by the past decisions or examination results. Even if the past registration records, decisions or use in the trade of trademarks are not binding but such data facilitates objective understanding of how consumers and the trade recognize the trademarks and thus it is not desirable to ignore such data.

Moreover, indistinctive marks under each subparagraph of Article 6(1) of the Trademark Act are differently categorized according to the intent of each subparagraph and the matters to be considered in judging distinctiveness can be different. However, the court cases have nearly considered the intent of each

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49) For example, in the case of "Q-LAB", "Q" is combined with "-LAB" and thereby the trademark cannot be seen a trademark consisting solely of simple and customary marks but nevertheless, subparagraph 6 was applied.

50) Supreme Court Decisions 94Hu173 (November 18, 1994) and 95Hu64 (May 26, 1995).

51) Supreme Court Decision 94Hu1138 (October 14, 1994) (if a trademark is used as a descriptive mark in the trade, such is considered in judging whether the trademark is a descriptive mark or not. Supreme Court Decision 2002Hu192 (May 13, 2003)).

subparagraph in judging distinctiveness of a composite trademark in respect of 'combination' of individual components. For example, the reason that Article 6(1)4 of the Trademark Act prevents a conspicuous geographical name from trademark registration is because such trademark lacks distinctiveness between one's own products and others, and in view of the public interest, it is unfair to allow exclusive ownership of such mark to a certain person, and in particular, a conspicuous geographical name is frequently used as a business name by local residents and thus if such a geographical name is registered, such could hinder free use in the relevant region, and thus with respect to a geographical name indicating more than a certain size of area or which is widely known, exclusive right is not granted to a certain person (Chapter 4 of the Trademark Examination Criteria). In current practice, such intent of the system being ignored, '서울식당 (Seoul Cafeteria)'과 '경남대학교[52] (Gyeongnam Univ)', and '전북은행[53] (Chonbuk Bank)' are treated as the same. Examiners are seen to have had to review how names of the universities or the banks are used and recognized in the trade in examining whether such names have distinctiveness in distinguishing one's own products and others and whether it is unfair to allow exclusive ownership of the mark to a certain person.

## 4. New Approach to determine the Distinctiveness of Composite Trademarks

### *A. Concept or Distinctiveness of Composite Trademarks*

Whether a composite trademark has distinctiveness should be judged after examining whether the trademark falls under each subparagraph of Article 6(1) of the Trademark Act by observing the trademark as a whole. Court cases have interpreted that a simple combination of meanings of components is not new by using the term 'new' but even a simple combination of meanings of components can have distinctiveness as a whole, and thus in judging distinctiveness of a composite trademark, there is not seen any need to focus on whether the concept and distinctiveness is new.

52) Patent Court Decision 2010Hur8177 (April 13, 2011).

53) Patent Court Decision 2014Hur1723 (June 19, 2014).

Specifically, if a composite trademark is (i) composed of words of contrasting concept (ex.: 오래된 미래 (old future), sugar&spicy), (ii) composed of words that are not directly associated or are related only in suggestive way (ex.: Q-Tip, Phone&Fun), (iii) combined by words changed from the ordinary use (ex.: Mr. Pizza), and (iv) newly coined words (ex.: SANDUNIT, FUNPLEX[54]), etc., the composite trademark could be seen distinctive in principle.

### *B. Judgment Based on 'Normal Consumers'*

Whether a trademark is distinctive can be different by determining person and thus an effort to observe trademarks more objectively should be made.[55] As if the technical level of a person with ordinary skill in the art is first fixed and then based thereon novelty of an invention is judged, usual consumers and traders of the relevant products and the information and recognition they have obtained need to be fixed and then based thereon, distinctiveness should be determined.

Distinctiveness could be determined based on how those persons whose intelligence, age, sex and consumption/trading experience are recognized as those of normal consumers and traders of the relevant products or service in light of statistics and the rule of thumb would recognize the claimed trademark on the basis of information they could generally access to and their experience. Distinctiveness should not be judged referring to experts of the relevant products or to those whose intelligence is low and who has no access to information.

### *C. Considering the Need of Free Use by Competitors*

Under the Korean legal system requiring registration, claimed trademarks are not required to obtain specific distinctiveness and it is sufficient if they are qualified as identifying marks. However, it is not easy to determine whether a mark can function as an abstract mark of distinguishing one's own products from others. In contrast, whether the relevant trademark is necessary to competitors for free use may be more easily determined according to specific

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54) Patent Court Decision 2007Hur2063 (May 23, 2007) denied its distinctiveness.

55) There are many cases where judgments of the Intellectual Property Trial and Appeal Board, the Patent Court and the Supreme Court are consecutively different in judging whether a trademark is distinctive.

criteria. Accordingly, distinctiveness of a trademark needs to be judged with focus on the latter rather than the former of which judging criteria is obscure and likely to make a wrong judgement by mistake.

In judging whether a competitor needs to freely use the trademark, examiners need to consider (i) whether the mark is necessarily and frequently used in describing the trademark or is just one of various selective expressions, (ii) if the relevant mark is relevant to the major function or nature or secondary nature of products, (iii) whether the mark is used actually in the trade or is likely to be used in the trade considering circumstances and (iv) if the mark is exclusively owned by a certain person, this could harm fair competition, etc.

Even if a trademark is partly in descriptive nature, it is possible in any case that a competitor may use the mark not as a trademark but only for description and thus only by the reason that a competitor is likely to use the mark or the need for use of the mark could arise, the competitor's need for free use should not be widely accepted.[56)]

### *D. Positively Considering Practical Usage and Recognition by the Trade*

Efforts of making the judging criteria of distinctiveness objective should be exerted to ensure predictability of trademark registration.

Domestic and overseas decisions and registrations, etc. can be important data showing recognition of the relevant trademark in the trade and thus it is desirable to sufficiently consider such data[57)] and in judging whether a trademark is descriptive or suggestive and whether there is competitors' need for free use of the trademark, examiners need to specifically review how the trademark or a

56) The current Trademark Examination Criteria sees a trademark not distinctive even when the trademark registration is likely to limit free use by competitors engaging in the same type of business.

57) The court cases say that foreign registrations are not binding since language habits, etc. are different but such holding is mostly about marks in English, and if a trademark is registered in English speaking countries and other non-speaking countries, in the era when the world is connected through the internet and media, it is not seen desirable to preclude registration in Korea without specific consideration as to the peculiar language habits of Korea only by the reason that the registration is made in a foreign country. The trading practice and language habits could be different between Korea and foreign countries but if trademark registration is allowed in multiple countries, it should be prudently examined whether such trademark is suggestive or just indistinctive.

similar mark is used or recognized actually in the trade.

In particular, if there are any peculiar characteristics in use of trademarks or recognition of consumers in respect of the relevant products or service, such should be necessarily considered in judging distinctiveness of the trademark. For example, in case of a service mark like a name of a university, considering that the service mark is usually a combination of the location where the university is and a word 'university' domestically and overseas and consumers of the service generally understand the service mark as the name of a specific university not as a name of the entire universities located in the region, examiners need to review whether such mark can be used as a distinguishing mark between one's own products and other products and whether a competitor's free use needs to be guaranteed.

## 5. Conclusion

Under the Korean legal system requiring registration, requiring high level of distinctiveness at the stage of trademark registration is not consistent with the purpose of the trademark system which grants trademark right and thereby protects consumers' interests and contributes to development of the industry, and such requirement only heightens the entrance barrier to trademark registration at an early stage and prevents selection of the most cost effective trademark, imposing excessive burden on the trademark users.

Current practice is seen to excessively highlight the competitors' interests or the public interest of guaranteeing free use of marks lacking distinctive power and excessively limit trademark users' freedom of selection. In order for the trademark system to fulfill its original purpose of enhancing fair competition, it needs balanced approach to the interests of the trademark users and interests of competitors. Under the same context, the current practice that denies distinctiveness of composite trademarks composed of marks lacking distinctiveness in principle should be reexamined.

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