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THE DOCTRINE OF EQUIVALENTS: RETHINKING THE BALANCE BETWEEN EQUITY AND PREDICTABILITY

BY ROY COLLINS, III

Until the 1930s, the benefits of the patent system were clear. The public recognized invention as a source of millions of jobs. But the Depression shook the foundations of the perception of the patent system.... [I]nconsistent precedents prevailed concerning patentability and infringement, thereby discouraging research and development in the United States.... One unfortunate result of the post-Depression hostility toward patents was the United States' retreat from cutting-edge leadership in the world.¹

I. INTRODUCTION

The Court of Appeals for the Federal Circuit is justifiably credited with the restoration of the prestige and enforceability of patents. However, in recent rulings regarding the doctrine of equivalents,² it has returned to a realm of uncertainty which had once characterized the law of patents.

In its current application, the doctrine of equivalents as a tool of equity is subject to inconsistent standards and rationales.³ Such inconsistency undermines the equitable

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1. Lecture by Judge H. Markey, *Reinventing the Patent System*, Herzog Lecture, The John Marshall School of Law (October, 1990) (available on videotape in John Marshall Law School Library).

2. See *Pennwalt Corp. v. Durand-Wayland, Inc.*, 833 F.2d 931, 4 U.S.P.Q.2d 1737 (Fed. Cir. 1987) (perhaps the most notable example) (en banc) *cert. denied*, 108 S. Ct. 1226, *cert. denied*, 108 S. Ct. 1474 (1988).

3. See, e.g., Molinaro, *Pennwalt Corp. v. Durand-Wayland, Inc. — The Federal Circuit Redefines the Doctrine of Equivalents*, 38 DE PAUL L. REV. 787, 804 (1989) (noting that the dissent in *Pennwalt* stated that the doctrine of equivalents represents a choice between two conflicting policies, which comprise giving public notice of the metes and bounds of the patented invention on one hand, and on the other, giving the patentee complete and fair protection of his invention). See also Lau, *The Test for Patent*

underpinnings of the doctrine,⁴ which themselves have for some time been involved in an ideological “tug of war.”⁵

The task of applying the doctrine of equivalents to determine patent infringement⁶ has presented the Federal Circuit with a dilemma by requiring it to ascertain the breadth of a given scientific and technological breakthrough while using a description which is mainly grammatical in form.⁷ Unfortunately, the doctrine lacks clear guidelines for implementation from either statutory or common law to overcome this dilemma.

II. THE HISTORY OF THE DOCTRINE PRIOR TO FEDERAL CIRCUIT TREATMENT

Traditionally, the doctrine of equivalents in its various forms has represented the courts' exercise of jurisprudence in

Infringement Under the Doctrine of Equivalents After Pennwalt v. Durand-Wayland, 22 IND. L. REV. 849, 874 (1989).

See also Rosenblum, *Doctrine of Equivalents — Has the Federal Circuit Dealt a Mortal Blow to the Doctrine of Equivalents?*, *Pennwalt Corporation v. Durand-Wayland, Inc.*, 833 F.2d 931 (Fed. Cir. 1987), 12 SUFFOLK TRANSNAT'L L.J. 671, 677 (1989) (explaining that the Patent Statute of 1952 neither mentions the doctrine of equivalents, nor sets forth a standard for its application).

4. In essence, the doctrine is intended to bring notions of equity into what would otherwise be a sterile assessment of whether real life devices or practices compare to claim language.

But see Smith, *The Federal Circuit's Modern Doctrine of Equivalents in Patent Infringement*, 29 SANTA CLARA L. REV. 901, 914-15 (1989) (suggesting that the doctrine of equivalents is not consistent with other principles of equity which are more attuned to issues involving clean hands; the doctrine has the same impact whether the alleged infringer has evil intentions or whether the equivalence occurs as the result of independent development).

See also Adelman & Francione, *The Doctrine of Equivalents in Patent Law: Questions that Pennwalt did not Answer*, 137 U. PA. L. REV. 673, 683 (1989) (indicating that the “systemic uncertainty” which faces potential infringers deprives competitors of the ability to obtain fair notice, thereby raising due process concerns).

5. See, e.g., Molinaro, *supra* note 3, at 810-11 (noting how the Court in *Winans v. Denmead*, 56 U.S. (15 How.) 330, 14 L.Ed. 601 (1853) leaned in favor of protecting the patent owner, as was the case in *Graver Tank & Mfg. Co. v. Linde Air Products Co.*, 339 U.S. 605, 70 S. Ct. 854, 85 U.S.P.Q. 328 (1950), while the only mention of balancing the respective parties' interests found in the *Pennwalt* opinion was in Judge Nies' commentary).

6. The first step in any infringement analysis is the test for literal infringement. *Graver Tank & Mfg. Co. v. Linde Air Products Co.*, 339 U.S. 605, 607, 70 S. Ct. 854, 855 (1950). The accused device or practice is compared, “side-by-side,” with the language in the claims of the patent in order to determine whether each element in the patent claim is embodied in a corresponding component in the accused device or practice. See, e.g., *Texas Instruments, Inc. v. United States Int'l Trade Comm'n*, 805 F.2d 1558, 1562 (Fed. Cir. 1986). If any element in the patent claim is not found in the accused device, then there is no literal infringement. However, there may still be infringement under the doctrine of equivalents. 339 U.S. at 608-9, 70 S. Ct. at 856.

7. See, e.g., D. Chisum, *The Doctrine of Equivalents in Patent Law: Some Historical and Policy Perspectives on the Federal Circuit's Pennwalt Decision*, Version No. 1.0 (1990) [hereinafter *Doctrine*] at 40.

resolving controversies presented in infringement law. Cases dating back to *Winans v. Denmead*⁸ demonstrate the courts' recognition that patent language, as a written description of an invention, may not fully represent what the inventor for all practical purposes has disclosed to the government in exchange for patent rights.

However, it is evident that throughout the years the doctrine has often had different uses, generally aimed toward compensating for the shortcomings which had become apparent in the existing legal remedies for patent infringement.⁹ For example, prior to the enactment of statutes requiring distinct claiming, any test of literal infringement would be nonsensical given the potential interspersal of patentable and unpatentable matter on the face of a patent. In this context, the early standard of infringement was essentially the doctrine of equivalents as a matter of law, rather than equity.¹⁰ With the subsequent passage of the Patent Act of 1870, which hastened the use of claim language to restrict rather than merely illuminate the scope of patent protection,¹¹ the courts adapted the use of the doctrine of equivalents to the context of claim language as the metes and bounds of a patented invention.

8. 56 U.S. (15 How.) 330, 14 L.Ed. 601 (1853). This case involved patented railroad cars which a competitor essentially copied while varying insignificant design details. The relevant art prior to the patentee's invention was the common rectangular car where more load was transferred to the sides than to the front and back. Winans' patent was for a conical car with drop chute in narrower cross-section of the cone frustum just beneath the axle line. The result was a lower center of gravity, equalized pressure and rear coal-departure flow.

The accused device was somewhat conical but had an octagonal cross-section. Otherwise, the defendant's car had all the features in Winans' patent. Note that the accused infringer's designer had measured and analyzed the plaintiff's own embodiment of the invention. The *Winans* Court found infringement based on equivalence, even though the cross-section of the accused device varied somewhat from the literal description in the patent. The defendant's car performed substantially the same function of carrying coal. The octagonal car's essentially-conical geometry created centralized pressure in substantially the same way. Both cars achieved the same result of stable mass-centering and rear flow access.

9. See, e.g., Roylance & Steadman, *The Doctrine of Equivalents Revalued*, 19 GEO. WASH. L. REV. 491, 496 (1951).

10. *Id.* at 499. After the passage of the 1870 Act, the "expansive" approach to the doctrine of equivalents was particularly useful in that claims were considered to represent the center, but not the outer periphery, of the patented invention. Hantman, *Doctrine of Equivalents*, 70 J. PAT. & TRADEMARK OFF. SOC'Y. 511 (1988).

11. See generally 2 D. CHISUM, PATENTS Section 8.02[2] (1989). The 1870 Patent Act required an inventor to "particularly point out and distinctly claim the part, improvement, or combination" which the inventor claimed to be the invention or discovery. Patent Act of 1870, ch. 230, Section 26, 16 Stat. 198-217 (1870).

When courts first began using the doctrine of equivalents as a tool of equity, it was as an alternative of last resort,¹² unlike its current routine application as a secondary test of infringement.¹³ In addition, the early twentieth century practice of drafting patents with functional language decreased in many ways the apparent usefulness of the doctrine.¹⁴

III. THE GRAVER TANK STANDARD

Considered by some to retrieve an otherwise dormant doctrine of equivalents,¹⁵ the landmark *Graver Tank & Mfg. Co. v. Linde Air Products Co.*¹⁶ established the modern judicial

12. Roylance & Steadman, *supra* note 9, at 504. During the latter part of the 19th century, in place of structural language, claims became increasingly drafted with functional language such as "means for" and "adapted to," possibly in response to judicial differentiation of the claims from the overall body of the patent. It became common practice in infringement actions for patent owners to argue that an accused structure, under such broad functional parameters, was equivalent to an invention as disclosed in the patent specification. Accordingly, the courts primarily used the doctrine of equivalents to determine the proper breadth of protection when literal claim interpretation might incorporate the accused structure. Hantman, *supra* note 10, at 522.

13. See, e.g., Roylance & Steadman, *supra* note 9, at 504-5 (speculating that the courts began to routinely apply the doctrine of equivalents concurrently when the post-Depression-era patentees became "emasculated" by case law).

Conversely, considering that the arguably pro-patent Federal Circuit decisions have restored the patentee's rights, perhaps there may be some justification for reducing the reach of the doctrine at this stage of development in the law of infringement.

See also Smith, *supra* note 4, at 928 (suggesting that the increasing level of complexity in claim drafting has forced the courts to modify the standards of the doctrine toward a proportionately high level of precision).

14. Dienner, *Claims of Patents*, 18 J. PAT. OFF. SOC'Y 389, 403 (1936). There was a momentary limitation upon the use of functional limitations at the so-called "point of novelty" in *Halliburton Oil Well Cementing Co. v. Walker*, 329 U.S. 1 (1946). However, this ruling was effectively overturned by the passage of 35 U.S.C. Section 112 (1952). It has been argued that 35 U.S.C. Section 112, a statute which provides little legislative history as to its initial application to the then dormant doctrine of equivalents, should be viewed as limiting the doctrine to its restrictive pre-*Halliburton* application. Hantman, *supra* note 10, at 546.

15. Hantman, *supra* note 10, at 542-43 (noting that the "substantially the same" criteria were traceable to legal inadequacies of the early nineteenth century, when comparison was made primarily to the specifications, rather than to those of a century later when claims determined patent protection).

16. 339 U.S. 605, 70 S. Ct. 854, 85 U.S.P.Q. 328 (1950). In this case, the Court found equivalence as to a narrowed claim, while invalidating a broader claim which was otherwise literally infringed by the defendant. The case centered on one component of a welding flux. The surviving claims were drawn solely to a flux containing a major proportion of alkaline earth metal silicate, although the specifications disclosed the overall class of metallic silicates covered in the invalidated broader claim. The defendant's flux contained manganese, a non-alkaline yet metallic silicate. Manganese was known in the art to be operatively interchangeable with magnesium, which is an alkaline earth metal silicate. There was no evidence of independent development.

standards for applying the doctrine of equivalents as a tool of equity. According to the majority, if the accused device¹⁷ performed substantially the same function in substantially the same way to produce substantially the same result, then there was infringement, not literally, but instead under the doctrine of equivalents.¹⁸

The Court went on to state that the doctrine applies to both primary (pioneer) inventions and secondary inventions, although the range of equivalents may vary under the circumstances.¹⁹ Furthermore, the Court emphasized that the various elemental aspects of the invention which must be considered in assessing equivalence may have differing levels of importance.²⁰

Graver Tank also demonstrated that not only can equity give protections to a patentee, but it can also take them away. For example, the inquiry into the substantial sameness of the functions, means and results of a device used in the doctrine of equivalents analysis might also negate a showing of literal infringement. The Court articulated a rule for instances where an accused device “reads upon” literal claim language: if an accused device uses substantially different means to accomplish the same function as the patented device, there may be an absence not only of infringement under the doctrine of equivalents, but also of literal infringement, as a matter of equity.²¹

In an earlier ruling, *Graver Tank & Mfg. Co. v. Linde Air Products Co.*, 336 U.S. 271, 216-7, 69 S. Ct. 535, 538 (1949), the Supreme Court had stated that the broadest claim was invalid because most of the materials within the broad category of metallic silicates were not operative. The plaintiff had unsuccessfully argued against invalidating the claim upon the rationale that the broad class should be limited to those in the class that worked.

See also Lecture by D. Chisum, Master Class, The John Marshall School of Law (September, 1990) [hereinafter Chisum Lecture] (available on videotape in John Marshall Law School Library) (stating that the broad claim was not dedicated to the public, but was forfeited to the public).

17. In this paper, the word “device” will generally be used for any subject matter which might infringe a patent, including products and practices.

18. *Graver Tank*, 339 U.S. at 608.

19. *Id.*

20. See *Doctrine*, *supra* note 7, at 5-6.

In *Graver Tank*, the Court looked into a number of factors including: 1) the purpose for which the interchanged ingredient was used in the patent, 2) the qualities it had when combined with other elements, 3) the function it was intended to perform, 4) the impact of interchanging the elements, and 5) so-called “fairness” matters such as whether the accused device or practice was the result of independent research. 339 U.S. at 609-11.

21. *Graver Tank*, 339 U.S. at 608. This rule is commonly known as the reverse doctrine of equivalents. Two other factors which might also negate a showing of literal infringement due to reverse equivalence principles are whether there is a change in

IV. RESTRICTIONS PLACED UPON THE DOCTRINE

A. PRIOR ART

It must be noted that the doctrine of equivalents does not allow judges to capriciously assess the breadth of claim language simply upon the basis of persuasive scientific and technological evidence or a mere choice of a convenient legal standard. The Court in *Graver Tank* included in its infringement ruling the necessity for a determination of equivalency not only in light of the patent and the particular circumstances of the case²², but also in light of the prior art.²³ For example, in *Hughes Aircraft v. United States*,²⁴ where there was only one relevant prior art reference, the court considered whether the accused infringer followed the patentee's teachings more than the prior art. The court also explained that the subject patent deserved neither the broad range of equivalence associated with pioneer inventions nor the narrow range of equivalents associated with crowded arts.²⁵

The significance of prior art considerations was greatly illuminated recently in *Wilson Sporting Goods Co. v. David Geoffrey & Associates*,²⁶ in which the court found no infringement by

principle, and whether there is the same or a similar function. See, e.g., BLUMENTHAL, ELECTRONICS & COMPUTER PATENT & COPYRIGHT PRACTICE, ch. 6 (Patent Resources Institute, Inc. 2d. ed. 1990). In the context of claims having means-plus-function limitations, this reverse doctrine is seen as being a mere corollary to the statutory test of literal equivalence. Under this premise, the breadth of such limitations is restricted to equivalents of the structures disclosed in the patent specification. *Id.*, at 6-33.

22. See *Graver Tank*, 339 U.S. at 609.

23. Accord *Senmed Inc. v. Richard-Allan Medical Industries*, 888 F.2d 815, 821 (Fed. Cir. 1989) (reasserting the rule that equivalent protection of claim limitations cannot "encompass anything in the prior art").

Furthermore, the courts tend to construe the prior art favorably toward validity of the patent. See, e.g., *Wilson Sporting Goods Co. v. David Geoffrey & Associates*, 904 F.2d 677, 684, 14 U.S.P.Q.2d 1942 (Fed. Cir. 1990) (citing *DMI, Inc. v. Deere & Co.*, 802 F.2d 421, 425, 231 U.S.P.Q. 276, 279 (Fed. Cir. 1986)).

24. 717 F.2d 1351, 219 U.S.P.Q. 473 (Fed. Cir. 1983).

25. *Id.*, at 1362.

Accord *Texas Instruments, Inc. v. United States Int'l Trade Comm'n*, 805 F.2d 1558 (Fed. Cir. 1986) (generally reserving broad claim interpretation and assignment of pioneer invention status for instances where relevant prior art is found to be sparse, such as in rapidly evolving fields of technology).

Another application of prior art was attempted in *Carman Industries, Inc. v. Wahl*, 724 F.2d 932 (Fed. Cir. 1983) where the court determined that the patent owner's asserted range of equivalents would not render its own claim invalid on obviousness grounds in light of the prior art. *Id.* at 942-3. However, this ruling suggests possible denial of broad equivalence coverage if the prior art indicates motivation at the so-called point of novelty of the expanded claim.

26. 904 F.2d 677, 14 U.S.P.Q.2d (1942). In this case, the court hypothesized a claim which literally covered the accused product, as if it were presented to the

equivalence. In that case, the court found the accused golf ball to be technologically distinct from what the patentee had claimed, particularly considering that the accused golf ball had an obviousness-type relationship to the relevant prior art.²⁷

B. PROSECUTION HISTORY ESTOPPEL

Traditionally, prosecution history estoppel has been another equitable vehicle used by the courts to assess patent claims in view of factors beyond mere claim language.²⁸ Along with

patent office. The court indicated that if the hypothetical claim reads on the prior art, there is a defense to any claim of infringement under equivalence theories. 904 F.2d at 684, 14 U.S.P.Q.2d at 1948. *See also*, Chisum Lecture, *supra* note 16, (explaining the resulting inference that should the hypothetical claim read on the prior art, the patentee could not sensibly complain of infringement because such would be an admission that the patent was itself invalid under anticipation or obviousness grounds).

The *Wilson* court indicated that if the hypothetical claim extends sufficiently beyond the prior art, then the accused infringer could not defend against a claim under the doctrine of equivalents by stating that its device is either contained within or is an obvious modification of the prior art. *Wilson*, 904 F.2d at 684. One related point made by the court was that the doctrine of equivalents does not expand the scope of the claims, but rather expands the patentee's exclusionary rights to equivalent devices or practices. *Id.*

27. *See, e.g., Wilson*, 904 F.2d at 684. The court characterized the accused golf ball in the context of a hypothetical claim which described the features of the accused ball.

Several issues appear unanswered by the *Wilson* decision, such as 1) how thoroughly the hypothetical claim must describe the accused device or practice, and 2) whether the courts intend that the hypothetical claim be drafted during the course of trial, or whether the parties should compose the claim during the course of discovery. Timothy J. Malloy, Remarks at The Intellectual Property Law Association of Chicago Doctrine of Equivalents Seminar (April 4, 1991) (available on videotape in John Marshall Law School Library).

Interestingly, the *Wilson* court added the responsibility of demonstrating that the accused device falls outside the prior art to the patentee's burden of proving infringement by equivalence. 904 F.2d at 685. However, the patent owner's additional burden of demonstrating the validity of the hypothetical claim may be a mere supplementary one, rather than a necessary element of the case-in-chief. *See Key Manufacturing Group Inc. v. Microdot, Inc.*, 925 F.2d 1444 (Fed. Cir. 1991). This additional burden seems to be applicable only if the alleged infringer raises a prior art defense under the *Wilson* ruling. *Id.* at 1449.

Another surprise in *Wilson* was the court's suggestion that an accused device or practice which does not infringe an independent claim might infringe its corresponding dependent claim. *Wilson*, 904 F.2d at 686. Apparently, the increased number of limitations in a dependent claim affects the scope of the prior art to be considered, and therefore might bring the accused device or process out of the safe harbor of the prior art or its obvious teachings. *Id.*

28. *Loctite Corp. v. Ultraseal Ltd.*, 781 F.2d 861, 870, 228 U.S.P.Q. 90, 96 (Fed. Cir. 1985). There are at least two additional instances where prosecution history estoppel is used beyond the context of the doctrine of equivalents. One such situation occurs in filing a continuation-in-part application, where an applicant seeks to attribute the filing date of the parent application to subsequent disclosure. Saret & Gabrielides, *Applications of the Doctrine of Prosecution History Estoppel in Contexts other than Claim Interpretation and Scope of Equivalents*, The Intellectual Property Law Association of Chicago Doctrine of Equivalents Seminar, at 6 (April 4, 1991).

claim construction,²⁹ prosecution history estoppel is used as a defense to infringement claims based upon the doctrine of equivalents.³⁰ It is premised upon a comparable notion that an invention is not limited to the verbal description in the claims.³¹

The courts will inquire into the prosecution history when the record suggests that the applicant took some action in obtaining the original allowance of the claims which is inconsistent with the characterization of the claims alleged during trial.³² Generally, in order to marshal the application to an eventual allowance, an applicant will narrow his claims by amendment or cancellation, based upon the examiner's rejection.³³

Another occurs where a patent owner seeks to argue that a reference (a pending application) which previously gave rise to an obviousness-type double patenting rejection does not render the claimed invention obvious, despite the fact that the applicant filed a terminal disclaimer in order to overcome the rejection. *Id.*

29. *Moleculon Research Corp. v. CBS, Inc.*, 793 F.2d 1261, 1270, 229 U.S.P.Q. 805, 811 (Fed. Cir. 1986) (indicating that prosecution history should be assessed along with the claim language and specification in order to interpret claim language, in addition to applying the overall infringement analysis under the doctrine of equivalents).

30. It is now "black letter" law that prosecution history estoppel applies only to the doctrine of equivalents. *See, e.g.*, D. Chisum, *A Primer On Prosecution History Estoppel*, Version No. 1.0 (1990) [hereinafter *Prosecution*] at 27-9 (citing *Loctite Corp. v. Ultraseal Ltd.*, 781 F.2d 861, 228 U.S.P.Q. 90 (Fed. Cir. 1985)).

31. *See, e.g.*, *Graver Tank & Mfg. Co. v. Linde Air Prods. Co.*, 339 U.S. 605, 607, 70 S. Ct. 854, 856 (1950). *See also Doctrine, supra* note 7, at 36.

32. In *Pennwalt Corp. v. Durand-Wayland, Inc.*, 833 F.2d 931, 4 U.S.P.Q.2d 1737 (Fed. Cir. 1987), the court found that the patent owner was estopped from denying the materiality of the position indicating means limitation. Given that the prior art taught the use of memories to store sorting criteria information, the inventor added the disputed hard-wired position indicating means in order to overcome such prior art. Apparently, the courts additionally look into the reasons why claims were narrowed, as well as the manner in which claims were narrowed by amendment to determine what, if anything, has been surrendered.

But see *Adelman & Francione, supra* note 4, at 691 (contending that under the court's supposed "all-elements" rule, the absence of an equivalent means in the accused device would render the doctrine of prosecution history estoppel moot; suggesting that "as-a-whole" principles are more supportive of the court's estoppel rationale, despite the court's stated focus upon the former standard). However, one might conclude that beyond the mere absence of a limitation, the key may lie in the relative materiality of the missing limitation.

33. *See generally* CHISUM, PATENTS Section 18.05, at 18-158 (1991). Note however, that if the change in position during prosecution lacks a significant relationship to the purposes of finding infringement by equivalence as to an accused device or practice, the courts will pay closer attention to the intent of the applicant. *See Insta-Foam Products, Inc. v. Universal Foam Systems, Inc.*, 906 F.2d 698, 703, 15 U.S.P.Q.2d 1295, 1298 (Fed. Cir. 1990); *Sun Studs, Inc. v. ATA Equipment Leasing, Inc.*, 872 F.2d 978, 987, 10 U.S.P.Q.2d 1338, 1344 (Fed. Cir. 1989) (where the applicant emphasized a "repositioning" limitation in order to distinguish from the prior art log cutters; however, with respect to the plane of rotation in the cutter, the applicant additionally cancelled a claim which referred to a generally "preselected shape" which covered the accused device's trapezoidal shape, unlike the parallelogram of the allowed claim).

Presumably, the courts are concerned with public reliance upon the claims as defining the limits of the patentee's exclusive grant.³⁴ Accordingly, the courts describe an inconsistent characterization by a patentee as being an abandonment or acquiescence³⁵ to the construction urged by the examiner,³⁶ or as a disclaimer³⁷ as to some previous position taken by the applicant during patent prosecution. Termed the "Foil Theory" in view of the scope limiting impact of prosecution history, the courts wish to prevent an applicant from reclaiming matter which was omitted or altered in the process of obtaining allowance of claims.³⁸

An additional justification for applying the doctrine of prosecution history estoppel is that of exhaustion of administrative remedies.³⁹ This principle is particularly relevant when a patentee during prosecution failed to fully utilize the appellate opportunities provided within the patent office in order to maintain a disputed position.⁴⁰ Accordingly, the courts will prevent applicants from asserting an inconsistent position in

34. See *Prosecution*, *supra* note 30, at 18-19. See also Saret & Gabrielides, *supra* note 28, at 2-3 (questioning the suggested unlikelihood that alleged infringers would be misled due to having read applicants' statements in the voluminous arsenal of patent office files (citing for comparison Dvorak, *That Perplexing Problem - the Doctrine of File Wrapper Estoppel*, 50 J. PAT. OFF. SOC'Y 143-44 (1968))).

35. Recent cases indicate that the presumption of acquiescence is rebuttable. Saret & Gabrielides, *supra* note 28, at 11.

36. See, e.g., *Prosecution*, *supra* note 30, at 19-20.

37. Saret & Gabrielides, *supra* note 28, at 3 (noting that prosecution history estoppel "applies regardless of the applicant's subjective intent").

The seminal case on abandonment and disclaimer is *Exhibit Supply Co. v. Ace Patents Corp.*, 315 U.S. 126, 52 U.S.P.Q. 275 (1942). This case dealt with pinball target switches, which in an earlier version of the claims were described as being "embedded" in the pinball table. However, after the examiner rejected claims using the "embedded" expression, the applicant inserted the phrase "carried in the table" for claims which were eventually allowed. Competitors used devices which had conductors which would be better described by "carried" phraseology than by "embedded" notation. As a result, the patentee sought enforcement expansion of his patent to include "embedded" devices under the doctrine of equivalents. Applying file-wrapper estoppel to negate such equivalent enforcement, the Court indicated that the difference in positions must be strictly construed against the patentee. 315 U.S. at 136-7, 52 U.S.P.Q. at 279-80.

38. Saret & Gabrielides, *supra* note 28, at 3 (citing *Summa v. E.C.P. Energy Conservation Products Inc.*, 5 U.S.P.Q.2d 1891, 1894 n.5 (S.D.N.Y. 1987)). One might question the efficacy of broadly applying an estoppel doctrine which is dominated by such an objective analysis, rather than considering the applicant's subjective intent. For instance, applicants are at times unwilling to undergo prolonged and protracted examination in view of constraints upon time and money, and in light of the possibility of needlessly receiving a final rejection.

39. *Id.* at 1.

40. *Prosecution*, *supra* note 30, at 20.

the setting of litigation when they have established a previous position in the presence of a technologically expert tribunal such as the patent office.⁴¹

V. THE ABSENCE OF ARTICULATED GUIDELINES IN APPLYING THE DOCTRINE

The cases which followed *Graver Tank* have clearly endeavored to apply the tripartite function/way/result test.⁴² Unfortunately, the tripartite standard, as expressed in *Graver Tank*, is not sufficiently detailed to predict the equitable reach of patent claims. Absent in the tripartite standard are quantifiable or scientific guidelines for predictably applying the *Graver Tank* test.⁴³

Given the nature of patent subject matter, this absence of such quantifiable or scientific guidance is at the crux of the problem of applying the doctrine of equivalents. Words are the principal tool of the legal community, and consequently, patent law must conform to legal standards which have their essential point of reference in the verbal domain. As a result, patent disputes, which have their origin in the scientific and technological domain, are prone to awkward semantic assessments and needlessly imprecise determinations of infringement.⁴⁴

41. See, e.g., *Austin Powder Co. v. Atlas Powder Co.*, 568 F.Supp. 1294, 1312 n.41 (D.Del. 1983).

42. According to the majority in *Graver Tank*, if the accused device produced substantially the same function in substantially the same way to produce substantially the same result, then there was infringement, not literally, but instead under the doctrine of equivalents. 339 U.S. at 608. This standard followed the rule of *Royal Typewriter Co. v. Remington Rand, Inc.*, 168 F.2d 691, 692, 77 U.S.P.Q. 517, 518 (2d Cir. 1948) (wherein Judge Learned Hand additionally characterized as anomalous the willingness of courts to extend the scope of a patent beyond the literal language of the patent claims).

43. Chisum Lecture, *supra* note 16. But see *Becton Dickinson & Co. v. C.R. Bard, Inc.*, 922 F.2d 792, 798 (Fed. Cir. 1990) (applying the "all elements" test particularly with respect to the "in substantially same way" part of the tripartite standard, which apparently is not fulfilled unless all limitations are found in the accused device).

Cf. *Doctrine*, *supra* note 7, at 38 (quoting *Claude Neon Lights, Inc. v. E. Machlett & Sons*, 36 F.2d 574, 575-76, 3 U.S.P.Q. 220, 221 (1929) ([The tripartite test] "does not help much in application; it is no more than a way of stating the problem.")). The "tripartite test" is more a standard than a test.

The *Graver Tank* Court failed to address whether the tripartite test is intended to hinge upon expert or lay assessment, as to the substantial similarity of function, way and result. Particularly, considerable benefit would be derived from judicial clarification of whether the tripartite standard is best met from the point of view of the ordinarily skilled artisan or the expert.

44. See, e.g., *Roynance & Steadman*, *supra* note 9, at 498 (indicating that inventions increase in complexity, while correspondingly improved terminology is generally unavailable, and patent draftsmen must condense voluminous and complicated technical data into succinct claim language).

The *Graver Tank* Court stated that the doctrine of equivalents is intended to prevent the practicing of a "fraud on a patent."⁴⁵ Clearly, the focus in equivalence determinations is on encroachment upon constitutionally guaranteed patent protection based upon trivial variations from what has been disclosed.⁴⁶ However, given the Court's failure to set out appropriately detailed guidelines delineating the scope of the doctrine in individual instances, those in the marketplace are needlessly subject to an uncertain range of potential equivalence liability, without the benefit of either clearly marked boundary lines in patent claims, or reasonable boundary assessing techniques.

VI. THE COMPLICATION PRESENTED BY MEANS-PLUS-FUNCTION LIMITATIONS

The role of claim construction in determining the scope of equivalents where means-plus-function limitations are involved has not yet been fully articulated by the courts. For example, the ruling in *Perkin-Elmer Corp. v. Westinghouse Elec. Corp.*⁴⁷

Perhaps the matter is best understood upon recognizing that while the domain of the innovators is essentially scientific and technological, the patent dispute is clearly economic. Given that some of the most fundamental traditions of the judicial system are found in the annals of mercantile dispute resolution, patent litigation is probably most appropriately handled in the court system. This is important because were the debate solely centered upon innovation, the matter would be decided simply as a matter of academic record. The heart of the matter is whether a competitor has reproduced the fruit of a patentee's scientific or technological labor, wrongly depriving the patentee of a reasonable range of commercial protection in light of what has been disclosed in exchange for a patent grant. The doctrine of equivalents thus requires a multidisciplinary investigation into the technological or scientific nature of a patented invention, as well as the reasonable range of commercial protection in light of what has been disclosed, with some measure of fairness to both parties of the dispute.

45. *Graver Tank*, 339 U.S. at 608. See also *Doctrine*, *supra* note 7, at 37.

46. See, e.g., *Roylance & Steadman*, *supra* note 9, at 500.

47. 822 F.2d 1528 (Fed. Cir. 1987). Refusing to find equivalence due to a missing element, the majority stated that "a court may not, under the guise of applying the doctrine of equivalents, erase a plethora of meaningful structural and functional limitations of the claim" *Id.* at 1532. This case demonstrated that the Federal Circuit's equitable standard in determining equivalence was still subject to an analysis of the specific limitations in claim language. The disputed point in *Perkin-Elmer* was that the claim specified a certain tap coupler. The accused device did not use a tap coupler, but instead used a loop coupler. The tap coupler performed a function that the loop coupler did not, and the accused device made up for the absence with other improvements. The prior art taught that generally both couplers were interchangeable.

It bears noting that in *Pennwalt*, the focus was not upon a "plethora" of limitations, but was instead upon a single limitation.

See also, *Farney, Infringement in the Federal Circuit and the Role of Equivalency*, Houston Intellectual Property Law Association 6th Annual Institute at G-23 (October, 1990) (suggesting that the *Perkin-Elmer* standard calls for a determination of functional equivalence as to each limitation in relation to the overall way in which the accused device operates, along with a tripartite inquiry as to the overall claim).

illustrates the Federal Circuit's approach toward these "apples and oranges" standards⁴⁸ when applying the doctrine of equivalents where means-plus-function claim limitations are at issue. In effect, the modern-day proliferation of means-plus-function claim language⁴⁹ only increases the difficulty of clearly defining the scope of the doctrine of equivalents.

Virtually every reputable authority⁵⁰ states that equivalence under 35 U.S.C. Section 112, paragraph 6,⁵¹ should not be confused with equivalence under the doctrine of equivalents.⁵² However, it is important to differentiate what the courts have said from what they have not said regarding the two types of equivalence. The Federal Circuit has given specific guidance as to the application of Section 112(6) to functional equivalency determinations in light of the *Graver Tank* standard.⁵³ However, this court has not expressly negated the use of Section 112(6)

48. Means-plus-function equivalence in a test for literal infringement is distinct from the test of infringement under the doctrine of equivalents. See, e.g., *Pennwalt Corp. v. Durand-Wayland, Inc.*, 833 F.2d 931, 933 (Fed. Cir. 1987). See also *Farney*, *supra* note 48, at G-19-20 (citing *D.M.I., Inc. v. Deere & Co.*, 755 F.2d 1570, 1575, 225 U.S.P.Q. 236, 239 (Fed. Cir. 1985)).

49. It is apparent that patent applications are purposely drafted with means-plus-function language in order to set the stage for expansive equivalence determinations, under the premise that purely structural language invites competitors to make trivial changes. See *Hantman*, *supra* note 10, at 522.

It has been suggested that as to prosecution history estoppel, claims should be drafted narrowly rather than broadly, given that narrowing amendments made in response to examiner rejections would give rise to an estoppel in equivalence determinations. *Prosecution*, *supra* note 30, at 18.

Furthermore, given the narrow scope attached to means-plus-function claims limitations in cases such as *Pennwalt*, one might also credibly argue that structural limitations receive a somewhat broader range of equivalents. One might even speculate that the courts consider structural language to be more indicative of "fair play" in its equitable determination of infringement by equivalence.

50. See, e.g., *Farney*, *supra* note 48, at G-19 (citing *D.M.I., Inc. v. Deere & Co.*, 755 F.2d 1570, 1575, 225 U.S.P.Q. 236, 239 (Fed. Cir. 1985)).

51. 35 U.S.C. Section 112(6) (1982). Paragraph six of the statute reads:

An element in a claim for a combination may be expressed as a means or step for performing a *specified function* without the recital of structure, material, or acts in support thereof, and such claim shall be construed to cover the corresponding structure, material, or acts described in the specification and *equivalents thereof* (emphasis added).

52. *Pennwalt*, 883 F.2d at 934 ("Section 112, paragraph 6, plays no role in determining whether an equivalent function is performed by the accused device under the doctrine of equivalents.").

Cf. *Hantman*, *supra* note 10, at 546 (indicating that the 1952 Patent Act, particularly in Section 112(6), was an express rejection of the *Graver Tank* ruling, and represents a legislative intent to limit equivalence application to the restrictive context of the disclosed specifications, specifically contrary to the "substantially the same" language in that case).

53. *Pennwalt*, 883 F.2d at 934.

for other purposes.⁵⁴ Apparently, the court has chosen not to disavow its application of Section 112(6) to the remaining parts of the tripartite test.⁵⁵

A. SPECIFIED FUNCTION AND DISCLOSED STRUCTURE

The problem of uncertainty is evident even where the accused device performs a non-identical function. In the test for literal infringement, a means-plus-function limitation can only be construed⁵⁶ with respect to structures described in the specification used to perform a specific function.⁵⁷ Accordingly,

54. *See, e.g., Texas Instruments v. United States Int'l Trade Comm'n*, 846 F.2d 1369 (Fed. Cir. 1988) (Nies, J., dissenting from the denial of rehearing en banc) (indicating that the court has not explained its determination of elemental equivalence where Section 112(6) "is involved or where it is not"). *Id.* at 1373. *But see Texas Instruments v. United States Int'l Trade Comm'n*, 805 F.2d 1558, 1571 (discussing the dissimilarity between the Section 112(6) comparison as to function and the doctrine of equivalents comparison as to the invention as a whole).

55. The remaining parts of the tripartite test are the "way" and "result" substantial similarity determinations.

See, e.g., Pennwalt, 833 F.2d at 954 n.3, 4 U.S.P.Q.2d at 1755 n.3 (Nies, J., "Additional Views") (contending that the inquiry as to the function of a particular means-plus-function element effectively resolves the determination of the "way" aspect of the tripartite test with respect to the whole).

56. Note that for structural claim language, the courts construe the claim language as a matter of law with respect to the ordinary meanings of words, assisted by conventional means. Typically, the courts may resort to dictionary definitions, accepted meanings from the prior art, and expert testimony. *See generally* 4 D. CHISUM, PATENTS Section 18.03[2] at 18-39-18-40 n.2 (1991).

However, the courts will allow the patentee to be his or her own lexicographer. *Id.* at 18-43. As long as the terms are used consistently, the courts will ignore conventional word meanings and adopt the patentee's terminologies and connotations. *Id.* at 18-40 n.2. The patentee's lexicon (and consistency thereof) is assessed with respect to the language in the claims, specification, drawings, and prosecution history. *Id.* at 18-37-18-39 n.1.

57. 35 U.S.C. Section 112(6) (1982). The range of Section 112(6) equivalence is determined with respect to the specification, all claims, the prosecution history, and prior art. *See Patumbo v. Don-Joy Co.*, 762 F.2d 969, 226 U.S.P.Q. 5 (Fed. Cir. 1985). Other factors considered are any references to changing technology, (*see Texas Instruments*, 805 F.2d at 1569) and interchangeability, (*see Rite-Hite corp. v. Kelley Company, Inc.*, 819 F.2d 1120, 1124, 2 U.S.P.Q.2d 1915, 1918 (Fed. Cir. 1987)).

The two-step process in any infringement analysis, whether literal or by equivalence, is to construe the claim as a matter of law, and then to apply the claim to the accused device or practice (a primarily factual inquiry). *Texas Instruments*, 805 F.2d at 1562.

It would appear that with means-plus-function claim elements, the legal constraints of Section 112(6) extend beyond the test for literal infringement. While the courts have stated that equivalence under Section 112(6) is not the same as the test for the doctrine of equivalents, the courts may not have precluded the use of Section 112(6) as a limiting tool of *construction* for means-plus-function claim language. *See Farney, supra* note 48, at G-19 (suggesting that the Section 112(6) restriction imposes a narrower construction upon means-plus-function language than for structural language).

a showing either that the function described in the claims differs from the function performed by the accused device, or that the disclosed structure is not equivalent to the structure used in the accused device, will negate a finding of literal infringement.⁵⁸

However, the doctrine of equivalents could still allow a determination of infringement upon a showing that an accused device performs an equivalent function.⁵⁹ Furthermore, given the *Pennwalt* prohibitions against applying the Section 112(6) functional equivalency standards to the doctrine of equivalents, it is possible that the restrictions of Section 112(6) upon the scope of equivalents for structures could be bypassed. Non-equivalent structures in accused devices shown to perform functions which are equivalent to counterpart means-plus-function claims limitations could still be deemed to be equivalent under the doctrine.⁶⁰

B. CLAIM CONSTRUCTION

There is some suggestion, however, that the constraints placed upon claim construction for means-plus-function limitations⁶¹ also migrate into doctrine of equivalents

See Data Line Corp. v. Micro Technologies, Inc., 813 F.2d 1196, 1201, 1 U.S.P.Q.2d 2052, 2055 (Fed. Cir. 1987) (stating that Section 112(6) rules out the possibility that any and every means which performs the function specified in the claim literally satisfies that limitation).

58. *See Farney, supra* note 48, at G-21. The Federal Circuit has generally indicated that overall equivalency is not limited by reference to disclosed embodiments. *Id.* at G-23 (citing *E.I. du Pont de Nemours & Co. v. Phillips Petroleum Co.*, 849 F.2d 1430, 1433, 7 U.S.P.Q.2d 1129, 1131 (Fed. Cir. 1988); *Amstar Corp. v. Envirotech Corp.*, 823 F.2d 1538, 1545, 3 U.S.P.Q.2d 1412, 1417 (Fed. Cir. 1987); *Loctite Corp. v. Ultraseal Ltd.*, 781 F.2d 861, 870, 228 U.S.P.Q. 90, 95 (Fed. Cir. 1985)).

However, the *Pennwalt* line of decisions suggests that disclosed structures tend to narrow the range of equivalents when not incorporated specifically in the claims, but rather form an antecedent basis for means-plus-function limitations. *See, e.g., Pennwalt*, 833 F.2d at 934, 4 U.S.P.Q.2d at 1739. In *Pennwalt*, the disclosed structure was a hardwired tracking registry of the fruit's position, whereas the accused device incorporated a notation of the sorted fruit's position in software.

59. The courts have yet to provide guidelines on what constitutes a functional equivalent to that expressed in a means-plus-function claim. *Farney, supra* note 48, at G-21. As previously stated, the *Perkin-Elmer* approach leads to a redundant determination of functional equivalence.

60. *See generally Farney, supra* note 48, at G-22.

61. *Id.* at G-21 (giving the example if the patented device uses a rotating blade, an accused device using an oscillating blade would not literally infringe; however, the "all elements" rule would indicate infringement by equivalence if the oscillation was determined to be an equivalent function to blade rotation).

analysis.⁶² For instance, the *Perkin-Elmer* and *Pennwalt* decisions rested upon constraints comparable to those imposed in literal infringement determinations of means-plus-function limitations.⁶³ In both decisions, the court focused upon a particularly different way in which the accused device functioned with respect to its counterpart claim limitations phrased in means-plus-function language.⁶⁴

It would appear that for claim construction,⁶⁵ rather than for ultimate infringement determinations⁶⁶ under the doctrine of equivalents, Section 112(6) forces the courts into an “all elements” emphasis as to structural equivalence of a given means- plus-function limitation.⁶⁷ Not only does this statutory

62. Judge H. Markey, Remarks at the Herzog Lecture Series at The John Marshall School of Law (October 11, 1990) (hinting that the means-plus-function language used to express the disputed limitation in *Pennwalt* warranted the court's departure from the “as a whole” focus).

See also *D.M.I., Inc. v. Deere & Co.*, 755 F.2d 1570, 1575 (Fed. Cir. 1985) (addressing an “entirety,” or “as-a-whole” approach for the doctrine of equivalents, and an individual limitation analysis for Section 112(6)).

But see *Farney*, *supra* note 48, at G-22 (stating that the *Pennwalt* court made it clear that when applying the tripartite test, “it is error to read limitations from the specification into the claim”).

63. See, e.g., *Molinari*, *supra* note 3, at 803 (indicating that “the [Pennwalt] majority had blurred the concept of literal infringement under 35 U.S.C. Section 112, paragraph 6, and the Doctrine's infringement analysis”).

64. *Perkin-Elmer Corp. v. Westinghouse Elec. Corp.*, 822 F.2d 1528, 1535 (Fed. Cir. 1987); *Pennwalt Corp. v. Durand-Wayland, Inc.*, 833 F.2d 831, 954 n.3, 4 U.S.P.Q.2d 1737, 1755 n.3 (Nies, J., “Additional Views”) (contending that the *Hughes* decision erroneously combined the inquiry as to the *overall function* with that as to the function of a particular means-plus-function element; the latter inquiry effectively resolves the determination of the “way” aspect of the tripartite test) (emphasis added)).

See *Farney*, *supra* note 48, at G-21 (explaining that the *Pennwalt* majority “used the term ‘overall function or work’ to distinguish from the term ‘function’ as used in 35 U.S.C. Section 112, paragraph 6).

See also *Molinari*, *supra* note 3, at 798-99 (suggesting that in *Pennwalt*, the majority applied the concept in *Lemelson v. United States*, 752 F.2d 1538, 224 U.S.P.Q. 526 (Fed. Cir. 1984) that “every element of a claim is essential and material”).

65. The Federal Circuit has plainly stated that the Doctrine of Equivalents does not expand the coverage of the claims, but instead expands the protection of the invention claimed by the patent. See, e.g., *Wilson Sporting Goods Co. v. David Geoffrey & Associates*, 904 F.2d 677, 684 (Fed. Cir. 1990).

66. See, e.g., *Becton Dickinson & Co. v. C.R. Bard, Inc.*, 922 F.2d 792 (Fed. Cir. 1990) (indicating that patent infringement determinations are a “two-step” process, comprising claim construction and application of the claims to the accused structures. They are susceptible to summary judgment resolution as a matter of law in the absence of factual dispute as to the claim's interpretation).

67. 35 U.S.C. Section 112(6) particularly addresses how to *construe* a means-plus-function limitation when expressed as “[a]n element in a claim” (emphasis added). Claim construction is uniformly considered to be only an initial step in determining infringement under the doctrine of equivalents. See, e.g., *Autogiro Co. of America v. United States*, 384 F.2d 391, 401 (Ct. Cl. 1967).

test of structural equivalence not include the *Graver Tank* "substantially same" standards which pervade the tripartite test, but it is also restricted to a "specified" (universally construed as meaning "identical") function. Consequently, before reaching an overall finding of infringement under the doctrine of equivalents, it is quite possible that the courts could find themselves preemptorily constrained by Section 112(6) claim construction requirements, prior to moving on to a finding of infringement of the invention "as a whole."

VII. CONFUSION PRESENTED BY INCONSISTENT TERMINOLOGY AND RATIONALES

A. "AS A WHOLE" VERSUS "ELEMENT-BY-ELEMENT"

Although the courts have yet to explain a number of factors which influence the scope of the doctrine of equivalents, recent decisions⁶⁸ have squarely confronted issues regarding the vantage point used in applying the doctrine. In particular, these decisions have illustrated that there are competing views within the Federal Circuit as to which perspective should be controlling. The Supreme Court's perspective in *Graver Tank* is that of the invention "as a whole."⁶⁹ However, the prevailing perspective in the Federal Circuit is directed toward consideration of each element of the invention, such that the failure of the tripartite test upon any element (the "all elements" rule) immediately negates infringement under the doctrine.⁷⁰ It has been observed that the "as a whole" focus tends to surface when the court has an expansive view of the patent claims,⁷¹ and that the "all elements"⁷² analysis accompanies more restrictive interpretation of patent claims.⁷³

68. See, e.g., *Pennwalt*, 833 F.2d at 934; *Corning Glass Works v. Sumitomo Electric U.S.A.*, 868 F.2d 1251, 9 U.S.P.Q.2d 1962 (Fed. Cir. 1989).

69. See *Graver Tank & Mfg. Co., Inc. v. Linde Air Prods. Co.*, 339 U.S. 605, 609, 70 S. Ct. 854, 856 (negating the need for complete identity "for every purpose and in every respect").

70. See *Pennwalt*, 833 F.2d at 935; *Corning Glass Works v. Sumitomo Electric U.S.A.*, 868 F.2d 1251, 9 U.S.P.Q.2d 1962 (Fed. Cir. 1989). The first step is to establish whether each limitation (structural or means-plus-function) in the invention as claimed is equivalent to a corresponding element of the accused device, under the tripartite standard. If such equivalence is found, then the next inquiry is whether the accused device as a whole is equivalent to the aggregate claim, based again upon the tripartite standard. See generally *Farney*, *supra* note 48, at G-23.

71. See, e.g., *Katz*, *The Federal Circuit, in Determining Whether Patent Infringement Exists, Is Divided over Whether to Utilize "As-a-Whole" or "Element-by-Element" Analysis When Applying the Doctrine of Equivalents*, 30 S. TEX. L.J. 441, 463 (1989).

72. Other terms used to describe the "all elements" test are the "element-by-element" test and the "limitation-by-limitation" test.

73. See, e.g., *Katz*, *supra* note 72, at 463 (1989).

These decisions addressing vantage point have left the public with equivocal guidelines. The controversy between the "as a whole" and "all elements" tests began to surface in earnest following the *Pennwalt* decision,⁷⁴ where the court looked to one element which, while addressed in the claims, was not specifically found as a component in the accused device.⁷⁵ In the aftermath of this decision, the question arose as to whether the traditional approach of comparing the accused device "as a whole"⁷⁶ to the patent claims had been replaced by an "element-by-element" comparison of the claims with the accused device.⁷⁷

One might assume, given the patterns of these decisions, that pioneering inventions would receive more "as a whole" treatment than those in crowded arts.⁷⁸ Such would explain the disparity between *Hughes Aircraft Co. v. United States*,⁷⁹ which

74. *Pennwalt Corp. v. Durand-Wayland, Inc.*, 833 F.2d 931, 935, 4 U.S.P.Q.2d 1737 (Fed. Cir. 1987) (en banc). The court indicated that the doctrine of equivalents contains an "element-by-element" analysis.

75. *See id.* at 937 (addressing the "position indicating means" claimed in the patent, but not found in the accused device).

76. The United States Supreme Court, in applying the doctrine of equivalents, has consistently used the "as a whole" test. *Rosenblum*, *supra* note 3, at 677-78.

77. *Chisum Lecture*, *supra* note 16 (stating that despite the fact that the "missing" element was functionally subsumed within another element in the accused device, the majority did not find infringement by equivalence).

See also Doctrine, *supra* note 7, at 39 (suggesting that *Pennwalt* applies inconsistently based upon how the claim was drafted). In view of the seemingly infinite number of ways to describe any invention, each variation will generally protect a singular invention in different ways. For that reason, it is arguably shortsighted to base a determination of infringement substantially upon variances of specific components of an accused device from enumerated limitations in a claim.

78. The special treatment for pioneering inventions dates back at least to *Continental Paper Bag Co. v. Eastern Paper Bag Co.*, 210 U.S. 405, 415 (1908), where the Court expressly stated that "the range of equivalents depends upon and varies with the degree of invention."

See also Molinaro, *supra* note 3, at 801 (noting that the *Pennwalt* court upheld the district court's finding that the invention in that case was "not a pioneer invention, but an improvement in a crowded art").

79. 717 F.2d 1351, 219 U.S.P.Q. 473 (Fed. Cir. 1983). In this case, the court found equivalence despite the fact that one claim limitation, a ground-based means to control a satellite signal, was not found in a comparable component in the accused device. Subsequent technological developments in microprocessor technology had rendered ground-based controllers unnecessary in attitude adjustment calculations. The court ruled that the trial court should have considered the exemplary claim as a whole, rather than require that the accused device contain obvious and exact equivalents. *Id.* at 1364, 219 U.S.P.Q. at 482.

Arguably, the court failed to appreciate the inventive elements of incorporating the major advances in computer chip technology. On the other hand, a contrary holding might have resulted in an unjust windfall for the competitor, whose selection of previously unavailable computer chips may have been fortuitous at best. If so, the patentee would unjustifiably suffer an unanticipated reduction in the grant for an invention that was the same in virtually every other respect.

used an express "as-a-whole" rationale, and *Pennwalt*,⁸⁰ which focused upon the absence of a specific claim element from the accused device. While *Hughes Aircraft* clearly involved technology in a non-crowded art, one might speculate that following that decision, a sentiment developed on the court that special consideration should be given to an alleged infringer's incorporation of technological advancements which may not have been contemplated at the time of the invention.⁸¹ It is likely that the Court's discomfort with the penalty exacted upon the accused infringer, in *Hughes Aircraft* motivated the doctrinal departure now widely associated with *Pennwalt*.

In *Texas Instruments, Inc. v. United States Int'l Trade Comm'n*,⁸² the pioneer invention range of equivalents principle would tend to explain the cumulative factors approach which the court used adversely toward the patentee, arguably as a variant of the "as a whole" focus. The court indicated that the "accumulated" differences surpassed the "fair range" of what might be considered equivalent to the claims, in light of the cumulative technological breakthroughs used to perform each of the functions described in the claims.⁸³

80. It might be noted that the claims in *Pennwalt* were broadly drafted as to the items sorted, and that the relevant prior art was also broad. For instance, the claims specified continuous tracking of the sorted fruit, whereas the accused device followed the prior art practice of storing data about the sorted fruit for future use. The court construed the claims narrowly with respect to the sorter's operation, given the amendment made to the claims in order to obtain allowance. Noting that the claim was unpatentable absent the added "continuously indicating" language, the court stated that the limitation must be satisfied at least equivalently. *Pennwalt*, 833 F.2d at 937.

81. *Cf. Texas Instruments Inc. v. United States Int'l Trade Comm'n*, 805 F.2d 1558 (Fed. Cir. 1986) (illustrating the court's refusal to find literal infringement in the instance of post-invention developments).

82. 805 F.2d 1558 (Fed. Cir. 1986). While finding the defendants innocent of infringement, the court also indicated that the doctrine of equivalents is an inappropriate tool to measure each individual difference in isolation. *Id.* at 1570.

The court noted the technological leaps used to accomplish each of those limitations, where the claim was drafted with three limitations: (a) input means including a keyboard, (b) electronic memory, arithmetic and transfer means, and (c) display means. *Id.* at 1564-8.

Given the criteria set out by Lau, *supra* note 3, at 875-8, the small number of limitations would suggest a narrow range of equivalents for the patentee. The result in this case is consistent with such criteria. Furthermore, if one accepts the premise of this paper as to the understated rules of means-plus-function claim construction, then the "fair range" of equivalents, being somewhat limited, would fail to incorporate the accumulated differences.

Cf. Andrew Corp. v. Gabriel Electronics, Inc., 847 F.2d 819, 6 U.S.P.Q.2d 2010 (Fed. Cir. 1988). This court found equivalence based upon the "totality of similarities" between the claims and the accused device. *Id.* at 825. Whether this case was based upon "as a whole" or "element-by-element" principles is uncertain.

83. *Texas Instruments*, 805 F.2d at 1570, 231 U.S.P.Q. at 841.

Several commentators⁸⁴ have suggested a hybrid or complimentary approach to the doctrine of equivalents, combining the best attributes of both vantage points. In one instance, it has been suggested that even the most unreconcilable cases suggest an approach whereby an element-by-element analysis consistently precedes an assessment of the differences between the accused device and the claimed invention as a whole.⁸⁵ The recent *Becton Dickinson & Co. v. C.R. Bard, Inc.*⁸⁶ case illustrates the Federal Circuit's acceptance of such a bifurcated equivalence determination. In that case, the court gave particular deference to the "all elements" perspective in the context of the "way" portion of the tripartite standard, prior to ruling upon equivalence as to the overall invention.⁸⁷

It has additionally been suggested that the "as-a-whole" test could be used to establish a prima facie case of infringement, whereupon the defendant could incorporate the "all elements" test in its rebuttal.⁸⁸ However, although such an approach might bring some level of predictability to the courtroom, a potential infringer would not likely be in any better position to assess the infringement issue prior to being sued, given the elements of proof involved in setting out both the prima facie case and the rebuttal.

The Federal Circuit's own unfaithfulness to *Pennwalt's* "all elements" approach illustrates that this decision may not be an appropriate controlling precedent for strict application of that vantage point.⁸⁹ For example, in *Spectra Corp. v. Lutz*,⁹⁰

84. See, e.g., Lau, *supra* note 3, at 868 (examining *Texas Instruments*); Katz, *supra* note 72, at 463.

85. *Id.*

86. 922 F.2d 792, 798 (Fed. Cir. 1990).

87. *Id.* at 798.

88. See, e.g., Katz, *supra* note 72, at 457-8. Following the patent owner's prima facie case, the defendant would "raise a rebuttable presumption that there is a substantial element of the patent claim missing in the accused device." Under the enumerated standards in the tripartite test of *Graver Tank*, the two devices could not be considered to work in substantially the same way.

89. R. Collins, The "As A Whole" Test: Inescapable in Applying the Doctrine of Equivalents (October 15, 1990) (unpublished manuscript). Subsequent to its "all elements" *Pennwalt* statement, the Federal Circuit in any event used more of a cumulative factors approach in applying the doctrine.

90. 839 F.2d 1579, 5 U.S.P.Q.2d 1867 (Fed. Cir. 1988). In this case, the court ruled that there was no infringement by equivalence, although the court recognized that the accused device used an element found as a limitation in the patentee's claims. The patent covered a sublimation dye toner including a wax which acted to overcome the affinity of a polymer for dyestuff. The claim included magnetic particles, dyestuff, polymer binder and wax. The accused toner had no polymer or anything performing an equivalent function. The wax in the accused toner performed a binding function that the patented toner was unable to do.

the court ruled that there was no infringement under the doctrine of equivalents because the disputed element's function in the accused device did not compare to its use in the overall context of the patent.⁹¹ In *W.L. Gore & Assocs., Inc. v. Garlock Inc.*,⁹² the court stated that the patentee needed to show that the accused process obtained "substantially the same overall result."⁹³ As well, the court in *Durango Associates, Inc. v. Reflange, Inc.*⁹⁴ effectively ignored the presence of a claim limitation which would have otherwise brought the accused device within the range of equivalents.⁹⁵

One might argue that in the chemical arts, the "as a whole" standard must be the primary emphasis, given the rationale applied in *Atlas Powder Co. v. E. I. du Pont De Nemours & Co.*⁹⁶ The court compared the "purpose, quality and function" of the accused compound to the claimed compound.⁹⁷ Given the inherent application of "chemical obviousness" determinations based upon structural similarity, focusing simply upon the variance in particular homologues in furtherance of *Pennwalt* would render the doctrine of equivalents moot in most chemical cases. Furthermore, an assessment of equivalence based upon the purpose, quality and function of each limitation would needlessly complicate the application of the doctrine.

B. "COMPONENT"/"LIMITATION"/"ELEMENT"

In order to completely address the uncertainty surrounding the scope of the doctrine of equivalents, an important

91. *Id.* at 1582.

92. 842 F.2d 1275, 6 U.S.P.Q.2d 1277 (Fed. Cir. 1988). *See also Doctrine, supra* note 7, at 22 (indicating that the patentee produced no evidence that the accused device performed the same results).

See also Chisum Lecture, supra note 16 (stating that limitations were included not to accurately describe the underlying technology, but rather to serve the strategic legal objective of encouraging the examiner's allowance of the claim).

93. *W.L. Gore*, 842 F.2d at 1281.

94. 843 F.2d 1349, 6 U.S.P.Q.2d 1290 (Fed. Cir. 1988). In this case, the court decided to limit the scope of the doctrine of equivalents where the patentee merely added a limitation in order to distinguish over prior art. Apparently, while the added limitation did not trigger the doctrine of prosecution history estoppel, per se, the effect was comparably limiting as to the doctrine of equivalents.

95. *Id.* at 1358.

96. 750 F.2d 1569, 224 U.S.P.Q. 409 (Fed. Cir. 1984). *See also Doctrine, supra* note 7, at 18 (noting that the grant of a patent to the accused infringer for the substituted combination A+B+C' did not necessarily preclude a finding of equivalence of A+B+C, which was considered the "dominant" patent; such is particularly true when the improvement is just a species of the genus covered in the dominant patent). *See also Chisum Lecture, supra* note 16 (stating that simple analogy could be drawn to a dominant patent on a pencil, where the improvement is the addition of an eraser; cross licensing is usually the solution).

97. *Atlas Powder*, 750 F.2d at 1580.

priority for the Federal Circuit would be to finally resolve how to interpret terms such as "component," "limitation" and "element."⁹⁸ For instance, the *Perkin-Elmer* court once admitted that its references to elements "can be misleading."⁹⁹ The court used the word "element" to describe a structural part of the accused device, a structural part of an embodiment of the invention, and an embodiment in a claim.¹⁰⁰ The court further indicated that regarding claims, the term "element" has the same meaning as the term "limitation."¹⁰¹

Apparently, the term "element" describes both device components and claim limitations.¹⁰² However, it has been noted that beginning with *Uniroyal, Inc. v. Rudkin-Wiley Corp.*,¹⁰³ the court has increasingly preferred the term "limitations" over the term "elements."¹⁰⁴ In the later decision in *Corning Glass Works v. Sumitomo Electric U.S.A.*,¹⁰⁵ the court stated that in the context of the "all elements" rule, the term "element" may comprise either one or several claim limitations.¹⁰⁶

Such a semantic resolution would clarify whether the limitation-by-limitation or "all elements" analysis is as narrow as is commonly believed. If what the court means by the word element is versatile enough to encompass a group of claim

98. This indefinite terminology may be symptomatic of the court's overall need to define the scope of the doctrine of equivalents itself. A direct confrontation with such semantic rudiments would send a clear signal to the public regarding the efficacy of the doctrine of equivalents.

99. *Perkin-Elmer Corp. v. Westinghouse Elec. Corp.*, 822 F.2d 1528, 1533 n.9 (Fed. Cir. 1987).

100. *Id.* The latter instance occurs in the interest of consistency with the terminology of 35 U.S.C. Section 112, paragraph 6.

101. *Id.*

102. *Id.* The court also indicated that the term "element" may mean a "feature" set forth in a claim. *See also*, Molinaro, *supra* note 3, at 808.

103. 837 F.2d 1044, 5 U.S.P.Q. 1434 (Fed. Cir. 1988).

104. *Farney*, *supra* note 48, at G-6 n.7 (also citing *ZMI Corp. v. Cardiac Resuscitator Corp.*, 844 F.2d 1576, 6 U.S.P.Q.2d 1557 (Fed. Cir. 1988), *Allied Corp. v. United States Int'l Trade Comm'n*, 850 F.2d 1573, 7 U.S.P.Q.2d 1303 (Fed. Cir. 1988), *cert. denied*, 109 S. Ct. 791 (1989), and *LaBounty Mfg. Co. v. United States Int'l Trade Comm'n*, 867 F.2d 1572, 9 U.S.P.Q.2d 1995 (Fed. Cir. 1989)).

105. 868 F.2d 1251, 1259, 9 U.S.P.Q.2d 1962, 1968 (Fed. Cir. 1989). The court indicated that in the context of the "all elements" rule, a series of limitations taken together can make up a component of the claimed invention.

Arguably, the term component has a more conventional connotation with respect to distinct constituents of an accused device. *See, e.g., id.* at 1259-60, 9 U.S.P.Q.2d at 1968. Consequently, the court's characterization of a series of limitations as constituting a *component of the invention* may simply add to the confusion (emphasis mine).

106. *Id.* at 1259-60.

limitations, then the fear surrounding the demise of the “as a whole” test is probably unwarranted. However, absent further guidance as to what constitutes an element under the “all elements” standard, patents may continue to be unknowingly drafted with groups of limitations which the courts might later characterize as being an “element” that is not equivalently found in accused devices and systems.

C. “SPECIFIED FUNCTION” VERSUS “OVERALL FUNCTION OR WORK”

As has been suggested previously, the meaning of functional equivalence is ambiguous, given the combination of Section 112(6) terminology and the articulated *Graver Tank* standard.¹⁰⁷ The Federal Circuit has never stated unequivocally that Section 112(6) plays no part in determining infringement under the doctrine of equivalents. Instead it has explained only that the statute is not used to determine whether an “equivalent *function* is performed by the accused device” under the doctrine (emphasis added).¹⁰⁸ Consequently, with respect to an isolated limitation in means-plus-function claim limitations, one cannot always be certain whether a particular determination is being made with respect to claim construction, infringement (based upon the doctrine of equivalents in the “as a whole” sense), or by application of the tripartite test (in the “all elements” sense). For the sake of clarity, there is a need for modification of the terminology used to delineate the *Graver Tank* tripartite standard, as has occurred in other contexts.¹⁰⁹

107. See Farney, *supra* note 48, at G-21 (explaining that the *Pennwalt* majority “used the term ‘overall function or work’ to distinguish the term ‘function’ as used in 35 U.S.C. Section 112, paragraph 6).

108. *Pennwalt Corp. v. Durand-Wayland, Inc.*, 833 F.2d 931, 934, 4 U.S.P.Q.2d 1737, 1739 (appearing under a subdivided portion of the opinion, entitled “Literal Infringement,” as distinct from a further subdivision, entitled “Infringement under the Doctrine of Equivalents”). The court specifically addressed its determination under the doctrine to arguments which focused upon the impact of Section 112(6) in claim construction. *Id.* at 1740.

109. Previous examples of terminology clarifications include the Federal Circuit’s adoption of the expression, “Inequitable Conduct” to replace “Fraud on the Patent Office” in *J.P. Stevens & Co., Inc. v. Lex Tex Ltd., Inc.*, 747 F.2d 1553, 1559 (Fed. Cir. 1984), as well as “Prosecution History Estoppel” in place of “File Wrapper Estoppel” in *E.I. du Pont de Nemours & Co. v. Phillips Petroleum Co.*, 849 F.2d 1430, 1438 (Fed. Cir. 1988).

Furthermore, there is a need for a judicial statement about the specific impact of Section 112(6) upon infringement determinations under the doctrine.

VIII. IMPACT OF EQUIVALENCE UNCERTAINTY ON EMERGING TECHNOLOGIES

Perhaps as in no previous era of innovation, many of the growth industries critical to the United States economy are particularly vulnerable to imprudent business strategies premised upon misunderstood infringement law. As an example, in the computer field, both in terms of hardware and software, uncertainty regarding application of the doctrine of equivalents presents ominous implications. In the world of computers, standardization and compatibility are the only realistic ways to compete. Leaders in computer-related technologies enable competitors who employ even the most imaginative design approaches to meet the compatibility-related demands of the marketplace.¹¹⁰ Accordingly, the result and function steps of the tripartite test will by necessity be at issue when competitors, however independently ingenious, are placed in the position of performing substantially similar functions in somewhat similar ways to achieve substantially similar results.¹¹¹

It would appear that should a patentee successfully convince a tribunal that its computer-oriented breakthrough qualifies for pioneering status, the competitor might be unnecessarily victimized by a broad "as a whole" analysis.¹¹² On the other hand, the leader could also be unjustly victimized due to the competitor's variance of one substantial aspect of the means, based upon a *Pennwalt*-type ruling. Finally, the choice in claim-drafting techniques used to describe an invention in a rapidly expanding technology could result in needless encroachment upon the patent grant,

110. See also Susswein, *The Patent Law Equivalency Doctrine and Reduced Instruction Set Computing Technology: If it Computes Like a Duck, is it Still a Duck?*, 16 RUTGERS COMP. & TECH. L.J. 571 (1990).

For different reasons, the "substantially similar way" step in the tripartite test might also resurface in the biotechnology art category, which involves recurring techniques and conventions. For instance, due to the limited number of possible cell configurations, the so-called "inventive step" is generally reached only after the processing of standardized starting blocks.

111. *Id.* at 577-78.

112. *Id.* Additionally, in the context of means-plus-function claims, the cumulative impact of rapid expansions in a particular technology give rise to anomalous rulings such as occurred in *Texas Instruments*. The effect of such an "all elements" approach under the doctrine of equivalents in the context of means-plus-function limitations is conceptually indistinguishable from that found under the reverse doctrine of equivalents, a test which corresponds to a determination of literal infringement.

particularly if means-plus-function language¹¹³ is chosen for the exemplary claims.¹¹⁴

IX. PROPOSED REFORMS: JURISPRUDENTIAL, STATUTORY, AND REGULATORY

The law of infringement is primarily flawed because the doctrine of equivalents and its underlying terminologies apparently mean different things to different people, even within the Federal Circuit. As a result, as long as its application remains primarily the province of litigation, the doctrine of equivalents will greatly compromise the metes and bounds notice function of claim language. Until the guidelines are unified either by the judiciary or the legislature, the equitable efficacy of the doctrine will be lost upon those who most depend upon its clarity: the innovative community. While efforts to ascertain and reduce the court's reasoning to a systematic form¹¹⁵ are laudable, there

113. Electronic, computer and software-intensive inventions are considered to be particularly suited to the use of limitations expressed in means-plus-function rather than structural language. BLUMENTHAL, *supra* note 21, at 6-20.

114. As previously stated, there is some suggestion that means-plus-function language has a scope-limiting effect in claim interpretation. *See generally* D.M.I., Inc. v. Deere & Co., 755 F.2d 1570, 1575.

115. *See* Lau, *supra* note 3, at 875-8 (setting out an algorithm in which the sequential steps comprise:

1. Claim Construction.
2. Testing for literal infringement, in light of structural limitations or means-plus-function limitations found in the specifications, balanced by the reverse doctrine of equivalents.
3. Determination under the doctrine of equivalents, further comprising:
 - a. Pioneer/crowded art assessment for range of equivalents.
 - b. Result step of tripartite test.
 - c. Function step of tripartite test, further comprising:
 - i. element-by-element comparison, including:
 - * consideration of the context of claim, in light of range of equivalents determination.
 - * assignment of major claim elements to narrow range of equivalents, minor claim elements to broad range of equivalents; the fewer claim elements, the narrower the range of equivalents.
 - * all elements rule satisfied if an equivalent is found somewhere in the accused device for every limitation of the claim.
 - ii. infringement is possible even if the accused device has extra elements not addressed in the claims.
 - d. Infringement proven, unless totality of differences negates equivalence.).

remains the greater problem of articulating the rudiments of the doctrine in a manner which is understandable to all in advance of litigation.¹¹⁶

The only way in which there will ever be any real equity¹¹⁷ in the doctrine of equivalents is for it to return to the province of any useful system of law: the domain of common sense. Given that the sciences are grounded in the notion that nothing is dependable which is not immutable, empirical, and reproducible, so also should be the law of infringement. The test for literal infringement, being strictly verbal, has inherent shortcomings. Consequently, the doctrine as a rule of equity should compensate for the inadequacies in infringement law in a fashion consistent with both jurisprudence and scientific standards.

Particularly, the means-plus-function equivalence issue should be clarified by more specific statutory amendment and implementing regulations. This would resolve the conflict that exists between limited interpretation based upon disclosed structure on the one hand, and broad interpretation of "on the whole" equivalence on the other. Furthermore, the patent statutes should be amended to address the *Graver Tank* tripartite test head-on, with respect to the implications of this standard in the context of means-plus-function claim limitations. Assuming that the proper rule is that the current version of Section 112(6) plays no role in determining equivalence of function under the doctrine of equivalents, this statutory change should resolve any doubt as to whether or not Section 112(6) may play a role in determining equivalence of either means or result under the doctrine.

The optimum manner of fixing the breadth of patent protection would be to establish the range of equivalents prior to issuance. Unfortunately, this would include the impossible task of forecasting future breakthroughs and trivial variations

116. See, Adelman & Francione, *supra* note 4, at 675-6 (noting that unlike copyright law wherein the scope of rights is uncertain until litigation, patent law provides a two-step process whereby first, the applicant distinctly claims the subject matter of his invention, and second, the Patent and Trademark Office determines patentability based upon a rigorous scrutiny).

See also Smith, *supra* note 4, at 916 (indicating that in addition to lower courts and lawyers, businessmen also need guidance in applying the doctrine of equivalents).

117. See Smith, *supra* note 4, at 917 (indicating that the doctrine of equivalents exists to achieve an equitable purpose; however its operation is guided not by equities, but instead by an analytical framework which the Federal Circuit has yet to clarify).

as of the filing date of the patent application, as part of the prosecution history.¹¹⁸ However, similar results might develop from a patent office determination of whether an accused infringer has followed the teachings of the patentee more than the prior art.¹¹⁹ Such a record would provide the courts with agency presumptions¹²⁰ such as exist with respect to patent validity. In this fashion, the adversarial process would be limited to issues of underlying fact which would support or rebut the PTO's presumptively expert assessment of equivalence.

X. CONCLUSION

These problems of the doctrine of equivalents are uniquely acute with respect to the growth industries which are vital to the United States economy.¹²¹ It is therefore in the national interest to alleviate the remaining doctrinal shortcomings of patent infringement. Particularly, if indeed the goal of the modern courts is to support the use and enforcement of letters patent, then the current uncertainty regarding the goals, purposes, and breadth of the doctrine of equivalents must soon be resolved.¹²²

The doctrine of equivalents has long been a patentee's most effective means¹²³ of redressing a competitor's intrusions

118. The most credible candidate for this theoretical task would likely be a patent examiner in the relevant art group.

119. *Wilson's* hypothetical claim would be particularly suited to such an analysis. A necessary adjunct to this test is whether the ubiquitous hypothetical skilled artisan would have known of the interchangeability of the variation, as per the *Graver Tank* test.

120. See 5 U.S.C. Section 7.06, codifying the Administrative Procedure Act at 5 U.S.C. Sections 500-706. See also *Consolo v. Federal Maritime Commission*, 383 U.S. 607, 619-20 (1966).

121. See *Adelman & Francione*, *supra* note 4, at 682 (stating that both patent holders and potential defendants are hindered from assessing the possible outcome of litigation or from making other business decisions, such as the direction that research and development efforts should take).

122. *But see* *Smith*, *supra* note 4, at 927 (suggesting that overzealous protection of patent rights might tend to encourage patent holders to waste precious financial resources by litigating marginal infringement claims, thereby additionally creating a needless disincentive for others to participate in a particular area of innovative activity).

123. Besides the doctrine of equivalence, a patent owner has the option of reissue, which has no retroactive application, and is subject to a two-year statute of limitations. 35 U.S.C. Section 251 (1982).

See *Adelman & Francione*, *supra* note 4, at 716 (contending that the doctrine of equivalents is a circumvention of the statutory procedure of reissue which is an explicitly stated protection for those who have relied upon the original claims).

upon his patent grant due to semantic distinctions un contemplated when the claims were drafted. The *Pennwalt* ruling, however, exemplifies the attempt on the part of the modern courts to expand equivalence beyond the concepts of simple equity into an analytical framework intended to accommodate the demands of increasingly complex technological advancement.

The unfortunate consequence is that, taken to the extreme, this analytical framework encourages competitors to make mere changes in form from the express language in the claims (or from the specifications underlying means-plus-function claim limitations) in order to avoid infringement under the doctrine of equivalents. Such an approach would condone changes which approximate the "trivial variations" which prompted the historical development of the doctrine of equivalents within the law of infringement.

The ultimate challenge for the Federal Circuit is to effectively articulate the doctrine of equivalents in a universally understandable and predictable form. When such occurs, the court will have completed a critical step in its much-needed role of restoring credibility to the law of patents. However, until the law of infringement is unequivocally codified into statutory form, the innovative community will have to rely not upon a universally understood definition of infringement, but instead upon an unduly complex regime of law phrased under the guise of equity.