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ISSN 2226-6771

[2013] Vol. 2 NTUT J. of Intell. Prop. L. & Mgmt.

TABLE OF CONTENTS

[2013] Vol. 2 NTUT J. of Intell. Prop. L. & Mgmt.

RECONSIDERING THE INTERCHANGEABILITY FACTOR UNDER THE DOCTRINE OF EQUIVALENTS

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ABSTRACT

The United States Supreme Court has indicated that the doctrine of equivalents essentially prohibits the practice a fraud on a patent. To permit imitation of a patented invention that does not copy every literal detail is to deem patent-grant protection hollow and useless. This deprives the inventor of the benefit of his invention and fosters invention concealment rather than disclosure, which is one of the primary purposes of the patent system. An important factor in determining equivalency is to assess whether persons skilled in the art would have known of the interchangeability of an ingredient not contained in the patent with one that was. Therefore, the Federal Circuit often cites interchangeability as a factor that may influence an equivalency decision. However, the effect of the interchangeability approach is ambiguous. This article reviews the Supreme Court and Federal Circuit decisions on the interchangeability factor, and provides a critical analysis. Because of the uncertainty of interchangeability, the article proposes to reconsider the effect of interchangeability factor under the doctrine of equivalents.

Keywords: Doctrine of equivalents, interchangeability, tri-partite test, triple identity test

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I. Introduction

According to patent law, patent right protection should be limited in its scope of patent claims.[1] The patentee should pay the price if patent claims are unable to cover foreseeable variations. However, the doctrine of equivalents allows the patentee to exclude others to practice the patent invention beyond the patent-claim scope.[2] The dilemma is the conflict result between two patent policies. The first protects the patent system from the consequences of allowing the free practice of insubstantial changes. The second provides adequate public notice of patent-conferred rights.[3]

In 1950, the Supreme Court first applied the modern doctrine of equivalents in *Graver Tank & Mfg. Co. v. Linde Air Prods. Co.*[4] In restating the doctrine of equivalents, the Supreme Court considered "an important factor" to be "whether persons reasonably skilled in the art would have known of the interchangeability of an ingredient not contained in the patent with one that was." Therefore, the decisions by the Federal Circuit often cite "interchangeability" as a factor that may influence a decision on equivalency.[5]

However, interchangeability effect is ambiguous. One commentator believes that the “interchangeability approach” is an independent test, which is parallel to the “triple-identity” test.[6] Another commentator believes that known interchangeability may support an infringement finding under the doctrine of equivalents, but it will not necessarily do so, and known interchangeability is unnecessary for infringement.[7] Still one other commentator believes that interchangeability should be used to reject, rather than support, applying the doctrine of equivalents.[8]

This Article provides a critical analysis of interchangeability under the doctrine of equivalents and proposes reconsidering the interchangeability factor. Part I of this Article provides a brief introduction to the doctrine of equivalents and the interchangeability factor under the doctrine of

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[1] Sage Prods., Inc. v. Devon Indus., Inc., 126 F.3d 1420, 1425 (Fed. Cir. 1997).

[2] Lee Petherbridge, *On the Decline of the Doctrine of Equivalents*, 31 CARDOZO L. REV. 1371, 1374 (2010).

[3] DONALD S. CHISUM ET AL., PRINCIPLES OF PATENT LAW 906 (3rd ed. 2004).

[4] Warner-Jenkinson Co., Inc. v. Hilton Davis Chem. Co., 520 U.S. 17, 21 (1997).

[5] DONALD S. CHISUM, CHISUM ON PATENTS § 18.05 (2011).

[6] John Cordani, *Reviving the Federal Circuit’s Dead Letter Teaching, Suggestion, or Motivation Test for the Doctrine of Equivalents*, 39 AIPLA Q.J. 163, 164 (2011).

[7] Charles W. Adams, *The Doctrine of Equivalents: Becoming a Derelict on the Waters of Patent Law*, 84 NEB. L. REV. 1113, 1150-1151 (2006)

[8] Martin J. Adelman & Gary L. Francione, *The Doctrine of Equivalents in Patent Law: Questions That Pennwalt Did Not Answer*, 137 PA. L. REV. 673, 696-697 (1989)

equivalents. Part II presents a review of landmark judicial decisions on the doctrine of equivalents and the interchangeability factor. Part III presents a discussion on the role of interchangeability for determining equivalency under the doctrine of equivalents and explains why the interchangeability factor should be abolished. Part IV offers a conclusion.

II. Judicial Underpinnings for the Interchangeability Factor

A. The Graver Tank Triple Identity Test and Interchangeability Factor

In *Graver Tank*,[9] the Supreme Court set the modern contours of the doctrine of equivalents.[10] The Curt indicated that the doctrine essentially prohibits the practice a fraud on a patent[11] and recognized that to permit imitation of a patented invention that does not copy every detail is to deem patent-grant protection hollow and useless.[12] This encourages the unscrupulous copyist to make unimportant and insubstantial changes and substitutions in a patent that suffice to take the copied matter outside the reach of law.[13] This deprives the inventor of the benefit of his invention and fosters invention concealment rather than disclosure, which is one of the primary purposes of the patent system.[14] To prevent an infringer from stealing the benefit of the invention, the patentee may invoke the doctrine of equivalents to proceed against the producer of a device if it performs substantially the same function in substantially the same way to obtain the same result.[15] The theory on which it is founded is that "if two devices do the same work in substantially the same way, and accomplish substantially the same result, they are the same, even though they differ in name, form, or shape."[16] This test is known as the triple-identity test.[17]

The Court further indicated that equivalency must be determined against the patent context, prior art, and the particular circumstances of the case. Equivalence is not a prisoner of a formula and is not an absolute to be considered in a vacuum.[18] To determine equivalency, an important factor is to assess whether persons reasonably skilled in the art would have known of the interchangeability of a component not contained in the patent with one

[9] Graver Tank & Mfg. Co. v. Linde Air Prods. Co. 339 U.S. 605 (1950).
[10] Warner-Jenkinson Co., Inc. v. Hilton Davis Chem. Co., 520 U.S. 17, 21 (1997).
[11] *Graver Tank*, 339 U.S. at 608.
[12] *Id.* at 607.
[13] *Id.*
[14] *Id.*
[15] *Id.* at 608.
[16] *Id.*
[17] CHISUM, *supra* note 5, at § 18.04 [1][a][iii].
[18] *Graver Tank*, 339 U.S. at 609.

that was.[19]

The key issue in this case is whether substituting manganese for magnesium is a substantial change to make the doctrine of equivalents inapplicable.[20] The Court found that the accused product and the patent composition in the suit were substantially identical in operation and in result, and the accused product was also in all respects equivalent to the patent for welding purposes. For practical purposes, the composition, manganese silicate, in the accused product can be efficiently and effectively substituted for calcium and magnesium silicates as the major constituent of the welding composition in the patent.[21] Prior art disclosures clearly show that manganese silicate is a useful ingredient in welding compositions. Specialists familiar with the problems of welding compositions understand that manganese is equivalent to and can be substituted for magnesium in the composition of the patented flux, observations confirmed by chemistry literature.[22] Therefore, the Court determined that applying the doctrine of equivalents is appropriate.[23]

In this case, the Supreme Court also stated that the doctrine does not operate only in favor of the patentee. When a device is largely changed in principle from a patented article that it performs the same or a similar function in a substantially different way, but nevertheless falls within the literal words of the claim, the doctrine of equivalents may be used to restrict the claim and defeat the patentee's infringement action.[24]

B. The Application of Interchangeability Factor after Graver Tank

In *Graver Tank*, the Supreme Court ruled that known interchangeability is an important factor in determining equivalence. Therefore, decisions by the Federal Circuit often cite "interchangeability" as a factor that may influence a decision on equivalency.[25] However, interchangeability factor had various legal effects in different cases.

In *Pennwalt Corp. v. Durand-Wayland, Inc.*[26] the patent was an apparatus that rapidly sorted items such as fruit by color, weight, or a combination of the two.[27] The claims-at-issue in the patent were expressed

[19] *Id.*
[20] *Id.* at 610.
[21] *Id.* at 611-12.
[22] *Id.* at 612.
[23] *Id.*
[24] *Id.* at 608-09
[25] CHISUM, *supra* note 5, at § 18.04[5].
[26] Pennwalt Corp. v. Durand-Wayland, Inc. 833 F.2d 931(Fed. Cir. 1987).
[27] *Id.* at 933.

in means-plus-function language. The patent specification describes a hardwired network consisting of electrical components that perform each step of the claims.[28] The accused device used computer software programs.[29] The Federal Circuit, sitting en banc, noted the hardware and software interchangeability by stating that if the accused devices differ only in substituting a computer for hardwired circuitry, the patentee might have a stronger position for arguing that the accused devices infringe the claims.[30] The Federal Circuit Court recognized interchangeability as an important factor in determining equivalency. The interchangeability in the decision seemed to be a complete approach to determine equivalence.

However, in *Perkin-Elmer Corp. v. Westinghouse Electric Corp.*,[31] the Federal Circuit did not consider the interchangeability factor a complete approach that is as strong as the "triple identity" test. In this case, the patentee sued for patent infringement involving a resonator coupler for an electrode-less discharge lamp used in various types of chemical analyses. The patent claimed a particular type of coupling, called tap-coupling, for connecting a helical coil and the power source. The accused device used a different type of coupling, called loop-coupling.[32] The tap-coupling operated by frequency-tuning to obtain a high voltage within the lamp and by impedance-matching to maximize power transferred from the power source to the lamp. In the accused device, the connecting point between the helical coil and the power source in the loop-coupling was non-fixed for frequency-tuning or impedance-matching.[33] In attempting to invoke the doctrine of equivalents to cover the accused device, the patentee relied on the substitutability factor and argued that those skilled in the art would have regarded tap-coupling and loop-coupling as interchangeable.[34] Therefore, loop-coupling should fall within the equivalency range. The Federal Circuit rejected the argument, holding that, although interchangeability was a factor in considering whether the doctrine of equivalents applied, the accused devices must still perform substantially the same function in substantially the same way to obtain the same result.[35]

In 1995, the Federal Court had clearer decision on interchangeability in

[28] *Id.* at 933-34.
[29] *Id.*
[30] *Id.* at 935.
[31] Perkin-Elmer Corp. v. Westinghouse Electric Corp., 822 F.2d 1528 (Fed. Cir. 1987).
[32] *Id.* at 1529-31.
[33] *Id.* at 1531.
[34] *Id.* at 1532.
[35] *Id.* at 1535.

Hilton Davis Chem. Co. v. Warner-Jenkinson Co., Inc.[36] This is a Federal Circuit *en banc* decision. In this case, the inventors added the phrase "at a pH from approximately 6.0 to 9.0" for the operation condition of the claimed process during patent prosecution. The accused process operated at a pH of 5.0. The patentee, Hilton Davis, sued Warner-Jenkinson for patent infringement and relied solely on the doctrine of equivalents. The Federal Circuit indicated that the Supreme Court defined the doctrine of equivalents in terms of the substantiality of the differences between the claimed and accused subject.[37] In many cases, the courts relied on the "triple identity" test to measure the substantiality of the differences.[38] The "triple identity" test often suffices to assess equivalency because similarity of function, way, and result leaves little room for doubt that only insubstantial differences distinguish the accused product or process from the claims.[39] But evaluation of function, way, and result does not necessarily end the inquiry.[40] As technology becomes more complex, the "triple identity" test may not always suffice to show the substantiality of the difference.[41] The Supreme Court introduced factors other than function, way, and result in *Graver Tank* because equivalence is not the prisoner of a formula.[42] Therefore, the Federal Circuit cited *Graver Tank* and restated that an important factor to be considered apart from function, way, and result "is whether persons reasonably skilled in the art would have known of the interchangeability of an ingredient not contained in the patent with one that was." Because "equivalence, in the patent law, is not the prisoner of a formula," the available relevant evidence may vary by case. Therefore, the court stressed that "the known interchangeability of the accused and claimed elements is potent evidence that one of ordinary skill in the relevant art would have considered the change insubstantial."[43]

After *Hilton Davis Chem.*, most of the Federal Circuit decisions followed the ruling. In *Lifescan, Inc. v. Home Diagnostics, Inc.*,[44] the patent claim requires taking dry and wet reflectances from the same strip. The accused

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[36] Hilton Davis Chem. Co. v. Warner-Jenkinson Co., 62 F.3d 1512 (Fed. Cir. 1995) (en banc), *rev'd* & *remanded* for further proceedings consistent with the Supreme Court's opinion, 520 U.S. 17 (1997), *remanded*, 114 F.3d 1161 (Fed. Cir. 1997).

[37] *Id.* at 1517.

[38] *Id*.

[39] *Id.* at 1518.

[40] *Id.*

[41] *Id.*

[42] *Id.* at 1518-19.

[43] *Id.* at 1519.

[44] Lifescan, Inc. v. Home Diagnostics, Inc., 76 F.3d 358 (Fed. Cir. 1996).

method did not take a dry reflectance reading from the same test strip that was used in the test, but measured it in advance at the factory.[45] The accused infringer argued that a prior art reference limits the available equivalency range. The court ruled that the prior art might be viewed as showing that the accused infringer has simply replaced the initial step of the claimed process with a known interchangeable alternative, thus reinforcing the patentee's position that the processes are equivalent. The court cited *Hilton Davis Chem.* and stated that "interchangeability known to persons reasonably skilled in the art is evidence of equivalency. The remaining steps of the patented process and the accused process are the same. Thus the factual question is raised of the significance of the prior art as evidence that the accused infringer is practicing the prior art or as evidence of equivalency."[46]

C. The All-Elements Rule and Interchangeability in Warner-Jenkinson

In *Warner-Jenkinson Co., Inc. v. Hilton Davis Chem. Co.,*[47] the Supreme Court confirmed applying the doctrine of equivalents under the all-elements rule. This is an appeal case from the *Hilton Davis Chem.* decision by the Federal Circuit. The Supreme Court declined the petitioner's invitation to speak the death of the doctrine of equivalents[48] and noted that if the doctrine is broadly applied, it conflicts with the definitional and public-notice functions of the statutory claim requirement.[49] To reconcile the doctrine with these functions, the Supreme Court conceded that the court has no right to enlarge a patent beyond the scope of its claims as allowed by the United States Patent and Trademark Office ("USPTO").[50]The scope is not enlarged if courts do not go beyond the substitution of equivalents.[51] Therefore, it confirmed that each element contained in a patent claim is deemed material to defining the patented-invention scope, and thus, the doctrine must be applied to individual elements of the claim, and not to the invention as a whole.[52] Ensuring that the doctrine application, even to an individual element, is not allowed such broad to effectively eliminate that element entirely is important.[53] The doctrine of equivalents should apply under the all-elements rule.

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[45] *Id.* at 361.
[46] *Id.* at 362.
[47] Warner-Jenkinson Co., Inc. v. Hilton Davis Chem. Co., 520 U.S. 17 (1997).
[48] *Id.* at 21.
[49] *Id.* at 29.
[50] *Id.*
[51] *Id.*
[52] *Id.*
[53] *Id.*

The Supreme Court stressed that claims serve both a definitional and a notice function by placing the burden on the patent-holder to establish the reason for an amendment during patent prosecution. If no explanation can be established, the court presumes that the USPTO had a substantial reason related to patentability for including the limiting element in the amendment. In those circumstances, prosecution history estoppel bars the application of the doctrine of equivalents to that element.[54]

In this decision, the Supreme Court also indicated the insufficiency of "triple identity" test and "insubstantial differences" test. Although the "triple identity" test may be suitable for analyzing mechanical devices, it often provides a poor framework for analyzing other products or processes. However, the insubstantial differences test offers little additional guidance as to what might render any given difference "insubstantial."[55] Various linguistic frameworks may be more suitable to different cases, depending on their particular facts. However, the particular linguistic framework used is less important than whether the test is probative of the essential inquiry: Does the accused product or process contain elements identical or equivalent to each claimed element of the patented invention?[56] Irrespective of which test is applied, an analysis of the role played by each element in the context of the specific patent claim informs the inquiry as to whether a substitute element matches the function, the way, and the result of the claimed element, or whether the substitute element plays a role that is substantially different from the claimed element.[57] With these limiting principles as a backdrop, the Supreme Court saw no purpose in further micromanaging the Federal Circuit's particular word choice for analyzing equivalence.

For the interchangeability issue, the Supreme Court addressed that the proper time for evaluating equivalency—and thus, knowledge of interchangeability between elements—is at the time of infringement, and not at the time of patent issuance.[58] The Supreme Court also noted that the "known interchangeability of substitutes for an element of a patent is one of the express objective factors noted by Graver Tank as bearing upon whether the accused device is substantially the same as the patented invention."[59] This indicates that knowledge combined with state of the art is a factor that bears upon substantial similarity, but is not the ultimate test of substantial

[54] *Id.* at 33.
[55] *Id.* at 39-40.
[56] *Id*. at 40.
[57] *Id*.
[58] *Id*. at 37.
[59] *Id*. at 36.

similarity or equivalency. The Court stated that "a skilled practitioner's knowledge of the interchangeability between claimed and accused elements is not relevant for its own sake, but rather for what it tells the fact-finder about the similarities or differences between those elements."[60]

D. The Unforeseeable Equivalent in Festo

In *Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co.,*[61] the Supreme Court again stressed the importance of the public-notice function in the patent system, indicating that patent laws require inventors to describe their work in "full, clear, concise, and exact terms," and the public should be encouraged to pursue innovations, creations, and new ideas beyond the inventor's exclusive rights.[62] However, the nature of language makes it impossible to capture the essence of a thing in a patent application. The invention is often novel, and words do not exist to describe it. Things are not made for the sake of words, but words for things.[63] Thus, patent-claim language may not capture every nuance of the invention or describe the range of its novelty with complete precision. If patents were always interpreted literally, their value would greatly diminish. Non-important and insubstantial substitutes for certain elements could defeat the patent and destroy its value to inventors by simple copying.[64] Therefore, the scope of a patent is not limited to its literal terms, but instead embraces all equivalents to the claims described.[65] The patent scope should cover unforeseeable technology under the doctrine of equivalents.[66]

However, the doctrine of equivalents renders the patent scope uncertain, and it may be difficult to determine whether it is equivalent. This uncertainty may deter competitors from engaging in legitimate manufacturing outside the patent-limit scope, or cause the competitors to mistakenly invest in competing products, or lead to wasteful litigation between competitors. However, the Court has acknowledged uncertainty as the price of ensuring appropriate innovation incentives, and has affirmed the doctrine over dissents urging a more certain rule.[67]

E. Further Development of the Interchangeability Factor

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[60] *Id*. at 37.
[61] Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co., 535 U.S. 722 (2002).
[62] *Id*. at 731.
[63] *Id*.
[64] *Id*.
[65] *Id*. at 732.
[66] *Id*. at 740-41.
[67] *Id*. at 732-33.

After the *Warner-Jenkinson* decision, the interchangeability factor had further development in Federal Circuit decisions. Most of these decisions continued recognizing the importance of "interchangeability" in determining equivalency as in the following:

In *Multiform Desiccants, Inc. v. Medzam, Ltd.*,[68] the claimed invention required the packet comprising a degradable envelope.[69] However, the accused product's envelope was non-soluble and did not degrade in the liquid. Although the patentee argued that the accused packet functioned in a manner that was "consistent" with the patented invention, for the accused porous envelope to release its contents on contact with liquid, the district court found a porous envelope that bursts with inner pressure to be substantially different from a degradable envelope that dissolves.[70] The Federal Circuit ruled that "interchangeability is a significant factor in determination of equivalency." Because the district court found that person skilled in the art would not know the envelope in the accused product as interchangeable with a degradable envelope, the Federal Circuit affirmed the district court's finding of non-infringement under the doctrine of equivalents.[71] The interchangeability factor in the decision was used to reject the application of doctrine of equivalents.

In *Interactive Pictures Corp. v. Infinite Pictures, Inc.*,[72] the Federal Circuit confirmed the importance of the interchangeability test, and further indicated that incompatibilities in computer data files do not necessarily rise to the level of substantial differences. Even the slightest difference in file formats often creates an incompatibility, because computers are exact machines. However, the law of patent infringement is not so limiting. A patent claim may be infringed if an element of the infringing device is only substantially the same as a limitation of the patent claim … Rather than focusing on physical or electronic compatibility, the known interchangeability approach looks to the knowledge of a skilled artisan to see whether that artisan would contemplate the interchange as a design choice."[73] Thus, the expert testimony that the claimed digital fisheye image and the equirectangular panorama file in the accused device are "interchangeable alternatives" is substantial evidence supporting equivalency.[74]

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[68] Multiform Desiccants, Inc. v. Medzam, Ltd., 133 F.3d 1473 (Fed. Cir. 1998).
[69] *Id.* at 1476.
[70] *Id.* at 1480.
[71] *Id.* at 1480-81.
[72] Interactive Pictures Corp. v. Infinite Pictures, Inc., 274 F.3d 1371 (2001).
[73] *Id.* at 1382.
[74] *Id.*

In *Toro Co. v. Deere & Co.*,[75] the Federal Circuit ruled that the interchangeability factor should consider the similarity of technology between the patent and the accused subject, not only the function and result. In this case, the patent required a control means connecting said pressurized fluid-generating means to the input ports of each said nozzle to produce periodic fluid injections from the output port of each said nozzle.[76] The district court concluded that this clause was written in means-plus-function format pursuant to 35 U.S.C. § 112 ¶ 6 and determined that the corresponding structure included a mechanical cam system. This is the structure that ultimately produces and controls the dispersion of pressurized liquid from the nozzle output ports.[77] The accused device used an electrically operated solenoid system, and therefore, did not contain the same structure as disclosed in the patent.

The key question then is whether a reasonable trier of fact could find § 112, ¶ 6 equivalency between the mechanically operated cam system and the electrically operated solenoid system.[78] The patentee contended that any differences between the cam system and the solenoid system were insubstantial.[79] The Federal Circuit stated, "Although the two devices appear to perform an identical function, they do so in substantially dissimilar ways."[80] The patentee failed to articulate the technical similarities between the cam and solenoid systems or why the differences between the two systems were insubstantial, particularly in the way the claimed function performed. The patentee highlighted certain statements (e.g., from its expert witnesses) that cams and solenoids could be used interchangeably, but this applied to the function or result of these systems.[81] In contrast, the accused infringer stressed the basic technical difference between a cam system and a solenoid system: the cam system is mechanical, and the solenoid system is electrical. This difference means that the two systems accomplish the claimed function in fundamentally different ways. The cam system uses a metal "cam follower" that travels up the cam slope, lifting a valve stem to open the liquid valve. The solenoid system uses electricity to create a magnetic force that pulls open the liquid valve.[82] Therefore, the Federal Circuit stated that "although the two devices appear to perform an identical

[75] Toro Co. v. Deere & Co., 355 F.3d 1313 (Fed. Cir. 2004)
[76] *Id.* at 1322-23.
[77] *Id.* at 1323.
[78] *Id.*
[79] *Id.*
[80] *Id.* at 1324.
[81] *Id.*
[82] *Id.*

function, they do so in substantially dissimilar ways."[83]

In summary, the interchangeability factor has played an important role in certain Federal Circuit decisions. The court has occasionally relied on interchangeability to support equivalence under the doctrine of equivalents. However, in certain decisions, interchangeability was not dispositive. In these decisions, although certain evidence supported interchangeability between the patented invention and the accused device, the court resorted to the function/way/result test or the insubstantial-differences test for determining equivalency.

III. Reconsidering the Interchangeability Factor

A. Non-explicit Interchangeability Content

Although the judicial decisions continuously recognized the importance of interchangeability factor and applied this factor, the content of interchangeability factor is insufficiently explicit to follow. In *Graver Tank*, when the Supreme Court ruled that "an important factor is whether a person reasonably skilled in the art would have known of the interchangeability of an ingredient not contained in the patent with one that was," it did not explain interchangeability content clearly.[84] In this case, it mainly relied on the disclosures of prior art that manganese silicate is a useful ingredient in welding compositions and specialists understood the high possibility of substituting manganese for magnesium in the patented-flux composition. The Court presented no discussion on technology similarity, but it focused on the similar function or result for determining interchangeability. Therefore, in *Toro*, the patentee alleged interchangeability based on function and result similarity. However, the Federal Circuit rejected the argument by indicating substantially dissimilar ways between the accused device and the claimed invention. The court took the position that the interchangeability test still required discussion of technology similarity between the accused technology and the patented invention, and not simply the similarity of function and result.

However, the Federal Circuit attempted to develop an interchangeability approach on specific topics in certain decisions. In *Pennwalt* and *Overhead*, the court discussed the tradeoff between hardware and software. In Interactive Pictures, the court indicated that interchangeability is not compatibility, but a design choice.

These decisions are not explicit enough for determining equivalence. For example, none of the leading cases discussed the possibility or difficulty of

[83] *Id.*

[84] CHISUM, *supra* note 5, at § 18.04[5].

interchangeability. The evidence for determining interchangeable relied mostly on expert testimony, with no clear guidelines for these experts to determine interchangeability. For example, it was unclear whether these experts should consider interchangeability a function, way or result. To what extent should interchangeability be able to support equivalency? What is the level of interchangeability possibility and difficulty?

Because of interchangeability ambiguousness, the Federal Circuit resorted to the function/way/result test or the insubstantial-differences test, even when there was discussion or a potential interchangeability conclusion in the case.

B. Interchangeability Uncertainty

The interchangeability conclusion might float for the same accused technology. To date, the Supreme Court has ruled that the proper time for evaluating equivalency and knowledge of interchangeability between elements is at the time of infringement, and not when the patent was issued.[85] Based on the timing of determining equivalency, if an accused device is not considered interchangeable with the patented invention, the same device might have a different conclusion on any other day after the first accused device goes public. Because the first accused device has been a part of the state of the art in the public domain, a person skilled in the art could use it for a potential second accused device without difficulty. Then, the second accused device would be interchangeable from the patented invention for a person skilled to the art after the first accused device goes public. Therefore, although the accused devices are the same, the interchangeability conclusions could be different because of time difference, which could occur within a few days after the first decision. Thus, interchangeability is not a fixed criterion, but a floating one that leads to different infringement consequences under the doctrine of equivalents for the same accused devices.

In contrast, if the court applies the "triple identity" test or the "insubstantial differences" test, the equivalency conclusion will not differ for the same devices. In the triple-identity test, the conclusion of the function/way/result comparison will not change for the same device, regardless of the time difference. In the insubstantial-differences test, the conclusion of insubstantiality for the accused device also will not change because of the time change.

Therefore, compared with the "triple identity" test and the "insubstantial differences" test, the interchangeability approach has high uncertainty.

[85] *Warner-Jenkinson*, 520 U.S. at 37.

C. Insufficient Public Notice Function

In *Warner-Jenkinson*, the Supreme Court noted that the doctrine of equivalents, when applied broadly, conflicts with the definitional and public-notices functions of the statutory claims requirement.[86] To reconcile the doctrine with these functions, the Supreme Court conceded that the court has no right to enlarge a patent beyond the scope of its claims as allowed by the USPTO.[87] Therefore, it confirmed that each element contained in a patent claim is deemed material to defining the scope of the patented invention, and thus, the doctrine must be applied to individual elements of the claim, and not to the invention as a whole.[88] In *Festo*, the Supreme Court further stressed that the patent laws require inventors to describe their work in "full, clear, concise, and exact terms," and that the public should be encouraged to pursue innovations, creations, and new ideas beyond the inventor's exclusive rights.[89]

As mentioned, the interchangeability criterion is floating and could lead to diverse infringement consequences because of time difference. This criterion places the public in a highly dangerous position to inappropriately evaluate potential infringement risk under such a criterion because the conclusion changes over time.

In contrast, if the court applies the triple-identity test or the insubstantial-differences test, the equivalency conclusion will not differ. The public could rely on the conclusion derived from the "triple identity" test or the "insubstantial differences" test, and could pursue innovations beyond the inventor's exclusive right.

D. Reconsidering the Interchangeability Factor

Interchangeability is not a complete test for determining equivalents, but only one possible supplemental factor to support the equivalency conclusion. However, interchangeability has high uncertainty in determining equivalency. Using the interchangeability approach, the equivalency decision differs from the first accused matter to the others, even if all of the accused matters are the same. The public-notice function in the interchangeability approach is also insufficient because the public cannot rely on it to determine equivalency.

Just as the statement in *Festo*, the public should be encouraged to pursue innovations, creations, and new ideas beyond the inventor's exclusive rights.

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[86] *Id.* at 29.
[87] *Id.*
[88] *Id.*
[89] *Festo*, 535 U.S. at 731.

However, by applying the interchangeability factor, the public will hesitate to invest and research in the field of patent related technology because they won't be able to evaluate the potential risk of infringement appropriately.

Because of the uncertainty and insufficient public notice function in interchangeability factor, determining equivalency by interchangeability is insufficiently appropriate to treat it as an important factor. Applying the interchangeability factor should be seriously considered.

IV. Conclusion

Following the Supreme Court ruling that interchangeability is an important factor to determine equivalency in *Graver Tank*, interchangeability played a notable role in later patent litigations. In *Warner-Jenkinson*, the Supreme Court further ruled that the proper time for evaluating interchangeability knowledge between elements is at the time of infringement, and not at the time the patent was issued. The patentee or accused infringer frequently introduces interchangeability to argue equivalency.

The Federal Circuit has often cited interchangeability as a factor that may influence a decision on equivalency. In *Hilton Davis*, the Federal Circuit sitting en banc stressed that known interchangeability of the accused and claimed elements is potent evidence that a person of ordinary skill in the relevant art has considered the change insubstantial. However, interchangeability is not dispositive. In certain decisions by the Federal Circuit, although certain evidence has supported interchangeability between the patented invention and the accused device, the courts have resorted to the "triple identity" test or the "insubstantial differences" test for determining equivalency. However, interchangeability content is inexplicit and interchangeability has high uncertainty. The pubic won't be unable to rely on this factor to determine equivalency appropriately and will hesitate to invest and research. Therefore, interchangeability should not be treated as such an important factor under the doctrine of equivalents as the Supreme Court conceived it.

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PRACTICAL REMEDIES FOR THE DEPRESSING BOOM OF CONTINUATION AND DIVISIONAL APPLICATIONS FOR PATENT POOL

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ABSTRACT

Nowadays, patent pool has received increasingly attraction by enterprises and antitrust practitioners. However, both of the current royalty allocation rules: numeric and value proportional rules provide incentives to patentees for filing more divisional patents and continuation patents into patent pool to maximize royalty received. Through analyzing derived defections of continuation and divisional application in patent pool, this paper aims to introduce constructive and practical remedies for depressing the uncontrolled and costly boom of divisional and continuation applications for patent pools.

Keywords: Patent pool, royalty allocation, continuation application, divisional application

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I. Introduction

Patent system, provides the patentee exclusivity as a reward for innovation, has surely been a spur to innovation overall. However, the vast number of patents currently being issued creates a patent thicket: an overlapping set of patent rights requiring that those seeking to commercialize new technology obtain licenses from multiple patentees.[1] Patent thicket is what new entrants to a market may face when attempting to innovate, or enter into within a technology space with existing intellectual property rights.[2] The underuse caused by patent thicket can harm patentees as well as the consumers who face excessive royalties or high transaction costs from multiple patent rights.[3]

One efficient way to avoid patent thickets is patent pool.[4] A patent pool is an agreement between two or more patent owners to license one or more of their patents to one another or to third parties. Patent pools were introduced to serve as a remedy for patent thicket problem and excessive litigation. The purposes and policy objectives of patent pools are heterogeneous. Some are organized in order to promote the interests of monopolists or cartels. Others are formed to promote competition and benefit the users of patents.[5] Patent pools may provide competitive benefits by integrating complementary technologies, reducing transaction costs, clearing blocking positions, and avoiding costly infringement litigation.[6] Moreover, successful patent pools can offer an opportunity for further technological developments based on the pool technology.[7]

However, both of the current royalty allocation rules of patent pool: numeric and value proportional rules provide incentives to patentees for filing more patents into patent pool to maximize royalty received. To save the research expenditure and time on new invention, the classic way to introduce

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[1] *See* Carl Shapiro, *Navigating the Patent Thicket: Cross Licenses, Patent Pools, and Standard-Setting, in* 1 INNOVATION POLICY AND THE ECONOMY 121 (Adam B. Jaffe et al. eds., 2000), *available at* http://www.nber.org/chapters/c10778.pdf.

[2] *See id.* at 119.

[3] *See* Richard J. Gilbert, *Ties That Bind: Policies to Promote (Good) Patent Pools*, 77 ANTITRUST L.J. 1, 1 (2010).

[4] *See id.*

[5] *See* David Serafino, *Survey of Patent Pools Demonstrates Variety of Purposes and Management Structures* at 4, KEI RESEARCH NOTE 2007:6 (June 2007).

[6] *See* US DEP'T OF JUSTICE & FED TRADE COMM'N, ANTITRUST ENFORCEMENT AND INTELLECTUAL PROPERTY RIGHTS: PROMOTING INNOVATION AND COMPETITION 57 (April 2007), *available at* http://www.justice.gov/atr/public/hearings/ip/222655.pdf (last visited April 11, 2013).

[7] *See* Keyvan Vakili, *Competitive Effects of Modern Patent Pools: Effect of the MPEG-2 Pool on the Outsiders' Performance, in* DRUID 2012 (Copenhagen) 6 (2012).

more patents is to file as many division applications (DA), continuation application (CA), continuations-in-parts application (CIP) as possible for one invention.[8] However, if all patentees of a patent pool utilize CA and DA frequently, it will result in the huge expenditure of filing and maintaining a patent and distort the pool's allocation of royalty and hurt cooperation between companies eventually. Although there is not necessarily a lot of information available about the royalty revenue allocation within a patent pool,[9] this paper tries to analyze the defections in current royalty allocation practice based on Department of Justice (DOJ) reviews. This paper aims to evaluate practical suggestions for depressing the uncontrolled and costly proliferation of DA and CA in patent pools.

II. Royalty Allocation Rules Encourage Generating More Patents from DOJ's View

In assessing a successful patent pool, a regime of patent pool should deliver value to licensees by providing a one-stop shop for essential patents; on the other hand, it should address a fair royalty allocation rule for pool licensors. Patent pools vary widely in their license terms and in the allocation of any royalties to pool members. Only few pools adopt royalty-free licensing rules to attract firms to participate in order to popularize new technologies, products or services. For example, the Bluetooth Special Interest Group provides its members with a non-exclusive, royalty-free, perpetual license to each member's patents that are necessarily infringed by the Bluetooth Specification and are required to make, use or sell Bluetooth-compliant products.[10]

Many patent pools adopt numeric proportional rule, while few adopt value proportional rule. Several DOJ review letters which commented ON main royalty allocation regimes and their effect on introducing more patents in pool are described as follows.

A. Value Proportional Rule

Hundreds even thousands of patents which are included in one patent pool may vary greatly on their value. It is reasonable that patent with high value can be distributed more royalties by attracting more licensees. Usually, value

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[8] *See* Ruud Peters, *One-Blue: A Blueprint for Patent Pools in High-Tech*, 2011(September/October) INTELLECTUAL ASSET MANAGEMENT 38, 40 (2011).

[9] *See* Naotoshi Tsukada, *On Quality of Patent and Application Behavior Related to Patent Pool*, 2008 IIP BULLETIN 206, 206-214 (2008), *available at* http://www.iip.or.jp/e/e_summary/pdf/detail2007/e19_23.pdf.

[10] *See* Article 5 of the Bluetooth Patent/Copyright License Agreement, *available at* https://www.bluetooth.org/DocMan/handlers/DownloadDoc.ashx?doc_id=67.

proportional rule is not decided by one factor. Many variables such as the age of patents, the number of claims, and the number of times the patents are infringed can change the value of patent. The formula of value proportional may depend on agreements or negotiations between members. For example, the DOJ stated,

> After deducting its licensing-administrator fee, Toshiba will distribute the remaining royalties among the licensors pursuant to an agreed allocation formula set forth in the Ground Rules for Royalty Allocation. This formula takes into account how often a licensor's "essential patents are infringed by either manufacture or sale of licensees' products, the age of the patents, and, in the case of patents "essential" to disc standards, whether the Licensor's patents relate to optional or mandatory features of the standard.[11]

Thus, the DVD 6C allocation was based on a mechanical application which included multiple factors rather than on a subjective evaluation by the expert.

As to this kind of value proportional rule, although the royalty allocation is unaffected by each licensor's share of the patents in the portfolio license, patentee will still try to increase its share of patents in the patent pool by introducing more its patents into the pool.[12] For example, the DOJ stated that "although the formula weights the patent count with other factors, each Licensor will benefit monetarily from the exclusion of other Licensors' non-"essential" patents and accordingly has a strong incentive to encourage the expert to review other licensors' patents critically."[13] Therefore, patentee might have incentives to exclude other licensors' patents and introduce more patents into a pool to get monetary benefit. Thus, both numeric and value proportional rules provide incentives to firms for increasing their share of patents in the pool.

B. Numeric Proportional Rule

Regarding the above value proportional royalty allocation, it is difficult for members to reach agreement on the specific value of each individual

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[11] *See* Letter from Joel I. Klein, Assistant Att'y Gen., Antitrust Div., DOJ, to Carey R. Ramos, Esq., Paul, Weiss, Rifkind, Wharton & Garrison 7 (June 10, 1999) [hereinafter, "DOJ Business Review Letter for DVD6C"], *available at* http://www.usdoj.gov/atr/public/busreview/2485.pdf.

[12] *See* Justus Baron & Henry Delcamp, *Strategic Inputs into Patent Pools* at 6, CERNA MINES PARISTECH WORKING PAPER NO. 2010:05 (June 1, 2010), *available at* http://hal.archives-ouvertes.fr/docs/00/48/82/72/PDF/BARON_DELCAMP_Strategic_Inputs_into_Patent_Pools_CWP_2010-05.pdf.

[13] *See* DOJ Business Review Letter for DVD6C, *supra* note 11, at 13.

patent in comparison to others.[14] As a result of the complexity of measurement of each patent's value, almost all royalty allocation rules of the current patent pools are based on the number of patents. Once a patent is deemed essential and can enter a pool, the same value is attached to each individual patent. In the MPEG-2 patent pool, the amount of royalties to be allocated is determined according to the percentage accounted for by the essential patents held by each licensor in all of the patents in the pool.[15]

In the case where royalties are allocated according to the percentage accounted for by the essential patents held by each company, patentee will try to increase its share of patents in the patent pool by introducing more its patents into the pool. Rather than investing research expenditure and time on new invention, pool member is likely to increase his own percentage through low-quality patents by utilizing continuing applications, and thus might lead to distortion of the allocation of royalties.[16]

III. The Defections of CA and DA Boom in Patent Pool

A. CA, DA and CIP

In general, CA, DA and CIP are related to the filing of the prior filed patent application by a claim of priority. A CA is a second application for the same invention claimed in a prior non-provisional application and filed before the original prior application becomes abandoned or patented. The CA may be filed under 37 C.F.R. § 1.53(b) (or § 1.53(d), if the application is a design application). A CIP patent application is utilized when the applicant has found matters to be added to the content of disclosure of the invention by continuing R&D.[17] It is an application filed during the lifetime of an earlier nonprovisional application, repeating some substantial portion or all of the earlier nonprovisional application and adding matter not disclosed in the said earlier nonprovisional application (37 C.F.R. § 1.53(b)). The utilization of CA is shown as Fig. 1.

[14] *See* Peters, *supra* note 8, at 41.

[15] *See* Letter from Joel I. Klein, Acting Assistant Att'y Gen., Antitrust Div., DOJ, to G[a]rrard R. Beeney, Esq., Sullivan & Cromwell 3 (June 26, 1997) [hereinafter, "DOJ Business Review Letter for MPEG2"], *available at* http://www.usdoj.gov/atr/public/busreview/215742.pdf.

[16] *See* Tsukada, s*upra* note 9, at 208.

[17] *See id.* at 209.

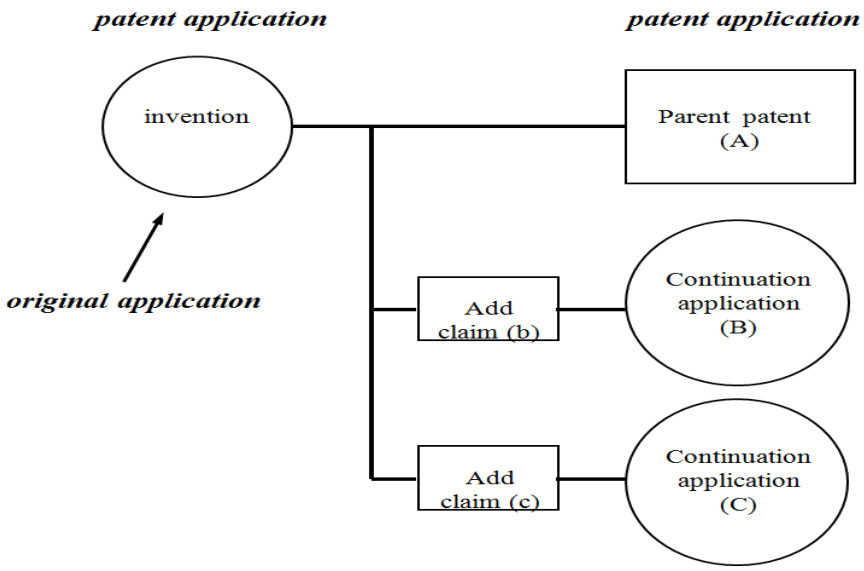

Figure 1: Continuation application.

A DA is known as a later application for an independent or distinct invention, carved out of a pending application and disclosing and claiming only subject matter disclosed in the earlier or parent application. Utilizing DA system, patentee can extract some inventions from a patent application which includes more than two inventions and file the extracted inventions as new patent applications.[18] The utilization of DA is shown as Fig. 2.

[18] *See* Kohki Wajima, Atsushi Inuzuka, & Toshiya Watanabe, *Empirical Study on Essential Patents in DVD and MPEG Standards Patent Pools* 3, IAM Discussion Paper Series #016 (2010).

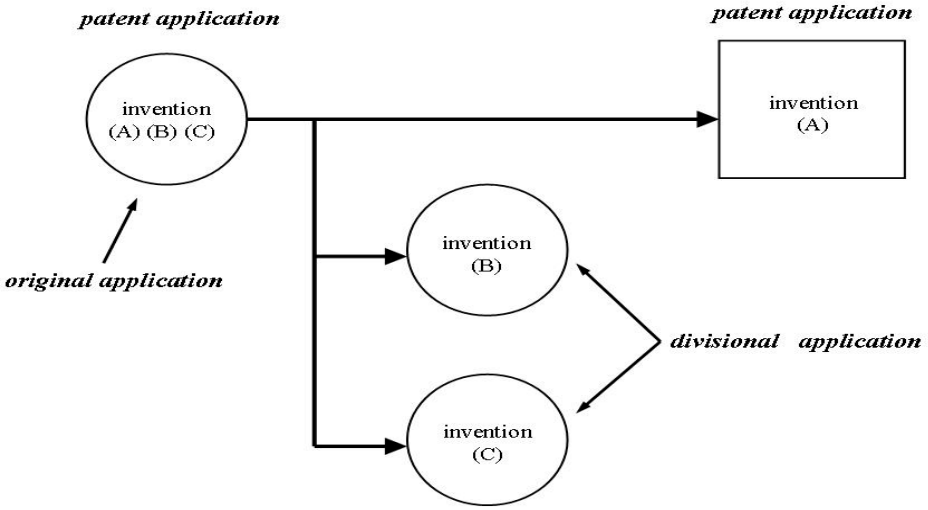

Figure 2: Divisional application (Source: Wajima et al., 2010).

Under the United States patent law, a CA and DA must reference a previously filed application and must contain only matters disclosed in the previous application.[19] From innovation perspective, the technical content of CA and DA are similar with parent patents. However, a CIP has the same priority date as an earlier application and duplicates some of the disclosures therein,[20] and it may contain new matter not previously disclosed and therefore represents a modest level of innovative quality. Therefore, only CA and DA, similar with parent patent technically, will be analyzed in the following section.

B. CA and DA Boom in Patent Pool

Tsukada (2008) mentioned that among the 290 U.S. essential patents in the patent pools managed by MPEG LA LLC, there were 120 patents, or 40% of the total, for which a continuation in part, a continuation application or a divisional application was utilized during the process of completion.[21] Nagaoka et al. (2008) also summarizes how the patentees of the essential patents have used these practices, including continuations, continuations-in-parts and divisions in acquiring essential U.S. patents as shown in Table 1.[22] The ratio of the patents which were obtained by using

[19] *See* 37 C.F.R. § 153(d).
[20] *See* 37 C.F.R. § 153(b).
[21] *See* Tsukada, s*upra* note 9, at 209.
[22] *See* Sadao Nagaoka, Tomoyuki Shimbo, & Naotoshi Tsukada, *The Structure and the*

these practices amounts to 44% of the essential patents for MPEG 2, 46% for Digital Versatile Disc (DVD) 6C and 36% for DVD 3C. Thus, the patent applications taking advantage of earlier priority dates are extensively used for obtaining the essential patents of these standards.

Table 1: The CA, DA and CIP in three patent pools (Source: Nagaoka et al., 2008).

	MPEG 2 (10 firms)	DVD 6C	DVD 3C	Total
Number of essential patents	85	180	131	396
Those which enjoy earlier filing dates	37	83	47	167
Ratio	44%	46%	36%	42%

C. The Defections of Boom of CA and DA

Lemley and Moore analyzed several general problems with patent continuation and divisional application.[23] First, the average continuation adds over two years to the total time required to obtain a patent. Second, the applicant may change the patent claims for purely innocent reasons.[24] The combination of delay and changed patent claims leads to so-called "submarine patents" which are patents that issue after the applicant has deliberately delayed them in order to take a mature industry or technology by surprise.[25]

Except for royalty-free license, either numeric or value proportional rule provides incentives to patentees seek to file as many divisional patents or continuation patents as possible by a parent patent in order to maximize royalty received.[26] The system of continuing applications in the U.S. may be abused. Increasing one's own percentage through low-quality patents by

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Evolution of Essential Patents for Standards: Lessons from Three IT Standards Table 5 (Hitotsubashi University Institute of Innovation Research, IIR Working Paper#06-08, Sept. 2006), *available at* http://pubs.iir.hit-u.ac.jp/admin/ja/pdfs/file/683.

[23] *See* Mark A. Lemley & Kimberly A. Moore, *Ending Abuse of Patent Continuations*, 84 B.U. L. REV. 63, 64 (2004).

[24] For example, the applicant may simply have drafted the claims poorly in the first instance and want a second chance at drafting claims of appropriate scope. *See id.* at 76.

[25] *See* Gene Quinn, *Submarine Patents Alive and Well: Tivo Patents DVR Scheduling*, IPWATCHDOG, Feb. 19, 2010, http://www.ipwatchdog.com/2010/02/19/submarine-patents-alive-and-well-tivo-patents-dvr-scheduling/ (last visited April 26, 2013).

[26] *See* Peters, *supra* note 8.

utilizing continuing applications leads to distortion of the allocation of royalties.[27] If all patentees follow this way to increase their royalty generated, that will result in the huge expenditure of filing and maintaining a patent. In addition, some scholars argued that the quality of essential patents after a DA will be lower than the non-DA essential patents.[28] As a result, this kind of patent pool which contains many similar and weak-quality patents makes the development of new technologies becomes more difficult. No one benefits.

IV. Practical Remedies for Depressing Boom of CA and DA

The problem of boom of CA and DA lies in the fact that the measurement of patent value acceptable to everyone has not yet been developed.[29] However, several practical and remedies such as number limit and time limit are analyzed as follows.

A. Number Limit on CA and DA

In 2007, the USPTO announced new regulations under 37 CFR regarding continuation application to minimize the abuse of the patent continuation application system. The proposed rules would have limited an inventor to filing two continuation applications for each type of invention disclosed in an original patent application, unless the applicant can show "good cause" for filing additional continuations. Nevertheless, the proposed rules were overruled by a preliminary injunction which was granted by the United States District Court of the Eastern District of Virginia on October 31, 2008.[30] In October 2009, USPTO withdrew proposed changes to continuation rules.

However, limiting the number of continuations may be the most direct and helpful way to eliminate multiple CA problems. The One-Blue, an innovative patent pool for Blu-ray Disc products, have utilized this idea from 2011. One-Blue takes a maximum number of CA or DA into account for royalty sharing purposes for each parent patent. In addition, the total weighting of all CA and DA related to one parent patent cannot exceed the weighting of their parent. Exceptions will be accepted only where a divisional or continuation application can prove that its invention is different from the parent patent.[31]

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[27] *See* Tsukada, *supra* note 9, at 208.

[28] *See* Wajima et al., *supra* note 18, at 3.

[29] *See* Tsukada, *supra* note 9, at 214.

[30] *See* Jim Singer, *Court Issues Permanent Injunction against USPTO Patent Rule Changes*, April 1, 2008, http://ipspotlight.com/2008/04/01/court-issues-permanent-injunction-against-uspto-patent-rule-changes/ (last visited April 26, 2013).

[31] *See* Peters, *supra* note 8, at 41.

One-Blue believes this is the best way to counter the uncontrolled and costly proliferation of CA and DA in patent pool.

B. Time Limit on CA and DA

European Patent Office (EPO) has stated that the DA practice was too broad and could result in abuse of the European patent system. Therefore, it should be limited. On April 1 2010 the European Patent Convention was amended to add new rules 36(1) (a) and (b) to effectively limit the current practice for filing DA. A 24-month term is set for filing a voluntary divisional, calculated from the first Examination Office action of the earliest application.[32] As a result, the practice of filing a divisional at any time during the period when the parent application is still pending is no longer possible. In the similar manner, the patent pool could introduce time limit on the filing of CA and DA for accounting royalty sharing purposes. Patent pool could establish a royalty allocation regime that after the time limit has expired, no CA and DA can be taking into account for royalty allocation.

V. Conclusion

The patent pool is a system established with cooperation between patentees in order to avoid the tragedy of the patent thickets. The boom of CA and DA may possibly distort the pool's allocation of royalty and hurt cooperation between companies. This paper analyzes the defections of CA and DA in patent pool such as time delay, patent claims change, higher filing and maintaining costs. Then, the paper highlights and introduces practical and innovative solutions such as number limit and time limit to depress the boom of CA and DA. Moreover, the number limit have utilized by the One-Blue patent pool to counter the uncontrolled and costly proliferation of CA and DA. Although it remains to be seen how participants will benefit from these innovative improvements in patent pool. It would have been great if the patentee could make a careful consideration of whether one or more continuation or divisional applications are needed to pursue important subject matter of an application is required at an earlier stage in prosecution of the application.[33] It will enhance the success of patent pool and technology

[32] *See* Hans Jongste, *New Rules for Divisional Patent Applications: Patent Strategy Will Need to Change* at 49, *in* BUILDING AND ENFORCING INTELLECTUAL PROPERTY VALUE 2010 48 (Joff Wild eds., 2010), *available at* http://www.iam-magazine.com/issues/Article.ashx?g=a3a03819-4ab6-4e98-bb41-66a4606c7250.

[33] Mewburn Ellis LLP (2012), *Effects of the New Rules-Divisional Applications*, http://www.mewburn.com/library/information-sheets/effects-of-the-new-rules-divisional-applications.

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THE THIRD-PARTY EFFECTS AND BURDEN OF PROOF FOR PATENT VALIDITY IN CIVIL LITIGATION: A COMPARATIVE STUDY BETWEEN TAIWAN AND THE UNITED STATES

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ABSTRACT

The objective of this article is to resolve the possible waste of judicial resources in making patent-validity disputes in civil litigation, which is a major source of conflict in the modern intellectual property industry. By using an analogy, this review attempts to search for possible solutions for the current Taiwan legal system for resolving the patent-validity dispute by comparing against legislative and judicial experiences in the United States. This article provides two solutions for promoting the cost-efficiency in Taiwan patent-validity litigation. One solution is to recognize the defensive issue preclusion, but not the offensive issue preclusion, unless the plaintiff, who was not a part of the previous case and now uses the issue preclusion offensively, could not have easily been involved in the previous case, and the assertion of offensive issue preclusion would not be unfair to the defendant in the case. The other solution is the requirement of clear and convincing evidence to overthrow the presumptive patent validity in the litigation. To adequately permit the third-party effects and enhance the burden of persuasion (proof) for challenging the issued patent in civil litigation, Taiwan could progress to achieve the patent-economy goal.

Keywords: Patent-validity, litigation-economy, burden of persuasion, defensive issue preclusion, offensive issue preclusion

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I. Introduction

The complexity of patent litigation has been recognized as a dispute of facts in modern times. This phenomenon has not only boosted the tendency of respecting business strategies,[1] but also indicates the importance of litigation efficiency.[2] In a patent civil litigation, the dispute of patent validity always takes the crucial role for litigation efficiency. The third-party effects and the burden of proof are two important types of legal perspectives on patent validity contention regarding litigation efficiency. This article presents a general description of these U.S. theories and their contemporary application in patent-validity litigation. After demonstrating the ways to achieve litigation efficiency in the United States, the article reviews the counterpart regulations and judicial decisions in Taiwan. The comparison between Taiwan and the United States for the third-party effects and burden of proof in patent-validity civil litigation would lead to the conclusion that a better policy choice for Taiwanese authorities is to act in accordance with the actions of the United States. Although the structure of the legal system in Taiwan may not be the same as that of the United States, the fundamental jurisprudence for promoting litigation efficiency is no different between the two nations. A review of this article shows that practical measurements to realize litigation-efficiency thinking are also operational in both sovereign entities. By enhancing the efficiency to settle the patent-validity dispute in a patent litigation, the legal protection of patent rights should be expected to operate more smoothly and efficiently. Therefore, a review of legal principles for the litigious third-party effects and burden of proof in Taiwan and in the United States constitutes the primary dissertation in this article.

II. The Third-Party Effects to the Patent Validity both in United States and Taiwan Civil Litigation

A. The Third-Party Effects to the Patent Validity in United States Litigation

The legal doctrine of Res Judicata controls the legal effects to a final judgment. Two levels of interpretation are contained in the broad meaning of Res Judicata: claim preclusion and issue preclusion (collateral estoppel).[3] Claim preclusion confirms the legal effects of a final legal judgment to the

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[1] *See* Fa-Chang Cheng, *The Current Trend for Delineating the Scope of Patent through Patent Misuse, Related Anti-trust Regulations, or Even Remedies in the United States*, 7 SOOCHOW L.J. 89, 106 (2010).

[2] *See e.g.*, Brian Levine, *Preclusion Confusion: A Call for Per Se Rules Preventing the Application of Collateral Estoppel to Findings Made in Nontraditional Litigation*, 1999 ANN. SURV. AM. L. 435 (1999).

[3] *See* DAVID CRUMP ET AL., CASES AND MATERIALS ON CIVIL PROCEDURE 677 (3rd ed. 1998).

same (substantially the same) claim between the same (substantially the same) parties. Regarding the principle of claim preclusion, no serious contention to the appropriateness of applying the principle occurs. Even the application of claim preclusion would generate the closely connected third party covered by the legal effects of a judgment[4]; the close connection seems to justify the third-party involvement. The standard to decide on the issue preclusion would be relatively different, where one party may not be involved with the previous case from which the previously concluded issue is borrowed. In patent litigation, to apply the doctrine of issue preclusion, one party of the case asserts the conclusion to the dispute of patent validity in a previous case,[5] which may not involve all parties or have them closely connected. To be fair to the disadvantageous party against which the preclusion issue goes in order to advance litigation efficiency, U.S. courts developed several legal review principles, which are described as follows.

First, other than the previously decided issue having to be essential to the previous case,[6] the disadvantageous party, by applying the doctrine of collateral estoppel in the current case, must be guaranteed to have a "full and fair opportunity" to litigate in the previous case.[7] The policy thinking supporting the "full and fair opportunity" requirement in the doctrine of collateral estoppel is stipulated as follows: "It is not fair to permit a party to re-litigate an issue which has previously been decided against him in a proceeding in which he had a fair opportunity to fully litigate the point."[8] For example, to stipulate the general criteria in deciding the "full and fair opportunity" requirement for previous invalid-patent decision preclusion to a patentee, the Supreme Court revealed five considerable factors in a 1971 decision,[9] as follows: (1) whether the patentee in a later case is the plaintiff in the previous case and also has the initiative to choose the time and venue in the previous case; (2) whether the patentee participates fully through the previous proceeding and is fully prepared; (3) whether the previous judicial decision for patent validity is legally sound; (4) whether the previous patent-validity judgment grossly neglects the patent specifications and related disputes; and (5) whether the deprivation of offering primary witnesses or evidence to patent validity that is not attributable to the patentee has occurred in the previous case.

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[4] *See id.* at 683.

[5] Rachel Hughey, *RF Delaware, Inc. v. Pacific Keystone Technologies, Inc.: The Federal Circuit Has Finally Spoken on Collateral Estoppel of Claim Interpretation*, 20 SANTA CLARA COMPUTER & HIGH TECH. L.J. 293, 298 (2004).

[6] Rios v. Davis, 373 S.W.2d 386 (Tex. Civ. App. 1963).

[7] *See* Gilberg v. Barbieri, 423 N.E.2d 807, 809 (N.Y. 1981).

[8] *Id.* at 808.

[9] *See* Blonder-Tongue Labs., Inc. v. Univ. of Illinois Found., 402 U.S. 313 (1971).

The general thought of litigation efficiency in fairly applying the doctrine of issue preclusion to the current disadvantageous party is also related to how the doctrine would be applied, especially if the asserting party is not involved, or substantially related, to the previous case.

In applying the issue preclusion doctrine, two litigation approaches are plausible: offensive or defensive use of issue preclusion. The offensive use of issue preclusion, which is also named offensive collateral estoppel, is where a litigant attempts to impose a previous favorable concluding issue to the opposing party who is also involved in the previous case. The defensive use of issue preclusion, which is also named defensive collateral estoppel, is where a litigant attempts to avoid a previous favorable concluding issue for the opposing party who was also involved in the previous case.

Explained in a 1979 case,[10] the Supreme Court announced its opinion on the relationship between the doctrine of issue preclusion and the choice of offensive or defensive litigation strategy. Parklane Hosiery Co. (the defendant in the current case) lost a litigation case against the Securities and Exchange Commission (SEC) for the charge of material false and misleading statement to shareholders. In the following stockholders' derivative action, the stockholders' part attempted to convince the court to collaterally estop the issue of the material false and misleading statement to shareholders in the current case. The issue preclusion strategy used in the case is actually offensive because the court "must determine whether a litigant (stockers, in the current case) who was not a party to a prior judgment may nevertheless use that judgment offensively to prevent a defendant (Parklane Hosiery Co., in the current case) from re-litigating issues resolved in the earlier proceeding."[11] After expressing the opinion that the mutuality requirement is not required in an issue preclusion case, the Supreme Court set forth two reasons to support the position that the defensive use of issue preclusion is more appropriate to justify the doctrine when the party attempting to estop is not covered in the previous case.[12] The first supporting argument presented by the Supreme Court is that the defensive use of issue preclusion, not the offensive use, is the primary motivation to the estopped party in the current case to bring all possible defendants in the previous case.

The application of offensive issue preclusion would expect to create a considerable number of litigation because the prior litigant can take advantage of the favorable judgment, instead of bringing in all potential defendants, but is not bound by the unfavorable judgment. The second supporting argument presented by the Supreme Court is that the prior litigant

[10] Parklane Hosiery Co. v. Shore, 439 U.S. 322 (1979).

[11] *Id.* at 326.

[12] *See id.* at 329-330.

might suffer by the ensuing litigation with different plaintiffs. The prior litigant loses the previous litigation without defending vigorously because of being inadvertent of the potential seriousness of an oncoming litigation based on the same crucial issue. The Supreme Court made the conclusion that "in case where a plaintiff could easily have joined in the earlier action or where…the application of offensive estoppel would be unfair to a defendant, a trial judge should not allow the use of offensive collateral estoppel."[13]

After reviewing the judicial decisions to achieve litigation efficiency mentioned in this section, other than the claim preclusion doctrine, the issue preclusion doctrine includes two types of legal review: (1) The disadvantageous party should have a full and fair opportunity to litigate in the previous case from which the issue conclusion is borrowed; and (2) the current party, not participating in a previous case, can generally use the concluding issue in such a case defensively against the other party, who is also involved in the previous case as one party. To offensively assert the doctrine of issue preclusion by the plaintiff, not included in the previous case, the defendant, involved in the previous case where the issue has been concluded, should not be bound unless the plaintiff cannot easily join the previous action, and the application of the issue preclusion doctrine would not be unfair to the defendant judged by the facts of the case. In typical patent infringement litigation, the defendant can always use a previous invalid-patent decision as a defense against the patentee involved in the previous case. However, the patentee cannot use the previous valid-patent decision as an offense to the other party in the current case.

B. The Third-Party Effects to the Patent Validity in Taiwan Civil Litigation Based on the Intellectual Property Case Adjudication Act and its Regulations

After the enactment of the Intellectual Property Case Adjudication Act in Taiwan with the establishment of the Intellectual Property Court, all cases primarily involving disputes of intellectual property shall be reviewed by the legal standard, presented in the act and ensuing regulation.[14] According to the following regulation, Article 34 of the Intellectual Property Case Adjudication Rules, enacted pursuant to Article 16 of the act, the conclusive legal determination of intellectual property validity has the following legal effects:

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[13] *See id*. at 331; *see also* Byron G. Stier, *Another Jackpot (In) Justice: Verdict Variability and Issue Preclusion in Mass Torts*, 36 PEPP. L. REV. 715, 716 (2012).

[14] *See* LAWBANK, Intellectual Property Case Adjudication Act, http://db.lawbank.com.tw/Eng/FLAW/FLAWDAT0201.asp (last visited Dec. 5, 2012).

> Where in a final judgment of an intellectual property civil action that substantively found on the issue as to whether an intellectual property right shall be cancelled or revoked…the same party raised a claim or defense contrary to the gist of the final judgment on the basis of the same basic facts, the court shall make its determination by deliberating on the relevant circumstances such as whether the above final judgment is obviously contrary to the laws and regulations, whether new litigation information emerges that may affect the outcome of the judgment, and the principle of good faith. [15]

In the provision's appearance, the application of a previous legal conclusion to the validity of intellectual property would not be overthrown on the condition of no obvious legal violation or new sufficient evidence to rebut the existing conclusion. However, reading the legislative history quoting from one previous Supreme Court decision,[16] the meaning of this provision seems, at least, to cause a dispute of whether the previous conclusive decision to the intellectual property validity should be applied. If the word "the same party" means "both of the same parties in the previous case," the doctrine of *Res Judicata* or the issue preclusion to both of the same parties would apply in the current case. If the term "the same party" means "either of the same parties in the previous case," the doctrine of *Res Judicata* or the issue preclusion to either one of the same parties (offensive or defensive) would apply in the current case. To interpret the meaning of "the same party" in Mandarin, the words could mean either "both of the same parties" or "one of the same parties." In Mandarin, there is no difference in expressing between the plural and singular noun. Traditionally, the Supreme Court in Taiwan would apply the doctrine of issue preclusion only if both parties from the current case and the previous case, from which the conclusive issue is borrowed, are the same.[17] The review of this article attributes this judicial reality to gravely influence the doctrine of *Res Judicata*, in which the conclusive claim decision binds the parties to the case. After enacting the Intellectual Property Case Adjudication Act, the dispute of whether the application of the issue preclusion doctrine should be limited to the same parties, in accordance with the traditional judicial opinion rooted in Taiwan's Civil Procedure. The majority opinion seems more likely to lean

[15] *See* LAWBANK, Intellectual Property Case Adjudication Rules, http://db.lawbank.com.tw/Eng/FLAW/FLAWDAT0202.asp (last visited Dec. 6, 2012).

[16] *See* Supreme Court Civil Decision 2003 Tai Shang Zi No. 315 (Taiwan) [最高法院民事判決 92 年度台上字第 315 號].

[17] *See* Supreme Court Civil Decision 2012 Tai Shang Zi No. 994 (Taiwan) [最高法院民事判決 101 年度台上字第 994 號].

positively toward the dispute by interpreting Article 1 of the Intellectual Property Case Adjudication Act, which reads, "Intellectual property cases shall be adjudicated pursuant to this Act. For matters not provided for under the Act, the law applicable to civil, criminal or administrative actions, as the case may be, shall govern." Furthermore, the regulation clearly states that, in civil intellectual property litigation, the third-party effects to the conclusive judicial decision would not exist regarding the intellectual property validity in the case. The pertinent part of the regulation in Article 29 reads as follows:

> The court should overrule any independent action filed by a party to an intellectual property civil action, any concurrent claim by the party in the civil action for a judgment establishing the legal relationship against the adverse party, or any counter claim by said party, with respect to the disputed issue over the validity of an intellectual property right or over whether an intellectual property right shall be canceled or revoked, due to inconsistency with the purpose of Article 16 of the Act.

Reviewing the regulation in the Intellectual Property Case Adjudication Rules and the majority opinion given to the interpretation in the Civil Procedure through an analogy altogether, the meaning of "the same party" represents "both of the same parties in the previous case" when applying the doctrine of issue preclusion. Conversely, opponents who go against the ideal may raise the following counterarguments. First, the traditional judicial decisions in the civil procedural dispute of issue preclusion are not included in the meaning of Article 1 of the Intellectual Property Case Adjudication Act-for matters not addressed under the Act, the law applicable to civil, criminal, or administrative actions, as the case may be, shall govern. Therefore, the meaning of "the same party" in the act is not bound by this decision in the Civil Procedure. Second, Article 29 in the Intellectual Property Case Adjudication Rules only prohibit parties in an intellectual property civil litigation case to establish an independent cause of action for the dispute of intellectual property validity, and nothing is stated regarding the third-party effects of concluding intellectual property validity for the ordinary cause of action in an intellectual property litigation. Because the meaning of "the same party" remains under debate, reviewing case decisions from the Intellectual Property Court held in recent years on how to interpret such a meaning would reveal diverse court opinions. Certain court decisions still insist on the traditional legal approach in interpreting the meaning of "the same part" as "both of the same parties in the previous case."[18] Others

[18] *See e.g.*, Taiwan Intellectual Property Court 2010 Min Zhuan Su Zi No. 191 [智慧財

are gradually accepting the possibility of expanding the doctrine of issue preclusion to the third party, who is not a party of the previous case.[19] A review of these cases suggests that the detailed substance of applying the issue preclusion doctrine to the third party still requires more sophisticated shaping, and the U.S operational experience of the issue preclusion doctrine described in this section could support further development of the doctrine of issue preclusion in Taiwan.

III. The Burden of Proof to the Patent Validity both in U.S. Civil Litigation

A. The burden of proof to the Patent Validity in U.S. Litigation

The ensuing part introduces the process to establish the burden of proof in an ordinary civil litigation, to lead to a further discussion on how to satisfy the burden of proof in patent-validity litigation.[20]

Generally, in civil litigation, if a factual dispute is turned over to the fact finder to make a decision, the burden of proof is for a plaintiff to reach a level of persuasion by the preponderance of evidence. This means that before a plaintiff can convince the court (or jury) to hand down a judgment in favor of him/her, the plaintiff must prove that there is at least 52% of a chance of truthful statement in his/her assertion that the defendant is liable for committing tortious activity.[21]

As mentioned above, the burden of persuasion is eventually imputed onto the plaintiff.[22] The burden of evidence, which means the process of bringing counterevidence to reduce the credibility of the opposing argument—back and forth—between parties during the trial or even in the *prima facie* case stage, are burdens on both parties.[23] The burden of proof is similar to the burden of persuasion which is the precise description for burden of proof. For the discussion in this article, the phrases “the burden of proof” and “the burden of persuasion” are interchangeable, as mentioned in the context of the

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產法院 99 年度民專訴字第 191 號]; Taiwan Intellectual Property Court 2010 Min Zhuan Su Zi No. 210 [智慧財產法院 99 年度民專訴字第 210 號].

[19] *See e.g.*, Taiwan Intellectual Property Court 2010 Min Zhuan Su Zi No. 122 [智慧財產法院 99 年度民專訴字第 122 號]; Taiwan Intellectual Property Court 2010 Min Zhuan Su Zi No. 135 [智慧財產法院 99 年度民專訴字第 135 號]; Taiwan Intellectual Property Court 2010 Min Zhuan Su Zi No. 161 [智慧財產法院 99 年度民專訴字第 161 號].

[20] *See* Fa-Chang Cheng, *The Current Trend of Allocating the Burden of Proof through Medical Malpractice Civil Action in the United States*, 8 FU-JEN JOURNAL OF MEDICINE 191, 192 (2010), *available at* http://www.mc.fju.edu.tw/userfiles/file/Med%20Journal/Vol_8No_4/8-4-02.pdf.

[21] *See* Braud v. Kinchen, 310 So. 2d 657, 659 (La. Ct. App. 1975).

[22] *See In re* Winship, 397 U.S. 358, 364 (1970).

[23] *See* Stuart v. D.N. Kelley & Son Inc., 331 Mass. 76, 79 (1954).

article.

Regarding the topic of burden of persuasion in ordinary civil litigation, a plaintiff has the burden of persuasion (proof) in such a case by the preponderance of evidence. The general principle for the burden of persuasion (proof) may have variations. The principle of *Res Ipsa Loquitur* could reduce a plaintiff's burden of persuasion (proof), shifting the burden of proof to a defendant or even relieving a plaintiff's burden of persuasion (proof).[24] The principle of *Res Ipsa Loquitur* is a variation to lift the burden of persuasion (proof) from the plaintiff's perspective. Conversely, the requirement to prove something by "clear and convincing" evidence is to enhance the burden of persuasion (proof).[25] Choosing which standard for the burden of persuasion (proof) would apply in a case is a public policy concern based on circumstances.[26]

Reading from the general introduction to the legal theory of burden of persuasion (proof), the next step for this article is to inquire how the theory would be implemented into U.S. patent litigation. In an ordinary patent litigation, the patentee files a patent-infringement complaint against the alleged infringer, and the alleged infringer also files a counterclaim asserting that the patent is invalid. In this scenario, two actions are involved: the patent-infringement action and the patent-validity action. The original plaintiff in the case is the defendant in the patent-validity action, and the original defendant becomes the plaintiff in the patent-validity action. For convenience of the narrative, this article uses "the patentee-plaintiff" and "the infringer-plaintiff" to represent the claimants in the patent-infringing litigation and the counterclaim for patent invalidity, respectively.

In terms of the patent-validity litigation, in the United States two types of forums have the authority to govern a pending case: the Patent Trial and Appeal Board and the federal court. The Patent Trial and Appeal Board of the United States Patent and Trademark Office serves the function of a court. Although the dispute of patent validity could be raised by a third party in the Patent Trial and Appeal Board through derivation proceedings, which have substantial evidence to support the challenge of patent validity,[27] this type of burden of persuasion (proof) might not be the same as the third party challenging the patent validity in an ordinary patent litigation.[28] The

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[24] *See* Hillen v, Hooker Const. Co., 484 S.W.2d 113, 115 (Tex. Civ. App. 1972).

[25] *See* CAL. EVID. CODE § 662 (West 1966).

[26] *See* ROBERT L. HARMON, PATENTS AND THE FEDERAL CIRCUIT 890 (9th ed. 2009).

[27] *See* 35 U.S.C. §§ 135(a)&(b) (2012).

[28] *See* Lisa Dolak, *Whose Rules Rule? Federal Circuit Review of Divergent and USPTO District Court Decisions*, (Syracuse University College of Law Faculty Scholarship, Working Paper 61, 2011), *available at* http://surface.syr.edu/cgi/viewcontent.cgi?article=1060&context=lawpub (last visited May 3,

explanation for the possible disparity is that the Patent Trial and Appeal Board would know how to resolve the patent-validity dispute better than an ordinary federal court because the judges on the board were once patent examiners in the United States Patent and Trademark Office. This factual description also elucidates why the legislative and judicial opinions all intend to enhance the burden of persuasion (proof) in the infringer-plaintiff to rebut the presumed patent validity, and simultaneously achieve the goal of a litigation economy in an ordinary civil litigation. The next part of this section presents the contemporary legislation and judicial decision to the burden of persuasion (proof) in the U.S. patent-validity dispute. Further explanation of how the burden of persuasion (proof) functions in the real patent infringement case and a related discussion vindicates the articulation of this article.

To a patentee-plaintiff, patent validity is presumed according to the pertinent provision in federal legislation, as follows:

> A patent shall be presumed valid. Each claim of a patent (whether in independent, dependent, or multiple dependent forms) shall be presumed valid independently of the validity of other claims …. The burden of establishing invalidity of a patent or any claim thereof shall rest on the party asserting such invalidity.[29]

This provision in federal legislation actually gives the benefit of doubt regarding patent validity to the patent owner. The presumption of patent validity to the patentee-plaintiff also presents a foreseeable prediction that the federal court would find it difficult to overturn the legal presumption. In the leading case made by the Supreme Court in 1934,[30] the Court clarified that whenever an infringer-plaintiff attempts to overthrow the patent-validity presumption, the burden of proof for the infringer-plaintiff should be able to reach the level of "clear and convincing" evidence, to sustain the patent-invalidity counterclaim.

The legislative design and judicial opinion for the burden of proof (persuasion) in the dispute of patent validity reveal the general policy consideration that, once the dispute is no longer to be decided by the United States Patent and Trademark Office, this dispute should not be easily raised again. The policy thinking behind the legislative and the judicial decisions presents not only the respect of the creditability of the authorities (the United States Patent and Trademark Office), but more important, the litigation

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[29] 35 U.S.C. § 282 (2002).

[30] *See* Radio Corp. of Am. V. Radio Eng'g Lab., 293 U.S. 1, 2 (1934).

economy without wasting judicial resources.

B. The burden of proof to the Patent Validity in Taiwan Civil Litigation

The legal system in Taiwan recognizes the same concepts, such as the burden of proof, the burden of evidence, or even the burden of persuasion (proof), in the manner of the legal system in the United States. As indicated in Article 1 of the Intellectual Property Case Adjudication Act, the trial for intellectual property disputes should follow the rules enacted within the Act, including the dispute of patent validity. If no appropriate guideline can be found in the Intellectual Property Case Adjudication Act and its regulations, "the law applicable to civil, criminal or administrative actions, as the case may be, shall govern"-according to Article 1 of the Act.

Under Article 277 of the Civil Procedure and one judicial opinion,[31] the general principle of burden of persuasion (proof) and the concept of *Res Ipsa Loquitur*, as what exists in the U.S. legal system, are substantially embodied, at least assumed, in Taiwan's legal system. Certain cases actually explicitly express the same or similar phrase of "by the preponderance of evidence" in the content of court judgment.[32] From the burden of persuasion (proof) to the patent-validity dispute in Taiwan civil litigation, the position taken in this article regarding the burden of persuasion (proof) to the dispute of patent validity in a civil litigation is to act in accordance with the United States.

By enhancing the burden of persuasion (proof) for the patent-validity dispute in an infringer-plaintiff civil litigation, the litigation economy could be achieved. This enhancement of the burden of persuasion (proof) to the patent-validity dispute in civil litigation also represents the judicial tradition of respecting the decision of the governmental agency. Even the Intellectual Property Case Adjudication Act requires that disputes be decided by the court where the litigation is pending; the judicial tradition in this content still exists in the act to an extent.

In addition, after the court decision of KSR followed by the Taiwan Intellectual Property Office,[33] the raised requirement for reviewing the

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[31] *See* Supreme Court Civil Decision 2010 Tai Shang Zi No. 408 (Taiwan) [最高法院民事判決 99 年度台上字第 408 號].

[32] *See e.g.*, Supreme Court Civil Decision 1984 Tai Shang Zi No. 2174 (Taiwan) [最高法院民事判決 73 年度台上字第 2174 號]; Taiwan Taichung District Court Civil Decision 2008 Su Zi No. 313 [臺灣臺中地方法院民事判決 97 年度訴字第 313 號]; Taiwan Taoyuan District Court Civil Decision 2002 Zhong Su Zi No. 279 [臺灣桃園地方法院民事判決 91 年度重訴字第 279 號]; Taiwan Taipei District Court Civil Decision 1998 Jian Shang Zi No. 98 [臺灣臺北地方法院民事判決 87 年度簡上字第 98 號].

[33] *See* KSR Int'l Co. v. Teleflex, Inc., 550 U.S. 398 (2007).

non-obvious element in the patent-validity dispute tends to cause substantial patent-validity disputes in the court, and the enhancement of the burden of proof to the patent-validity dispute is expected to help reduce the number of filed cases.

IV. Conclusion

In modern times, patent disputes have been intensely litigated, mostly for business purposes. Most parts of patent litigation are additionally complicated because of the sophisticated nature of technology. The controversy of patent validity has been the core in most, or at least some, patent litigation. When encountering complex and heated disputes of patent validity, the court could apply rules to avoid wasting unnecessary judicial resources in a trial process.

This article provides two types of legal principles in the process of civil litigation within the United States, which the legal system of Taiwan can adopt. The first is the third-party effects on the previous conclusive judicial decision to a civil patent-validity dispute. The offensive issue preclusion to be against the disadvantageous defendant, who was involved in the previous patent litigation, would not be allowed unless the plaintiff cannot join easily in the previous action, and the application of the issue preclusion doctrine would not be unfair to the defendant judged by the facts of the case. The second is the burden of proof (persuasion) for the patent validity dispute in civil litigation. The U.S. legislative design and judicial opinion for the burden of proof (persuasion) in the dispute of patent validity show the general policy consideration that, once the United States Patent and Trademark Office no longer has any power over the dispute, it should not be raised again easily. The policy thinking behind the legislative and the judicial decisions presents not only the respect of the creditability of the authorities (the United States Patent and Trademark Office), but more important, a litigation economy without unnecessarily wasting judicial resources.

Cited as:

Bluebook Style: Fa-Chang Cheng & Chun-Lin Li, *The Third-Party Effects and Burden of Proof for Patent Validity in Civil Litigation: A Comparative Study between Taiwan and the United States*, 2 NTUT J. OF INTELL. PROP. L. & MGMT. 27 (2013).

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THE LEGALITY OF LOCAL PATENT WORKING REQUIREMENTS UNDER THE TRIPS AGREEMENT

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ABSTRACT

The balance between the individual's intellectual property rights and the public interest has been an area of dispute. This paper focuses on the legality of the local working requirements under TRIPS and the Paris Convention. Part II describes the controversy over the use of the local working requirements through *United States v. Brazil*. Part III clarifies the interpretations of TRIPS and the Paris Conventions as they relate to the local working requirements. It further analyzes the legality of the local working requirements under TRIPS, considering whether Article 30 and 31 of TRIPS would make legitimate the compulsory license based on local working requirements. Part IV concludes that local working requirements and the compulsory licenses they guarantee are permitted under the TRIPS. "Domestic legislation providing for local working requirements does not unjustifiably discriminate against other WTO members in violation of Article 27 of the TRIPS."

Keywords: Local working requirements, compulsory license, TRIPS, patent holder, WTO

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I. Introducion

The intention of patent law is that a government grants a patentee certain exclusive rights in exchange for the patentees' disclosure of his invention. This exclusive right is essential for conferring economic privileges on individuals promote technological development, but this right is not absolute. It is qualified by limitations for various reasons, including public interests. The balance between the individual's intellectual property rights and the public interest has been an area of dispute. In the earliest period, because patent laws were national in scope, enforcing the patent system was within a country's own regime.[1] With globalization and the increasing use of international business transactions, sometimes this dispute results in a conflict between developed countries and developing countries. The case of *United States vs. Brazil* in 2001 presented the dilemma of how to draw the line.[2]

In *United States vs. Brazil*, the Brazilian government attempted to use local working requirements, which were contained in Article 68 of the Brazilian Industrial Property Law, which permitted the grant of a compulsory license "when a patent is not 'worked' in Brazil,[3] as a means to force Unites States pharmaceutical companies to reduce the price of certain medicine. In May, 2000, the United States filed a complaint with the World Trade Organization ("WTO") against Brazil for enforcing local working requirements as part of its national laws, which the United States asserted to be prohibited by the Agreement on Trade-Related Aspects of Intellectual Property Rights ("TRIPS").[4] In July of 2001, the United States and Brazil reached a mutually agreeable solution to the dispute, but the question of the legality of local working requirements has remained unanswered. Because "local working requirements came about as a balancing mechanism between a monopoly right and its impact on the public interest,"[5] the legal status of the local working requirements is critical. Only if the local working requirements are legal for the governments to use will this balancing mechanism be available.

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[1] *See* David R. Syrowik, *International Software Protection*, 70 MICH. B.J. 656, 657 (1991).

[2] *See* Paul Champ & Amir Attaran, *Patent Right and Local Working under the WTO TRIPS Agreement: an Analysis of the U.S.–Brazil Patent Dispute*, 27 YALE J. INT'L L. 365, 382 (2002) (describing the United States claimed that Brazil's local working requirement violates Article 27(1) of the TRIPS).

[3] *See* Bryan Mercurio & Mitali Tyagi, *Treaty Interpretation in WTO Dispute Settlement: the Outstanding Question of the Legality of Local Working Requirements*, 19 MINN. J. INT'L L. 275, 275 (2010).

[4] *See id.* at 284.

[5] *See id.* at 281.

Therefore, this paper focuses on the legality of the local working requirements under TRIPS and the Paris Convention. Part II describes the controversy over the use of the local working requirements through *United States v. Brazil*. Part III clarifies the interpretations of TRIPS and the Paris Conventions as they relate to the local working requirements. It further analyzes the legality of the local working requirements under TRIPS, considering whether Article 30 and 31 of TRIPS would make legitimate the compulsory license based on local working requirements. Part IV concludes that local working requirements and the compulsory licenses they guarantee are permitted under the TRIPS. "Domestic legislation providing for local working requirements does not unjustifiably discriminate against other WTO members in violation of Article 27 of TRIPS."[6]

II. Controversy over the Local Working Requirements

At the outset, the definition of local working requirements should be understood. 'Local working' refers to "the condition some countries impose on patentees that their patented product or process must be used or produced in the patent granting country."[7] Hence, "local working requirements are domestic provisions which allow for the grant of a compulsory license when a patent is not 'worked' in that country."[8] Failure to work the patent locally is regarded as an abuse by the patentee of his rights, so a compulsory license may be granted by the government, compelling the patentee to allow other parties to exploit his patented products and processes.[9] Considered from another angle, local working requirements require the patentee to actually make use of his patented ideas within the country that granted him the patent rights if he wishes to maintain his exclusive exploitive rights.[10] In the case of foreign patentees, the requirements pressure them to situate their production facilities within the country granting the patent.[11] The effect may be a technology transfer, as it would encourage patentees operating in countries with more advanced economies to transfer their technology to the country imposing the requirement.[12] These transfers serve a number of the policy goals of less developed economies: "employment creation, industrial

[6] *See id.* at 326.

[7] Michael Halewood, *Regulating Patent Holders: Local Working Requirements and Compulsory Licenses at International Law*, 35 OSGOODE HALL L.J. 243, 245 (1997).

[8] Mercurio & Tyagi, *supra* note 3, at 275.

[9] *See* Halewood, *supra* note 7, at 243.

[10] *See* Mercurio & Tyagi, *supra* note 3, at 281.

[11] *See* Halewood, *supra* note 7, at 245.

[12] *See* Marco Ricolfi, *the First Ten Years of the TRIPS Agreement: Is there an Antitrust Antidote Against IP Overprotection within TRIPS?*, 10 MARQ. INTELL. PROP. L. REV. 305, 343 (2006).

and technological capacity building, national balance of payments, and economic independence."[13] In addition, as law professor Marco Ricolfi observes, "such a rule would accordingly not only be perceived as making a significant contribution towards the technological development of the Member of the grant but also as providing a formidable means of coercion over patentees."[14]

United States v. Brazil is the leading WTO appellate case concerning local working requirements.[15] Therefore, introducing this case provides a useful way to understand the controversy over local working requirements.

The Brazilian government had long been working on controlling the HIV/AIDS epidemic in Brazil. Each year, it made enormous expenditures on buying antiretroviral medicine from the United States patent-holding pharmaceutical companies. Faced with intolerably high-priced medicine, the Brazilian government wanted to exercise Article 68 of the Brazilian Industrial Property Law which promulgated in 1996.[16] Article 68 of the Brazilian Industrial Property Law requires holders of Brazilian patents to make the product associated with the patent in Brazil.[17] If they fail to do this within three years, the government may impose a compulsory license (though the patent holder can defend against this by showing that production in Brazil was not a reasonable option).[18] The reasoning behind this law is that "failure to work a patent as a mode of exercise of the right that may be deemed abusive and, thus, subject to the remedy of compulsory licensing."[19] If the government cannot compel the patent holder to produce the medicine in Brazil, it can grant the compulsory license and ask local pharmaceutical manufacturers to produce generic medicine. This will decrease the expenditures on anti-AIDS medicine and meet the demands of Brazilian AIDS patients. Brazil believed such a domestic provision would help public health, because more people could have access to necessary medicine.[20]

The United States challenged the local working aspects of the Brazilian Industrial Property Law by claiming it violated Article 27(1) of TRIPS, which prohibits discrimination as to "whether products are imported or

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[13] Halewood, *supra* note 7, at 245.

[14] Ricolfi, *supra* note 12, at 343.

[15] *See* Champ & Attaran, *supra* note 2, at 382.

[16] *See* Mercurio & Tyagi, *supra* note 3, at 295.

[17] *See id.*

[18] *See id.*

[19] *See* Ricolfi, *supra* note 12, at 344.

[20] *See* GRAEME B. DINWOODIE & ROCHELLE C. DREYFUSS, A NEOFEDERALIST VERSION OF TRIPS: THE RESILIENCE OF THE INTERNATIONAL INTELLECTUAL PROPERTY REGIME 45 (U.S.A., Oxford University Press 2012).

locally produced."[21] In response, Brazil claimed that Article 5(A)(2) of the Paris Convention explicitly grants a right to make use of local working requirements.[22] Additionally, it claimed the validity of Article 5(A)(2) was reaffirmed by its incorporation into Article 2(2) of TRIPS, which requires that the Paris Convention's obligation should not be derogated.[23] These relevant treaty provisions are as follows:

> Article 27(1) of the TRIPS:
>
> Patents shall be available and patent rights enjoyable without discrimination as to the place of invention, the field of technology and whether products are imported or locally produced.[24]
>
> Article 5(A)(2) of the Paris Convention:
>
> Each country of the Union shall have the right to take legislative measures providing for the grant of compulsory licenses to prevent the abuses which might result from the exercise of the exclusive rights conferred by the patent, for example, failure to work.[25]
>
> Article 2(2) of theTRIPS:
>
> Nothing in Parts I to IV shall derogate from existing obligations that members may have to each other under the Paris Convention, the Berne Convention, the Rome Convention and the Treaty on Intellectual Property in Respect of Integrated Circuits.[26]

As the controversy came to global notice, a debate over a potential conflict between the obligation under Article 27(1) of TRIPS and the right granted by Article 5(A)(2) of the Paris Convention has emerged. The issue of whether the local working requirements are legal under the international trade regime began to be considered.[27] However, in July, 2001, the U.S./Brazil case was settled before a final decision could be issued.[28] The settlement required that Brazil provide the United States officials with advance notice prior to invoking Article 68 of the Brazilian Industrial

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[21] *See* Mercurio & Tyagi, *supra* note 3, at 275.

[22] *See id.* at 285.

[23] *See id.* at 286.

[24] Agreement on Trade-Related Aspects of Intellectual Property Rights art. 27(1), Apr. 15, 1994, Marrakesh Agreement Establishing the World Trade Organization, Annex 1C, 108 Stat. 4809, 1869 U.N.T.S. 299 [hereinafter "TRIPS"].

[25] Paris Convention for the Protection of Industrial Property art. 5(A)(2), Mar. 20, 1883, amended Oct. 2, 1979, 21 U.S.T. 1538, 828 U.N.T.S. 305 [hereinafter "Paris Convention"].

[26] TRIPS art. 2(2).

[27] *See* Mercurio & Tyagi, *supra* note 3, at 275.

[28] *See* Champ & Attaran, *supra* note 2, at 380-1.

Property Law. The question of the legality of local working requirements has remained unanswered.[29]

III. Legal Analysis of Local Working Requirements under the TRIPS

May WTO members legally regulate local working requirements on their national laws? May they grant a compulsory license to a local producer when the patentee has failed to 'work' locally? Would a compulsory license violate the TRIPS? Although some believe that the TRIPS totally prohibits local working requirements,[30] I argue that local working requirements continue to be generally permissible. This means that when the patentee has failed to work the patent locally, the government of the patent granting country may issue a compulsory license for the patent to a local producer pursuant to their national laws.

Even though there are various perspectives to examine this situation, such as ascertainment of the objectives and principles of the TRIPS,[31] I will apply the simplest form of legal analysis, contextual treaty interpretation.

When there is a potential conflict between different provisions within one treaty or within different treaties, it is urgent, when a dispute arises, to find a means to interpret the provisions which elucidates their meaning.[32] In the WTO, the Dispute Settlement Body ("DSB") plays this role and attempts to clarify the current conflicting provisions of these agreements, in accordance with "customary rules of interpretation of public international law."[33] More specifically, it prefers to take guidance from the context of the whole agreement to settle on an acceptable explanation,[34] because the text of a treaty must be read as a whole in order to grasp the point of a single

[29] *See* Mercurio & Tyagi, *supra* note 3, at 296.

[30] *See* Halewood, *supra* note 7, at 249.

[31] *See* Vienna Convention on the Law of Treaties, opened for signature May 23, 1969, art. 31, 1155 U.N.T.S. 331, 340, entered into force Jan. 27, 1980, reprinted in 8 I.L.M.679, 691-92 [hereinafter the "Vienna Convention"]. It is useful to look to the principles of treaty interpretation of the Vienna Convention, which applies with respect to TRIPS in disputes before the WTO. Following the general rule of treaty interpretation at Article 31 of the Vienna Convention, Article 27(1) of TRIPS must be interpreted "in good faith in accordance with the ordinary meaning to be given to the terms of the treaty in their context and in the light of its object and purpose." *See also* Champ & Attaran, *supra* note 2, at 390.

[32] *See* Mercurio & Tyagi, *supra* note 3, at 278.

[33] *See* Understanding on Rules and Procedures Governing the Settlement of Disputes, art. 3(2), Apr. 15, 1994, Marrakesh Agreement Establishing the World Trade Organization, Annex 2, Legal Instruments- Results of the Uruguay Round, 33 I.L.M. 1125 (1994); *see also* Mercurio & Tyagi, *supra* note 3, at 297.

[34] *See* Mercurio & Tyagi, *supra* note 3, at 307.

provision.[35] "One cannot simply concentrate on a paragraph, an article, a section, a chapter or a part."[36]

As already stated, Article 27 of the TRIPS does not allow discrimination between products which are imported and those locally produced. Therefore, on its face, TRIPS seems to prohibit local working requirements which only protect patents that are manufactured within the nation and deny protection to patented products which are only imported into the nation. However, this Article must not be read alone. Article 30 and Article 31 are relevant to Article 27(1). They read as follows:

> Article 30-Exception to Rights Conferred:
>
> Members may provide limited exceptions to the exclusive right conferred by a patent, provided that such exceptions do not unreasonably conflict with a normal exploitation of the patent and do not unreasonably prejudice the legitimate interests of the patent owner, taking account of the legitimate interests of third parties.[37]

> Article 31-Other Use without Authorization of the Right Holder:
>
> Where the law of a Member allows for other use of the subject matter of a patent without the authorization of the right holder, including use by the government or third parties authorized by the government, the following provisions shall be respected:
>
> (a) authorization of such use shall be considered on its individual merits;
>
> (b) such use may only be permitted if, prior to such use, the proposed user has made efforts to obtain authorization from the right holder on reasonable commercial terms and conditions and that such efforts have not been successful within a reasonable period of time. This requirement may be waived by a Member in the case of a national emergency or other circumstances of extreme urgency or in cases of public non-commercial use. In situations of national emergency or other circumstances of extreme urgency, the right holder shall, nevertheless, be notified as soon as reasonably practicable. In the case of public non-commercial use, where the government or contractor, without making a patent search, knows or has demonstrable grounds to know that a valid patent is or will be used by or for the government, the right holder shall be informed promptly;
>
> (c) the scope and duration of such use shall be limited to the purpose for which it was authorized, and in the case of semi-conductor technology shall only be for public non-commercial

[35] *See* Champ & Attaran, *supra* note 2, at 38.

[36] *Id.*

[37] TRIPS art. 30.

use or to remedy a practice determined after judicial or administrative process to be anti-competitive;

(d) such use shall be non-exclusive;

(e) such use shall be non-assignable, except with that part of the enterprise or goodwill which enjoys such use;

(f) any such use shall be authorized predominantly for the supply of the domestic market of the Member authorizing such use;

(g) authorization for such use shall be liable, subject to adequate protection of the legitimate interests of the persons so authorized, to be terminated if and when the circumstances which led to it cease to exist and are unlikely to recur. The competent authority shall have the authority to review, upon motivated request, the continued existence of these circumstances;

(h) the right holder shall be paid adequate remuneration in the circumstances of each case, taking into account the economic value of the authorization;

(i) the legal validity of any decision relating to the authorization of such use shall be subject to judicial review or other independent review by a distinct higher authority in that Member;

(j) any decision relating to the remuneration provided in respect of such use shall be subject to judicial review or other independent review by a distinct higher authority in that Member;

(k) Members are not obliged to apply the conditions set forth in subparagraphs (b) and (f) where such use is permitted to remedy a practice determined after judicial or administrative process to be anti-competitive. The need to correct anti-competitive practices may be taken into account in determining the amount of remuneration in such cases. Competent authorities shall have the authority to refuse termination of authorization if and when the conditions which led to such authorization are likely to recur;

(l) where such use is authorized to permit the exploitation of a patent ("the second patent") which cannot be exploited without infringing another patent ("the first patent"), the following additional conditions shall apply:

(i) the invention claimed in the second patent shall involve an important technical advance of considerable economic significance in relation to the invention claimed in the first patent;

(ii) the owner of the first patent shall be entitled to a cross-license on reasonable terms to use the invention claimed in the second patent; and

> (iii) the use authorized in respect of the first patent shall be non-assignable except with the assignment of the second patent.[38]

In essence, Article 30 permits limited exceptions to the exclusive rights conferred by the grant of a patent. Article 31 allows for "other use without authorization of the right holder." "Other use," which is defined in a footnote to TRIPS, refers to "use other than the use permitted under Article 30."[39] Taken together, "Article 30 sets out a first tier of eponymous exceptions to the patent rights referred to in Article 27(1), while Article 31 sets out a second tier of exceptions more liberally called other use."[40]

Another customary rule of interpretation of public international law that the WTO favors is *lex specialis derogate legi generali*, which establishes that where a general legal provision runs afoul of a specific provision, the specific provision prevails.[41] Article 27 of the TRIPS articulates general protections, but Article 30 and 31 provide specific exceptions. Under *lex specialis derogate legi generali*, the Article 30 and 31 exceptions are superior to the Article 27 rights.[42]

Thus, if local working laws can be justified under Article 30 or 31, they supersede the general provision of Article 27(1).[43] They cannot be justified under Article 30, because it only permits exceptions to patent rights as long as they are limited, do not conflict with normal exploitation, and do not unreasonably prejudice the legitimate interests of the owner.[44] "It does not appear to contemplate compulsory licensing, at least for commercial use."[45] However, Article 31 does justify the local working laws. It pertains directly to compulsory licensing, and sets out the procedures and conditions of issuing a compulsory license without the authorization of the patent holder.[46] There are two sets of conditions for getting a compulsory license, one with more demanding than the other. For non-emergency circumstances, a compulsory license may be obtained if the "proposed user" attempts to get permission from the patent holder on "reasonable commercial terms and conditions" in a "reasonable period of time." For emergency circumstances,

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[38] TRIPS art. 31.
[39] *Id.*
[40] *See* Champ & Attaran, *supra* note 2, at 386.
[41] *See id.* at 387.
[42] *See id.* at 386.
[43] *See id.* at 387.
[44] TRIPS art. 30.
[45] *See* Champ & Attaran, *supra* note 2, at 383.
[46] *See* Levon Barsoumian, *India's Use It or Lose It: Time to Revisit TRIPS?*, 11 J. MARSHALL REV. INTELL. PROP. L. 797, 807 (2012).

this requirement is waived. All that is required is notification of the patent holder.

Further, since Article 31 supersedes Article 27(1), there is no potential conflict between Article 27(1) and Article 2(2), which incorporates the Paris Convention's obligation and explicitly grants a right to make use of local working requirements. Therefore, the compulsory licenses of local working requirements are permitted under TRIPS. "Domestic legislation providing for local working requirements does not unjustifiably discriminate against other WTO members in violation of Article 27 of the TRIPS."[47]

IV. Conclusion

The balance between the individual's intellectual property rights and the public interest has always been difficult. In regard to local working requirements, the universal consensus at present seems to require that the patentee's exclusive rights should yield to the public interest to some degree, especially when it comes to public health. The compulsory licenses of local working requirements are permitted under the TRIPS. WTO members may incorporate local working environments into their national laws. Once the patentee fails to work the patent locally, a government, most likely the government of a developing country, can grant compulsory licenses to other manufacturers. This will help developing countries obtain new technology and give them greater leverage in their international transactions.

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APA Style: Lee, C.-L. (2013). The legality of local patent working requirements under the TRIPS Agreement. *NTUT Journal of Intellectual Property Law & Management, 2*(1), 39-48.

[47] Mercurio & Tyagi, *supra* note 3, at 326.

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RETHINKING OWNERSHIP OF THE PATENTS GENERATED FROM A FEDERALLY-FUNDED RESEARCH

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ABSTRACT

The governmentally-funded research has a long history in the United States. The major change in the federal level is the passage of the Bayh-Dole Act of 1980 which authorizes the federal agencies to apply for and hold patents generated from federally-sponsored researches and further to grant an exclusive or non-exclusive license of such patents to private sectors. Under the Bayh-Dole Act, universities may retain titles to inventions from federally-sponsored researches. But, there may be a question of whether a university or inventor may own the patent right. This article will discuss the patent ownership issue, and particularly focus on the management aspect. A model of four stages is proposed for resolving the patent ownership issues. The first stage is default assignment. A university may rely on a professor's intent of taking over a licensing job to decide whether to retain the ownership itself or to have a professor retain the ownership. The second stage is adjustment. A university may adjust the allocation by estimating a professor's ability to handling licensing, the nature of the patent, the potential private licensees or funding resources, and the resources of the UTT office. The third stage is continuous monitoring. A UTT office should regularly review the licensing project of a patent. The fixed-term approach is proper because it can give a trend of the marketability of a patent. The last stage is reconsideration of ownership. At this stage, the information collected during the third stage will help a UTT office reconsider the proper allocation of the patent ownership.

Keywords: Bayh-Dole Act, university technology transfer, patent, ownership

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I. Introduction

The governmentally-funded research has a long history in the United States.[1] The major change in the federal level is the passage of the Bayh-Dole Act of 1980 which authorizes the federal agencies to apply for and hold patents generated from federally-sponsored researches and further to grant an exclusive or non-exclusive license of such patents to private sectors.[2] Under the Bayh-Dole Act, universities may retain titles to inventions from federally-sponsored researches.[3] Then, universities can transfer the federally-funded research outcome to the industries.[4] That is called "university technology transfer" ("UTT"). The distinctive contribution of the Bayh-Dole Act is to create many companies and jobs.[5] For example, in 1999, UTT contributed 40 billion US dollars to the American economy, creating 270,000 jobs and 417 new products.[6]

While universities are developing their technology, private companies also look for the cooperation opportunities with universities.[7] As a result, the ownership issues regarding intellectual properties start to get involved during the due diligence process before the negotiations are finished.[8] This is because private companies want to make sure that the licensed right is lawfully retained by the university.[9] Assume that universities comply with the Bayh-Dole Act to report the patentable inventions to the federal agencies and finally retain the relevant rights. The following question would be whether a university or inventor may own the patent right. Thus, this article will discuss the patent ownership issue, and particularly focus on the management aspect.

In this article, Part II discusses the default rules about patent ownership in university technology development. Part III gives a framework for how to

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[1] *See* DAVID C. MOWERY, RICHARD R. NELSON, BEHAVEN N. SAMPAT, & ARVIDS A. ZIEDONIS, IVORY TOWER AND INDUSTRIAL INNOVATION: UNIVERSITY-INDUSTRY TECHNOLOGY TRANSFER BEFORE AND AFTER THE BAYH-DOLE ACT IN THE UNITED STATES 9-34 (Stanford University Press 2004); *see also* Wei-Lin Wang, *Review of the Legal Scheme and Practice of Technology Transfer in Taiwan*, 1 NTUT J. OF INTELL. PROP. L. & MGMT. 200, 201-02 (2012).

[2] *See* Rebecca S. Eisenberg, *Public Research and Private Development: Patents and Technology Transfer in Government-Sponsored Research*, 82 VA. L. REV. 1663, 1665 (1996).

[3] *See id.*

[4] *See* MOWERY ET AL., *supra* note 1, at 2.

[5] *See* Mary Margaret Styer, Jack Kerrigan, & Andy Lustig, *A Guide through the Labyrinth: Evaluating and Negotiating a University Technology Transfer Deal*, 11 B.U. J. SCI. & TECH. L. 221, 223 (2005).

[6] *See id.*

[7] *See id.*

[8] *See Id.* at 224.

[9] *See Id.* at 235-36.

consider patent ownership issues arising from the federally-funded research conducted by a university. Last, Part IV provides a patent ownership management model which would provide more incentives for either the university or professor to promote the patented technology.

II. The Default Rules for Patent Ownership in University Technology Development

A. "Hired to Invent" or "Hired to Do General Research"

It is unquestionable that a university itself cannot invent technology but its employees, such as professors, develop all intellectual properties.[10] Professors are a major inventor group in a university.[11] They have a contractual relationship with the university, and such contractual relationship may regulate the patent ownership issue.[12]

An inventor has a default right to the ownership of the patent covering his invention.[13] After a professor invented a new invention, the professor acquires the ownership of his invention first. Then, if his university has a patent assignment contract with professors, the ownership issue is of no dispute and the right belongs to the university. However, if there is no patent assignment contract, the ownership issue becomes whether such professor is "hired to invent."[14] If the professor is considered "hired to invent," rights in the invention will go to the university.[15]

Sunil R. Kulkarni once stated, "Since professors are usually hired to teach and do general research in areas substantially of their own choosing, not to create particular products, they have not been … hired to invent."[16] But, maybe doing research is equivalent to inventing. Since a professor does research for his publication and since many academic journals require that the submissions should be novel,[17] part of the professor's job is to create

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[10] *See* Sandip H. Patel, Note, *Graduate Students' Ownership and Attribution Rights in Intellectual Property*, 71 IND. L.J. 481, 482 (Spring 1996).

[11] *See* Sunil R. Kulkarni, Note, *All Professors Create Equally: Why Faculty Should Have Complete Control over the Intellectual Property Rights in their Creations*, 47 HASTINGS L.J. 221, 221-22 (November 1995).

[12] *See id.* at 225.

[13] *See* Beech Aircraft Corp. v. EDO Corp., 990 F.2d 1237, 1248 (Fed. Cir. 1993) ("At the heart of any ownership analysis lies the question of who first invented the subject matter at issue, because the patent right initially vests in the inventor who may then, barring any restrictions to the contrary, transfer that right to another, and so forth. However, who ultimately possesses ownership rights in that subject matter has no bearing whatsoever on the question of who actually invented that subject matter.").

[14] *See* Kulkarni, *supra* note 11, at 232-33.

[15] *See id.* at 232.

[16] *See id.*

[17] For example, the American Institute of Chemical Engineers Journal (AIChE J)

something new to the world. Although the degree of novelty may not pass the bar of patentability, the work made by a professor is still a potential patentable subject matter. Thus, "hired to do general research" may be an alternative way to say "hired to invent."

Since whether a professor is hired to do research or "hired to invent" is still controversy and that issue is resolved by state law,[18] it is necessary for a university to implant an employment contract to define the patent ownership.

B. University Patent Policy

Many universities use written agreements to require hired professors to assign all IP rights to the university in exchange of some percentage of the royalties the universities may receive through the exploitation of the IP rights.[19] But, some universities treat ownership issues differently based on different types of IP right.[20] For example, a professor may retain copyright to his academic publications.[21]

The university patent policy can set up the default rules of patent ownership in university technology development if a professor uses the facilities or resources of the university to invent technology.[22] A simple rule is to assign all patent rights to the university. Several reasons supports this idea. For example, the university can use patent royalties as a potential cash flow.[23] Besides, a university can take over the position of a busy professor to commercialize his invention, which will result in profits from selling the products and benefits for the society from using the patented product.[24]

However, one situation cannot be ignored where a professor may have his own network to promote his invention. For example, a professor may have a graduate student who later becomes some important person in a

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provides manuscript preparation stating "Full-length research articles describe important new experimental or theoretical research findings, which represent significant, not incremental, advances in chemical engineering research." *See* AIChE Journal, http://www3.interscience.wiley.com/journal/107061889/home/ForAuthors.html (last visited April 5, 2008).

[18] *See, e.g.*, Speck v. North Carolina Dairy Foundation, Inc., 311 N.C. 679, 686, 319 S.E.2d 139, 143 (N.C. 1984) ("The respective rights of employer and employee in an invention or discovery by the latter arise from the contract of employment. *United States v. Dubilier Condenser Corp.*, 289 U.S. 178, 187, 53 S. Ct. 554, 557 (1933). The fruit of the labor of one who is hired to invent, accomplish a prescribed result, or aid in the development of products belongs to the employer absent a written contract to assign.").

[19] *See* Kulkarni, *supra* note 11, at 234-35.

[20] *See id.* at 235-36.

[21] *See id.* at 236.

[22] *See id.* at 237-40.

[23] *See id.* at 237.

[24] *See id.*

company. The company wants to acquire a license in some cutting-edge technology, and it knows the professor has some invention it needs through the graduate student working for it. Then, the connection begins. On the other hand, the process can be reversed. For example, a professor may have a list of graduates, and he knows where they work. Once the professor creates novel technology, he will know where to license. Thus, there should be a flexible ownership management so that such professor may act as a patentee to promote patented technology. To further illustrate my idea, I first provide a framework to think of the ownership issues.

III. Two Dimensions of Patent Ownership Issues in University Technology Transfer

I propose two dimensions for thinking of the patent ownership management. One is the nature of funded research projects, and the other is inventors. Both dimensions are for providing the incentives for the inventors to invent and for the funding resources to keep their investments.

A. First Dimension: The Nature of Funded Research Projects

For university research, there are two main funding resources, federal government and private companies; and the federal government provides major funds to universities.[25] The governmental fund generally serves the purposes of discovering and spreading knowledge.[26] However, the Bayh-Dole Act provides a legal framework for commercializing federally-funded researches.[27]

Since the purpose of the Bayh-Dole Act is to allow the sponsored entities, such as universities, to retain the titles to the inventions, it may imply that patent ownership should be granted to universities.[28] But, intuitively, professors who propose the research projects should know more than university administrators do. They may recognize more the possible implimentations of their inventions. Thus, it is not necessary for universities to retain the ownership of every patent. A professor may retain the ownership, or may acquire an exclusive license from the university.

On the other hand, there may be a scenario where a university allocates

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[25] *See* Joshua A. Newberg & Richard L. Dunn, *Keeping Secrets in the Campus Lab: Law, Values and Rules of Engagement for Industry-University R&D Partnerships*, 39 AM. BUS. L.J. 187, 192-93 (2002).

[26] *See* James Stuart, Comment, *The Academic-Industrial Complex: A Warning to Universities*, 75 U. COLO. L. REV. 1011, 1013-15 (2004). In this article, I focus on the federally-funded research, so I skip the discussions about my ideas toward to patent ownership management issues for the privately-funded research.

[27] *See id.* at 1033.

[28] *See id.* at 1036.

the lab resources of different professors to apply for the fund from the federal agencies. In this situation, the university may know better than individual professors about how to promote the research outcomes. Thus, a university may rely on the nature of the research project to consider whether to own a patent.

B. Second Dimension: Inventors

The potential inventors in a university are professors, graduate students, and research staffs. The major concern about giving the patent ownership to a professor is about how to prevent a professor from allocating too many resources on commercial research instead of academic research.[29] But, such concern may be overlooked because a university would eliminate such side-effect by promoting a professor based solely on his academic contribution.

If it is accepted that patent ownership may be retained by a professor, there may be a further concern about whether persons other than professors may also retain the patent ownership. Such persons may be a researcher or a graduate student. Perhaps, a researcher should not retain the patent ownership because he or she is generally under the supervision of a professor and has less control over the research project.[30] Regarding the graduate students, Sandip H. Patel once suggested that the graduate student should be entitled to patent ownership mainly because of fairness and equity.[31] But, the graduate student has gotten the reward for his invention by earning an advanced degree. Thus, the university should acquire the patent right assignment from the graduate student on a condition of granting the degree certificate.

IV. Incentive-Driven Ownership Management

A. Basic Concept

Once the university decides to retain the titles to the inventions, and it may further decide whether it or a professor owns the titles. Although a professor usually does not get involved in the marketing and licensing of his patents,[32] his ability to doing so should not be presumed to be void. Now, the ownership management is only a question of the ownership allocation between a professors and university. I would like to propose an

[29] *See* Kulkarni, *supra* note 11, at 240-41.

[30] This statement is based on my personal observation. For example, a post-doc in a lab basically assists the project leader, usually a full-time faculty, to conduct experiments. She may be an employee of the project leader.

[31] *See* Patel, *supra* note 10, at 506-09 (emphasizing the necessity of honoring the creation of the graduate student and sharing the royalties with them).

[32] *See* Kulkarni, *supra* note 11, at 235.

incentive-oriented ownership management model.

A four-stage implantation is proposed. The Stage I is to set up a default assignment. The Stage II is to select the factors for adjusting or overruling the default patent ownership. The Stage III is to monitor the licensing market of the patent. Lastly, the Stage IV is to reconsider the ownership issue to see whether the ownership should be retained to the professor or the university. There four stages will keep running until the patent is expired or is out of the market.

B. Stage I: Default Assignment

Relying on a premise that a professor should know the uses of his invention better than the UTT officials do, the default assignment should refer to the intent of the professor. That is, if a professor has a good plan for exploiting his invention and he intends to take a job for licensing his invention, a university may allocate the ownership to him. Besides, sometimes a professor may have more incident chances because he is usually exposed to the field that needs the patent. For example, he may have many chances to attend the conferences where some private companies will demonstrate their technology or look for the resources for research cooperation.

The scheme here is like that a university assigns a job to a professor to license the invention. With the ownership on hand, a professor can fully control the negotiation process without the review of the university. However, in this situation, the university should provide some guidelines or assistance to the professor for how to deal with the royalty rate, the contractual clauses, and other important issues.

C. Stage II: Adjustment

Although a university may retain the patent ownership or reserve it for a professor, the question is not whether the university or professor should have the ownership but rather how to make more profits by allocating the ownership. That is, the patent ownership may be retained by both parties. One possible scenario may be that either university or professor has resources to promote the paten. But due to the priority concern for each party, the UTT office may move further than the professor does. Or, on the other hand, the professor may use the patent to acquire more private funds for the basic research before the UTT office spreads the patent information in certain industry.

Thus, the factors for adjustment may include the working schedule of the UTT office, the potential private funding resources or potential private licenees, the funding incentives arising from the patent, and the necessity of the funding. By evaluating these factor, the ownship may properly be

allocated.

D. Stage III: Continuous Monitoring

Whether a university or the professor takes a job of patent licensing should be kept being reviewed. On one hand, maybe the professor later finds that the licensing job distracts his research work very much. He does not want to handle it any more. On the other hand, the UTT office may find the professor has a better position in promoting the patent. For instance, the reputation of the professor may increase so that the industry may believe they are not only licensed with the patent but also with the solid technology. Thus, there should be a mechanism for monitoring such progress. For example, if a professor retains the ownership, he may have a duty to report the licensing status of the patent to the UTT office. If the university retains the ownership, it may regularly contact the professor to identify his licensing capability. The contacting mechanism may be formal or informal, which depends on the balance of academic activities and administrative stuff.

E. Stage IV: Reconsideration of Ownership

After the continuous monitoring, there should be a mechanism for both sides to reconsider the patent ownership. The factors of consideration may follow what is concerned with in the Stages I and II. Additionally, the time of reconsidering the ownership may be a fixed term, meaning regular review of the ownership with some exceptions. The fixed-term approach may be simple and easy for the management of the UTT office because the schedule for review is fixed. Another advantage is that the information related to the marketability of the patent during a fixed term will show a trend that can help the decision-makers understand the market trend related to the patent. Moreover, the exceptions should exist for immediately considering the ownership change. That is, during the Stage III, there may be a good timing where the allocation of patent ownership should be switched. It is not necessary to wait until the regular review period. However, since the ownership change influences the following business model for licensing the patent. Thus, the review of ownership would occur in a fixed term while some exceptions may be given to irregular review.

V. Conclusion

In this article, I discuss the patent ownership issue of the federally-funded research in view of the Bayh-Dole Act. I further propose an ownership management model for patents that generated from the federally-funded research.

The proposed model has four stages for resolving the patent ownership issues. The first stage is default assignment. A university may rely on a

professor's intent of taking over a licensing job to decide whether to retain the ownership itself or to have a professor retain the ownership. The second stage is adjustment. A university may adjust the allocation by estimating a professor's ability to handling licensing, the nature of the patent, the potential private licensees or funding resources, and the resources of the UTT office. The third stage is continuous monitoring. A UTT office should regularly review the licensing project of a patent. The fixed-term approach is proper because it can give a trend of the marketability of a patent. The last stage is reconsideration of ownership. At this stage, the information collected during the third stage will help a UTT office reconsider the proper allocation of the patent ownership.

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RECENT PATENT LIGITATION ON PHARMACEUTICALS IN GREAT CHINA

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ABSTRACT

Following the similar fashion worldwide, management of patent infringement through strategy planning and litigation skills by lawyers and the balance the efficiency and quality of judgments in the courts are both greatly improved during these years in Taiwan. This article reviews the important litigations like Eli Lily's Gemcitabine and Takeda's Pioglitazone to provide guidance and lessons for biotechnology industry in great China to learn the skills for defending globalized companies. Although there are many factors which can be involved to affect the judgments in the courts, such as specific technology domains, complicated analysis of modern devices in suit, international trading relationship, political influence and media annoumcement, however, the facts and evidences, legal foundations and doctrines are the basics. Patent system to approve the patentability and award the exclusivity is a kind of support to pro the innovation. Enforcement of patent rights in the courts is also a legitimated means to protect the patent owner. Concepts like competition law and anti-monopoly are the new issues applied to challenge the patent system. However, we look forwards to the encouragement of innovation and fair trading to promote the social welfare. In addition, we pray for the justice and the perfection in our patent and legal system can be pursue through the cooperation globally.

Keywords: Patent troll, non-practice entity, patent infringement, fair trading

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I. Introduction

Patent trolls started from the United States, and spreaded into even the developing countries in Korea, Taiwan, China, and India. The virtue of patent system is to reward the innovation for its contribution to enhance the wellbeing of the society. However, if one patent was not invented to be implemented but only used to against competitors in the courts, shall it be revoked same as the patent with poor qualities.[1] Debates and controversies are remained on how to define the qualities for patents?[2] But Stopping patent trolls is the consensus for industries and courts.[3]

The current situation in popular technology domains is that basically the patent thickets, companies sometimes feel difficult to avoid patent lawsuit even with intensive prior patent search and patent mapping. Those non-practicing entities (NPEs) can still find the leak to trap targeted companies. Most of the companies may worry the impact from a law suit, which may cause the drop of their stock price, sales, or image of product or company. Therefore, it seems easier to pay the acceptable amount to avoid the consequence and the arising attorney fees. On the other hand, there are globalized companies with advanced technologies and abundance resources including good connections to local government and media. Their intellectual property rights are well protected and can afford the best litigation team to sue those emerging companies and eliminate competitions. Therefore, the campaign regarding anti-monopoly to defend anti-competition is also a issue to maintain fair trading.

Nevertheless, it is hard to blame certain companies that do not manufacture or commercialize their inventions because that is not only involved with different professions but also related to the resources. There will be an additional huge investment on manufacturing and marketing the invention. Furthermore, there is no guarantee for the success on commercialization, not to mentione that people who are good at research can be rather naïve on business matter. Licensing patents is not necessary to be a pleasant matter, if within a reasonable period of negotiation or without implementation of a patent for a legitimated period of time (ex: 3 years in Taiwan), potential licensees can apply for compulsory licensing. If the compulsory licensing is granted, will it be fair? As the value of the patent is subject to negotiation, there are many approaches to estimate the value for

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[1] *See* 71 Pat. Trademark & Copyright J. (BNA) 659.

[2] *See* Mark A. Lemley, Douglas Lichtman & Bhaven N. Sampat, *What to do About Bad Patents*, 28(4) REGULATION 10 (2005-2006).

[3] *See* Yu-Wen Huang, *Mei-Guo Guo-Hui Yan-Jiu Bao-Gao Ti-Chu Dui-Kang Zhuan-Li Zhang-Lang Fang-An [U.S. Congressional Report Proposes a Measure to Attack Patent Trolls]* (in Mandarin), OPENFOUNDRY, Sept. 11, 2010, http://www.openfoundry.org/tw/news/8800?task=view.

the patents. If the licensing negotiation fails, the patent owner is not always the one to be blamed. Personal preferences and cultural differences are often the causes. Furthermore, compulsory licensing can be applied by the potential licensee. If the licensing negotiation cannot be reached within a reasonable timeframe, the government authority can grant compulsory licensing. Concerning the legitimacy of compulsory licensing, it certainly conflicts with the protection of patent right. Therefore, how to balance the social welfares and respect of the patent rights is indeed a skill of arts.

II. Case Discussion

There are a few models of patent trolls, such as the willful conduct to sue the defendant who obviously does not infringe plaintiff's intellectual properties, or the abuse of the litigation process by applying injunction based on bad faith. In Taiwan, although a defendant can pursue a violation of the fair trade law to claim damages from plaintiff for its inequitable conduct, however, the damages award often can not be enough to compensate for the sales loss, company image, and the depreciation of stock price, not to mention the humiliation, stress, pain and suffering during the litigation process.

A. Case 1: Gemcitibine from Eli Lilly

This is one of the top-ten litigation in the Great China region. It took more than 10 years to reach the final judgment for Eli Lilly. In Taiwan, Eli Lilly filed the law suit against two Taiwanese companies. One is TTY Biopharm, and the other one is ScinoPharm. The suit lasted for 5 years. The court of the first instance for the case between Eli Lilly and TTY Biopharm ruled, "TTY Biopharm shall not use the Taiwanese patents no. 66262, 110476, and 109978, and TTY Biopharm can not use, offer to sell, sell and import Gemcitibine, including medicines which contain Gemcitibine. The defendants shall pay two millions NT dollars."[4] The court of the second instance ruled, "The appellant shall not used the Taiwanese patents no. 66262, 110476, 109978, unless the purpose is research, education or experiment for further invention. The appellant cannot use, offer to sell, sell and import Gemcitibine, including medicines which contains Gemcitibine. The defendant shall pay two millions NT dollars."[5] The court of the third instance reversed the decision of the court of the second instance due to the evidence from the litigation between Eli Lilly and ScinoPharm Taiwan.[6]

[4] Eli Lilly v. TTY, Taipei District Court, 93 Zei Zi no. 77.
[5] Eli Lilly v. TTY, Taiwan High Court, 94 Zei-Sun Zi no. 26.
[6] Eli Lilly v. TTY, Taiwan Supreme Court, 96 Tai-Sun Zi no. 1710.

ScinoPharm is a leading research company in Taiwan, it provided the new evidence to prove there are more than one method for synthesizing Gemcitibine. The burden of proof shall be Eli Lilly's responsibility based on civil procedure. However, the raw material provider-Hansoh pharmaceutical[7]-is in China. Unless Eli Lilly could prove the synthetic method same as the said patents, TTY Biopharm would not be liable for the damages, not to mention the litigation in China was not yet finalized in 2007.[8]

In China, the litigation between Eli Lilly and Hansho Pharmaceutical started in 2001 at the JianSu People High Court that dismissed the case.[9] Thereafter, Eli Lilly appealed to the People Supreme Court that then reversed the case in 2002.[10] However, the JianSu People High Court again dismissed the case in 2003,[11] which made Eli Lilly had no choice to again, unfortunately, appeal on Dec. 3, 2010.[12] The People Supreme Court favored Hansho Pharmaceutical and ruled Eli Lilly to pay 75000 RMB for the expert report in the first instance and court fees, 37510 RMB for the first instance and 50300 RMB for the second instance.[13]

There were various strategies and tactics applied in the courts for the past 10 years, where even the private investigators were employed to search evidence in Taiwan and China. For example, the invoice from Scinopharm Taiwan to Argentina was presented in the court against Scinopharm. Though, the case between Eli Lilly and Sicnopharm in Taiwan was dismissed. Because of a few scientific papers as evidence for proving that there are more methods for synthesizing Gemcitibine, the method in Eli Lilly's patents is not the only one method. But, that shows that litigation has become a standard measure against competitors.

However, the pros and cons of this measure should be examined from different angles. At least, these Gemcitibine law suits did not bring in extra sales for the company as Gemcitibine was an anticancer drug under doctor's prescription. Medicines that treat cancer are often very expansive and cannot be covered by national health insurance policies. Therefore, if there are cheaper choices, Those expensive medicines will alternatively replaced as patient has to pay for themselves and private insurance company would like

[7] HanSoh Pharmaceutical's company website, http://www.hansoh.cn/ (last visited Oct. 8, 2012).

[8] *See* Mei-Hsin Wang, *IP Court System in Taiwan and the US Pharmaceutical Patent Litigation*, 23(4) COMMERCIAL CASES REVIEW 367, 367-394 (2010).

[9] JianSu Province, People High Court, 2001Su-Min-San-Chu Zi no. 001.

[10] People Supreme Court, 2002 Min-San-Zun Zi no. 8.

[11] JianSu Province, People High Court, 2003 Su-Min-San-Chu Zi no. 001.

[12] People Supreme Court, 2009 Min-San-Zun Zi no. 6.

[13] *See* Mei-Hsin Wang, Presentation at LESI 2012 in Auckland on Apr. 3, 2012.

to cost down their expenses.

In addition, the areas of medicines and pharmaceuticals are life-saving professions. People in these professions are rather conservative. Actions like suing other people are far too aggressive and often cause negative images against a company which raises law suits. Anti-cancer drugs are prescription medicines. They are not consumer products and neither well-known to the general public. So, law suits released on media will not increase the sales. On the contrary, it is highly possible to cause market shrinkage which damages both parties. If a plaintiff tries to intimidate its competitors by ruining competitor's stock prices, that would be achieved for a short while, however, for the consumption or sales of anti-cancer medicines are mainly based on doctors' prescriptions and the natural growth of patient pools. Fortunately, in China and Taiwan, attorneys' fees and charges from the courts are not high. Therefore, it may not a financial burden to both parties. More intellectual property litigation is foreseeable in the near future.

B. Case II: Pioglitazone from Takeda

The Pioglitazone litigation demonstrates the standard strategies and tactics of how international companies deal with competitions in developing countries, such as Taiwan. Generally speaking, comparing to those globalized pharmaceutical companies, the biotech companies or emerging pharmaceutical companies in Taiwan are relatively small and much less competitive on intellectual property management. In most of cases, they are rather naïve on dealing with litigations. On the contrary, the globalized pharmaceutical companies only take actions before comprehensive planning with abundant resources. Sometimes, the attacks on competitors are fierce without mercy.

Based on the prior litigation planning in 2004, Takeda had no grounds to sue generic companies which were only conducting the clinical trials to apply sales certificates from the Taiwan Food and Drug Administration Office. In 2004, the patent right for a single molecular Pioglitazone had already expired. While Takeda still owned the combination therapy patent, physician's prescriptions are exempted from the liability of infringement.

Regarding the copyright issue on clinical trial protocol, the grounds aree comparatively weak as the format and the necessary content of clinical trial are regulated by the Food and Drug Administration Office. However, Takeda continued the litigation, knowing that they would possibly loss. They prolonged the litigation process to maintain the market monopoly. That is also a typical type of patent trolls. Takeda did successfully stop three competitors from entering the market for more than 5 years.[14]

[14] Reported by Po-Hung Hsieh from China Times on May 4, 2005,

During 2000 to 2005, there was quite a challenge for attorneys and judges to deal with pharmaceutical patent litigation, as there are specific laws and additional regulations from the Food and Drug Administration Office, such good manufacture practice (GMP), good clinical practice (GCP), good laboratory practice (GLP), active pharmaceutical ingredients (API), and regulations on several stages of clinical trials before registration trial, where specific requirements for trials guard the issuance of sales certificate for a specific medicine. In addition, there are post-market surveillances that monitor medicines in the market.

Takeda Pharmaceutical filed three law suits against three companies which conducted clinical trials. At the same time, the information of patent law suits was sent to remind the Taiwan Food and Drug Administration Office of not issuing the sales certificates to these three companies. Nevertheless, there was a severe acute respiratory syndrome (SARS) attacking Taiwan. The clinical trials conducted by those three generic drug companies suffered a further impact as patients in the clinical trials were afraid to go out, not to mention going to the hospital where there was a high possibility of catching more infection diseases including SARS. According to the good clinical practice (GCP) procedure, if a patient in the clinical trial does not follow the regulation, the data related to this specific patient shall be excluded. All three trials suffered a traumatic delay.

In the cases of Takeda suing Virginia Contract Research Organization Co., Ltd[15] and LeiLi Pharm,[16] the fact of infringement was based on the clinical trial approved by the Taiwan Food and Drug Administration Office-[PLPGOOl]. However, the Supreme Court dismissed Takeda's appeal on May 12, 2005.[17] In the case of Takeda suing APEX International Clinical Research Co. Ltd and Chenho,[18] the fact of infringement was based on on the clinical trial approved by Taiwan Food and Drug Administration Office-[CE -004-01]. However, the Supreme Court dismissed Takeda's appeal on Mar. 24, 2006.[19] In the case of Takeda suing Genovate Biotechnology Co., Ltd,[20] the Supreme Court dismissed Takeda's appeal on

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http://www.taiwanchambers.net/newslist/010100/10148.asp (last visited on May 5, 2005).

[15] Virginia Contract Research Organization's company website, http://www.vcro.com.tw/TC_Index.htm (last visited Feb. 28, 2013).

[16] PeiLi Pharm's company website, http://www.peili.com.tw/cht/product.php (last visited Feb. 28, 2013).

[17] Takeda v. VCRO, Taiwan Supreme Court, 94 Tai-Kan Zi no. 410.

[18] Chenho's company website, http://www.chenho.com.tw/p01.php (last visited Feb. 28, 2013).

[19] Takeda v. APEX, Taiwan Supreme Court, 95 Tai-Kan Zi no. 183.

[20] Genovate Biotechnology's company website, http://www.genovate-bio.com/CHINESE/index.htm (last visited Feb. 28, 2013).

Mar. 17, 2005.[21] However, Genovate Biotechnology Co., Ltd has its own marketing team and manufactory, therefore, based on the intent to sell, Takeda continued to sue Genovate Biotechnology Co., Ltd for a possible liability for damages.

From 2005 to 2009,[22] Takeda deposited 44 million to continue the litigation. As previous expected, there was no success in all three instances including the first instance-95 Zei-Kun Zi no. 1,[23] the second instance-96 Zei-Sun Zi no. 18,[24] and the third instance-98 Tai-Sun Zi no. 367.[25] However, if we consider the return of the investment on these law suits from economic point of views, those law suits maintain the exclusive market of Triaglitazon for another 4 years. The market value was more than 1.2 billion Taiwan dollars, while the cost on Takeda included attorney fees, which were much less than attorney fees in the U.S., and court charges, which were 1% for the first instance, 1.5 % for the second instance, and 1.5 % for the third instance, of the targeted damages claim and attorney fees to Genovate Biotechnology Co., Ltd, which was 440,370 Taiwan dollars ruled by the court.[26]

Although Genovate Biotechnology Co., Ltd filed the complaint to sued Takeda for a violation of the Fair Trade Act in 2009, after the first instance-98 Min-Kon-Su no 6[27] and the second instance-99 Min-Kon-Su-Sun no 3,[28] the final judgment was from 101 Tai-Sen no 901 on Aug. 29, 2012 and awarded 20 million Taiwan dollars to Genovate Biotechnology Co., Ltd,[29] together with legitimate attorney fees for the third instance which was 60,000 Taiwan dollars.[30] From cost effectiveness point of view, this case indeed demonstrates the significance of applying litigation to market management and also can be a standard case for patent trolls.

The same compound in United States inevitably was a different case where the law suits were filed to defend competition. However, that was not science-based litigation but rather a merely patent troll action as occurring in

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[21] Taiwan Supreme Court, 94 Tai-Kan Zi no. 229.

[22] Internal information acquired duing the author's working period in Takeda.

[23] Takeda v. Genovate, TaiChung District Court, 96 Zei-Kan Zi no. 1.

[24] Takeda v. Genovate, Taiwan High Court in TaiChung, 96 Zei-Sun Zi no. 18.

[25] Takeda v. Genovate, Taiwan Supreme Court, 98 Tai-Sun Zi no. 367.

[26] Genovate v. Takeda for the attorney fee, TaiChung District Court, 95 Zei-Kan Zi no. 1.

[27] Genovate v. Takeda for violation of the Fair Trade Act, first instance in Taiwan Intellectual Property Court, 98 Min-Kan-Su Zi no. 6.

[28] Genovate v. Takeda for violation of the Fair Trade Act, second instance in Taiwan Intellectual Property Court, 99 Min-Kan-Su-Sun Zi no. 3.

[29] Takeda filed appeal for re-trial regarding the Fair Trade Act issue with Genovate. *See* Taiwan Supreme Court, 101 Tai-Shen Zi no. 901.

[30] Genovate requested for the attorney fee for the third instance. *See* Taiwan Supreme Court, 101 Tai-Shen Zi no. 706.

Taiwan.[31] Competitors in the United States argued about the issues of double patenting and obviousness. One generic company Alapharm contended that Takeda's U.S. Patent No. 4,687,777 ("777 patent") with a title of "Thiazolidine Derivatives Useful as AntiDiabetic Agents" was already covered by one prior art which is also Takeda's U.S. Patent No. 4,444,779 ("779 patent") with a title of "Thiazolidine Derivatives," where the 779 patent claims the lipid and sugar control in blood. In order to get a privilege of 180 days exclusivity for sales, Alapharm further argued that Takeda's patent should be revoked due to obviousness.

The 779 patent covers 2 compounds including the commercialized product. The only difference is the functional groups on the 5th and 6th position in the benzene ring of the pioglitazone structure. These functional groups are 5-{-4-[2-(**5**-ethyl-2pyridyl)ethoxy]benzyl}-2,4-thiazolidinedione and 5-{-4-[2-(**6**-ethyl-2pyridyl)ethoxy]benzyl}-2,4-thiazolidinedione. There was another Takeda's U.S. Patent No. 4,287,200 ("200 patent") with a title of :Thiazolidine Derivatives" which claims the glycemic control effect and the same serial of compounds. However, the 779 patent demonstrated the teach-away or the unexpected, good results to support the patentability. Furthermore, defending the non-obviousness of a chemical patent requires proof of a process that is not mandatory but involved in meaningful thinking and innovative efforts. We cannot simply use an helpful insight to rebut a patent because of obviousness, which means that the adjustment of molecular structures or functional groups must be done with reasons and purposes as to prove the patentability. In the 779 patent, the formation of C-C bonds on the benzene ring at the 5th and 6th positions is a challenge, a lot of brain work and efforts are required to achieve the C-C formation, not to mention that putting a C-C bond at a specific position demands a sophisticate synthesis design. Therefore, the patentability in this case is well supported.

If litigation fights for justice and the approaches are based on legal foundations, scientific evidence, and facts, then we should encourage patent litigation to protect inventions and support the patent system as it awards the exclusivity to patent owners for their contributions to the society. In addition, it is indisputable that science and technology do improve the quality of life. Building a legitimate system for reviewing patentability and awarding the exclusivity with a means for enforcing patent rights in the courts are appropriate facilities for magnifying justice and encouraging more inventions.

[31] Takeda Chemical Industries v. Alapharm PTY Ltd, decided on June 28, 2007, Appeal no. 2006-1329, http://www.cafc.uscourts.gov/opinions-orders/0/all/takeda (last visited Oct. 13, 2012).

III. Current Trend on Patent Litigation

Whether litigation skills have been abused on patent protection is debatable as patent owners definitely wish to enforce their patent rights and to get the best benefit out of the patent in a fast manner.

In reality, it is not so easy for every patent owner to meet all the required connections and to be able to coordinate with all necessary parties/channels to implement the patent. Not to be mentioned, the investment on implementing a patent into a marketed product can be much bigger than the investment on research for developing the same patent. Therefore, if a patent owner does not enforce his/her patent within legitimate years or if a licensing negotiation cannot be reached with a reasonable period of time, competitors have the right to apply compulsory licensing which seems not always reasonable as a business negotiation is a complicated skill of art.

Another current complaint from emerging companies or developing countries is over-comprehensive patent mapping by those globalized companies which exclude competition. There is no room for emerging companies to develop their own business even with their own patents, as those globalized international companies have abundant resources and litigation teams which can intimidate these emerging companies or even developing countries. Not to be mentioned, there are patent trolls mastering litigation strategies and skills by filing patent lawsuits as main business activities. Pains and suffering, time and expenses on litigation, and humiliation to company's or brand images are enormous hardships for those emerging companies to take.

Nevertheless, there are also quite a few situations where the patent system can be abused, including creating difficulties during licensing negotiations for a higher royalty rate, limiting or forbiding further innovations, as well as abusing patent prosecution skills, such as: filling over-comprehensive patent families to cover every aspect for the purpose of extending the scope and prolonging the patent protection, forming an alliance for cross-applications of prior arts and combining patent profiles to exclude competitors' patent applications, filing ex parte re-examinations, or bluffing patent infringement to exhaust competitors' resources … etc.

There are counter-measures for stopping anti-competition and attempts to eliminate over-abusive behaviors, such as a violation of the Fair Trade Act of Taiwan. The famous judgment for punishing Takeda awarded 50 millions Taiwan dollars as damages to Genovate Biotechnology Co., Ltd on Feb. 23, 2012.[32] In China, the very first anti-monopoly case[33] was ruled on Jan. 4,

[32] Taiwan Supreme Court, 101 Tai-Sun Ze no. 235.

2013 to punish Samsung, LG, ChiMei,[34] AU Optronics Corp.,[35] ChungHwa Picture Tubes Ltd.,[36] and HannStar Display Corp.[37] for monopoly on LCD monitors. The punishment amounted to 353 million RMB (1.769 Million Taiwane dollars). From some year, there was an initiative to eliminate the abuse of a patent right by willful refusal of patent licensing. By allowing an individual country to legislate compulsory licensing, furthermore, Article 41 of the TRIPS (Agreement on Trade Related Aspects of Intellectual Property Rights)[38] states that the judicial system shall have the right to award damages for compensating the loss and attorney fees.

Punishment can be a measure for reducing an abuse of patent rights. Legislation can be an alternative, such as the compulsory licensing provisions in Articles 87 to 97 of Chapter 5 of the Taiwan Patent Act[39] and the Patent Compulsory Licensing Act of China,[40] based on the Public Health Announcement from the World Trade Organization. The pharmaceutical products are allowed to be exported iinto least-developed countries which approve compulsory licensing based on national health emergency and legitimate causes, while only domestic markets were allowed for compulsory licensing in the past. In addition, education and awareness promotion are still the foundation to resolve the problems, if we can learn from the experience of how Taiwan has reduced pirated goods drastically for the past decades by education and awareness campaign.

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[33] A news report (in Mandarin), http://big5.xinhuanet.com/gate/big5/news.xinhuanet.com/yzyd/fortune/20130104/c_114239088.htm (last visited Feb. 28, 2013).

[34] ChiMei's company website, http://www.chimeicorp.com/en-us/ (last visited Feb. 28, 2013).

[35] AU Optronics' company website, http://www.auo.com.tw/?sn=101&lang=en-US (last visited Feb. 28, 2013).

[36] ChungHwa Picture Tubes' company website, http://www.cptt.com.tw/ (last visited Feb. 28, 2013).

[37] HannStar Display's company website, http://www.hannstar.com/Common.aspx?mid=7&tmid=1&modid=1 (last visited Feb. 28, 2013).

[38] Agreement on Trade-Related Aspects of Intellectual Property Rights [TRIPS], http://www.tipo.gov.tw/ch/AllInOne_Show.aspx?path=3009&guid=f1fd234e-96f2-4cb6-8ced-a9952c7b8326&lang=zh-tw (last visited Oct. 10, 2012).

[39] Taiwan Patent Act, http://www.tipo.gov.tw/ch/AllInOne_Show.aspx?path=2769&guid=45f2e9ed-6a50-488e-8514-47a78e3cc320&lang=zh-tw (last visited Oct. 11, 2012).

[40] Compulsory Licensing Act of China, http://big5.gov.cn/gate/big5/www.gov.cn/flfg/2012-03/20/content_2095402.htm (last visited Oct. 11, 2012).

IV. Conclusion

The abuse of litigation skills is common in legal profession, specially in countries where attorney fees are not expensive, such as Taiwan and China. Therefore, corporates will use this inexpensive tool for alternative business management if the traditional marketing or sales promotion are ineffective. Those conducts are not based on good faith and includes warning letters, *ex parte* re-examination, injunction, boarder seizure, false information to media or related authoritym, and so on, aiming to ruin other company's image and to take away product sales. The victim can only claim damages after a final decision by the court, and the damages are often much less then what had been deprived of.[41]

China will be the next battle field for major patent law suits[42] based on a rising trend of in-China patent applications worldwide. High damage awards from the courts and inexpensive attorney fees further encourage litigation. Contrarily, attorneys' fees are very high and sometimes higher than the damages award in the United States. If plaintiffs have to claim attorney fees or even give up damages for attorney fees only, in this situation, litigation will be more or less discouraged.[43]

In Taiwan, attorney fees can be decided by the court of the third instance. They are often very low, though attorneys may ask more than the listed price by the bar association. However, there is a benchmark reference from the local bar association for attorney fees. In the *Takeda v. Genovate Biotechnology* case, the litigation last for 4 years. The Taiwanese Supreme Court decided only 440,370 Taiwan dollars for the attorney fee.[44] The Fair Trade Act case between Genovate Biotechnology and Takeda is only 60,000 Taiwan dollars in attorney fees, while the case spent 3 years with three attorneys hired by Genovate Biotechnology.[45]

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[41] *See* MBA Lib, *Patent Misuse* (in Mandarin), http://wiki.mbalib.com/zh-tw/%E4%B8%93%E5%88%A9%E6%9D%83%E6%BB%A5%E7%94%A8 (last visited Oct. 8, 2012).

[42] *See* Chin-Wen Huang, *Patent Mapping in Views of Litigation: China, the Next Main Patent Battlefield* (in Mandarin), North America Intellectual Property Ltd. IP database, http://tw.naipo.com/portals/1/web_tw/knowledge_center/expert_column/IHPE-32.htm (last visited Oct. 8, 2012).

[43] Monsanto Co. v. David, decided on Feb. 5, 2008, Appeal no. 2007-1104, http://www.cafc.uscourts.gov/opinions-orders/0/all/monsanto (last visited Oct. 12, 2012); Monsanto Co. v. David [Order], decided on May 2, 2012, Appeal no. 2012-1128, http://www.cafc.uscourts.gov/opinions-orders/0/all/monsanto (last visited Oct. 12, 2012; In re Omeprazol, decided on Apr. 23, 2007, Appeal no. 2004-1621, http://www.cafc.uscourts.gov/opinions-orders/0/all/in-re-omeprazol (last visited Oct. 12, 2012).

[44] *See supra* note 26.

[45] *See supra* note 30.

There are always counter-measures to stop patent trolls. However, if the market potential is relatively large and the profit is attractively high, there will be non-stop patent litigation as it has already become a standard business tool. For small and medium-sized companies which cannot afford litigation expenses or do not have sufficient experiences to deal with litigation strategies or file comprehensive patent portfolios, they might disappear from the real world.

What the truth is and whether the justice can be pursued are often challenged by the general public, as it is no longer a matter of the plaintiffs and defendants but shareholders' concerns. For example, during the litigation between Samsung and Apple, Samsung's stock price drop was much greater on Aug. 24, 2012 where the judgment regarding the injunction and 1.05 billion U.S. dollars was announced.[46] Only within a very short period of time, the United State Court of Appeals for the Federal Circuit reversed the case on Oct. 11, 2012,[47] which caused the stock price drop of 2 %.

Another famous settlement case relates to an "iPad" trademark in China. The original deal covered the right in ShenZen and amounted to 55,000 U.S. dollars. However, due to a tiny mistake which the right in ShenZen was discussed in an e-mail but not listed in a final contract, thereafter, both parties spent enormous efforts on negotiation combat in private sectors, in courts, and even in public places involved in politics and media to reach the final bargain of 60 million U.S. dollars.[48] From now on, when managing intellectual property in China, no one can underestimate the knowledge standard of a trademark owner in China which is only a small size company facing bankruptcy, particularly.

V. Suggestions

[46] *See* Yi-Hsu Chu & Fu-Fong Ni, *Apple Won Super Patent Law Suit, and Samsung Lost a Month Sales for Damage* (in Mandarin), TIENJIN WEB, Sept. 18, 2012, http://www.tianjinwe.com/business/qqcx/201209/t20120918_86835.html (last visited Oct. 12, 2012).

[47] *See* Yuan Liu, *Injunction for Samsung Mobile Phone, CAFC reversed*, TAIWAN SIN NEWS, copied by e-China Times on Oct. 12, 2012, http://news.chinatimes.com/realtime/110102/112012101201153.html (last visited Oct. 12, 2012).

[48] *See* Zon-Jen Won, *iPad Trademark Issue resolved by 60 Million Dollars Settlement, Apple Paid Wei-Guan* (in Mandarin), NEWTALK, July 2, 2012, http://tw.news.yahoo.com/ipad%E5%95%86%E6%A8%99%E6%AC%8A%E8%A7%A3%E6%B1%BA-%E8%98%8B%E6%9E%9C%E4%BB%98%E5%94%AF%E5%86%A06%E5%8D%83%E8%90%AC%E7%BE%8E%E5%85%83-095814487.html (last visited Oct. 13, 2012).

There are international organizations, such as World Trade Organization, World Intellectual Property Organization, and Asia-Pacific Economic Cooperation, working aggressively to harmonize the legislation of intellectual property right and to push individual members for more comprehensive legislation and updated regulations. The next step should focus on the consistency of opinions and rulings in courts of individual countries.

Facing the concept of a globally-unified market, not only Taiwan but also China needs to leverage the standard on patentability, the criteria on infringement of intellectual property rights, and the definition of anti-competition or monopoly. In Korea, Japan, even India, or all other neighboring countries, one company can face patent litigation of the same items at the same period of time. In addition, due to business competition, companies in Taiwan or China have been frequently challenged by complaints filed to the European Union (EU) or U.S. International Trade Commission (ITC) for IP-related issues, aiming to intimidate certain business or country from entering into Europe or America. In early days, ”301” sanctions were based on the Trade Act of the United States in 1974.[49] In present days, ”Special 301” or recent “section 337” investigations are a new issue needed to be dealt with. Under these circumstances, local governments should be involved in supporting industries, as it is no longer a business issue but somehow a political issue.

Years of globalized litigation can ruin not only small and media companies, but also big companies. How to defend patent trolls globally has turned out to be an important issue along with research development and business management.[50] Alternative approach, such insurance policies on intellectual property, can be a new security for risk management. It is inevitable to deal with all the challenges together with the business development on intellectual properties, if we wish to make a practical use of these intellectual properties. Therefore, we can only hope that legislation, continued education, and enforcement with conscience can be remedies for help on creating a better business environment.

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TABLE OF CONTENTS

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9 772226 677007 05 >