

THE DOCTRINE OF EQUIVALENTS ANALYSIS AFTER *WILSON SPORTING GOODS*

Jean M. Barkley

I. INTRODUCTION

Congress created the Court of Appeals for the Federal Circuit ("Federal Circuit") in 1982 to provide needed uniformity in patent law.¹ One area in which the Federal Circuit continues to be inconsistent despite its mandate is its application of the equitable "doctrine of equivalents," which allows a finding of infringement when a product or process does not literally infringe on a patent but is similar enough so that equity compels the finding.²

Two competing interests shape this doctrine: (1) the public's right to know the precise limits of a patent, and (2) the patentee's exclusive rights to the invention.³ The recent decision in *Wilson Sporting Goods Co. v. David Geoffrey & Associates*⁴ appeared to signal a shift in the emphasis of the Federal Circuit toward the public's, rather than the patentee's, interest by increasing the patentee's burden in litigation. This Note examines *Wilson's* effect on patent law equivalents analysis and concludes that while *Wilson*, applied literally, would signal a dramatic shift toward the public's interest, *Wilson* has not been strictly applied.

This Note first explains the emergence of the doctrine of equivalents and its function in the patent system. Next, Section III describes the doctrine of equivalents as it was applied prior to *Wilson*. The *Wilson* opinion is introduced in Section IV, and Section V evaluates the effect that *Wilson* has had on the doctrine's application. Section VI addresses the balance between the public and patentee reached by the Federal Circuit in the post-*Wilson* doctrine of equivalents analysis. The Note concludes in Section VII with a brief discussion of the potential effect of that balance on future infringement litigation.

II. DEVELOPMENT OF THE DOCTRINE OF EQUIVALENTS

The United States Constitution authorizes Congress to establish a patent system "[t]o promote the Progress of Science and useful Arts, by securing for

1. See Jack Q. Lever, *The New Court of Appeals for the Federal Circuit*, 64 J. PAT. [& TRADEMARK] OFF. SOC'Y 178 (1982). Supporters of a Federal Circuit argued that it was needed because the "non-uniformity in the application of patent law results in undermining the entire patent system by creating doubt as to what protection is available for inventions which adversely affects technological growth and industrial innovation." *Id.* at 199.

2. See *infra* Section III, Part B, for examples of the Federal Circuit's vacillation in the doctrine of equivalents.

3. See *infra* notes 21-23 and accompanying text.

4. 904 F.2d 677 (Fed. Cir.), *cert. denied*, 111 S. Ct. 537 (1990).

limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries.”⁵ Accordingly, Congress enacted the patent laws and more recently created the Federal Circuit to provide a uniform patent system.⁶

The modern Patent Act addresses what may be patented,⁷ the requirements to obtain a patent,⁸ and the patentee's rights under the system.⁹ Under the Patent Act, a patentee has the exclusive right to make, use, or sell the patented invention for a limited amount of time.¹⁰ The patentee is authorized to sue others for infringement of this exclusive right.¹¹

An infringement suit requires close examination of the allegedly infringing product in light of the patent claims.¹² “Literal infringement” is established if the product falls within the plain language of the claims.¹³ Courts recognize, however, that if the patentee's rights are rigidly confined to the literal words of the claim, an inventor's rights become a “hollow and useless thing.”¹⁴ A copier could easily avoid literal infringement simply by making insubstantial changes or substitutions to the patented invention.¹⁵

The doctrine of equivalents evolved to prevent an infringer from pirating the benefit of a patented invention.¹⁶ This equitable doctrine originated more than a century ago.¹⁷ Its primary objective is “to temper unsparing logic” in patent infringement suits.¹⁸ Thus, the doctrine reflects the recognition that form

5. U.S. Const. art. I, § 8, cl. 8.

6. Congress first enacted the Patent Act in 1790. *Outline of the History of the United States Patent Office*, 18 (No. 7) J. PAT. [& TRADEMARK] OFF. SOC'Y 1, 59-62 (P.J. Federico ed., 1936). A major revision of the Patent Act in 1836 vested the Patent Office with the authority to administer the patent system. *Id.* at 91-102. Congress enacted the present Patent Act in 1952. It is codified in Title 35 of the United States Code. Congress created the Federal Circuit three decades later. *See supra* note 1 and accompanying text.

7. “Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.” 35 U.S.C. § 101 (1984).

8. See generally for patentability: 35 U.S.C. § 101 (1984) (requires novelty and utility); 35 U.S.C. § 102 (1984) (defines novelty); 35 U.S.C. § 103 (1988) (requires nonobviousness); and the many other sections of Title 35 addressing the process of obtaining a patent.

9. *See, e.g.*, 35 U.S.C. § 154 (1988) (patentee has the exclusive right to make, use or sell the patented invention); 35 U.S.C. 261 (1984) (patentee may grant this exclusive right to others, for example, through licensing); 35 U.S.C. § 281 (1984) (patentee may sue others for infringement).

10. 35 U.S.C. § 154 (1988). The term of a patent varies by the type of patent. For example, utility patents are granted for a term of 17 years, *id.*, and design patents are granted for a term of 14 years, 35 U.S.C. § 173 (1988).

11. 35 U.S.C. § 281 (1984).

12. When applying for a patent, the patentee specifies what is patentable about the invention using patent claims. “The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.” 35 U.S.C. § 112 (1984).

13. *Loctite Corp. v. Ultraseal Ltd.*, 781 F.2d 861, 866 (Fed. Cir. 1985). The court first interprets the patent claim as a matter of law. This interpretation is then used to “review the fact question of literal infringement” *Id.* Another phrase used to describe a finding of literal infringement is that the claims “read on” the accused product.

14. *Graver Tank & Mfg. Co. v. Linde Air Prods.*, 339 U.S. 605, 607 (1950).

15. *Id.*

16. *Royal Typewriter Co. v. Remington Rand, Inc.*, 168 F.2d 691, 692 (2d Cir. 1948), *cert. denied*, 335 U.S. 825 (1948).

17. *See Graver Tank*, 339 U.S. at 608 (stating that the doctrine of equivalents originated in *Winans v. Denmead*, 56 U.S. (15 How.) 330 (1854)).

18. *Royal Typewriter*, 168 F.2d at 692.

should not rule over substance.¹⁹ By holding that infringement occurs when a device "performs substantially the same function in substantially the same way to obtain the same result,"²⁰ the Supreme Court in *Graver Tank & Manufacturing Co. v. Linde Air Products Co.* expressly recognized the doctrine of equivalents as a basis for infringement liability.

When applying the doctrine of equivalents, a court balances the competing interests of the public and the patentee.²¹ The public should be afforded fair notice of the limits of a patent's coverage so that inventors are able to avoid infringement while advancing the arts and sciences.²² At the same time, however, the patent owner should be afforded complete and just protection of the patented invention.²³

III. THE DOCTRINE OF EQUIVALENTS TEST PRE-WILSON

The Supreme Court in *Graver Tank* declined to give a precise definition or formula for determining equivalency.²⁴ Rather, the Court held that the determination must be made on a case-by-case basis.²⁵ The doctrine of equivalents analysis²⁶ subsequently developed into, and remains, a three-part inquiry.²⁷ First, the court classifies the patented invention as either a "pioneer" or "improvement" invention to determine the proper range of equivalency that may be claimed.²⁸ Second, the court compares the allegedly infringing device and the patented invention to determine whether the two are in fact "equivalent."²⁹ Finally, the accused infringer may assert that the reach of the patent claims should be limited by the doctrines of prosecution history estoppel and prior art limitation.³⁰

19. *Laitram Corp. v. Cambridge Wire Cloth Co.*, 863 F.2d 855, 857 (Fed. Cir. 1988) ("Words are not misappropriated; claimed inventions are.").

20. *Graver Tank*, 339 U.S. at 608. *Graver Tank* is recognized as a landmark case in the doctrine of equivalents area. See, e.g., Henrik D. Parker, *Doctrine of Equivalents Analysis After Wilson Sporting Goods: The Hypothetical Claim Hydra*, 18 AIPLA Q. J. 262, 267 (1990). *Graver Tank* established the test currently used by the Federal Circuit to decide doctrine of equivalents cases. See, e.g., William E. Eshelman, Comment, *The Doctrine of Equivalents in Patent Law: Post-Pennwalt Developments*, 65 TUL. L. REV. 883, 887 (1991).

21. See generally *Pennwalt Corp. v. Durand-Wayland, Inc.*, 833 F.2d 931, 945 (Fed. Cir. 1987) (Bennett, J., dissenting). The majority and dissenting opinions in *Graver Tank* also illustrate this tension between the public and the patentee. The *Graver Tank* majority used the "function/way/result" test to protect the patentee, see *supra* note 20. However, the dissent believed it to be unfair to the public to construe a patent claim differently from the "plain import of its terms." *Graver Tank*, 339 U.S. at 614.

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

23. *Id.* at 614 (Black, J., dissenting).

24. *Id.* at 609.

25. *Id.* "Equivalence ... is not the prisoner of a formula and is not an absolute to be considered in a vacuum." *Id.* The Court did however suggest one factor to be used in an equivalency determination: whether one reasonably skilled in the art "would have known of the interchangeability of an ingredient not contained in the patent with one that was." *Id.* at 609.

26. *Wilson* dramatically alters the judicial approach. See *infra* Section IV.

27. See Parker, *supra* note 20, at 267-70 (1990).

28. *Id.* at 268. See Section III, Part A for discussion.

29. *Id.* at 268-70. The trier of fact must take into account the *Graver Tank* factor of "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." See *supra* note 25. The patentee has the burden of persuading the trier of fact that the device being challenged is equivalent to the patented invention. See Section III, Part B for discussion.

30. See Parker, *supra* note 27, at 270-71. See Section III, Part C for discussion.

A. First Step: Assessing How Broad a Range of Equivalents May Be

The court, as its first step in defining a range of equivalents, must assess the nature of the patented invention.³¹ This determination is a mixed question of fact and law.³² When assessing the nature of an invention, a court considers the quantity of "prior art."³³ A patent in an area devoid of substantial prior art is labeled a "pioneer" patent, while a patent in a crowded field of prior art is an "improvement."³⁴ Additionally, an improvement may be "marked" or "narrow."³⁵ Pioneer patents are entitled to a broader range of equivalents than improvements, and marked improvements are entitled to a broader range of equivalents than narrow improvements.³⁶ The rationale for this hierarchy is the recognition that drafting claims for a pioneer invention is a difficult endeavor because of the invention's novelty.³⁷ The concept of broadening the range of equivalents is used to protect pioneer patents and marked improvements from being infringed by products capitalizing on the breakthrough.³⁸

B. Second Step: Equivalency Determination

Once the court defines the range of equivalents due the patent, it must determine whether the accused device falls within that range of equivalents. In other words, the court must determine whether the accused device is "equivalent" to the patented device on which it allegedly infringes. The Supreme Court set out its basic test for infringement under the doctrine of equivalents in *Graver Tank & Manufacturing Co. v. Linde Air Products Co.*³⁹ The test, which compares the function, operation, and purposes of the two devices, is used to determine whether the accused device is "substantially" the same as the patented invention.⁴⁰ However, the Federal Circuit has applied the

31. Parker, *supra* note 27, at 268.

32. Priebe & Sons Co. v. Hunt, 188 F.2d 880, 881 (8th Cir.), cert. denied, 342 U.S. 801 (1951).

33. "Prior art" refers to developments already in the public domain or already protected by patent.

34. Texas Instruments, Inc. v. United States Int'l Trade Comm'n, 805 F.2d 1558 at 1563 (Fed. Cir. 1986), *opinion on denial of reh'g*, 846 F.2d 1369 (Fed. Cir. 1988). The Supreme Court defined a "pioneer" patent to be "a patent covering a function never before performed, a wholly novel device, or one of such novelty and importance as to mark a distinct step in the progress of the art, as distinguished from a mere improvement or perfection of what had gone before." *Boyden Power-Brake Co. v. Westinghouse*, 170 U.S. 537, 561-62 (1898).

35. DONALD S. CHISUM, PATENTS, § 18.04, at 18-103 (1991). Examples of pioneer patents would be Morse's electrical telegraph and Bell's telephone. *Boyden Power-Brake Co.*, 170 U.S. at 562. An example of a marked improvement would be a patent for satellite altitude and orientation control. *Hughes Aircraft Co. v. United States*, 717 F.2d 1351 (Fed. Cir. 1983).

36. *Texas Instruments*, 805 F.2d at 1563. "[T]he range of permissible equivalents depends upon the extent and nature of the invention, and may be more generously interpreted for a basic invention than for a less dramatic technological advance." *Id.*

37. *Moore v. United States*, 211 U.S.P.Q. 800, 806 (Ct. Cl. Trial Div. 1981) ("[t]he doctrine finds its roots in the judicial recognition that drafting the ... claims for a pioneer patent is a difficult task because of the new scientific ground being broken by the unique invention.").

38. *Id.* "[T]he doctrine of equivalents remedies the anomaly in the law that exists whenever a pioneer patent is not literally infringed by the very subject matter which was spawned by the disclosure of that pioneer patent." *Id.*

39. 339 U.S. 605 (1950).

40. The theory behind the "function/way/result" test 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." *Graver Tank*, 339 U.S. at 608 (citing *Machine Co. v. Murphy*, 97 U.S. 120, 125 (1877)). See *supra* notes 20, 24, 25 and accompanying text.

Graver Tank test in two seemingly irreconcilable ways.⁴¹

The two approaches differ in the degree of correspondence required between the patent and the accused device for a finding of equivalence. The "element by element" approach requires the patentee to "show the presence of every element or its substantial equivalent in the accused device."⁴² Alternatively, the Federal Circuit has also approached the analysis "as a whole," which represents a more expansive and equitable view and results in more findings of infringement.⁴³ Under this approach, the court does not apply the doctrine of equivalents on an element by element basis.⁴⁴ Instead, the court compares the accused device and the patented invention on an indiscrete basis, viewing each device as an aggregate.⁴⁵

The two standards may be traced to the majority⁴⁶ and dissenting⁴⁷ opinions in *Graver Tank*.⁴⁸ The element by element approach parallels the dissent in *Graver Tank*, which stated that "a patent's precise claims mark its monopoly boundaries" and that any expansion of those claims should be left to the reissue process.⁴⁹ The holistic approach parallels the *Graver Tank* majority, and affords the patentee broad protection. The Federal Circuit has vacillated between these two approaches throughout its existence.⁵⁰

The appropriate standard today appears to be an integration of the two approaches.⁵¹ The Federal Circuit has indicated that the term "element" means

41. The two different approaches used are the "element by element" approach and the "as a whole" approach. See generally, Gary S. Levenson, *An Element-by-Element Analysis of the Doctrine of Equivalents in the Court of Appeals for the Federal Circuit*, 38 DRAKE L. REV. 389 (1989); Emily Lau, *The Test for Patent Infringement under the Doctrine of Equivalents After Pennwalt v. Durand-Wayland*, 22 IND. L. REV. 849 (1989).

42. *Pennwalt Corp. v. Durand-Wayland, Inc.*, 833 F.2d 931, 935 (Fed. Cir. 1987) (citing *Lemelson v. United States*, 752 F.2d 1538, 1551 (Fed. Cir. 1985) (footnote omitted)).

43. *Id.* at 946 (Bennett, J., dissenting).

44. *Id.* at 974 (Newman, J., dissenting).

45. For example, the majority in *Hughes Aircraft Co. v. United States*, 717 F.2d 1351 (Fed. Cir. 1983), noted that "the ... demand [by the district court] for 'obvious and exact' equivalents of two elements the presence of which would have effectively produced literal infringement was error." *Id.* at 1364.

46. *Graver Tank*, 339 U.S. at 606.

47. *Id.* at 612 (Black, J., dissenting).

48. 339 U.S. 605 (1950).

49. *Graver Tank*, 339 U.S. at 617. The reissue process is available to correct defective patents. The defective patent is cancelled and a new corrected patent is issued for the surrendered patent's remaining term. R. CHOATE ET AL., CASES AND MATERIALS ON PATENT LAW 549 (3rd ed. 1987).

50. For examples of the element by element approach, see generally: *ACS Hospital Systems, Inc. v. Montefiore Hospital*, 732 F.2d 1572 (Fed. Cir. 1984); *Lemelson v. United States*, 752 F.2d 1538 (Fed. Cir. 1985); *Perkin-Elmer Corp. v. Westinghouse Electric Corp.*, 822 F.2d 1528 (Fed. Cir. 1987); *Pennwalt Corp. v. Durand-Wayland, Inc.*, 833 F.2d 931 (Fed. Cir. 1987). For examples of the as a whole approach, see generally: *Hughes Aircraft Co. v. United States*, 717 F.2d 1351 (Fed. Cir. 1983); *Martin v. Barber*, 755 F.2d 1564 (Fed. Cir. 1985); *Texas Instruments, Inc. v. U. S. Int'l Trade Comm'n*, 805 F.2d 1558 (Fed. Cir. 1986).

51. However, some believe that the Federal Circuit has adopted the element by element approach. The dissent in *Pennwalt* noted:

[T]he majority has eviscerated the underlying rationale of the *Graver Tank* test by requiring, under the doctrine of equivalents, an exact equivalent for each element of the claimed invention. ... However, the purported "element-by-element comparison" was never the extent of the doctrine of equivalents analysis under our here-ignored precedents which also required that the analysis be undertaken in light of the entirety of the accused device and entirety of the patent-in-suit.

Id. at 940 (Bennett, J., dissenting).

not only a single limitation in a claim, but also a group of limitations making up a component of the invention.⁵² While there must be an equivalent in the accused device for every limitation in the claim, the equivalent does not have to be in a corresponding component.⁵³ The Federal Circuit's clarification of what an "element" is for doctrine of equivalents purposes was an attempt to reconcile the two competing views and supports the view than an integrated approach to equivalency analysis is now the Federal Circuit's accepted position.⁵⁴

C. Third Step: Limitations on the Range of Equivalents

Finally, two limitations to the doctrine of equivalents may restrict the range of equivalents:⁵⁵ prosecution history estoppel and prior art.⁵⁶ Both of these limitations are questions of law and are policy oriented.⁵⁷

Under the doctrine of prosecution history estoppel,⁵⁸ the patentee cannot reclaim, through equivalents, concessions made to the patent office in obtaining the patent.⁵⁹ Therefore, when a patentee relies on the doctrine of equivalents in an infringement suit, the alleged infringer may use the patentee's own prior representation made to the patent office as an affirmative defense.⁶⁰

The accused infringer may also use the existence of prior art to limit the range of equivalents asserted by the patentee.⁶¹ Like prosecution history

52. *Corning Glass Works v. Sumitomo Elec. U.S.A., Inc.*, 868 F.2d 1251 (Fed. Cir. 1989).

[This case] illustrates the confusion sometimes encountered because of misunderstanding or misleading uses of the term 'element' in discussing claims. 'Element' may be used to mean a single limitation, but it has also been used to mean a series of limitations which, taken together, make up a component of the claimed invention. In the All Elements Rule, 'element' is used in the sense of a limitation of a claim.

Id. at 1259.

53. *Id.* "[T]he determination of equivalency is not subject to such a rigid formula." *Id.* The *Corning Glass* court cited from *Winans v. Denmead*, 56 U.S. (15 How.) 330 (1853), the original doctrine of equivalents case: "A patentee is, for example, free to frame the issue of equivalency, if it chooses, as equivalency to a combination of limitations." *Corning Glass*, 868 F.2d at 1259 n.6 (citing *Winans v. Denmead*, 56 U.S. (15 How.) at 343).

54. See generally *Lau*, *supra* note 41, at 879 ("[t]he standard for an infringement analysis under the doctrine of equivalents is a combination of both the element-by-element standard and the invention as a whole approach."); Comment, *The Doctrine of Equivalents in Patent Law: Post-Pennwalt Developments*, *supra* note 20, at 908; *Parker*, *supra* note 27, at 269.

55. However, if equivalency is not found, one need not venture into this third step since the decision must be no infringement by the doctrine of equivalents.

56. *Loctite Corp. v. Ultraseal Ltd.*, 781 F.2d 861, 870 (Fed Cir. 1985).

57. *Id.*

58. Prosecution history estoppel is also called file wrapper estoppel.

59. *Loctite*, 781 F.2d at 870. Prosecution history estoppel precludes a patentee from obtaining a claim construction that would resurrect subject matter surrendered during prosecution of his patent application. *Id.*

60. See *Parker*, *supra* note 27, at 270-71.

61. *Id.* For example, the Federal Circuit employed the prior art limitation in *Ryco, Inc., v. Ag-Bag Corp.*, 857 F.2d 1418 (Fed. Cir. 1988). *Ryco* sought a declaratory judgement that *Ag-Bag's* patents for agricultural bagging machines were invalid. *Id.* at 1422. *Ag-Bag* counterclaimed for infringement. *Id.* The district court held that *Ryco* was infringing *Ag-Bag's* patents. *Id.* On appeal, *Ryco* alleged that the district court improperly broadened the claims to the point of ensnaring prior art. *Id.* at 1426. The Federal Circuit affirmed the district court decision. *Id.* at 1427. After comparing the *Ryco* product with the prior art, the Federal Circuit found that *Ryco* was similar to the prior art in name only and not in function. *Id.* at 1426. Thus, the court held that *Ryco* was infringing the *Ag-Bag* patent and not simply practicing prior art. *Id.* See also *Black & Decker, Inc. v. Hoover Service Center*, 886 F.2d 1285 (Fed. Cir. 1989).

estoppel, this limitation is a question of law.⁶² It rests on the notion that the range of equivalents cannot be extended so far as to encompass prior art.⁶³ The prior art limitation invalidates any attempt to broaden claims beyond their novelty into the realm of pre-existing innovation.⁶⁴

IV. *WILSON SPORTING GOODS CO. V. DAVID GEOFFREY & ASSOCIATES*

In 1990, the Federal Circuit, in *Wilson Sporting Goods Co. v. David Geoffrey & Associates*, rendered a decision that profoundly affected the doctrine of equivalents.⁶⁵ Like many landmark decisions, *Wilson* left more questions than answers.

In 1988, Wilson, a sports equipment manufacturer, sued its competitor Dunlop⁶⁶ for patent infringement.⁶⁷ Wilson held a patent for a pattern of dimples on a golf ball cover designed to increase the distance that a golf ball will travel.⁶⁸ Nearly three years earlier,⁶⁹ the examiner issued the patent without comment for one independent claim and twenty-six dependent claims.⁷⁰ Wilson claimed that four of Dunlop's products infringed this patent.⁷¹ The district court, in a jury trial, found Wilson's patent to be valid⁷² and Dunlop's infringement willful.⁷³ Dunlop appealed, contending that if the doctrine of equivalents reached its products, it would also improperly reach the prior art.⁷⁴

The Federal Circuit began its analysis by assuming that the jury properly

62. See Parker, *supra* note 27, at 270-71.

63. CHISUM, PATENTS, *supra* note 35, at 18-112; see, e.g., *Senmed v. Richard-Allan Medical Industries*, 888 F.2d 815 at 821 (Fed. Cir. 1989). "[T]he doctrine will not extend to an infringing device within the public domain..." *Loctite*, 781 F.2d at 870.

64. *Thomas & Betts Corp. v. Litton Sys.*, 720 F.2d 1572, 1580 (Fed. Cir. 1983); see *infra* Section V, Part B(1). *Wilson Sporting Goods Co. v. David Geoffrey & Assoc.'s*, 904 F.2d 677 (Fed. Cir.), *cert. denied*, 11 S. Ct. 537 (1990), has since shifted the burden of the prior art limitation to the patentee, who must now prove that the range of equivalents asserted does not ensnare prior art. Thus, it is no longer an affirmative defense of the accused infringer.

65. Other important decisions include *Winans v. Denmead*, 56 U.S. (15 How.) 330 (1853) (the original doctrine of equivalents case); *Graver Tank v. Linde Air Products*, 339 U.S. 605 (1950) (defining the doctrine of equivalents application); *Pennwalt v. Durand-Wayland*, 833 F.2d 931 (Fed. Cir. 1987) (espousing "element by element" analysis).

66. Wilson also sued David Geoffrey & Associates [hereinafter DGA], which is Dunlop's distributor of Slazenger golf balls. Wilson obtained summary judgment against DGA based on collateral estoppel because DGA "had been effectively represented by Dunlop." *Wilson*, 904 F.2d at 678. Dunlop's and DGA's appeals were consolidated.

67. *Id.*

68. *Id.* at 679.

69. *Id.* at 680. The examiner issued the patent on December 24, 1985, and Wilson sued Dunlop and DGA for patent infringement on August 2, 1988.

70. 35 U.S.C. § 112 (1984) discusses the use of dependent and independent claims: "A claim may be written in independent or ... in dependent ... form. ... [A] claim in dependent form shall contain a reference to a claim previously set forth and then specify a further limitation of the subject matter claimed." *Id.* Thus, while a dependent claim incorporates all of the limitations of a reference claim and then narrows it, an independent claim is written without reference to any other claim. As such, an independent claim is broader than a dependent claim.

71. *Wilson*, 904 F.2d at 681. The four Dunlop products were from the Maxfli and Slazenger lines of golf balls. *Id.*

72. *Id.* at 678.

73. *Id.*

74. *Id.* at 683. The most relevant prior art to this analysis was a Uniroyal golf ball patented and sold in the 1970's. *Id.* at 680-81.

resolved the underlying fact questions in *Wilson*'s favor.⁷⁵ This presumption could refer only to the matter of equivalency, because only the equivalency determination itself is a question of fact. Hence, the Federal Circuit did not assess the nature of the patent or the equivalency of Dunlop's product to the patent. Instead, it confined its analysis to the third and final step of the test by reviewing the limitations on the range of equivalents. The court ultimately found no infringement. While the court's finding may be unremarkable, the *Wilson* opinion was intended to herald a change in the application of the doctrine of equivalents. The real dilemma after *Wilson* lies in determining how much of a change the Federal Circuit intended.

First, the court surprisingly redefined (or clarified) the consequences of using the doctrine of equivalents. Prior to *Wilson*, the doctrine of equivalents was viewed as essentially expanding the patent claim itself.⁷⁶ A patent claim which encompasses prior art is of course invalid. Therefore, under this characterization of the doctrine of equivalents, the prior art limitation functioned to preserve the validity of the claim by limiting it to an acceptable scope.⁷⁷ This understanding of the limitation thus focused on the patentee's rights.

In *Wilson*, however, the court explained that the doctrine of equivalents does not expand the claim itself but rather broadens the patentee's "right to exclude" beyond the literal language of the claim.⁷⁸ Under this characterization of the doctrine, the better rationale for the prior art limitation is that it prevents a patentee from gaining coverage beyond that which would have been granted by the Patent and Trademark Office in the prosecution of a literal claim.⁷⁹ While subtle, the court's re-characterization of the doctrine of equivalents and of the rationale behind the prior art limitation appears to signal a new focus on protecting the public rather than the patentee's rights.

Second, after establishing the correct rationale for the doctrine of equivalents, the court suggested a new method for determining whether prior art precludes a finding of equivalence.⁸⁰ Prior to *Wilson*, courts simply "eyeballed" the accused device to decide whether it was obvious in light of the prior art.⁸¹ The *Wilson* court suggested constructing a "hypothetical" claim to literally cover the accused product.⁸² A patentability analysis on this hypothetical claim then determines whether the range of equivalents enveloping the accused product also envelops prior art.⁸³ If the hypothetical claim would have

75. *Id.* at 684.

76. *Id.*

77. *Id.*; see, e.g., *Lewmar Marine, Inc. v. Bariant, Inc.*, 827 F.2d 744, 749 (Fed. Cir. 1987). If the doctrine of equivalents expanded the claims themselves, the patent claims as expanded would necessarily be limited by prior art. See *supra* notes 61-64 and accompanying text.

78. "To say that the doctrine of equivalents extends or enlarges the claims is a contradiction in terms. The claims—i.e., the scope of patent protection as defined by the claims—remain the same and application of the doctrine expands the right to exclude to 'equivalents' of what is claimed." *Wilson*, 904 F.2d at 684.

79. *Id.* "[A] patentee should not be able to obtain, under the doctrine of equivalents, coverage which he could not lawfully have obtained from the [Patent and Trademark Office] by literal claims." *Id.*

80. *Id.* at 684-85.

81. See *infra* note 86.

82. *Wilson*, 904 F.2d at 684. In other words, the court suggests drafting a patent claim on the accused product as if applying for a patent on the accused device.

83. *Id.*

been patentable given the prior art, the prior art is not a defense to the infringement claim.⁸⁴ However, if the hypothetical claim would *not* have been patentable over the prior art, it forecloses a finding of infringement because the range of equivalents cannot reach the accused product without ensnaring the prior art.⁸⁵

The court noted two advantages of using the hypothetical claim technique over the old method of analysis.⁸⁶ First, it is more precise because it uses traditional patentability rules for the hypothetical claims, rather than a vague determination that an accused product would have been "obvious"⁸⁷ in view of prior art.⁸⁸ Second, the hypothetical claim analysis reinforces the idea that the patentee is attempting to expand her right to exclude beyond the literal language of the claim.⁸⁹

The *Wilson* court applied its hypothetical claim analysis and concluded that there was no significant distinction between the hypothetical claim and the prior art golf ball.⁹⁰ The court held that the Dunlop ball would not have been patentable in light of the prior art. Therefore, Wilson's independent claim could not be allowed a range of equivalents sufficiently broad to reach the Dunlop golf balls.⁹¹

Finally, the *Wilson* court declared that dependent claims can be infringed under the doctrine of equivalents even when there is no infringement of the independent claims.⁹² Consequently, the court performed a doctrine of equivalents analysis for *each* dependent claim.⁹³ The court concluded in each case that Wilson could not be given a range of equivalents to encompass the Dunlop balls

84. *Id.*

85. *Id.* The *Wilson* court explained:

It may be helpful to conceptualize the limitation on the scope of equivalents by visualizing a *hypothetical* patent claim sufficient in scope to *literally* cover the accused product. The pertinent question then becomes whether that hypothetical claim could have been allowed by the PTO over the prior art. If not, then it would be improper to permit the patentee to obtain that coverage in an infringement suit under the doctrine of equivalents. If the hypothetical claim could have been allowed, then *prior art* is not a bar to infringement under the doctrine of equivalents.

Id.

86. For an example of the old method of analysis, see *Ryco, Inc. v. Ag-Bag Corp.*, 857 F.2d 1418 (Fed. Cir. 1988). *Ryco* was cited as an example of the old technique in *Wilson* itself. *Wilson*, 904 F.2d at 684. Prior to the hypothetical claim technique, courts simply "eyeballed" the accused device to decide whether it "would have been obvious in view of the prior art." *Id.*

87. See *infra* note 133 and accompanying text.

88. *Wilson*, 904 F.2d at 684.

89. *Id.* at 685.

90. *Id.* The hypothetical claims constructed to literally cover the Dunlop ball were twofold: First, that the intersection of the dimples into the circles around the golf ball was 13% or less, and second that the "hypothetical claim limitation reads on any ball which has less than 14% of its dimples intersecting great circles." *Id.* The Uniroyal intersections were measured at a similar 17%-21%, and only 12% of the Uniroyal ball dimples intersected the great circles. *Id.* Thus, the court held that the hypothetical claim would not be patentable over the prior art Uniroyal ball. *Id.*

91. *Id.*

92. *Id.* at 686. See generally *Wahpeton Canvas Co., Inc. v. Frontier, Inc.*, 870 F.2d 1546 (Fed. Cir. 1989). The traditional pre-*Wilson* view, as also cited in the *Wilson* opinion, was as follows: "It is axiomatic that dependent claims cannot be found infringed unless the claims from which they depend have been found to have been infringed ..." *Id.* at 1553.

93. *Wilson*, 904 F.2d at 685-86.

without also ensnaring the prior art.⁹⁴

V. IDENTIFICATION OF CHANGES TO THE DOCTRINE OF EQUIVALENTS ANALYSIS AFTER *WILSON*

After *Wilson*, only step two⁹⁵ (the factual question of equivalency) of the three-part analysis under the doctrine of equivalents remains obviously intact. However, the degree to which *Wilson* alters steps one⁹⁶ (assessment of the range of equivalents) and three⁹⁷ (limitations on the range of equivalents), both of which are questions of law, is still uncertain.

An examination of several recent cases is helpful in determining the actual effect of *Wilson* on the doctrine of equivalents. This section reviews the use of patent categories to define the allowable range of equivalents and the actual application of the hypothetical claim analysis.

A. Use of Patent Category to Determine the Allowable Range of Equivalents After *Wilson*

Traditionally, a court begins its determination of the allowable range of equivalents by defining the patent as either a "pioneer" patent or a mere "improvement."⁹⁸ Because the *Wilson* court did not discuss this step, it is unclear whether the Federal Circuit intended to abandon the determination of patent category, so that the range of equivalents would be limited only by prior art and prosecution history estoppel.

Scholars criticize the usefulness of the sliding scale concept⁹⁹ of the range of equivalents.¹⁰⁰ The quantity and character of the relevant prior art is critical in determining whether a patent is a pioneer or mere improvement.¹⁰¹ Because the patent category is merely a measure of prior art, its employment as an independent "limitation" on the range of equivalents seems redundant.¹⁰² It is argued that the patent claim itself, prosecution history, and prior art should serve as the only limitations.¹⁰³

In addition to appearing redundant, a patent category acts as a court's valuation of the invention.¹⁰⁴ However, the patent system is designed to treat

94. *Id.* at 686.

95. *See supra* Section III, Part B.

96. *See supra* Section III, Part A.

97. *See supra* Section III, Part C.

98. *See supra* Section III, Part A.

99. The range allowed a patent varies with the nature of the patent. The bigger the breakthrough by the patent, the greater the range of equivalents allowed. CHISUM, *supra* note 35, at 18-100.

100. *Id.* at 18-111, 112 ("the 'range' concept is of doubtful value as an aid in the construction of patent claims").

101. *See supra* notes 33-36 and accompanying text; *see generally* Hildreth v. Mastoras, 257 U.S. 27, 34-35 (1921).

102. *Texas Instruments v. United States Int'l Trade Comm'n*, 846 F.2d 1369, 1370 (Fed. Cir. 1988). "The judicially 'liberal' view of both claim interpretation and equivalency accorded a 'pioneer' invention is not a manifestation of a different legal standard based on an abstract legal concept denominated 'pioneer.' Rather, the 'liberal' view flows directly from the relative sparseness of prior art ..." *Id.* (citing *Morley Sewing Machine Co. v. Lancaster*, 129 U.S. 263 (1889)).

103. *Id.*

104. CHISUM, *supra* note 35, 18-111. "The general design of the patent system avoids

each patent equally and objectively once granted.¹⁰⁵ Because the Patent and Trademark Office [hereinafter PTO] does not place values on patents upon issuance, and the courts are not as capable as the PTO of doing so, labels based on such valuations arguably should not be used to determine the latitude allowed the patent for infringement analysis.¹⁰⁶

An examination of post-*Wilson* cases leads to the conclusion that the patent category may still play a role in the doctrine of equivalents, but not in every case.¹⁰⁷ In some post-*Wilson* decisions the Federal Circuit did not discuss the category of the patent.¹⁰⁸ However, in others, the Federal Circuit required that the prior art, the prosecution history, and the patent category be used to define the range of equivalents.¹⁰⁹

The reason for this inconsistent treatment is not clear. One explanation may rest on the reality that pioneer patents, and even marked improvements, are rarities and are likely to be easily recognized. Perhaps the Federal Circuit is practicing judicial economy by simply assuming non-pioneer status without consideration unless the patent category appears disputable.¹¹⁰ The *Wilson* patent is clearly not a pioneer patent, given the existing prior art for golf ball patterns. Thus, perhaps the Federal Circuit omitted a discussion of the patent category in *Wilson* because it would have been a waste of judicial effort.

A second explanation for this inconsistent consideration of patent categories may be the Federal Circuit's reluctance to value inventions.¹¹¹ The Federal Circuit, in *Wilson*, clearly expressed its intent to refrain from using the doctrine of equivalents to rewrite claims allowed by the PTO.¹¹² It is the same desire to defer to Patent Office expertise that inspired scholarly criticism of judicial valuation of patents via use of patent categories.¹¹³ Perhaps this is an additional indication of the Federal Circuit's willingness to defer to the PTO. However, it is also clear that the deference is not absolute, because patent categories have been considered since the *Wilson* decision.¹¹⁴

official decisions, by the Patent and Trademark Office or the courts, on the relative technological, social or economic value of inventions. Such is left to the marketplace." *Id.*

105. *Id.* (footnote omitted).

106. *Id.*

107. See, e.g., *The Conair Group v. Automatik Apparate-Maschinenbau GMBH*, 944 F.2d 862 (Fed. Cir. 1991) and *We Care, Inc. v. Ultra-Mark Int'l Corp.*, 930 F.2d 1567 (Fed. Cir. 1991).

108. In both *The Conair Group* and *We Care, Inc.* the Federal Circuit noted the appropriate limitations on the doctrine of equivalents to be prior art, patent specifications, and the prosecution history. Notably absent is the nature of the patent as a pioneer or an improvement. See also, *Key Mfg. Group v. Microdot*, 925 F.2d 1444 (Fed. Cir. 1991) and *Jurgens v. McKasy*, 927 F.2d 1552 (Fed. Cir. 1991).

109. See *Intel Corp. v. United States Int'l Trade Comm'n*, 946 F.2d 821 (Fed. Cir. 1991).

110. See *supra* notes 107-09. *We Care, Inc.* and *The Conair Group* involved non-pioneer patents which were not expressly categorized as such. The *We Care, Inc.* patent was for a "Safety Plate for Electrical Outlet" and *The Conair Group* patent covered a method to granulate plastic. However, the *Intel* patent for EPROM computer chips required a determination of pioneer-non-pioneer status. The discrepancy in treatment could be due to the subject matter of the patent. High tech patents may be perceived as more likely to be pioneer than safety outlets and plastic granulators.

111. See *supra* notes 104-06 and accompanying text.

112. See *supra* notes 78-79 and accompanying text.

113. See *supra* notes 99-103 and accompanying text.

114. See *supra* note 109 and accompanying text.

Whether out of deference to the PTO or for judicial economy, the Federal Circuit has chosen to refrain from discussing patent categories in some post-*Wilson* cases but not others.¹¹⁵ Thus, it is clear that the *Wilson* hypothetical claim analysis does not entirely supplant the use of patent categories in doctrine of equivalents analyses.

B. The Prior Art Limitation After *Wilson*

The third step in the three-part doctrine of equivalents analysis involves placing limitations on the range of equivalents.¹¹⁶ There are two types of limitations: prosecution history estoppel and the prior art limitation.¹¹⁷ *Wilson* makes several changes to the prior art limitation but does not affect the prosecution history estoppel limitation.

1. The Prior Art Limitation Becomes Part of the Patentee's *Prima Facie* Case After *Wilson*

Prior to *Wilson*, the patentee had the burden of proving infringement, which included proving entitlement to a range of equivalents broad enough to encompass the accused device.¹¹⁸ The accused infringer, however, had the burden of proving that the range of equivalents urged by the patentee was too broad in light of prior art and prosecution history estoppel.¹¹⁹ The *Wilson* decision shifted part of this latter burden to the patentee, converting the prior art limitation from an affirmative defense into an element of the patentee's *prima facie* case. After *Wilson*, the patentee must prove that the equivalence he claims is consistent with the prior art limitation.¹²⁰ The *Wilson* court suggested that the patentee can do so by showing that the hypothetical claim would not encompass prior art.¹²¹

In sum, *Wilson* gives the prior art limitation a more influential position in the doctrine of equivalents analysis by elevating it to a position in the *prima facie* case of the patentee.¹²² In fact, *Wilson's* most conspicuous effect on the doctrine of equivalents analysis is the change in the allocation of the burden of proof on the prior art issue. By shifting the burden of proof to the patentee, thereby increasing the patentee's burden during infringement litigation, the

115. See *supra* notes 108-09 and accompanying text.

116. See Section III, Part C.

117. See Section III, Part C.

118. Howard T. Markey, *On Simplifying Patent Trials*, 116 F.R.D. 369, 378 (1987); see also discussion, *supra* Section III, Part C.

119. *Id.*

120. *Wilson*, 904 F.2d at 685; see also *supra* Section III, Part C.

121. *Id.* at 684.

122. Several pre-*Wilson* Federal Circuit cases do emphasize the importance of the prior art limitation. See, e.g., *Senmed, Inc. v. Richard-Allan Medical Inc.*, 888 F.2d 815, 821 (Fed. Cir. 1989) ("[I]t is well established that limitations in a claim cannot be given a range of equivalents so wide as to cause the claim to encompass anything in the prior art."). But cf. *Thomas & Betts Corp. v. Litton Systems, Inc.*, 720 F.2d 1572 (Fed. Cir. 1983), where the court limited the effect of prior art on the range of equivalents after determining that the patent was a non-pioneer patent. *Id.* at 1580. The court stated:

[A]lthough the effect of the prior art on the scope of the claims in suit is to be considered, our approach should not be a 'camouflaged or back-handed attack' on the validity of the ... patent.... Where validity in view of the prior art has not been challenged, the court is less free to limit the application of the doctrine of equivalents than where invalidity is specifically urged by the alleged infringer.

Id.

Federal Circuit makes it more difficult for patentees to enforce their patents against alleged infringement. Thus, the Federal Circuit effectively shifted the balance between the public and the patentee in applying the doctrine of equivalents in favor of the accused infringer.

The *Wilson* court suggested that the hypothetical claim analysis be used as a means of discharging the patentee's new burden of proof. The Federal Circuit did not burden patentees with a mandatory hypothetical claim analysis and thus did not increase patentees' difficulty in litigation beyond shifting the burden of proof.¹²³

2. The Patentability Analysis for the Hypothetical Claim

The hypothetical claim analysis has spawned several comments regarding the difficult and unwieldy nature of its application.¹²⁴ In light of the difficulty of the doctrine's application, patentees may find comfort in knowing that the Federal Circuit has not mandated a hypothetical claim analysis be done whenever the prior art limitation requires review.¹²⁵ The hypothetical claim analysis is simply a suggested approach to the difficult determination of whether the prior art limitation defeats the infringement claim.¹²⁶

The *Wilson* court believed the hypothetical claim analysis to be a more precise method of evaluating the prior art limitation than merely "eyeballing" the accused device in light of prior art.¹²⁷ However, the Federal Circuit devoted only two paragraphs to the application of the new test, leaving a question as to the scope of the patentability inquiry.¹²⁸

Cases subsequent to *Wilson* suggest that the patentability analysis of the hypothetical claim is more limited in scope than an analysis of the patentability of an actual invention.¹²⁹ However, while *Wilson* created much uncertainty regarding what is required for its hypothetical claim analysis, these succeeding cases are even less enlightening.¹³⁰

123. See discussion in following section. The Federal Circuit simply suggested that the hypothetical claim analysis is one way to manage the increased burden of proof.

124. See, e.g., Parker, *supra* note 27, at 289; Michael C. Keller & Kenneth J. Nonneukamp, *Developments in the United States Court of Appeals for the Federal Circuit During 1990*, 40 AM. U. L. REV. 1157, 1208 (1991); JAMES G. GATTO, *How a Dependent Claim can be Infringed When a Claim From Which it Depends is not*, 73 J. PAT. [& TRADEMARK] OFF. SOC'Y 61 (1991).

125. See, e.g., *We Care, Inc.*, 930 F.2d at 1570-71. In *We Care, Inc.*, the Federal Circuit remanded the case specifically because the district court did not adequately consider whether the range of equivalents sought by the patentee would also improperly reach the prior art. *Id.* at 1570-71. But the court did not mandate or even mention a hypothetical claim analysis in its description of the appropriate analysis to be used upon remand. *Id.* See also *The Conair Group v. Automatik Apparate-Maschinenbau* 944 F.2d 862 (Fed. Cir. 1991).

126. *Wilson*, 904 F.2d at 684 ("Whether prior art restricts the range of equivalents of what is literally claimed can be a difficult question to answer."). See also *Jurgens v. McKasy*, 927 F.2d 1552, 1561 (Fed. Cir. 1991) (characterizing the hypothetical claim analysis as "helpful to 'conceptualize' the prior art limitation on the doctrine of equivalents").

127. *Wilson*, 904 F.2d at 684.

128. *Id.* at 685.

129. *Key Mfg. Group v. Microdot, Inc.*, 925 F.2d 1444, 1449 (Fed Cir. 1991) ("The *Wilson* hypothetical claim analysis does not envision application of a full-blown patentability analysis to a hypothetical claim.").

130. In *Key Mfg.*, the Federal Circuit summarized its patentability analysis of the hypothetical claim in one sentence by simply stating that the accused device would have been obvious in view of prior art. *Id.* In *Jurgens v. McKasy*, the Federal Circuit stated only that the

The Patent Act enumerates three elements of patentability: "novelty,"¹³¹ "utility,"¹³² and "nonobviousness."¹³³ The Federal Circuit has so far limited its patentability analysis of hypothetical claims to a test for nonobviousness.¹³⁴ The requirement of nonobviousness means that the invention must not be obvious, in light of prior art, to those skilled in the art.¹³⁵ Nonobviousness is a question of law based on certain factual determinations.¹³⁶ An analysis of nonobviousness is comprised of four steps, each required in a full-blown patentability analysis.¹³⁷ First, the court must complete a survey of the relevant prior art.¹³⁸ Second, it must examine the differences between the prior art and the invention.¹³⁹ Third, the court must determine the level of ordinary skill in that art.¹⁴⁰ Finally, the court must review secondary considerations, such as commercial success, long felt but unsolved needs, failure of others, recognition by industry, and synergism, among others.¹⁴¹ While it is unclear how much attention the Federal Circuit will give to the first three elements of nonobviousness in a hypothetical claim patentability analysis,¹⁴² it is apparent that the Federal Circuit has not thus far included secondary considerations in its analysis.¹⁴³ Secondary considerations provide objective criteria to the nonobviousness determination.

In a full-blown patentability analysis, the Federal Circuit uses secondary

hypothetical claim drawn to literally cover the accused device "viewed as a whole, would not have been obvious in view of [prior art]" 927 F.2d at 1562.

131. 35 U.S.C. § 102 (1984).

132. 35 U.S.C. § 101 (1984).

133. 35 U.S.C. § 103 (1984).

A patent may not be obtained ... if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains....

Id.

134. See, e.g., *Wilson*, 904 F.2d at 685 ("We hold these differences are so slight and relatively minor that the hypothetical claim ... viewed as a whole would have been obvious in view of the [prior art] ...").

135. *Graham v. John Deere Co. of Kansas City*, 383 U.S. 1, 14 (1966). The obviousness inquiry is made in view of the art existing at the time of the invention—hindsight is not permitted. See *supra* note 133.

136. *Graham*, 383 U.S. at 17.

137. *Graham* used the statutory three-part test for nonobviousness from 35 U.S.C. § 103 (see *supra* note 133), asserting that a fourth, non-statutory factor—secondary considerations—"might be utilized to give light to the circumstances surrounding the origin of the subject matter sought to be patented. As indicia of obviousness or nonobviousness, these inquiries may have relevancy." 383 U.S. at 17-18 (emphasis added). However, *Vandenburg v. Dairy Equip. Co.*, 740 F.2d 1560 (Fed. Cir. 1984), made secondary considerations mandatory, stating that secondary considerations "should be considered as a fourth factual inquiry under *Graham* before coming to a conclusion concerning obviousness." *Id.* at 1567. See also *Stratoflex, Inc., v. Aeroquip Corp.*, 713 F.2d 1530, 1538 (Fed. Cir. 1983) ("evidence rising out of the so-called 'secondary considerations' must always be considered en route to a determination of obviousness.").

138. *Graham*, 383 U.S. at 17.

139. *Id.*

140. *Id.*

141. *Id.* at 17-18; see also *supra* note 137.

142. However, step three in the nonobviousness determination was demonstrated in *Insta-Foam Products, Inc., v. Universal Foam Sys.*, 906 F.2d 698 (Fed. Cir. 1990). "[T]he hypothetical claim drawn to encompass [the accused device] would not have been unpatentable under 35 U.S.C. Section 103 in view of the [prior art]. The [prior art] would not have motivated one of ordinary skill in the art to [invent the accused device]." *Id.* at 704.

143. None of the Federal Circuit's post-*Wilson* doctrine of equivalent opinions to date discuss secondary considerations.

considerations to ground its nonobviousness determination in the realities of the marketplace.¹⁴⁴ To avoid a misuse of secondary considerations,¹⁴⁵ a "nexus" to the inventive characteristic must be established.¹⁴⁶

The absence of secondary considerations from the Federal Circuit's nonobviousness determination does not necessarily indicate that such considerations are barred. According to *Wilson*, the patentee has the burden of proving the patentability of a hypothetical claim.¹⁴⁷ Consequently, it is possible the Federal Circuit would consider secondary considerations if raised by the patentee.

In sum, if the patentee chooses to use the hypothetical claim analysis to discharge her burden of proof, the Federal Circuit has not made the litigation so burdensome as to require a "full-blown" patentability analysis. The patentability analysis for hypothetical claims appears to be reduced to a test for nonobviousness. Furthermore, the test for nonobviousness has been reduced from a four-part test to consideration of only the three statutory elements.¹⁴⁸ However, the fourth element of nonobviousness, secondary considerations, would likely be considered by the Federal Circuit at the patentee's insistence.

The *Wilson* court suggested the hypothetical claim test as a way to more precisely evaluate the prior art limitation than simply "eyeballing" the accused device in light of prior art.¹⁴⁹ However, the patentability analysis of the hypothetical claim is glossed over in Federal Circuit opinions, giving the impression that the court is still simply "eyeballing" accused devices in light of prior art just as before *Wilson*.¹⁵⁰

3. The Number of Hypothetical Claims Analyzed is not Expressly Limited in Wilson

The *Wilson* court acknowledged that "[i]t is axiomatic that dependent claims cannot be found infringed unless the claims from which they depend have been found to have been infringed."¹⁵¹ Generally, the court finds independent claims uninfringed because particular claim limitations (or their equivalents) are not contained in the accused product.¹⁵² This leads the court to correctly conclude that the dependent claims are likewise uninfringed.¹⁵³ However, where the accused product is found equivalent to the independent patent claims but noninfringement is nonetheless found because of the prior art

144. The Federal Circuit has stated that secondary considerations often provide the most probative evidence of patentability. *See, e.g.,* *Demaco Corp. v. F. von Langsdorff Licensing Ltd.*, 851 F.2d 1387, 1391-94 (Fed. Cir. 1988); *Ashland Oil, Inc., v. Delta Resins & Refractories, Inc.*, 776 F.2d 281, 305-07 (Fed. Cir. 1985), *cert. denied*, 475 U.S. 1017 (1986).

145. If courts gave too much weight to secondary considerations, they would be overemphasizing the importance of market conditions in comparison to the statutory three-stage process.

146. *Vandenberg*, 740 F.2d at 1567.

147. *Wilson*, 904 F.2d at 685. *See discussion supra* section V, part B.1.

148. *Graham*, 383 U.S. at 17. *See supra* notes 137-41 and accompanying text.

149. *See* note 127 and accompanying text.

150. *Id.*

151. *Wilson*, 904 F.2d at 685 (citing *Wahpeton Canvas Co., Inc. v. Frontier, Inc.*, 870 F.2d 1546, 1553 (Fed. Cir. 1989)).

152. *Id.* at 686. However, the *Wilson* opinion distinguished the circumstances of its case from those generally encountered.

153. *Id.*

limitation, the axiom no longer holds true.¹⁵⁴ In this situation, the range of equivalents for the narrower dependent claims may not ensnare prior art.¹⁵⁵ Thus, according to *Wilson*, when a court invokes the prior art limitation and holds the independent claim un infringed, the dependent claims must also be examined for infringement.¹⁵⁶ The court concluded that none of the dependent claims in *Wilson* were infringed.¹⁵⁷

Another source of hypothetical claims may be the independent claims themselves. Several commentators have speculated that even if an original hypothetical claim should fail to illustrate patentability, another one might be successful.¹⁵⁸ Commentators also are concerned that the number of hypothetical claims in a particular case could "snowball."¹⁵⁹ The scenario feared is where a series of independent hypothetical claims and associated dependent claims are iteratively analyzed, each iteration getting progressively narrower, until infringement is finally found.¹⁶⁰ While the possibility of snowballing exists, the Federal Circuit has not analyzed dependent claims subsequent to the *Wilson* case.¹⁶¹ Further, the hypothetical claims cases since *Wilson* do not address more than one broad hypothetical claim.¹⁶²

C. Summary of the Doctrine of Equivalents Analysis After Wilson

Wilson has changed only Part Three of the pre-*Wilson* equivalents analysis—the limitations on the range of equivalents. The first step in a doctrine of equivalents analysis continues to be the definition of the patent category as pioneer or non-pioneer, in order to roughly estimate the range of equivalents entitled the patent.¹⁶³ Second, the trier of fact decides whether the accused device is equivalent to the patent claims.¹⁶⁴ Finally, the court must determine the limitations of prior art and prosecution history estoppel on the range of

154. Where noninfringement is found "solely because the asserted range of equivalents of the claim limitations would encompass the prior art ... , it does not automatically follow that the ranges of equivalents of these narrower claims would encompass the prior art, because of their added limitations." *Id.*

155. *Id.*

156. *Id.*

157. *Id.* "[N]one [of the dependent claims] could be given a range of equivalents broad enough to encompass Dunlop's balls because that would extend Wilson's patent protection beyond hypothetical claims it could lawfully have obtained from the PTO." *Id.*

158. See, e.g., Parker, *supra* note 27, at 279; GATTO, *supra* note 124, at 68. Both of the authors point out that a hypothetical claim may be very difficult to draft. Therefore, similar to the actual patent process through the PTO, the final hypothetical claim may be the result of a series of compromises.

159. Parker, *supra* note 27, at 279.

160. *Id.*

161. Since the *Wilson* opinion, the Federal Circuit has decided only one case, Key Mfg. Group, Inc. v. Microdot, Inc., 925 F.2d 1444 (Fed. Cir. 1991), with a similar result to *Wilson*: A hypothetical claim analysis resulting in no infringement. However, the Federal Circuit did not mention any dependent claims in *Key Mfg.*

162. See *Insta-Foam Products, Inc.*, 906 F.2d 698; *Key Mfg. Group, Inc.*, 925 F.2d 1444; *Jurgens*, 927 F.2d 1552. However, one district court case, A.H. Robins Co. v. Erbmont, Inc., 1991 W.L. 229150 (S.D. Ohio), did consider multiple hypothetical claims as alternatives to one broad independent claim. Apparently, the court devised a hypothetical claim, and when that claim proved to be nonpatentable, the court considered the patentee's proposed hypothetical claim. The court also held the proposed hypothetical claim nonpatentable. *Id.*

163. See discussion, *supra* Section V, Part A.

164. See discussion, *supra* Section III, Part B.

equivalents.¹⁶⁵ While the burden of proving prosecution history estoppel still rests with the accused infringer, *Wilson* reallocates the burden of proving the prior art limitation to the patentee as part of the prima facie case for infringement.¹⁶⁶ *Wilson* "suggests"¹⁶⁷ that the patentee construct hypothetical claims which literally cover the accused device, and prove that each of the hypothetical claims would be patentable in light of prior art.¹⁶⁸

The Federal Circuit does not require a full-blown patentability examination when it employs a hypothetical claim analysis.¹⁶⁹ However, the patentee will want to present every possible argument, including secondary considerations, for patentability. Thus, although the patentability analysis may not be full-blown from the court's perspective, the patentee may not benefit from its "abbreviated" treatment.

VI. THE DOCTRINE OF EQUIVALENTS BALANCE AFTER *WILSON*

The *Wilson* decision initially appeared to place a great burden on the patentee who is suing for patent infringement. The reallocation of the burden of proof in *Wilson* is a strong indication that the Federal Circuit would prefer the balance to shift in favor of the public as against the patentee.

In *Wilson*, the Federal Circuit initially appeared to mimic the *Graver Tank* dissent by taking a hard-line stand, making it more difficult for patentees to protect their patents using the equitable doctrine of equivalents. However, in subsequent cases, the Federal Circuit has taken a more neutral position. The apparent retreat by the Federal Circuit to a more neutral stance is evident in at least three facets of the *Wilson* decision. First, since announcing the new hypothetical claim test in *Wilson*, the Federal Circuit has not mandated that courts invariably use a hypothetical claim analysis for a prior art examination. Thus, the hypothetical claim test, first believed to be a requisite for doctrine of equivalents cases, is only a suggested method for the patentee to discharge the burden of proof. Second, while the patentability analysis of the hypothetical claim was not detailed in *Wilson*, subsequent cases explicitly state that the patentability analysis is only an abbreviated version of a "full-blown" patentability analysis. Finally, while *Wilson* suggested that the hypothetical claim analyses be performed on both independent and dependent claims, the Federal Circuit has not since analyzed more than one hypothetical claim per case.

Perhaps the Federal Circuit conjured up the hard-line position in *Wilson* to limit its equitable role in patent interpretation to only the most deserving cases. *Wilson*, as originally interpreted, might have discouraged use of the

165. See discussion, *supra* Section V, Part B; Section III, Part C.

166. See discussion, *supra* Section V, Part B(1).

167. While the Federal Circuit believed the hypothetical claim analysis to be a more precise method for handling the prior art limitation, the court has not mandated its use. See *supra* notes 125-26 and accompanying text. Thus, it may be possible to avoid the hypothetical claim route, so long as the patentee meets the burden of proving that the range of equivalents to which the patentee is entitled does not ensnare prior art. *Id.*

168. See *supra* Section V, Parts B(2) and B(3).

169. The meaning of a patentability analysis that is not "full-blown" is not clear, but it is apparent that secondary considerations are not being considered by the Federal Circuit in its nonobviousness decision. See discussion *supra* Section V, Part B(2).

doctrine of equivalents so that the Federal Circuit could instead rely primarily on the literal claims prosecuted in the PTO. In fact, the Federal Circuit in *Greiner & Co. v. Mari-Med Manufacturing, Inc.* cited *Wilson* for the proposition that the use of the doctrine of equivalents should be restricted:

Application of the doctrine of equivalents is the exception ..., not the rule, for if the public comes to believe (or fear) that the language of patent claims can never be relied on, and that the doctrine of equivalents is simply the second prong of every infringement charge, regularly available to extend protection beyond the scope of the claims, then claims will cease to serve their intended purpose.¹⁷⁰

Some commentators argue that courts overuse the doctrine of equivalents.¹⁷¹ They believe that courts should invoke the doctrine only in very limited situations.¹⁷² These commentators suggest applying the doctrine of equivalents only in those situations in which the patentee could not have protected herself against copiers.¹⁷³ These commentators suggest that using the doctrine where the patentee was simply careless in claim preparation needlessly burdens the public. Limiting the use of the doctrine of equivalents would encourage innovation as well as completeness and accuracy in patent claim preparation.

It is clear that the Federal Circuit and these commentators¹⁷⁴ agree that the doctrine of equivalents should not be overused, else the public's perception of the patent system is undermined by the courts. However, while the commentators would restrict use of the doctrine to particular situations,¹⁷⁵ the Federal Circuit would restrict not the *application* of the doctrine of equivalents but the *range* of equivalents allowed. For example, in *Greiner & Co.*, the Federal Circuit noted that prosecution history estoppel was one way to guard against the doctrine's overuse.¹⁷⁶ The Federal Circuit thus views prosecution history estoppel and the prior art limitation as tools to restrict the doctrine of equivalents itself.

The Federal Circuit's approach seems misguided. Prosecution history estoppel and the prior art limitation only limit the *range* of equivalents, not the use of the doctrine. By the time these limitations are considered, a range of equivalents extending the right to exclude beyond the literal claims has already

170. 962 F.2d 1031, 1036 (Fed. Cir. 1992) (citing *London v. Carson Pirie Scott & Co.*, 946 F.2d 1534, 1538 (Fed. Cir. 1991) and *Wilson*, 904 F.2d at 684).

171. Martin J. Adelman & Gary L. Francione, *The Doctrine of Equivalents in Patent Law: Questions that Penwalt did not Answer*, 137 U. PA. L. REV. 673 (1989). "[T]he doctrine of equivalents, once thought to be a narrow doctrine designed to prevent 'fraud on a patent' has become an issue of fact to be resolved in virtually every patent suit." *Id.* at 699.

172. The doctrine of equivalents serves two roles in patent law. First, it allows a patentee to cover an accused device when the patentee has omitted to claim what her patent enabled. Second, it ensures that patent protection is not eviscerated by technology developed after the patent issues.... The second purpose, applied only in special circumstances, represents the sole legitimate function of the doctrine. In other circumstances, the balance should be drawn in favor of the public.

Id. at 728.

173. *Id.* This is based on the principle expressed in *Loctite Corp. v. Ultraseal Ltd.*, 781 F.2d 861 (Fed. Cir. 1985): "The patent law 'allows the inventor to be his own lexicographer.'" *Id.* at 867 (citing *Autogiro Co. of America v. United States*, 384 F.2d 391, 397 (1967)).

174. See, e.g., ADELMAN AND FRANCIONE, *supra* notes 171-72 and accompanying text.

175. *Id.*

176. *Greiner & Co.*, 962 F.2d at 1036 ("One important rule which prevents the doctrine of equivalents from clashing with claim significance is prosecution history estoppel.")

been approved, conditioned on a finding of no limitations.

To prevent the doctrine of equivalents from becoming the "second prong of every infringement charge,"¹⁷⁷ its use must be restricted to certain situations. Making the doctrine more difficult to litigate by tinkering with the prior art limitation will not dissuade patentees from litigating their due range of equivalents.

VII. CONCLUSION

Wilson presents a new test under the doctrine of equivalents. However, its effect is limited. The most significant effect is that the prior art limitation is now part of the patentee's prima facie case. While the *Wilson* court advocates using the hypothetical claim to more precisely determine whether the prior art should limit the range of equivalents sought by the patentee, in reality the precision is not improved.

While *Wilson* draws the line more in favor of the public as against the patentee, it does so by making it more burdensome for the patentee to prove infringement via use of the doctrine of equivalents. If the Federal Circuit's goal is to encourage innovation by providing bright line rules regarding patentees' rights, the better alternative is to actually limit the use of the doctrine of equivalents to particular situations. Making the doctrine of equivalents more difficult to litigate will not decrease litigation and may in fact increase its length and complexity. Patentees will still sue to protect what they see as their exclusive rights to inventions. However, restricting the *use* of the doctrine to particular situations adds predictability because would-be inventors can rely on literal patent claims. Likewise, the courts will benefit by encountering smaller doses of the increasingly difficult doctrine of equivalents.

177. See *supra* note 170 and accompanying text.

