

21 Application of the Doctrines Limiting the Doctrine of Equivalents and Claim Drafting Concerning U.S. Patents – Foreseeability and Importance of Claim Limitations in Limiting the Range of Equivalents –

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In the modern United States, the doctrine of equivalents has been applied for the purpose of preventing infringers from copying patented inventions by making a minor variation of the invention. The application of the doctrine had been expanding since the Graver Tank Supreme Court decision until such trends turned around to limit the application of the doctrine in the wake of the Warner-Jenkinson Supreme Court decision. This is due to the application of doctrines limiting application of the doctrine of equivalents, and the strict application of the All Elements Rule has much to do with it. Behind that there is difficulty in finding a compromise between the protective function of claims, which has been expanded by the doctrine of equivalents, and the definitional and public-notice functions, which claim language is required to fulfill, due to their conflicting relationship. In this research, the author studied the role of claim limitations in limiting application of the doctrine of equivalents and the recent way of thinking about their importance, focusing on the latest CAFC decisions. The author also discussed claim drafting that is adapted to the current situation, as well as examining the movement to introduce foreseeability by a person skilled in the art into doctrines limiting application of the doctrine of equivalents.

I Introduction

The doctrine of equivalents functions as an effective means of protecting inventions against patent infringing embodiments that cannot be covered by literal infringement. On the other hand, the excessive application of the doctrine may force competitors to conduct commercial activities under the constant concern that they might be infringing patented inventions, which are unclear. This hinders sound technological and market competition, which is an ongoing problem with the application of the doctrine of equivalents.

The U.S. Supreme Court's 1950 decision in the *Graver Tank*^(*) case laid the foundation of a formula for applying the doctrine of equivalents in the modern era. However, the loss of the public-notice and definitional functions of claims was of concern since the doctrine of equivalents had been applied to claims "as a whole." Subsequently, in the *Warner-Jenkinson* Supreme Court decision^(*) in 1997, the court adopted the guideline for application of the doctrine of equivalents on an element-by-element basis, which was presented by the *Pennwalt en banc* decision.^(*) Thereby, the current system was established. This report studied mainly decisions rendered and

discussions held by the United States Court of Appeals for the Federal Circuit (CAFC) to know the present situation of application of the doctrine of equivalents placing emphasis on limitations. Moreover, this report introduces the determination of infringement of a functional claim and the principles of claim construction that have recently been reexamined by practitioners and scholars in the United States, for the purpose of considering a guideline for claim drafting and the future direction of the doctrine of equivalents. Then, this report makes some comparisons between the ideas of protection by patent and public interest behind these U.S. decisions and requirements for application in Japan, and considers the similarities and differences between them.

II Recent Decisions Relating to the Doctrine of Equivalents and Claim Construction Principles

1 Application of the doctrine of equivalents placing emphasis on limitations

(1) Where application of the doctrine of equivalents is precluded

The application of the All Elements Rule to

(*) Currently Intellectual Property Division, The Furukawa Electric. Co., Ltd.

(*) 339 U.S. 605, 70 S.Ct. 854 (1950).

(*) 520 U.S. 17, 117 S.Ct. 1040 (1997).

(*) 833 F.2d 931, 4 USPQ2d 1737 (Fed.Cir. 1987).

the doctrine of equivalents presented in the *Warner-Jenkinson* Supreme Court decision was handed down in subsequent court decisions, including the *Sage Products* decision^(*)4) in 1997. When a limitation is deemed to have clearly limited a relevant invention, the doctrine of equivalents will not be applied to it on the ground that a meaningful limitation of a claim will be vitiated if the doctrine is applied. This doctrine is called a “claim vitiation doctrine,”^(*)5) of which one of the purposes is to prevent the unfair act of attempting to expand rights under the doctrine of equivalents during litigation after undergoing examination with narrow claims. This doctrine is applicable in two cases. One is a case relating to a simple structural invention, such as *Sage* and *Freedman*. In such cases, the doctrine of equivalents is not applicable because these cases are considered to not involve unforeseeability due to change in technology, and the inventor thus must bear the cost of its failure to claim a subject matter.

In *Freedman*,^(*)6) a structure of stowable seats that are usable in public transportation vehicles was deemed to be a “relatively simple” structural invention because the relevant patent claim included a clear limitation. Consequently, the doctrine of equivalents was not applied to other types of four bar mechanisms, which, except for the slider crank, constitute the principal part of the invention.

On the other hand, inventions with a more-than-simple structure are excluded from application of the doctrine of equivalents due to application of the “specific exclusion” principle^(*)7) not only when the claim language includes a clear limitation but also intrinsic evidence is deemed to have excluded a specific subject matter. The reason for exclusion is that a finding of equivalence to a specifically excluded subject matter would vitiate the limitation. Although extrinsic evidence and frequency of appearances in description in the specification are also taken into consideration, the meaning of a limitation is basically determined to be clear when argument for patentability or content of the specification is consistent. In *Gaus*,^(*)8) application of the

doctrine of equivalents was denied on the grounds that the claim language was clear and that the patentee avoided prior art and clarified the invention in intrinsic evidence. In *Asyst Tech*^(*)9) (claim1) also, a limitation was construed not to include the invention excluded by intrinsic evidence.

It is not only when a claim limitation is clear and when limitation of the scope of an invention has been clearly specified during the prosecution that the meaning of language is defined by intrinsic evidence and analysis is conducted on whether application of the doctrine of equivalents vitiates a limitation. In *V-Formation*,^(*)10) the parties concerned discussed whether rivets qualify as “releasable fasteners” used to attach a wheeled plate. However, the scope of releasable fasteners cannot be defined by claim language alone. In this case, the scope of “releasable” that one skilled in the art recognizes was determined not to include rivets, based on the prior art disclosed in intrinsic evidence (Information Disclosure Statement; IDS). On the ground of a lack of literal correspondence, the court concluded that if the accused product was found to meet the limitation under the doctrine of equivalents, the limitation would be ignored.

In *Gaus*, the court stated that a disclaimer is deemed to disclaim particular subject matter irrespective of whether it is express or implied, so it may be undeniable the possibility to be taken as a disclaimer even if a subject matter is not expressly disclaimed.

With regard to the application of the doctrine of equivalents that is considered to “ignore a limitation,” discussion on claim 6 in *Ethicon*^(*)11) in 1998 -relating to a patent for medical stapler- is informative. The court implied that it would not deny application of the doctrine of equivalents if the lockout mechanism were located near the longitudinal slots as stipulated in the claim. However, the court determined the accused device, which has the lockout mechanism opposite the stapler, to be substantially different from the claimed device even though it has not been “specifically excluded.”

(*)4) 126 F.3d 1420, 44 USPQ2d 1103 (Fed.Cir. 1997).

(*)5) 420 F.3d 1350, 1362, 76 USPQ2d 1001 (Fed.Cir. 2005).

(*)6) 420 F.3d 1350.

(*)7) 402 F.3d 1188, 1195, 74 USPQ2d 1272 (Fed.Cir. 2005).

(*)8) 363 F.3d 1284, 70 USPQ2d 1380 (Fed.Cir. 2004).

(*)9) 402 F.3d 1188, 74 USPQ2d 1272 (Fed.Cir. 2005).

(*)10) 401 F.3d 1307, 74 USPQ2d 1042 (Fed.Cir. 2005).

(*)11) 149 F.3d 1309, 47 USPQ2d 1272 (Fed.Cir. 1998).

(2) Where the doctrine of equivalents is applicable

As mentioned below, application of the doctrine of equivalents will not be precluded if a claim limitation and the allegedly infringing product have a certain relationship. On the other hand, cases where the doctrine is broadly applied “as a whole” are consolidated into cases involving after-arising equivalents and pioneer inventions. This point is mentioned later.

(a) Subtle difference in degree

In *Ethicon*, the court determined that equivalence between claim 24 and the accused device under the doctrine of equivalents could not be denied because there was merely a “subtle difference in degree” between them in terms of timing of releasing the lockout mechanism to prevent glitches of the pusher bar (as short as a few thousandths of a second).

In addition, in *Riles*,^(*12) the accused method was not found to literally meet the “metal-to-metal bearing contact” limitation because there was a layer of wooden timbers on the surface where the leveling porch and the piling come in contact. However, it was found to meet the limitation under the doctrine of equivalents on the ground that the difference is “insubstantial.” Inserting about a 20 cm layer of wood timbers into a several dozen-meter structural member is included within the scope of “subtle difference in degree,” as mentioned in *Wright Medical*^(*13) and *Ethicon*.

(b) Combination of limitations and separation of a limitation

Two examples of application of the doctrine of equivalents studied at this time are based on the “combination of limitations and separation of a limitation.” In *Eagle*,^(*14) regarding a sealing structure attached to the collet of a signal filter, the court determined that the “front cap” and “rear body” limitations were not lost due to combination of the “front cap” and “rear body” of the collet assembly, but that the “self-seals at the interface between the collet assembly and the filter housing” limitation was essential.

Riles relates to a patent of process of installing offshore platforms. The court determined that the claimed “stabbing connection (an end-to-end joining of two metal tubes by the insertion of an

extension attached to the end of one of the tubes into the end of the other)” limitation is not literally met by the corresponding part of the accused platform, which consists of multiple components (a “guide sleeve” that guides the piling to the end of the leveling porch and a “leveling porch” that contacts the piling at the end; without either an “extension” or insertion into the end of the tube), but it is met under the doctrine of equivalents. That is, by assuming that extension and the end of piling, which is inserted to guide sleeve, are equivalent, and based on the description in the specification that the piling side may be inserted into the other side contrary to the structure of the embodiment, the court found that substantially the same function as that performed by the claimed “stabbing connection” limitation was performed by the two elements of the accused process (in this report, “separation of a claim” refers to cases where one limitation of a claim corresponds to multiple components of the allegedly infringing product).

In short, even if the form of the patented invention and that of the accused product are not the same, for example, in the case where two claim limitations are simply combined into one in the accused product, like in *Eagle*, or where a component corresponding to one claim limitation is separated in the accused product, like in *Riles*, the difference would be regarded as insubstantial if substantially the same function, action and effect are achieved.

This idea is similar to the idea of separation of a limitation of claim 24 in *Ethicon*. In this case, it was determined that two components of the accused device may function as one claim limitation unless the “movable by” limitation is vitiated.

That is, discussion on substantial identity in terms of separation of a limitation does not seem to require strong structural identity unless the essential technical idea in the limitation is lost. Therefore, if the applicant could successfully set a limitation in the nature of the technical idea (dominant conception) in the claim language, as in these cases, the structural rigidity will be alleviated and the doctrine of equivalents may be applied based on separation of a limitation.

(c) Reciprocal change

If a reciprocal relationship exists between

(*12) 298 F.3d 1302, 63 USPQ2d 1819 (Fed.Cir. 2002).

(*13) 122 F.3d 1440, 43 USPQ2d 1837 (Fed.Cir. 1997).

(*14) 305 F.3d 1303, 64 USPQ2d 1481 (Fed.Cir. 2002).

claim limitations and the relationship is substantially maintained, the doctrine of equivalents will be applied. In *Corning Glass*^(*15) in 1989, an optical fiber that increases the refractive index through addition of a dopant to the core was claimed. In the accused fibers, the refractive index was decreased through addition of a dopant to the cladding. In this case, the court found equivalence under the doctrine of equivalents, placing importance to the refractive index differential between the core and cladding. Unlike this case, the doctrine of equivalents is not applicable to a rearrangement of three or more limitations.

(A) Amendment and discussion

In *Eagle*, the court examined application of the prosecution history estoppel to a combination of the two limitations of the patent claim. After the patentee's consistent argument during the prosecution, the examiner added an amendment and the patent was registered. On the contrary, the alleged infringer argued that application of the doctrine of equivalents was precluded not under the amendment-based estoppel but under the "argument-based estoppel." An argument-based estoppel requires a "clear and unmistakable surrender of subject matter," and for the reason of lack of such surrender, a combination of two limitations was found to be equivalent to the "front cap" and "rear insert body" limitations under the doctrine of equivalents. Also in *Riles*, the court admitted application of the doctrine of equivalents on the ground that the argument on the "metal-to-metal bearing contact" limitation made by the patentee during the prosecution does not clearly surrender the disputed subject matter.

On the other hand, when the patentee has made an amendment, it has to prove any one of the three conditions for rebuttal presented in *Festo*, based on the presumption that any amendment relates to patentability.^(*16) In addition, grounds for rebuttal have to be those which have been shown in intrinsic evidence, except for the first ground relating to foreseeability.^(*17) It seems that there have not been sufficient judicial precedents with respect to the guideline for

meeting conditions for rebuttal based on foreseeability as of present. Taking these points into account, applicants should, as a matter of course, avoid making unnecessary amendments when possible and make minimum necessary assertions wherever possible.

2 Claims including equivalents in their language – Functional claims

In the present situation where a clear limitation of a claim is used to limit the application of the doctrine of equivalents, functional claims by which technical ideas can be expressed in functional language may work effectively. However, functional claims involve the concept of "equivalent structure," so there is the concern that such claims are restrictively construed depending on the content disclosed in the specification. To prevent this, it is necessary to pay attention to giving the embodiment room to expand while taking into consideration the idea that the range of equivalent structures may change depending on the importance of structural features in the function.^(*18)

In regard to relationships between the range of equivalent structures and the importance of structural features that characterize functional elements, it has been pointed out that *IMS Tech*^(*19) and *Kemco*^(*20) are conflicting.^(*21) In *IMS Tech*, the court stated that the range of equivalent structures should be determined not based on structural similarities but in the context of the invention, and that the range might be broadened depending on the importance of the structural features of functional elements. On the other hand, in *Kemco*, the court stated that the range of equivalent structures would be determined merely based on a comparison of structures. In light of this, a recent trend is considered below, through examination of *Asyst Tech* and *Utah Medical*.^(*22)

In *Asyst Tech* relating to a system of controlling semiconductor wafers, the court held that the entire function of "sensing the presence

(*15) 868 F.2d 1251, 9 USPQ2d 1962 (Fed.Cir. 1989).

(*16) 122 S.Ct. 1831, 62 USPQ2d 1705 (2002).

(*17) 344 F.3d 1359, 1369, 1370, 68 USPQ2d 1321 (Fed.Cir. 2003).

(*18) *Intellectual Property Management*, vol. 48, no. 5 (1998): 663.

(*19) 206 F.3d 1422, 54 USPQ2d 1129 (Fed.Cir.2000).

(*20) 208 F.3d 1352, 54 USPQ2d 1308 (Fed.Cir.2000).

(*21) 16 Berkeley Tech. L.J. 71, 2001; 3 N.C. J.L. & Tech. 101, Fall 2001.

(*22) 350 F.3d 1376, 69 USPQ2d 1136 (Fed.Cir. 2003).

of a container” was functionally identical to the structure of “sensing means” disclosed in the embodiment, without being bound by the specific structure of embodiment. This is because structural features are not very important, as the sensing means only performs function of sensing the presence of a container and that is not functionally complex. The determination in this case is similar to determination in *IMS Tech*, in which the court held that the range of equivalent structures might be broadened.

On the other hand, *Utah Medical* relates to a means of stiffening the cable of the pressure transducer. In this case, as with in *Chiuminatta*,^(*)23) functional elements of functional claims are largely characterized by the structure. Therefore, the equivalent structures of “stiffener means” shall be those like a steel stylet permanently encased in the cable means, which is disclosed in the embodiment. However, based on the description that the stiffener means is a permanent component of the overall cable means, the court applied determination in *IMS Tech* to the effect that a structural limitation is not strongly required.^(*)24) Thereby, “stiffener means” was construed to include the plastic casing of the cable means. In this manner, this case shows the possibility that the range of equivalent structures may be broadened without being constrained owing to support by the specification’s description. *Chiuminatta* relates to a rotary saw for cutting concrete before being completely hardened. The two small wheels of the accused device were found not to be substantially the same as the skid plate of the claimed embodiment on the basis that they are different in terms of impact on a concrete surface as a “means for supporting the surface of the concrete.” However, in this case, the court stated that the patent disclosed the wheels but never suggested that the wheels could be replaced by the skid plate. Therefore, if the patent suggested it, the result might have been the same as in *Utah Medical*.

That is, when using a functional claim, it is important to consider the characteristics of the subject matter and to describe the specification in

a manner that prevents the range of equivalent structures from being restrictively construed. If only one embodiment has been disclosed and the specification contains no description that opens up options, the specification can only cover structures that are almost identical to the disclosed structure. In cases not involving after-arising equivalents, if an accused structure was found not to be an equivalent of the claimed structure in literal analysis, it will be precluded from application of the doctrine of equivalents for the same reason. In this case, there is no point in using functional claims, because the scope that is covered is almost the same as the literal scope of the patent in cases where it was claimed by ordinary structural limitations.

3 Claim differentiation principle

This principle is the one that has been in existence from a long time ago as in *Autogiro*.^(*)25) This study cover the principle in this report because U.S. scholars and practitioners have been reviewing it recently, as in *Phillips*.^(*)26) Below is an outline of precedents relating to application of the principle.

Where the principle is applicable

- (A) Different claims have different scopes.^(*)27)
- (B) Limitations stated in dependent claims are not to be read into independent claim from which they depend.^(*)28)
- (C) If different embodiments and functions are disclosed in a dependent claim, an independent claim is considered to include them (the same applies in the case of relationships between independent claims).^(*)29)

Where the principle is not applicable

- (D) If a difference is only in style and not in content, the principle is not applicable.^(*)30)
- (E) This principle cannot enlarge the scope of claims determined by the content disclosed in the specification as well as arguments during the prosecution.^(*)31)
- (F) If the difference between two different claims is not merely superfluous, the

(*)23) 145 F.3d 1303, 46 U.S.P.Q.2d 1752 (Fed.Cir. 1998).

(*)24) 350 F.3d at 1382-84.

(*)25) 384 F.2d 391, 155 USPQ 697 (Ct.Cl. 1967).

(*)26) 415 F.3d 1303, 75 USPQ2d 1321 (Fed.Cir. 2005).

(*)27) 384 F.2d 391, 404, 413-414 (Ct.Cl. 1967).

(*)28) 403 F.3d 1364, 1370 (Fed.Cir. 2005).

(*)29) 415 F.3d 1303, 1324-27 (Fed.Cir. 2005).

(*)30) 384 F.2d at 407 (Ct.Cl. 1967).

(*)31) 831 F.2d 1017, 1023-24 (1987).

principle will not be applicable.^(*32)

(G) If a presumption of “equivalent structure” based on functional language is contrary to this principle, the presumption based on functional language will be given priority (a presumption under §112, ¶6 is stronger than a presumption under claim differentiation).^(*33)

Among the above (A) to (C), presumption works most strongly in the case of (B).^(*34) In short, the most basic way of using this principle is (B) above, in which the applicant stipulates a limitation, which is not desired to be read into an independent claim, as a dependent claim. In addition, the principle can be understood as the relationship between two random claims since each claim is construed in the manner that its corresponding embodiments and functions are different from those corresponding to other claims.^(*35)

However, since claim differentiation is firmly based on relative relationships between two claims, a claim can be determined only after a difference between that claim and the other claim is primarily determined (for example, in (F)). Moreover, this presumption is not at all strong and it does not allow construction beyond the scope that is considered appropriate, based on other grounds. In such a case, several claims may indicate the same scope.^(*36)

Where an independent claim is a functional claim, a structural claim as one form of functional language seems unnecessary because of relationships with an equivalent structure of a functional claim as indicated in (G). In other words, where an equivalent structure of a functional limitation is restrictively construed into an embodiment, claim differentiation presumption cannot expand the scope of the functional limitation since presumption based on functional language is stronger, and therefore, the

structural claim will not have any meaning. In this case, it is more important to broaden equivalent structures of the functional claim.

Compared with the doctrine of equivalents that leaves uncertainties in claim language, this principle appears to conform to the current trend emphasizing the public-notice function of claim language since it does not go beyond the literal scope. In other words, while the doctrine of equivalents protects what could have been undetermined at the time of filing due to their uncertainties, the role of the claim differentiation principle is contrasting to the doctrine of equivalents in that it is designed to appropriately construe what have been disclosed.

III Comparison with Requirements for Application of the Doctrine of Equivalents in Japan

This chapter considers similarities and differences between Japan and the United States based on the CAFC decisions and the trend discussed in studies on cases after the Supreme Court presented the guideline for application of the doctrine of equivalents in Japan.^(*37)

1 First and second requirements

There is the view that the first requirement for application of the doctrine of equivalents in Japan, i.e., the “essential part,” refers to the “scope to which the technical idea of the patented invention extends” or the “identity of the principle of the solution.”^(*38) There are two ideas regarding determination of equivalence: (1) dividing an invention into the essential part and the non-essential part and finding equivalence only in terms of the non-essential part; (2) equivalence should be found if differences from the essential part is insubstantial.^(*39) The second

(*32) 73 F.3d 1573, 1580-81 (Fed.Cir. 1996).

(*33) 424 F.3d 1293, 1304 (Fed.Cir. 2005).

(*34) 413 F.3d at 1368-69 (Fed.Cir.2005)

(*35) 403 F.3d at 1370 (Fed.Cir.2005).

(*36) 413 F.3d at 1369 (Fed.Cir.2005).

(*37) Supreme Court decision on February 24, 1998, *Minshu*, vol. 52, no. 1: 113 (*Jokoku* appeal instance for Ball Spline Bearing case; Case No.: Heisei 6 (O) 1083).

(*38) Ryoichi Mimura, *Jurist*, no. 1134 (1998): 117; Toshiaki Makino, “Tokkyohatsumei no honshitsuteki bubun ni tsuite” (Concerning the essential part of a patented invention) (contained in Ryuichi Murabayashi and Etsuji Kotani, ed., *Tokkyosaiban ni okeru kintōron: nichibeiō sankyoku no taihi* (Doctrine of equivalents in patent court: comparison among Japan, the United States and Europe)) (Research Institute of Economy, Trade and Industry, 2003), 219; *Intellectual Property Management*, vol. 51, no. 8 (2001): 1246.

(*39) Ryuichi Shitara, “Bōrusupurainjiken saikōsaihanketsu no kintōron to kongo no shomondai” (Doctrine of equivalents in the Ball Spline Supreme Court decision and expected problems) (contained in Ryuichi Murabayashi and Etsuji Kotani, ed., cited above), 450; Seiji Ohno, *Intellectual Property Management*, vol. 54, no. 9 (2004): 1348-49.

requirement, “interchangeability,” largely overlaps the first requirement, therefore, some question the significance of its existence.^(*)40) These requirements are hard to distinguish, and are thought to function in a mutually complementary manner while being similar in large part.

Also in the United States, the triple identity test is not recognized as sufficient for assessing the substantial identity of patent claims and the accused product, and it is believed that the substantial identity should be examined flexibly.^(*)41) Multiple standards for determination and flexible determination are used in combination both in Japan and in the United States, and there is a similarity between the two countries despite the difference in the perspective of determination by tests.

The scope of “insubstantial difference” is similarly understood in the two countries. Specifically, it is understood as “subtle difference in design” in Japan while as “subtle difference in degree” in the United States in the above-mentioned Ethicon case. However, there is the difference between these countries in the point that discussion is held in consideration of the importance of limitations in Japan^(*)42) while it is held based on the premise that “all limitations are material” due to introduction of the All Elements Rule.

However, the substantial difference between the two countries is not as significant as it appears. Firstly, application of the All Elements Rule serves as the premise of the way of invention (i.e. the identity of the principle of the problem solution),^(*)43) and there are exceptions to application of the “specific exclusion” principle, such as “combination of limitations and separation of a limitation” and “reciprocal

change.” Therefore, the essential part can be covered by them with some margin of error.

In addition, the “specific exclusion” principle covers both the case where specific exclusion indicates the essential part of the invention, like in *Dolly*,^(*)44) and the case where it is considered to be an intentional exclusion under the fifth requirement.

2 Third and fifth requirements

The third requirement “interchangeability” corresponds to “known interchangeability” in the United States. The fact that both countries adopt the time of infringement as the timing of determination shows that they share the basic idea that “after-arising equivalents” should be protected.^(*)45) The most disputed point regarding this requirement is the technical level of a person skilled in the art, which is adopted in determining whether an interchange could have been “easily arrived.” In Japan there are two opinions that the required technical level is (i) the same as that for inventive step^(*)46) and is (ii) slightly lower than that for inventive step.^(*)47)

As for the United States, in *Tanabe Seiyaku*,^(*)48) the court acknowledged avoidance of application of the doctrine of equivalents by design-arounds since the accused product, which the patentee argued was equivalent to the claimed invention, had required further improvement and the alleged infringer had found conditions for that improvement through its independent development.

Prior failures are cited in the secondary consideration as the standard for determining non-obviousness.^(*)49) The standard level of a person skilled in the art in determining known interchangeability is thought to be the same as

(*)40) On the other hand, there are opinions as in Seiji Ohno cited above (page 1349) and in *Intellectual Property Management*, vol. 51, no. 8 (page 1248).

(*)41) 520 U.S. at 39-40 (1997).

(*)42) Ryuichi Shitara, cited above, 450; Seiji Ohno, *Intellectual Property Management*, vol. 51, no. 8: 1349.

(*)43) 833 F.2d at 1577.

(*)44) 16 F.3d 394, 29 USPQ2d 1767 (Fed.Cir. 1994).

(*)45) Supreme Court decision cited above “*Jokoku* appeal instance for Ball Spline Bearing case”; 520 U.S. at 37 (1997).

(*)46) Ryuichi Shitara, cited above, 453-454; Toshiko Takenaka, “Tanin no seihintō ga meisaisho no tokkyoseikyū no hani ni kaisaireta kōsei to kintōnamono toshite tokkyohatsume no gijutsutekihani ni zokusuru to kaisubeki bai” (Case where another party’s product, etc. should be considered to belong to the technical scope of a patented invention as an equivalent of a structure described in the scope of claims in the specification) (contained in Ryuichi Murabayashi and Etsuji Kotani, ed., cited above), 485.

(*)47) Nobuhiro Nakayama, *Kōgyōshoyūkenhō jō: tokkyohō dai2han* (Industrial property law (1): patent law (2nd ed.)), 398; Etsuji Kotani, “Kintōron no dōkō” (Trend of the doctrine of equivalents) (contained in Ryuichi Murabayashi and Etsuji Kotani, ed., cited above), 621.

(*)48) 109 F.3d 726, 41 USPQ2d 176 (Fed.Cir. 1997).

(*)49) For example, Martin J. Adelman, Randall R. Rader, John R. Thomas & Halord C. Wegner, *Cases and Materials on Patent Law* 369 (Thomson West 2d ed. 2003) (1998).

that in determining non-obviousness.

The fifth requirement “intentional exclusion” is represented by the prosecution history estoppel. In Japan, amendment in response to a refusal under Section 36 of the Patent Law is also seen as “act understood as such in appearance” in comparison with another amendment relating to patentability, and such amendment is subject to the estoppel.^(*)50) This is similar to the fact that in the United States, any amendment is considered to be subject to the presumption that it “relates to patentability.” However, there is a difference on the point that, in the United States, the means of rebutting presumption were presented in the *Festo* decision in 2002.^(*)51)

Moreover, the systems of these countries are different on the point that the United States adopts the disclosure-dedication rule that was presented by the *Johnson & Johnston en banc* decision in 2002.^(*)52)

IV Subject matter protected under the doctrine of equivalents

1 Subject matter to be protected

In the United States, it is believed that after-arising equivalents should be primarily protected. After-arising equivalents refer to what could not have been known by a person skilled in the art at the time of filing, and have become outside the scope of claim language at the time of infringement due to subsequent technological advances. One of the related precedents is *Hughes*,^(*)53) in which the court found that the embodiment of the infringing product created through advancement of computer technology after filing could have not been covered by claim language. In addition, Judge Rader stated, as an example, that regarding a claim using the terms “anode” and “cathode” before 1948, a lack of literal correspondence should be covered by the doctrine of equivalents if these terms are replaced with the

terms “emitters” and “collectors” of transistor technology after 1949.^(*)54)

It is also believed in Japan that the doctrine of equivalents should be applied to after-arising equivalents.

With regard to pioneer inventions, the doctrine of equivalents is also applicable to them in the United States, as mentioned above.^(*)55) On the other hand, the broad scope of claims can be achieved due to the pioneering nature of the inventions, and there is neither a legal definition of pioneer inventions nor a test for determining them.^(*)56) Therefore, pioneering inventions appear to be ambiguous and it is hard to paint a precise picture of them. This is also the same in Japan.^(*)57)

2 Unprotected subject matter

There is also the discussion on limiting application of the doctrine of equivalents based on foreseeability, and the patentee’s obligation and responsibility in patent drafting is used as a means thereof.

(1) What is foreseeable

In the United States (CAFC), Judge Rader has been strongly advocating the limitation of application of the doctrine of equivalents to what is foreseeable by a person skilled in the art.^(*)58) In the United States, the concept of foreseeability is now applied in relation to the prosecution history estoppel. If it becomes applicable in relation to the entire doctrine of equivalents, after-arising equivalents may become the only things to which the doctrine of equivalents is applicable. On the other hand, there are some opinions that foreseeability should be employed in limiting application of the doctrine of equivalents in Japan.

In the United States, there is a Supreme Court opinion that claim drafters “may be expected to draft claims encompassing readily known equivalents.”^(*)59) There is also the CAFC *en banc* opinion that “When one of ordinary skill in the relevant art would foresee coverage of an

(*)50) *Intellectual Property Management*, vol. 51, no. 9: 1404-1405.

(*)51) 535 US 722, 740-741, 122 S.Ct.1831 (2002).

(*)52) 285 F.3d at 1054-1055 (Fed.Cir. 2002).

(*)53) 140 F.3d 1470, 46 USPQ2d 1285 (Fed.Cir. 1998).

(*)54) 234 F.3d at 619 (Fed.Cir. 2000).

(*)55) 822 F.2d 1528, 1532, 3 USPQ2d 1321 (Fed.Cir. 1987).

(*)56) 181 F.3d 1291, 1301, 50 USPQ2d 1900 (Fed.Cir. 1999).

(*)57) Shuhei Shiotsuki, “Chitekizaisanhō to gendaishakai (Makino Toshiaki hanji taikankinen ronbunshū)” (Intellectual property law and modern society (collected papers commemorating the retirement of Judge Toshiaki Makino)): 105.

(*)58) 344 F.3d at 1377 (Fed.Cir. 2003).

(*)59) 535 US at 740 (2002).

invention, a patent drafter has an obligation to claim (all of) those foreseeable limits.”^(*60) In Japan as well, there is the opinion that “the prior art exerting the same effect, which exists at the time of filing, must be examined in relation to negative requirements.”^(*61) The two countries are considered to be of one accord in terms of the anticipated orientation.

However, Judge Lourie’s dissenting opinion^(*62) will require consideration if foreseeability is applied in relation to the entire doctrine of equivalents, though the opinion will have nothing to do with filing and obtaining of rights as long as foreseeability is applied only in relation to the prosecution history estoppel because it is applied on the patentee’s side. His opinion is: “There is the possibility that the alleged infringer will restrain filing of an application for a similar invention for the purpose of avoiding infringement by using foreseeability, and this is contrary to the basic philosophy of the patent system (encouraging filing and disclosure).”

With respect to the standard level of a person skilled in the art, no clear answer has been indicated in Japan or the United States. In the United States, the standard level is considered to be the level of a “skilled claim drafter,”^(*63) “one of ordinary skill,”^(*64) or “any accessible prior art.”^(*65) On the other hand, in Japan, there is the opinion that “if an ordinary person writes together by necessity when he sees ... not protected if he does not write,” and the opinion taking an ordinary drafter as the standard^(*66) (if a drafter did not write a dominant conception or a derived claim that an ordinary attorney would write, the dominant conception or derived claim will not be protected under the doctrine of equivalents).

If the standard level of a person skilled in the art for foreseeability is the same as the level

for non-obviousness, there will be the concern that contradiction will arise with known interchangeability, as pointed out by Judge Newman and Judge Lourie.^(*67) In this case, application of the doctrine of equivalents to a subject matter other than after-arising equivalents will be denied. This type of discussion may influence patent drafting as well as the range of equivalents -other than after-arising equivalents- in the case where foreseeability is introduced to limit application of the doctrine of equivalents, depending on how the foreseeability standard -designed to rebut the prosecution history estoppel- will be treated in the future.

At any rate, if foreseeability is introduced into application of the doctrine of equivalents, there will be three standards to be considered: inventive step (non-obviousness), easy interchangeability (known interchangeability) and foreseeability. It is considered difficult to distinguish these three standards in practice if all of them are adopted.^(*68) Discussion is anticipated for the future on whether evidence for foreseeability should be expanded to include the “entire prior art,” including the question of whether the doctrine of equivalents will be kept applicable to subject matter other than after-arising equivalents as a matter of fact.

In this manner, while the way of setting standards for distinguishing infringement and noninfringement under the doctrine of equivalents has been increasing its complexity, there is the idea of making adjustments by injunction of infringing products and compensation for damages since these are solutions in patent infringement suits. It seems a realistic solution to allow flexibility in the amount of damages, depending on the quality of infringement, even if an infringement was found.^{(*69)(*70)}

(*60) 285 F.3d at 1057 (Fed.Cir. 2002).

(*61) Ryoichi Mimura, cited above: 115; Toshiaki Makino, cited above, 209.

(*62) 285 F.3d at 1063 (Fed.Cir. 2002).

(*63) 126 F.3d at 1425 (Fed.Cir. 1997).

(*64) 285 F.3d at 1057 (Fed.Cir. 2002).

(*65) 344 F.3d at 1377 (Fed.Cir. 2003).

(*66) Toshiaki Makino and Takashi Honma, ed., “Zasankai: tokkyokureimu kaishaku no ronten wo megutte” (Round-table talk: over points of issue concerning patent claim construction): 83; Seiji Ohno, cited above, *Intellectual Property Management*, vol. 51, no. 8: 1351

(*67) 285 F.3d at 1063 (Fed.Cir. 2002); 344 F.3d at 1383 (Fed.Cir. 2003).

(*68) Ryuichi Shitara, cited above, 453-454; Toshiko Takenaka, cited above, 485.

(*69) Shoji Matsui, “Nichibei ryōkoku saikōsai ni yoru, kintōyōningenhanketsuhaki no hanketsu ga, nichibei no kotonaru tokkyoseido no naka de motsu igi” (Meaning of the Japan and U.S. Supreme Court decisions, which reversed the original decision admitting application of the doctrine of equivalents, in the different patent systems of both countries) (contained in Ryuichi Murabayashi and Etsuji Kotani, ed., cited above), 244-245.

(*70) Nobuhiro Nakayama, “Kintōron” (Doctrine of equivalents) (contained in Ryuichi Murabayashi and Etsuji Kotani, ed., cited above), 641-642.

(2) What the inventor failed to claim

In terms of the inventor's fault, the "Underarm absorption pad case" is introduced as an example in Japan.^(*)71) This case relates to the inventor's fault in claim drafting. Specifically, the inventor contrarily drafted a claim with the phrase "of a small curvature," though he should have described it with the phrase "of a small curvature radius. Since this error in the description was not unambiguously clear, the court allowed construing it only literally and did not allow covering what the inventor failed to describe under the doctrine of equivalents. The idea that a contrary meaning cannot be covered under the doctrine of equivalents is considered to be similar to the idea of "specific exclusion." The way of thinking about an inventor's error in description in this case is similar to that in *Fuji Photo Film*,^(*)72) though this subject is not related to the doctrine of equivalents. If the applicant failed to correct errors in drafting during the prosecution, he must bear responsibility for that failure, and it is also very difficult to cover the matter that he failed to describe under the doctrine of equivalents both in Japan and the United States.

This case involves the error in description of the disputed claim limitation, specifically, describing the term "taking lens" without the word "means." The court rejected the patentee's argument that the "taking lens" should be construed by adding the word "means." The reason for this rejection was that exclusion of the word would not cause inconsistency between claims and embodiments. The court also rejected the patentee's argument that the "means" language in dependent claim 3 can be incorporated into claim 1 from which it depends on the basis that the problem of inconsistency can also be resolved by omitting the word "means" from claim 3. The court also did not accept the argument that an inadvertent omission should be corrected. As grounds for this, the court stated that if the applicant kept silence on the examiner's statement about claim scope, there will arise the inference that description was not inadvertent^(*)73) and that the court had no way of

knowing whether this amendment was accepted since the applicant did not take any opportunity to make appropriate amendment.^(*)74)

V Conclusion

The subject matter of protection under the doctrine of equivalents in Japan is similar to that in the United States from a broad perspective. The principal role of the doctrine of equivalents seems to be being consolidated into cases involving subsequent change in the state of the art. In fact, the doctrine of equivalents has been rarely applied to cases not involving subsequent change in the state of the art. In the United States, the public-notice function under the doctrine of equivalents has been enhanced through combined employment of the All Elements Rule and the prosecution history estoppel. This is in line with the Supreme Court's intention.

It seems that the role of claim differentiation has been reviewed recently. It also appears that a sharing of roles has been being established, in which the applicant discloses all equivalents that are foreseeable at the time of filing, cases not involving after-arising technology are covered by claim differentiation, and unforeseeable infringing embodiments that subsequently arise are dealt with through the doctrine of equivalents.

There are actually movements to further limit application of the doctrine of equivalents by foreseeability. Depending on the degree of limitation by foreseeability, there is the possibility that after-arising technology will become the only subject matter of application of the doctrine of equivalents. The level of a person skilled in the art will be clarified in association with ways to apply foreseeability in relation to the prosecution history estoppel. Future movement is to be watched.

(*)71) Based on the explanation in (1) Osaka High Court, Heisei 8 (Wa) 5784 (Underarm absorption pad case) and (2) First Subcommittee of the Second Patent Committee, "Kintō 5 yōken ni kansuru ronten no bunseki to ryūiten (sono 2)" (Analysis of the argument for five requirements for equivalence and the points to be noted (2), *Intellectual Property Management*, vol. 51, no. 9: 1406.

(*)72) 386 F.3d 1095, 72 USPQ2d 1769 (Fed.Cir. 2004).

(*)73) 350 F.3d 1365, 1373-74 (Fed.Cir.2003).

(*)74) 126 F.3d 1420, 1425 (Fed.Cir.1997).