

9 Study on Patent Claim Interpretation

Claim interpretation or construction in courts is a key factor in appropriately determining the scopes of protection of patented inventions and many critical decisions thereon have been made in various countries. In 1998, the Supreme Court of Japan also admitted in its decision claim interpretation under the doctrine of equivalents. In the meantime, current technical innovations have brought about changes to allow new styles of patent claims, and how to interpret such new styles of claims is coming up for discussion.

Under the theme of finding desirable ways to interpret patent claims in Japan, research has been carried out on existing provisions concerning claim interpretation, as well as their changes and tendencies of recent court decisions in three countries: the U.S., the U.K. and Germany. In particular, the research was focused on the trends of judicial precedents on the issue of the doctrine of equivalents, interpretation of claims containing functional expressions, and interpretation of product-by-process claims.

I Trends of U.S. Court Decisions

1 Provisions Concerning Claim Interpretation

(1) Provisions Concerning Patent Infringement in the U.S. Patent Law - General Principle

Basic rules for claim interpretation and patent infringement in the U.S. are provided in the Patent Law, specifically in 35 U.S.C. §154(a)(1), which provides for contents of patent right, and 35 U.S.C. §271(a), which prescribes basic rules regarding patent infringement.

Patent infringement essentially requires, as the premise, that an accused product be identical to a patented invention. The patented invention must be determined with reference to the disclosure in the specification, as clearly set forth in 35 U.S.C. §154(a)(1).

At the same time, 35 U.S.C. §112(1) provides that a patent claim bears the most essential role in particularly pointing out the subject matter which the applicant regards as his invention.

(2) Literal Infringement and Claim Interpretation

Theories also support that a patent claim has two functions: j to clarify the scope of an invention on which patentability requirements are to be questioned; and k to clarify the scope of an invention on judgment on infringement.

Traditionally, many court decisions on patent infringement disputes have relied upon a two-step method which includes a step of literally interpreting the words of a patent claim (construction of claim (claim language)) and a step of “reading” the result of the interpretation on an accused item (identification of item).

The appeal court decision in *Markman v. Westview Instruments, Inc.*^(*) clearly held that the first step, i.e., interpretation and construction of patent claims, is a matter of law which is to be

resolved by trial judges, and this decision was affirmed by the U.S. Supreme Court. There is still a view, however, that claim interpretation is regarded as being a factual question to be settled by jury trial.

The next step, i.e., identification of the item, determines whether all the elements of the claim read on the item, as a result of claim interpretation. If all the elements read on the accused item, there is literal infringement. Absence of one or more claim elements in the accused item does not necessarily mean non-infringement. The next question is whether the accused item infringes under the doctrine of equivalents.

In judicial precedents, the legal nature of the “reading” work is treated as being a factual matter.

Thus, claim interpretation and the question of infringement are different matters that should not be discussed homogeneously but separately and independently as distinct steps.

(3) Rules and Factors in Claim Interpretation and How These are Considered in Judicial Precedents

In general, it is rather seldom that claim language is definite and clear by itself and devoid of any obscurity. Usually, therefore, several factors are considered when patent claims are interpreted. The aforementioned *Markman* appeal court decision suggested that claim interpretation is more analogous to the literal construction of the language used in statutes than to the construction of contracts. The decision further held that, although ideally no obscurity should exist in light of knowledge of one of ordinary skill in the art, the specification, and prosecution history, the claims should be interpreted by focusing on how skilled persons would have understood the claimed invention at the time when the invention was made, and that the inventor’s intent is not significant in construing the claim.

(*)1 *Markman v. Westview Instruments, Inc.*, 34 USPQ2d 1321, 1326 (Fed. Cir. 1995) (in banc), *aff’d*, 38 USPQ2d 1461 (1996).

A brief summary will be given below as to how these factors are considered in judicial precedents.^(*)2)

The words used in a patent claim should be given their ordinary meaning, unless used in a special meaning in the specification. The words must be clearly defined by intrinsic evidences^(*)3) when they are used in a special meaning. As to the ordinary meaning of each word, one can resort to dictionaries.

The specification may serve as a lexicon or a kind of dictionary in constructing the claims. When interpreting claims, however, attention must be paid not to restrict the claims by “reading into” the claims limitations from the description and embodiments in the specification, and not to neglect, ignore or otherwise “read out” limitations in the claims to widen the scope to include subject matter disclosed in the specification but not claimed. Obviously, however, the former does not forbid interpreting the patent claims by considering matters that are clearly limited in the specification. A recent court decision^(*)4) held that not only “explicit” limitations but also “implicit” limitations may be considered in claim interpretation.

The prosecution history has been given a status of a major test in interpreting the meaning of words in a claim. This function of the prosecution history, however, should be clearly demarcated from the rule of prosecution history estoppel that has an effect of restricting application of the doctrine of equivalents. The former functions as a tool or a reference which helps claim interpretation, whereas the latter is a principle originating from the legal theory of estoppel and prohibiting an applicant from resurrecting a right regarding matters that the applicant has surrendered in the course of prosecution.

Extrinsic evidences^(*)5) are usable to show the prior art at the time when the invention was made, thus help in construing the claim words. However, the *Markman* appeal court decision held that extrinsic evidence should be used for the purpose of assisting courts in understanding the technical context of the claim statements, but not for clearing any obscurity of the claim words. A slight confusion seems to exist among judgments of CAFC regarding the extent of extrinsic evidence, as well as to what degree such extrinsic evidence can be

relied upon. The above-mentioned decision also assumes that claim interpretation is to be treated as a matter of law. A critical opinion therefore exists that factual matters that should be settled by jury trial are handled by judges as being matters of law.

(4) Brief Summary

Claim interpretation is the first step of the process for judging infringement, whether it is a literal infringement or an infringement under the doctrine of equivalents. The setting-up of clear standards for claim interpretation is therefore significant. Practically, however, wide variation and diversification of actual patent claims make it extremely difficult to work out any comprehensive standard for claim interpretation.

Basic elements of the test and scheme for claim interpretation have been clarified appreciably owing to accumulation of judicial precedents, and the *Markman* appeal court decision has set out a “summing up” on this issue, which is relied upon in many current court decisions.

The basic question as to whether claim interpretation is a matter of law or a matter of fact is still disputable. In this relation, slight confusion still exists regarding individual issues such as the question of how to weigh extrinsic evidence and the question of to what extent the claim words should be restricted by the contents of the specification.

2 Current Tendency of Court Decisions Regarding the Doctrine of Equivalents

(1) Tests on Application of the Doctrine of Equivalents Set Out by the Supreme Court in *Warner-Jenkinson Co., Inc. v. Hilton Davis Chemical Co.*^(*)6)

- (i) Tests for determination of scope of equivalents
- In the in banc *Hilton Davis* decision, the CAFC held that the determination of whether a difference between an element of a patent claim and a corresponding element of an accused product is substantial or insubstantial should follow the Triple identity test^(*)7) set out in the *Graver Tank* Supreme Court decision.^(*)8) The CAFC also made it clear that the time criterion of possible knowledge of person skilled in the art with respect to the interchangeability (hereinafter, abbreviated as “possible knowledge of interchangeability”)^(*)9) is at

(*)2) Chisum on Patents (Matthew Bender, 2001) Volume 5:Chapter 18, 18.03[2][a] (Matthew Bender, 2001).

(*)3) “intrinsic” evidence includes a patent’s claim language, the specification and the prosecution history.

(*)4) *Bell Atl. Network Servs., Inc. v. Covad Communs. Group, Inc.*, 262 F.3d 1258 (Fed.Cir.2000); *SciMed Life Sys. v. Advanced Cardiovascular Sys.*, 242 F.3d 1337 (Fed.Cir.2000).

(*)5) “extrinsic” evidence is all evidence external to “intrinsic” evidence, including prior art, expert testimony, etc. To which extent “extrinsic evidence” includes is differently considered by decisions.

(*)6) *Warner-Jenkinson Co. v. Hilton Davis Chemical Co.*, 520 U.S. 17, 41 USPQ2d 1865 (1997).

(*)7) Triple identity test is a test of identity in the following three elements: ① substantially the same function, ② substantially the same way, and ③ substantially the same result.

(*)8) *Graver Tank & Mfg. Co. v. Linde Air Products Co.*, 399 U.S. 605, 85 USPQ 328 (1950).

the time of infringement rather than the time at which the patent application was filed.

The *Warner-Jenkinson* Supreme Court decision did not give a denial to the test in the CAFC in banc decision, but held that the CAFC should refine the formulation of the test for equivalence in the orderly course of case-by-case determinations and the Supreme Court should leave such refinement to the CAFC's sound judgment.

(ii) Regarding "intention to infringe"

The Supreme Court decision held that whether or not the doctrine of equivalents is to be applied should not be determined by whether there was an intention to infringe.

(iii) Regarding "all elements Rule"

It was held by the Supreme Court that the equivalency should be determined through comparison of each element of the claimed invention rather than the invention "as a whole".

(iv) Regarding prosecution history estoppel

The Supreme Court held that any invention surrendered by a patentee must be excluded from the scope of equivalence, due to the legal doctrine of prosecution history estoppel. It was also confirmed that estoppel applies in particular to restrictive amendments effected to render a claim patentable over prior art, and that when the reason for the amendment is unclear and not established by the patentee, estoppel should be applied based on a presumption.

(2) CAFC Decisions After the Warner-Jenkinson Supreme Court Decision

(i) Criterion of scope of equivalence

The *Warner-Jenkinson* Supreme Court Decision left the task of refinement of formulation of the test to CAFC's sound judgment. At present, there are two procedures available for the determination of the scope of equivalence: one is the triple identity test and the other is the test regarding the possible knowledge of interchangeability. Although several decisions have been made by the CAFC with respect to the triple identity test^{(*)10}, none of these decisions clearly showed the extent of "substantiality". Thus, the CAFC decisions were made on a case-by-case basis. In re *Kemco Sales*, the CAFC held that when a difference under the triple identity test is "substantial", the issue of possible

knowledge of interchangeability is moot. The CAFC decisions also show that the difference is likely to be regarded as being "substantial" when an accused product has been designed around the patent^{(*)11} or when an accused product was cited as a prior art in an Office Action in the course of prosecution^{(*)12}.

(ii) CAFC decisions regarding the all elements rule

There are many cases which dealt with the "limitation by limitation rule" that questions whether an accused product has elements corresponding to elements of a patent claim and that permits arbitrary combinations of such corresponding elements^{(*)13}. There are also cases which strictly followed the all elements rule and denied equivalents. In one case, the doctrine of equivalents was not applied for the reason that elements of a patent claims were definite^{(*)14}. In another case, application of the doctrine of equivalents was denied for the reason that application of this rule would render the limitations in the claim meaningless^{(*)15}. A case also exists in which claims were interpreted in a restrictive manner in the light of the disclosure in the specification, without relying on the doctrine of equivalents^{(*)16}.

(iii) Regarding the time criterion for the issue of the possible knowledge of interchangeability

According to the decision holding that the question of equivalence is determined at the time of infringement, equivalency may be extended such that an element of a device that is not an equivalent at the time of start of the business becomes an equivalent at a later time. After the *Warner-Jenkinson* Supreme Court decision none of the CAFC decisions discussed about this issue. Opinions exist, however, that a defense based on prior art should be considered by taking into account not only the state of the art at the time of patent application but also that at the time of infringement.

(iv) Cases regarding prosecution history estoppel

There has been no consistency in the CAFC regarding how strictly prosecution history estoppel shall be applied.

Therefore, the *Festo* CAFC in banc held^{(*)17} as follows:

① The "substantial reason related to patentability"

(*)9) The *Graver Tank* Supreme Court decision suggests "whether persons reasonably skilled in the art would have known of the interchangeability" as test criteria of doctrine of equivalents, so that it is appropriate understanding "would have known".

(*)10) *Instituform Tec. Inc. v. CAT Contracting Co.*, 48 USPQ 2d 1610 (Fed. Cir. 1998); *Kemco Sales Inc. v. Control Papers Co.*, 54 USPQ 2d 1308 (Fed. Cir. 2000).

(*)11) *Roton Barrier, Inc. v. The Stanley Works*, 37 USPQ 2d 1816 (Fed. Cir. 1996).

(*)12) *National Presto Indus., Inc. v. West Bend Co.*, 37 USPQ 2d 1685 (Fed. Cir. 1996).

(*)13) *Festo Co. v. Shoketsu Kinzoku Kogyo Kabushiki Co.*, 50 USPQ 2d 1385 (Fed. Cir. 1999), etc.

(*)14) *Sage Products, Inc., v. Devon Industries, Inc.*, 44 USPQ 2d 1103 (Fed. Cir. 1997).

(*)15) *Dr. Raymond G. Tronzo, v. Biomet, Inc.*, 47 USPQ 2d 1829 (Fed. Cir. 1998).

(*)16) *Scimed Life Systems, Inc. v. Advanced Cardiovascular Systems, Inc.*, 58 USPQ 2d 1059 (Fed. Cir. 2001).

(*)17) *Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co.*, 56 USPQ2d 1865 (Fed. Cir. 2000) (en banc).

is not limited to amendments made to overcome prior art but includes any reason that affects issuance of a patent.

② Even a “voluntary” amendment can create prosecution history estoppel.

③ If a claim amendment creates prosecution history estoppel, there is no room at all for application of the doctrine of equivalents.

④ When a presumption is made of prosecution history estoppel due to the reason that explanation for a claim amendment is not established, there is no room at all for application of the doctrine of equivalents.

While some of CAFC decisions made after the *Festo* in banc decision seem to strictly follow the holdings of the in banc decision, there is also found a decision holding that the rule of prosecution history estoppel should not apply to redefinition of elements in a patent claim^{(*)18}.

The *Festo* in banc decision was brought up to the Supreme Court by an appeal with respect to the above points of dispute ① and ③ and received by the same. The U.S. Government issued a brief in regard to the trial at the Supreme Court. The Government’s brief is summarized as follows.

The complete bar approach excludes application of the doctrine of equivalents to “after-arising technologies” developed after a restrictive amendment. In the meantime, the *Warner-Jenkinson* Supreme Court’s decision holds that presumption of prosecution history estoppel based on restrictive amendment is refutable. Prohibition of refutation to presumption based on “after arising technologies” is incompatible with the same Supreme Court’s decision that affirmed protection against infringement based on interchangeable after- arising technology.

Various other opinions have also been submitted, and how the Supreme Court will rule on this case is attracting attention.

(v) Test of the doctrine of equivalents with “hypothetical claim”

A theory called “hypothetical claim theory rule” is acknowledged that any product which is covered by a hypothetical claim does not constitute an infringement under the doctrine of equivalents if such a hypothetical claim is not patentable over prior art, although this theory was not discussed in the *Warner-Jenkinson* Supreme Court’s decision.

(3) Regarding Purport of Application of the Doctrine of Equivalents

The doctrine of equivalents is not a remedy for mis-drafting of a patent claim. In the meantime,

Sage Products Inc., v. Devon Industries, Inc., held that the doctrine of equivalents should not be applied to the reasonably anticipated coverage to be claimed at the time of filing of a patent application. This holding is considered to suggest that the doctrine of equivalents has major purpose to protect the scope of substitution by an after-arising technology that did not exist at the time of filing, rather than substitution by a technology anticipated by a person skilled in the art at the time of filing upon reading a claim.

The question of whether the doctrine of equivalents covers “subject matter disclosed in the specification but not claimed” is being at issue in *Johnson & Johnson Associates, Inc. v. R.E. Service Co., Inc.* Considering the above-mentioned purport, the Court will presumably decide that the scope of equivalence does not extend to encompass matters not set forth in the claims^{(*)19}.

(4) Conclusion

It is a current trend in the U.S. to give much weight to the notice function of patent claims. Thus, the practice of claim interpretation is changing towards easier understanding of the scope by the general public than ever. The strict application of prosecution history estoppel held by the *Festo* in banc decision, as well as the all element rule, symbolically demonstrates this current trend in the U.S.

From the viewpoint of emphasizing the notice function, clear and decisive application of the doctrine of equivalents will be needed on a case-by-case basis. In particular, it will become more important to set up clear standards regarding the “substantiality” factor of the triple identity test, as well as criteria for “interchangeability” and “possible knowledge of a person skilled in the art”. Relationship between the theory of prosecution history estoppel and the doctrine of equivalents will also be an important issue.

3 Trends of Decisions Involving Interpretation of Functional Claims

(1) Introduction

In the U.S., a special provision regarding functional claims is stipulated, namely, 35 U.S.C§112(6) serves as a compromise measure between practical requirements and the principle of distinctness. Examination in practice and claim interpretation is exercised on the premise of this special provision. This special provision may seem to impose a different discipline in the U.S. Patent Law from the Japanese Patent Law which lacks

(*)18) *Turbocare Division of Demag Delaval Turbomachinery Co. v. GE*, 60 USPQ 2d 1017 (Fed. Cir. 2001).

(*)19) *Johnson & Johnston Associates Inc. v. R.E. Service Co., Inc.*, 238 F.3d 1347, 2001 U.S. App. LEXIS 4038 (Fed. Cir. 2001)(en banc)(this case was decided on March 28, 2002, after the report of this study was published, to hold that the scope of equivalence does not extend to encompass any invention disclosed in the specification but not set forth in the claims.

such a provision. This provision, however, is considered as expressing a guide to interpretation of functional claims when the basic principle of the U.S. Patent Law is applied to functional claims, or how to accept functional claims. An important hint exists in this special provision of the U.S. Patent law as to how to handle similar functional claims under Japanese Patent Law.

(2) Functional Claims Under Distinctness Rule

An opinion has existed that functional claims do not comply with the principle of distinctness set forth in 35 USC §112(2). In fact, in the *Halliburton* Supreme Court decision, a patent claim was decided as being invalid as being indefinite and too wide. In order to address this problem, the U.S. Congress revised 35 U.S.C. in 1952 to add §112(6) which admits functional expressions of patent claims under certain conditions, thus legislatively resolving the issue of conflict between functional expressions of patent claims and the principle of distinctness.

(3) How Functional Claims Are Treated in Prosecution

Conventionally, the USPTO has made it a rule not to apply §112(6) in the course of prosecution, and examined applications based on literal interpretation.

This practice has been criticized that claim interpretation during prosecution is improperly wide as compared to restricted interpretation of claims of patented invention under §112(6).

Under these circumstances, the *Donaldson* in banc decision^{(*)20} disaffirmed the conventional examination practice and held that §112(6) should be considered also in the course of prosecution. As a result, in the current examination procedure, once the examiner finds that the claim fall under an equivalent of the prior art and that the prior art is an equivalent of the structures or the like disclosed in the specification, the burden of proof is on the applicant to show that the prior art is not an equivalent.

(4) Whether to Apply 35 USC §112(6)

Special claim interpretation is required when §112(6) is applied. This gives rise to a question as to on what occasion should this Section be applied.

In *Unidynamics Corp. v. Automatic Products International*^{(*)21}, the CAFC held that §112(6) applies even when a functional expression lacks the word “for”. In *Media Communications LLC v. ITC*^{(*)22}, a lower court’s decision which admitted the application of §112(6) was overturned by the CAFC

for the reason that lack of words “means for” creates a presumption that resorting to §112(6) was not sought for so that a word in a claim should be construed to define a specific structure. Even when the above-mentioned presumption is made, §112(6) may apply if means for performing a specific function is not properly written in a functional claim^{(*)23}.

This serves as a relief measure against invalidation of a patent based on failure to meet the distinctness requirement.

For patentees, §112(6) is both advantageous and disadvantageous. This Section, when applied, may remove a reason for invalidation based on unduly wide, obscure, and indefinite claim wording, i.e., failure to meet the distinctness requirement. On the other hand, the same Section serves to restrict the scope of an element in a claim of a patent only to structure, material, or acts described in the specification, and equivalents thereof.

(5) Literal Construction of Functional Claims

Under the legal theory of “reverse doctrine of equivalents”, an accused product may not infringe a claim even if all the elements in the claim literally read on the accused product. With regard to functional claims provided in §112(6), a accused product does not infringe such a claim even if the claim literally reads on the product, provided that the product is not identical or equivalent to the structure, material, or acts disclosed in the specification. Thus, §112(6) is regarded as being a legal measure which authorizes the reverse doctrine of equivalents^{(*)24}.

Therefore, in order that a functional claim is literally met by an accused product, a court must find that the product has is identical or equivalent in terms of structure, material, or acts disclosed in the specification, and that the function is identical^{(*)25}.

Whether the requirement of “identity of function” is met can be determined by evaluating the “equivalents” prescribed in §112(6) in the light of tests that are similar to those applied for the doctrine of equivalents. Anyway, identity of the function is an essential factor.

Obviously, the provision of “equivalents thereof” prescribed in §112(6) and the doctrine of equivalents have different purposes and are applied on different occasions. It is necessary, however, to clarify the difference between them.

In the aforementioned *Valmont* case, the court held that, while the doctrine of equivalents relies upon the triple identity test, §112(6) requires only a comparison between a structure disclosed in the

(*)20) In re Donaldson Co., 29 USPQ 2d 1845 (Fed. Cir. 1994).

(*)21) Unidynamics Corp. v. Automatic Products International, 48 USPQ 2d 1099 (Fed. Cir. 1999).

(*)22) Media Communications LLC v. ITC, 48 USPQ 2d 1880 (Fed. Cir. 1998).

(*)23) Micro Chem. Inc. v. Great Plains Chem. Co., 52 USPQ 2d 1258 (Fed. Cir. 1999).

(*)24) Valmont Indus. Inc. v. Peinke Mfg. Co. Inc., 25 USPQ2d 1451 (Fed. Cir. 1993).

(*)25) Pennwalt Corp. v. Durand-Wayland, Inc., 3 USPQ 2d 1737, 1739 (Fed. Cir. 1987).

specification and that of an accused product, differently from the doctrine of equivalents.

In *Chuminata Concrete Concept, Inc. v. Cardinal Indus, Inc.*^{(*)26}, the court confirmed that §112(6) and the doctrine of equivalents have different origins but should rely upon similar tests. Based on this principle, the court made it clear there are two points of difference between them: namely, ① the time criterion for the question as to insubstantial difference under the doctrine of equivalence is the time of infringement, whereas, for §112(6), the time criterion is the time of issue of a patent, so that §112(6) requires that only the art that existed at the time of issue of the patent be considered, in contrast to the doctrine of equivalents, which requires that technologies developed after the issue of the patent also be considered; and ② for non-essential difference under §112(6) it is required that the functions be identical to each other, while the doctrine of equivalence inquires only whether the functions, ways and the results are substantially the same, respectively. The court also held that, when an equivalent matter that was known at the time of issue of a patent is considered, such a matter does not come under the doctrine of equivalents if it is decided as being not equivalent under §112(6).

In *Odetics* case^{(*)27}, the court affirmed that whether the requirement of §112(6) is met is determined in the light of tests that are similar to those used under the doctrine of equivalents, on condition that the functions are identical. At this time, however, the court disaffirmed the use of the all elements rule, for the reason that element-by-element comparison through an analysis of a claimed structure is inappropriate because the structure corresponding to the claimed functions as a whole alone can limit the claim.

As will be understood from the foregoing, there is no comprehensive rule concerning the “equivalents” prescribed in §112(6) and a question still remains in this connection.

(6) Functional Claim and the Doctrine of Equivalents

Conventionally, use of the doctrine of equivalents in interpretation of functional claims has been considered only as “a saying by the way” (obiter dicta). This common understanding was relied upon for the first time by the CAFC in *WMS Gaming, Inc. v. International Game Tech.*^{(*)28}

In this case, the CAFC denied literal infringement on a functional claim because function is not identical and affirmed infringement under the doctrine of equivalents for the reasons that the

function of the accused product was substantially the same as that of the claimed invention and that the accused product produced the same result in the same way as the claimed invention.

Under the current U.S. case law, there are two types of patterns of infringement in connection with functional claims: one in which the function of an accused product is not identical but substantially identical to that disclosed in the specification; and the other in which interchangeability with technologies developed after the filing of patent application is questioned.

4 Trends of Decisions on Interpretation of Product-By-Process Claims

(1) Definition of “Product-By-Process Claim”

A “product” claim inherently defines a product by structural features and may be infringed by a product on which the claim literally reads, even if the infringing product is manufactured by a different process disclosed in the patent.

A “product-by-process claim” is a claim in which at least a part of a product is defined by a process. Applicants generally prefer product claims because product-by-process claims are liable to be interpreted restrictively to cover only products produced by the processes set forth in such claims. Applicants, however, are not reluctant to submit product-by-process claims particularly when they find it difficult to define the natures of invented products in addition to product claims. The USPTO admits such a way of claim drafting as long as the distinctness requirement is satisfied^{(*)29}.

(2) Interpretation of Product-By-Process Claims in Prosecution

The patentability of a product-by-process claim is examined by construing the claim broadly.

When a prior art shows a product which is reasonably understood as having only a slight difference from the claimed product, the claim is rejected as being anticipated by or obvious from the prior art. Since the USPTO themselves is unable to physically compare the prior art product and the claimed product by actually manufacturing the prior art product, the examining procedure allows examiners to reject claims based on prima facie lack of novelty or prima facie obviousness, thus reducing the burden of proof on the examiners^{(*)30}.

(3) Interpretation of Rights Covered by Product-By-Process Claims

There are two inconsistent CAFC decisions on the interpretation of product-by-process claims: one holding that a product which is the same as the

(*)26) *Chuminata Concrete Concept Inc. v. Cardinal Indus. Inc.*, 46 USPQ 2d 1752 (Fed. Cir. 1998).

(*)27) *Odetics Inc. v. Storage Tech Corp.*, 51 USPQ 2d 1225 (Fed. Cir. 1999).

(*)28) *WMS Gaming Inc. v. International Game Tech.*, 51 USPQ 2d 1385 (Fed. Cir. 1999).

(*)29) MPEP § 706.03(e) (1974).

(*)30) MPEP § 2113 (2001).

product defined by a product-by-process claim falls within the scope of the claim regardless of the production process; and the other holding that a product is not covered by a product-by-process claim if produced by a different process.

In *Scripps* case^(*31), the CAFC took a position that the claimed product is not limited to that prepared by the process set forth in the claims. The court held that, since a claim must be interpreted in the same way both in determination of validity of the claim and determination of infringement, the correct reading of product-by-process claims is that they are not limited to products produced by the process stated in the claims. In the *Scripps* decision, however, the CAFC held that there was no infringement by applying the reverse doctrine of equivalents because the accused product was different from the patentee's product and excelled the latter in purity. In contrast, in *Atlantic Thermoplastics* case^(*32), Atlantic, relying upon the *Scripps* decision, asserted that the process set forth in its product-by-process claims did not limit the scope of the claimed product. The CAFC rejected this assertion for the reason that *Scripps* decision did not fully study the Supreme Court decisions. The CAFC then cited some Supreme Court decisions which limited the scope only to products that were prepared by processes set forth in the claims, and held that the "process limitations" should be read into the scope of the claims, unlike the administrative decision on patentability in the examination procedure.

In view of the fact that two contradictory decisions were made by two different assemblies, Atlantic requested an in banc rehearing where its assertion was denied although four judges were against the denial^(*33).

Subsequent district court decisions also varied. One district court decision held that a product prepared by a different process does not fall within the scope of the claim even if the product *per se* is the same, whereas another district court decision held that a product is encompassed by a claim if the product *per se* is the same as the claimed product, regardless of the preparation process^(*34). The latter decision was appealed to the CAFC and how the CAFC will deal with this case is drawing attention.

(4) Opinion of Professor Takenaka of University of Washington

In the research committee for discussion of the US situation organized under this study, Professor Takenaka of the University of Washington raised the following point.

It is difficult to examination this product-by-process type claims with respect to the enabling

requirement, the description requirement and the distinctness requirement. As it is impossible to add a structural feature to this type of claim after patenting, there is a substantial risk of being invalidated. In addition, since the CAFC is materially negative to the "experimental use doctrine", competitors cannot experimentally manufacture a patented product and compare the product with their own products. Furthermore, element-by-element comparison is impossible because there is no recitation of structural limitations. Product-By-Process claim, therefore, is not considered significant in claim drafting.

(5) Consideration

If a product, which is produced by a process different from that stated in a product-by-process claim but the same in nature as the claimed product, is encompassed by the claim, any third party will be unduly burdened of manufacturing the patented product in order to compare such a product with its own product. In addition, it is considered difficult to specify the nature of the product defined by a product-by-process claim. As inventions of technical fields with rapid progress, e.g., biotechnology, may not be defined with structural characteristics at the time of filing of a patent application, it may be a reasonable strategy to specify a part of a claim by a process to secure a right and, when the structure of the invention has been made clear, to extend the scope of the right to cover the same product prepared by a different process. It is to be noted, however, that a patent claim has a primary function of making notice to third parties. In order to avoid any unforeseeable disadvantage to caused to third parties, any attempt to extend the right to encompass products made by a process other than the disclosed process requires sufficient care.

It might be possible for courts to interpret a product-by-process claim broadly as done by the USPTO, when evaluating the validity of the claim. However, if a product produced by the process stated in the claim alone can infringe, it might be unnecessary to determine the validity of the claim with respect to the other scope of the claim. Thus, it will be sufficient for the courts to interpret the claim in the same way as that for the determination of infringement.

As discussed above, it seems that the majority of decisions hold that a product-by-process claim covers only the product produced by the process stated in the claim. Nevertheless, it will not be appropriate to unconditionally apply this rule of claim interpretation in the course of the examination procedure, regardless of the disclosure in the specification. From this point of view, it might

(*31) *Scripps Clinic & Research Fdn. v. Genentech, Inc.*, 18 USPQ 2d 1001, 1016 (Fed. Cir. 1991).

(*32) *Atlantic Thermoplastics Co. Inc. v. Faytex Corp.*, 23 USPQ 2d 1481 (Fed. Cir. 1992).

(*33) *Atlantic Thermoplastics Co. Inc. v. Faytex Corp.*, 23 USPQ 2d 1801 (Fed. Cir. 1992).

(*34) *Trustees of Columbia University v. Roche Diagnostics GmbH*, (D. Mass. No. 93-11512-NG, 2000).

be not useless to determine novelty and non-obviousness of the claimed product *per se* of a product-by-process claim, while construing the claim without limiting it to the process set forth in the claim, as done by the USPTO in the prosecution.

The nature of product-by-process claims cannot be described simply. In particular, there are many issues to be considered on the claim interpretation in infringement litigation, such as the wording of individual product-by-process claims, consistency with the disclosure in the specification, features which render the patentability, and so forth. Reducing these issues to the sole issue of whether or not the scope of claim is limited to the product produced by the process in the claim and settling this issue alone will not give a proper guide to claim interpretation in the United States. From the concrete situations and the opinions of Judges of the *Scripps* case and *Atlantic Thermoplastics* case, it is seen how the interpretation of product-by-process claims is difficult. At the same time, versatility in claim interpretation according to the specifics demonstrated in these cases is informative. Attention should therefore be focused on future court decisions in this regard.

II Trends of Court Decisions in the United Kingdom

1 Characteristics of Claim Interpretation Specific to the U.K. Among European Countries

It is known that claims are interpreted rather strictly in the U.K. In contrast to Germany where the central definition principle is dominant, the U.K. patent system is oriented towards a peripheral definition principle seeking legal stability. This difference symbolically appears in the *Epilady* cases in which an identical technology was decided as infringing in Germany and not infringing in the U.K.

While as a part of the activities towards harmonization in the European community, an effort to clarify standards of claim interpretation has been made with Article 69 of the European Patent Convention and the protocol concerning construction of Article 69, the differences by country, however, are said to be still innegligible.

The practice of claim interpretation in the U.K. originates from the 1852 Act which set out the duty of submitting a written specification. Then, the 1949 Act determined that a claim is the "definition of the scope sought for a patent", progressively emphasizing the peripheral definition function of claims in the patent system. In the meantime, the "Pith and Marrow" theory emerged in 1877 which determines that infringement is established when the pith and marrow of invention and an accused

product are the same, thus affording a rather relaxed view of claim interpretation. This theory, however, did not provide any clear standards or criterion. A protocol concerning EPC concluded in 1973 suggests that a compromise between the strict claim interpretation dominant in the U.K. and the rather loose standard relied upon in Germany would be appropriate. In compliance with this protocol, U.K. Patent Law was fully revised in 1977 including Section 125 providing claim interpretation.

Regarding claim interpretation, a decision was made in 1982 in *Catnic*, working out a new standard called the "purposive construction" theory which established a basis for current claim interpretation. Then, in the *Improver* case, a decision was made attempting to formulate the *Catnic* standard.

These two decisions were made on patents under the old Patent Law. Thus, the "purposive construction theory" presented in the *Catnic* case is considered as a standards for claim interpretation effective as a common law under the old Patent Law. Whether the "purposive construction theory" (*Catnic*=*Improver* standards) should apply to patents under the current Patent law is an issue. Although some lower court decisions held that claim interpretation should strictly follow the statutory construction of Article 125 envisaging current trends in European community rather than relying upon the *Catnic* standard under the common law, judicial precedents and majority opinion affirm the effectiveness of the *Catnic* decision as a precedent in claim interpretation of patents under the current Patent Law.

2 Standards for Claim Interpretation

(1) *Catnic*=*Improver* Test

The claim interpretation standard referred to as the *Catnic*=*Improver* test used by U.K. courts has the following three factors or requirements.

First requirement:

Does the variant have a material effect upon the way the invention works? If yes, the variant is outside the claim. If no:

Second requirement:

Would this (i.e. the fact that variant has no material effect) have been obvious at the date of publication of the patent to a reader skilled in the art? If no, the variant is outside the claim. If yes:

Third requirement:

Would the skilled in the art nevertheless understood from the language of the claim that patentee intended that strict compliance with the primary meaning was an essential requirement of the invention? If yes, the variant is outside the claim.

A comparison between these three requirements and the five requirements adopted in Japan provides the following.

The first requirement of the *Catnic*=*Improver*

test corresponds to “identity of operation/working effect” required in Japan. The second requirement corresponds to the “obviousness” concept in Japanese practice, although the *Catnic=Improver* test significantly differs in that it recites the publication date of the patent as the critical date.

The third requirement presumes that the first and second requirements are satisfied. Thus, the third requirement questions how a person skilled in the art would have evaluated the fact that the patentee dared to draft a narrow claim despite the fact that a person skilled in the art would have reasonably been enabled to draft a broader claim. Infringement is denied if the answer to this question is that a person skilled in the art upon reading the claim language had understood that the patentee selected a specific wording with the intention that the wording should be construed literally and strictly. This approach is similar to the concept of “intentional exception” discussed in Japan. Strict application of the third requirement of the *Catnic=Improver* test will leave substantially no room for the so-called doctrine of equivalents. Thus, how to deal with the third requirement is an issue.

The first and second requirements are considered as matter of fact, while the third requirement is considered as matter of law. Thus, it is generally understood that the first and second requirements play a role of assessing premises that have to be cleared before entering into the question of the third requirement.

In the U.K., there is no distinct legal theory which would correspond to prosecution history estoppel. A legal theory referred to as the “Gillette defence” has been known as a legal measure for so-called defense on prior art. This theory, however, is not used so frequently because validity of patents can also be determined in infringement law suits in the U.K.

(2) Article Relied on for Claim Interpretation

The basis for claim interpretation is found in Article 125 of the current U.K. Patent Law (1977).

Article 69 EPC, which is recited in Article 125, Paragraph 3 of the U.K. Patent Law, contains similar provisions. The protocol concerning construction of Article 69 has a paragraph concerning equivalence. The last sentence of the protocol devoted to equivalence was added by a revision made in 2000. This sentence, however, is nothing but the result of compromise, and various opinions presented in preparatory discussion are not adopted in the protocol. Future trends must be followed to see how the last sentence will influence claim interpretation practice.

3 Recent Decisions

The following is an overview on recent decisions that affirmed infringement based on the

Catnic=Improver test.

In the *Kastner v. Rizla* case, the Patent County Court denied infringement but the Court of Appeal decided that there was infringement. The Appeal Court decision ([1995] PRC 585) held that there are “obvious mechanical equivalents” which are nothing but substitutions with a known technology, and “mechanical equivalents” which are to be judged on infringement after a more normative, purposive construction. In this case, the Appeal Court affirmed the infringement based on the purposive construction of a claim. More specifically, focusing on the third requirement of the *Catnic=Improver* test, the Appeal Court held that a person skilled in the art would never have considered that the patentee intended to strictly comply with the claim wording, since the variant was immaterial.

In the *Biolet v. Valmet* case, ([1997] RPC 479), the court decomposed a claim into elements and executed purposive construction on an element which was not found in an accused product, leading to the conclusion that there was infringement. There are several similar decisions.

The following cases denied infringement.

The decision in the *Daily v. Etablissements Fernand Berchet* case ([1993] RPC 357) denied infringement based on the first requirement of the *Catnic=Improver* test. In this case, the court held that there was no infringement because the operation/result of the patented invention were not achievable by the accused product. In a very recent decision in the *Amersham Pharmacia Biotech v. Amicon* case ([2001] EWCA Civ 1042), the court denied infringement for the reason that the scope of protection cannot be extended to encompass a defendant’s technology which relied upon an entirely different mechanism, though the defendant’s technology achieved the same result as the patented invention.

The decision in the *PLG Research v. Ardon International* ([1955] FSR 116) is a case in which infringement was denied based on the second requirement of the *Catnic=Improver* test. In this case, the court held that there was no infringement because it was not obvious for the person skilled in the art whether substitution with an accused product had no material effect on the operation/result.

The second requirement of the *Catnic=Improver* test was also addressed in the currently noted *American Products v. Novartis Pharmaceuticals* case (the decision of the High Court:[2000] RPC 547, the decision of the Court of Appeal:[2001] RPC 159). The patent in dispute pertained to Rapamycin, a known immunosuppressant, and included Swiss-type claims directed to a second medical use of the agent and failing to mention any derivative. The defendant was sued for infringing the patent by the

use of a derivative. The High Court affirmed infringement for the reason that it was expectable by a skilled person that the derivative had a high probability of producing a similar effect, although the mechanism of the medical effect produced by Rapamycin and, accordingly, what derivative would produce the same medical effect were not known to a person skilled in the art at the priority date of the patent application. This High Court decision was reversed by the Court of Appeal. The Court of Appeal held that the expectation by a person skilled in the art of the fact that the derivative would achieve the same operation/result alone was insufficient to satisfy the second requirement, and denied fulfillment of the second requirement for the reason that it should have been clear to a person skilled in the art that the derivative in question would achieve the same operation/result. The Court of Appeal further held that a person skilled in the art would have understood that the patentee did not mention any derivative because the patentee intended to strictly comply with the meaning of the claim wording, thus establishing failure to meet the third requirement. For these reasons, the Court of Appeal held that there was no infringement. This case was then appealed to the House of Lords. How the House of Lords will decide on this case is a matter of great interest.

The decision in the *Optical Coating Lab. v. Pilkington* case ([1995] RPC 145) is noted as denying infringement based on the failure to meet the third requirement. More specifically, the court denied infringement for the reasons that the patentee willfully restrained from claiming the technology of the defendant's product in order to avert any suspicion on the validity of the patent, and that a person skilled in the art would consider that the patentee did not have intention to have the technology of the defendant's product encompassed by the scope of the patent. It is to be noted that the court held that it is the case that the third requirement is not satisfied where a "plausible reason" exists for the patentee to intend to restrict the scope strictly in compliance with the claim wording.

While judicial precedents are being accumulated, the points to be clarified in regard to the *Catnic=Improver* test seems to clarify the time criterion to be applied to the second requirement, threshold of the second requirement, and the threshold of the third requirement.

4 Interpretation of Functional Claims and Product-By-Process Claims

As is the case in Japan, no specific provisions are legislated in the U.K. in regard to the interpretation of functional claims and product-by-

process claims. These types of claims are interpreted and enforced in the same ways as those for ordinary claims. In the entrusted research of this time, it has been reported that no particularly serious discussion has been made in the U.K. regarding the examination and interpretation of these two types of claims.

III Trends of Court Decisions in Germany

1 Provisions Concerning Claim Interpretation

(1) Provisions in the Current Law

Article 69 (1) EPC and Article 14 of the German Patent Law pertain to claim interpretation. Construction of Article 69 EPC follows the protocol to the EPC.

A German judicial precedent holds that the stipulation in the protocol also applies to the construction of Article 14 of the German Patent Law which contains the same prescription^(*35). This rule clearly excludes the former practice which permitted a broad interpretation departing from claims based on a concept so-called "General Inventive Idea". Thus, the stipulation in the protocol has naturally invited a change in the way of interpreting the scope of protection of inventions in Germany. This protocol is regarded as being enforceable by law.

(2) Movement Toward Revision

A diplomatic conference of Contracting States of the European Patent Organization was held in January 2000, in which a proposal was made to incorporate additional paragraphs relating to the doctrine of equivalents and file wrapper estoppel into the protocol concerning construction of Article 69 EPC. In another diplomatic conference held in November 2000 at Munich, the U.K. strongly protested against the proposal. Germany also made a stiff opposition against a proposal to set the critical time for evaluation of equivalence to the time of infringement. In consequence, a paragraph relating to the doctrine of equivalents was added after a modification of the original proposal, whereas an additional paragraph relating to file wrapper estoppel was canceled.

2 Identical Infringement

Under German patent practice, the concept of "literal infringement" is referred to as *wortsinnngemässe/identische Verletzung* (word-meaning/identical infringement).

However, the concept of identical infringement is not to simply determine the scope of protection

(*35) Benkard, Patentgesetz 9. S. 532 (C. H. Beck, 1993); BGH GRUR 1986, 803, 805 - Formstein.

by the meaning of the claim wording alone. More specifically, there is a holding stating “It is not allowed to be apprehended by the wording of a claim. Technical significance of the subject of an invention may not be also neglected.” Another holding states “Solving means, which is known to a person skilled in the art as being able to achieve the same effect by its ordinary function, also fall under the meaning of the word ‘technically comprehensible solving means’, even if not explicitly disclosed in the patent specification.”^(*)36)

The determination on patent infringement begins with defining the scope of identical infringement, i.e., the meaning of the claim. There is a judicial precedent which held that “When testing whether a patent has been infringed, the first step is to establish what are the terms of the claims as they would be understood by a person skilled in the art, which involves ascertaining what their wording means to such a person i.e. their contextual meaning. If, where a specific embodiment has been contested, the substance of the claim as thus contested is being used, then the protected invention is being used.”^(*)37)

A theory known as the *Formstein* defense, referred to also as defense of free state of art, denies the existence of infringement for the reason that a mode of art allegedly infringed cannot constitute any invention in view of the state of art as of the time of filing (or priority date) and, hence, there should be no patent infringement. Judicial precedents in Germany, however, do not allow this type of defense to be relied upon for the determination of identical infringement, due to sharing of power and authority between the institution, which grants patents and decides invalidity and the courts, which deal with infringement disputes. Therefore, if an accused product is determined as falling within the scope of identical infringement of a patent and validity of the patent is questionable, the only way left for the defendant is to institute an invalidation lawsuit before the German Federal Patent Court.

3 Infringement By Equivalents

(1) Confirmation of Infringement by Equivalents in *Formstein* decision

The *Formstein* decision confirmed as follows in regard to the scope of equivalents to be applied after Section 6 (a) of the 1976 Act came into effect.

“In our recognition, extending the scope of protection to cover equivalent embodiments beyond the claim language coincides with the legal approaches of other Contracting States of the European Patent Convention, although the procedure for seeking the objective scope of

protection and the range of protection vary from country to country. For patents derived from applications filed on or after January 1, 1978, the scope of protection in regard to the working of an invention by equivalents is defined by the content of scope of a claim which is to be confirmed through interpretation.”

(2) Requirements for Equivalents

① Whether an accused product solves the same problem as that solved by the invention.

② Whether the solution by the accused product relies upon the same operation/result as that relied upon by the invention.

③ Whether a person skilled in the art could understand based on the claimed invention that the operation/result achieved by the accused product is the same as that of the invention.

(3) Time Criterion for Evaluation of Equivalents

In Germany, the priority date, i.e., the date of filing of application, is the critical date for the evaluation of equivalents. German patent practice requires that the subject of a patent should be inquired based on the disclosure in the specification with reference to knowledge of a person skilled in the art at the priority date (filing date) of patent application. In compliance with this requirement, it has been made a rule that a question as to whether an art is equivalent to a patented invention be addressed based on the state of art available at the time of the priority date (filing date) of patent application.

The purpose of this rule is not to exclude from the scope of equivalents any mode of execution of invention which uses any substituent element which produces the same effect as an element in a claim but did not exist at the time of priority date (filing date). Thus, the purport of this rule is to question, based on the state of art at the time of priority date (filing date), whether it was possible to use such a substituent element in place of the element set forth in the claim, rather than the availability of the substituent element *per se*.

(4) *Formstein* Defense

In regard to the scope of equivalence, an alleged infringer can defend that the invention of the allegedly infringed patent has no patentability in view of a prior art or the state of art at the time of Convention Priority or filing of the patent application.

As stated before, this type of defense is not allowed when identical infringement is established. Therefore, this type of defense must undergo first determination of the fact that the accused product has all the “Merkmale” of the claimed invention and performs the function of the claimed invention

(*)36) Benkard a.a.O.,S.532.

(*)37) BGH 1988.6.14—Ionenanalyse, IIC 2/1991, 249.

so that the accused product falls within the scope of protection, and further determination or, at least, presumption of the fact that at least one “Merkmal” is equivalently used in the accused product.

4 File Wrapper Estoppel

Prosecution history estoppel is not considered in determining the protection scopes of patented inventions. A ground for this practice is found in a judicial precedent^{(*)38} which states to read ① “Neither Section 14 nor the protocol prescribes prosecution history estoppel as interpretation means for determining the scope of protection. They do not mention any other means of interpretation.” and ② “If the patent specification does not describe the scope of protection in a manner comprehensible to a person skilled in the art, it is not allowed in an infringement proceedings to rely upon any statement in prosecution file so as to interpret the claim to give a scope narrower than literal interpretation.”

This means that disclaimer and restriction of the scope of protection must be clearly shown in the specification.

Nevertheless, contents of a file wrapper may exceptionally be considered in determining the scope of protection, when such contents are known to a person skilled in the art^{(*)39}.

5 Functional Claims

In Germany, there is no provision which would correspond to 35 U.S.C. §112(6). However, a judicial precedent allows to define an invention by a statement of a result to be achieved or the nature of the invention without stating structural features^{(*)40}. In the entrusted research in this study, it has been reported that the number of patent applications including this type of claims is increasing with increase of patent applications directed to information technologies.

This type of claim is allowed only when it is impossible or completely insubstantial to define an invention by structural features.

At the same time, functional claims must be accompanied by a disclosure of technical teachings full enough to enable a person skilled in the art to carry out the invention over the entire coverage of the functional expression based on the functional features set forth in the claim, without unnecessarily efforts. A functional claim, therefore, should ① set forth means for solving a problem rather than the problem alone and ② enable a

person skilled in the art to generalize the functional features over the entire coverage of the functional expression.

Determination of the scope of a functional claim also follows Section 14 of the German Patent Law. Therefore, all the means that achieve the same effect or characteristic as those stated in the claim fall within the scope of protection. Thus, a functional claim is a claim which, by a functional expression, inclusively defines all possible means that achieve the same function, regardless of whether such means are set forth explicitly^{(*)41}.

A counterbalance to this practice is that the questions on novelty and inventive step apply to the entire coverage of the generalized functional claim.

6 Product-By-Process Claims

As is the case of functional claims, German practice allows an invention of an article or product to be claimed in terms of a production process or an apparatus used in the production. This type of claim writing tends to raise a question particularly when the invention pertains to a novel chemical matter. In regard to a patent of such a technical field, a representative “Kommentar” in Germany states to read “The chemical matter itself is protected regardless of the production process. Whether the novel chemical matter is defined in the claim in terms of a chemical formula, production process, or a production apparatus does not matter.”^{(*)42}

Claiming a product invention in terms of a production process is exceptionally permitted only when no other suitable method of definition is available, and is required to definitely specify the product.

Patentability is evaluated on the claimed product *per se*, and the scope of protection covers any and all products having the same characteristics without being restricted to the product produced by the process set forth in the claim.

The decision in *Trioxan* (GRUR 1972, 541;3 IIC 1972, 226) and the decision in *Farbbildroehre* (GRUR 79, 461, 464) are major decisions rendered by the Federal Supreme Court.

IV Closing

Within the framework of this study, in addition to the regular committee, a conference was organized inviting Mr. Randall R. Rader, a judge of CAFC, and Professor Toshiko Takenaka of the

(*)38) BGHZ 3,365,370- Schuhsohle;BGH GRUR 59,317,319- Schaumgummi.

(*)39) Benkard, a. a. O., S. 520. BGH 25 IIC 420 [1994].

(*)40) See, BGH GRUR 85,31-Acrylfasern; Schulte “Patentgesetz mit Europaeischem Patentuebereinkommen” Aufl.,S.575.

(*)41) Schulte a.a.O.,S.504, Benkard a.a.O.,S.493.

(*)42) Benkard a.a.O.,S.507., BGHZ 53,274,282-Schädlingsbekämpfungsmittel, BGHZ 54,1,22(GRUR 72,80)-Trioxan.

Washington University, for exchange of opinions with the members of the committee. Researches in Europe were entrusted to Simons & Simons in London and Vossius & Partners in Munich.

The study was first focused on clarification of the structure of rules concerning patent infringement, as well as on general principles of interpretation of claim language.

A research was also made in regard to the doctrine of equivalents. In regard to the U.S., analysis was made mainly on the decisions after the *Warner-Jenkinson* Supreme Court decision. The analysis made it clear that the *Warner-Jenkinson* decision, which held that the critical time for the evaluation of “possible knowledge of interchangeability” under the doctrine of equivalents is the time of infringement, has raised a new issue or problem that the range of equivalents may inconveniently extend by time. A tendency to strictly apply the rule of prosecution history estoppel is also observed, as typically seen in *CAFC Festo* in banc decision, 2000.

In the U.K., the theory of “purposive construction”, i.e., the *Catnic=Improver* Test, provides the basic rule for claim interpretation. Current decisions relying upon “obvious mechanical equivalents” or “mechanical equivalents” are also noted. As to the second requirement of the *Catnic=Improver* test, the critical time for the evaluation of obviousness is ruled to be the date of publication of the patent, which raised an important issue to be settled. In regard to the third requirement, it is to be noted that a current decision held that this requirement is not met when “plausible reason” exists for the patentee to intend to restrict the scope of the right strictly in conformity with the claim wording.

In Germany, the claim interpretation follows the rule held by the *Formstein* Federal Supreme Court decision of 1986, and the doctrine of equivalents is developed under this rule. In the diplomatic conference for revision of EPC held in 2000, a proposal was made to modify the protocol concerning construction of Article 69 EPC so as to make it clear that the critical time for the determination of equivalence is the time of infringement. It has been reported, however, Germany did not agree to this proposal and asserted that the critical time should be the priority date.

In regard to interpretation of functional claims, the U.S. reconfirmed legislative history and legislative intent of 35 U.S.C. §112(6). It was found, however, that opinions are still fluctuating in regard to the relationship between the doctrine of equivalents and equivalents *per se*, as well as the method for determining whether the doctrine should apply and the method of determining the scope of equivalence. It is to be noted that the doctrine of equivalents is applicable also to

functional claims, and that there are two types of issues: one which arises when the function of an accused product is not identical to that disclosed in the specification but is regarded as being substantially the same therewith; and the other in which interchangeability with technologies developed after the filing of patent application is questioned.

Functional claims is also accepted in the U.K. It seems that method or standard for interpretation of this type of claim is not at issue in the U.K. The German Patent Office also accepts functional claims but under a strict condition. In the entrusted research in Germany, it has been reported that a functional claim covers all that fall within the scope generalized from the functional expression of the claim.

Finally, referring to product-by-process claims, USPTO in prosecution evaluates the patentability on the product *per se*, while affording a broad scope to this type of claim. However, court decisions in infringement litigations are divided into two types: one which holds that an accused product is encompassed by a patent regardless of the production process if the product itself is identical to the claimed product, and the other which excludes any product produced by a different process. Such diversification of decisions seems to be attributed to differences in factors such as the style of expression of the process in the claim, features that render the inventions patentable, and technical fields to which inventions pertain. The conclusion available at the present stage is that none can hastily determine which one of these two types of decisions is reasonable and correct.

Product-by-process claims are accepted also in the U.K., where no issue seems to exist regarding the way or standards for interpretation of this type of claims. In Germany, this type of claims has been accepted for a long time, and a rule has been established that any and all products which are identical to the product produced by executing the claimed invention fall within the scope of protection. These features regarding handling of product-by-process claims in the U.K. and Germany are contrastive to those in the U.S.

Each and every respects that have been made clear through this study are considered to be critical and significant when compared to decisions made in our country.

(Researcher: Takashi Ohno)