

***FESTO X*: THE COMPLETE BAR BY ANOTHER NAME?**

By Marc D. Sharp

The Court of Appeals for the Federal Circuit has recently added yet another chapter to the seemingly unending saga of *Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co.*¹ (“*Festo X*”). In this iteration, the Federal Circuit clarified the application of the three tests articulated by the Supreme Court for rebutting the presumption of prosecution history estoppel: unforeseeability, tangential relationship, and reasonable description.² The Federal Circuit also ruled that rebuttal is a question of law to be resolved by the court rather than a jury,³ similar to the court’s holding in *Markman v. Westview Instruments, Inc.* (“*Markman I*”) concerning claim construction.⁴ After setting out this analytical framework, the court determined that *Festo* failed to rebut the presumption of prosecution history estoppel under either the tangential relationship or reasonable description tests.⁵ However, the court ruled that there were still open questions regarding the foreseeability of the accused equivalent elements, and remanded this issue to the district court for resolution.⁶

Part I of this Note discusses the origin of the doctrine of equivalents and the concept of prosecution history estoppel. Part II outlines the history and significance of the *Festo* decisions, particularly emphasizing their impact on prosecution history estoppel. Part III presents a detailed analysis of the latest *Festo* decision. Finally, Part IV explores the impact the Federal Circuit’s holding in the latest *Festo* decision will have on the scope of equivalents available to an inventor and some ramifications for patent litigation and prosecution.

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1. 344 F.3d 1359 (Fed. Cir. 2003) [hereinafter *Festo X*].

2. See *Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co.*, 535 U.S. 722, 740-41 (2002) [hereinafter *Festo VIII*]. See *infra* Part II for a discussion of these three tests.

3. See *Festo X*, 344 F.3d at 1367-68, 1369 n.3.

4. *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 980-81 (Fed. Cir. 1995) (en banc) [hereinafter *Markman I*], *aff’d*, 517 U.S. 370 (1996) [hereinafter *Markman II*].

5. *Festo X*, 344 F.3d at 1373-74.

6. *Id.*

I. BACKGROUND

The patent bargain, as set forth in the Constitution and implemented by Congress, grants inventors a limited monopoly on their inventions in exchange for full disclosure of how to make and use those inventions.⁷ The extent of the exclusive right granted by a patent is defined by the language of its claims. However, if protection were limited to the literal scope of a patent's claims, copyists could avoid infringement by incorporating trivial modifications, a practice that would greatly limit a patent's value.⁸ As a result, inventors would have little incentive to disclose their inventions, compromising the purpose of the patent bargain. In order to address this problem, judges created the doctrine of equivalents, which extends a patent's protection beyond the literal scope of its claims.

A. The Doctrine of Equivalents

The Supreme Court articulated an early form of the doctrine of equivalents in *Winans v. Denmead* by holding that a patentee implicitly claims insubstantially different versions of an invention when claiming a specific embodiment.⁹ In so holding, the Court prevented infringers from avoiding liability by making minor changes to a patented device.¹⁰ The Court revisited the doctrine of equivalents almost a century later in *Graver Tank & Manufacturing Co. v. Linde Air Products, Co.*,¹¹ where it held that if an accused device performed substantially the same function in substantially the same way to achieve the same result as a patented invention it infringed the patent under the doctrine of equivalents.¹² This articulation of the doctrine, known as the "function-way-result" test, is frequently used to judge equivalence today.¹³

7. See U.S. CONST. art. I, § 8, cl. 8; see also ROBERT P. MERGES & JOHN F. DUFFY, PATENT LAW AND POLICY: CASES AND MATERIALS 259 (3d ed. 2002).

8. See *Festo VIII*, 535 U.S. 722, 731 (2002).

9. 56 U.S. 330, 342 (1854). The Court noted:

[W]hen a patentee describes a machine, and then claims it as described, . . . he is understood to intend to claim, and does by law actually cover, not only the precise forms he has described, but all other forms which embody his invention; it being a familiar rule that, to copy the principle or mode of operation described is an infringement, although such copy should be totally unlike the original in form or proportions.

Id.

10. *Id.* at 343.

11. 339 U.S. 605 (1950).

12. *Id.* at 608.

13. See Alan Fu, Note, *Prosecution History Estoppel: Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co.*, 18 BERKELEY TECH. L.J. 117 (2003); see also Jay I. Alexander, *Cabining the Doctrine of Equivalents in Festo: A Historical Perspective of the Rela-*

While the doctrine of equivalents ensures that a patentee receives the full benefit of his exclusive rights, liberal application of the doctrine can impermissibly extend the scope of those rights. If there were no limit on assertions of equivalence, an inventor might claim material through litigation that he or she could not have claimed, or had specifically disclaimed, during patent prosecution. To prevent this sort of backdoor patenting, courts established the doctrine of prosecution history estoppel.

B. Prosecution History Estoppel

The Supreme Court first applied prosecution history estoppel in *Leggett v. Avery*¹⁴ by invalidating the claims of a patent when the inventor attempted to reclaim subject matter he gave up during prosecution of the patent.¹⁵ This idea, that subject matter surrendered during patent prosecution cannot be regained through application of the doctrine of equivalents, has become an axiom of patent law.¹⁶ At its core, prosecution history estoppel ensures that a patentee honors representations made to the Patent and Trademark Office (PTO) during patent prosecution.

By narrowing the scope of a claim during prosecution, the patentee acknowledges that *some* material included in the original claim is unpatentable, but exactly what material is surrendered is often unclear. In *Hughes Aircraft Co. v. United States*,¹⁷ the Federal Circuit described prosecution history estoppel as a flexible bar to assertions of equivalence, and advocated a subjective inquiry into the nature of the amendment and the scope of material surrendered.¹⁸ This case-by-case analysis was the standard prior to the *Festo* line of cases.

tionship between the Doctrine of Equivalents and Prosecution History Estoppel, 51 AM. U. L. REV. 553 (2002) (providing a detailed history of the doctrine of equivalents).

14. 101 U.S. 256, 258-60 (1879).

15. See Fu, *supra* note 13, at 118-24 (discussing the history of prosecution history estoppel and its interaction with the doctrine of equivalents).

16. See, e.g., *Weber Elec. Co. v. Freeman Elec. Co.*, 256 U.S. 668, 677 (1921) (noting that “the patentee may not by construction, or by resort to the doctrine of equivalents, give to the claim the larger scope which it might have had without the amendments”); see also *Warner-Jenkinson Co. v. Hilton Davis Chem. Co.*, 520 U.S. 17, 30-31 (1997) (observing that prosecution history estoppel applies to amendments made to avoid prior art or specific objections by the patent examiner).

17. 717 F.2d 1351 (Fed. Cir. 1983).

18. *Id.* at 1362-63.

II. THE *FESTO* DECISIONS

The *Festo* line of cases began in 1988 with a relatively simple patent infringement dispute in the Federal District Court of Massachusetts.¹⁹ The two patents in suit, United States Patent 4,354,125 (“the Stoll patent”) and 3,779,401 (“the Carroll patent”) related to magnetic rodless cylinders composed of a piston, a cylinder, and a sleeve.²⁰ Like many patents, these were amended during prosecution: both patents incorporated a new limitation requiring “a pair of resilient sealing rings.” In addition, the Stoll patent was amended to include a limitation that the sleeve be “magnetizable.”²¹

Festo Corporation (“Festo”), the assignee of both patents, alleged that Shoketsu Kinzoku Kogyo Kabushiki Company and SMC Pneumatics Incorporated (collectively “SMC”) had produced a device that infringed the Stoll and Carroll patents. The district court granted partial summary judgment of infringement under the doctrine of equivalents of the Carroll patent, and a jury found infringement under the doctrine of equivalents of the Stoll patent.²² On appeal, the Federal Circuit affirmed these decisions.²³ The Supreme Court vacated the Federal Circuit’s decision and remanded the case in light of its intervening *Warner-Jenkinson* decision.²⁴ The Federal Circuit heard the case en banc and reversed the district court’s decision, radically altering the interaction between prosecution history estoppel and the doctrine of equivalents.²⁵

19. *Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co.*, No. 88-1814-MA, 1993 U.S. Dist. Lexis 21434, at *81-82 (D. Mass. Apr. 27, 1993) [hereinafter *Festo I*].

20. *Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co.*, 234 F.3d 558, 579 (Fed. Cir. 2000) [hereinafter *Festo VII*]; see also Fu, *supra* note 13, at 124-29 (discussing the procedural history of the *Festo* cases).

21. *Festo VII*, 234 F.3d at 583-84.

22. *Festo I*, 1993 U.S. Dist. Lexis 21434, at *81-82.

23. *Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co.*, 72 F.3d 857 (Fed. Cir. 1995) [hereinafter *Festo II*].

24. *Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co.*, 520 U.S. 1111 (1997) [hereinafter *Festo IV*]; *Warner-Jenkinson Co. v. Hilton Davis Chem. Co.*, 520 U.S. 17 (1997). In *Warner-Jenkinson* the Supreme Court held that an accused device infringes a patent claim only if it literally or equivalently infringes every element in that claim. Furthermore, unless the patentee proves otherwise, it should be presumed that claim amendments were made to achieve patentability, and should trigger prosecution history estoppel. *Warner-Jenkinson*, 520 U.S. at 33. The amendments at issue in *Warner-Jenkinson* were made to avoid rejections based on prior art. It was unclear from that context if amendments made for other reasons would also invoke the presumption of prosecution history estoppel.

25. *Festo VII*, 234 F.3d at 591.

The Federal Circuit made two critical holdings in *Festo VII*. First, it held that any narrowing amendment, even a voluntary one, is presumably made to achieve patentability, and triggers prosecution history estoppel.²⁶ Second, and more significantly, the court held that prosecution history estoppel bars *any* application of the doctrine of equivalents to amended claim elements (the “complete bar”).²⁷ Under this ruling, a patentee was precluded from arguing that he had not surrendered all material outside the literal scope of the amended claim.

The Federal Circuit’s decision in *Festo VII* was appealed to the Supreme Court, which granted *certiorari* and reversed the complete bar (“*Festo VIII*”).²⁸ The Supreme Court agreed that amendments which narrowed the scope of a patent claim, whether voluntary or made in response to a rejection by a patent examiner, were presumably made for a reason related to patentability and triggered prosecution history estoppel.²⁹ However, the Court held that rather than creating a complete bar, prosecution history estoppel should lead to a rebuttable presumption of surrender of a given equivalent.³⁰ The Court then presented three tests for determining if a patentee rebutted this presumption. First, if an equivalent was unforeseeable, the patentee did not surrender it. Second, if the accused equivalent bore only a tangential relationship to the amendment the patentee should not be estopped from arguing equivalence. Finally, if the patentee could not reasonably have been expected to describe the accused equivalent at the time of amendment then he did not surrender it.³¹ While the Supreme Court’s ruling reversed the complete bar imposed by the Federal Circuit in *Festo VII*, it gave no clear guidance about how to apply these tests. The Federal Circuit addressed this issue in its latest *Festo* decision.

III. *FESTO X*

After restoring a flexible estoppel analysis, the Supreme Court remanded the case to the Federal Circuit to determine what territory *Festo*

26. *Id.* at 564.

27. *Id.* at 574.

28. *Festo VIII*, 535 U.S. 722 (2002); *see also* Fu, *supra* note 13 (presenting a detailed analysis of the Supreme Court’s decision).

29. *Festo VIII*, 535 U.S. at 736-38.

30. *Id.* at 741 (noting that “the patentee still might rebut the presumption that estoppel bars a claim of equivalence. The patentee must show that at the time of the amendment one skilled in the art could not reasonably be expected to have drafted a claim that would have literally encompassed the alleged equivalent”).

31. *Id.* at 740-41.

had surrendered during prosecution of the Stoll and Carroll patents.³² The Federal Circuit asked the parties to brief several questions arising out of the Supreme Court's decision in *Festo VIII*, including whether rebuttal of the presumption of prosecution history estoppel should be a question of law or fact, what sorts of evidence should be considered in the inquiry, and whether *Festo* had rebutted the presumption.³³ In its *Festo X* opinion, the Federal Circuit held that rebuttal of the presumption of prosecution history estoppel is a question of law for the court to resolve,³⁴ and that when making this determination the court should largely, though not exclusively, rely on intrinsic evidence, particularly the prosecution history of the patent.³⁵

The Federal Circuit began its opinion by reaffirming that any amendment which narrows a claim's literal scope is presumptively made for a "substantial reason related to patentability" and gives rise to prosecution history estoppel.³⁶ The court held that the accused infringer bears the burden of showing that a patentee's amendment narrowed a claim's scope.³⁷ If the accused infringer succeeds, the court shifts the burden of proof to the patentee to show that the amendment was not made for a reason substantially related to patentability.³⁸ A patentee may rely only on evidence present in the prosecution history to make such a showing.³⁹ Should the patentee fail to show that an amendment was made for a reason unrelated to patentability, prosecution history estoppel applies, and the court must determine the amount of material surrendered.⁴⁰ Initially, the patentee is presumed to have surrendered all territory outside the literal scope of the amended claim;⁴¹ however, the patentee may prove, by satisfying one of the three tests from *Festo VIII*, that the amendment did not surrender the

32. *Id.* at 741.

33. *Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co.*, 304 F.3d 1289, 1290-91 (Fed. Cir. 2002) [hereinafter *Festo IX*].

34. *Festo X*, 344 F.3d 1359, 1367-68 (Fed. Cir. 2003).

35. *Id.* at 1369-70.

36. *Id.* at 1366.

37. *Id.*

38. *Id.* at 1366-67. Under *Warner-Jenkinson*, any amendment is presumed to have been made for some reason substantially related to patentability. *Warner-Jenkinson Co. v. Hilton Davis Chem. Co.*, 520 U.S. 17, 33 (1997).

39. *Festo X*, 344 F.3d at 1367. The court noted that restricting the inquiry to the information contained in the prosecution history helps to fulfill the public notice function of the patent and ensure that others will know the scope of a given patent. *Id.*

40. *Id.*

41. *Id.*

equivalent in question.⁴² As noted above, the *Festo X* court held that issues related to these three tests are questions of law for the court to decide.⁴³

The court then discussed how to apply the three rebuttal tests. According to the court, the critical question in the foreseeability inquiry is whether the accused equivalent would have been unforeseeable to a person having ordinary skill in the art at the time the amendment was made.⁴⁴ This test looks at objective unforeseeability and inherently requires resolution of underlying factual issues.⁴⁵ To evaluate these issues, the court suggested that judges not only look at the prosecution history of the patent, but also hear expert testimony and consider other extrinsic evidence related to the field.⁴⁶ However, the court stated that technology known in the prior art is usually foreseeable, while after-arising technology, or technology unknown in the art, is very likely, though not necessarily, unforeseeable.⁴⁷

The court held that when considering tangentialness, the inquiry should focus on the relationship between the language in the amended claim and the accused equivalent.⁴⁸ Again, the judge is charged with determining the objective meaning of the amendment, and whether the amendment has some bearing on the equivalent in question.⁴⁹ Specifically, to help preserve the public notice function of patents, the Federal Circuit cautioned judges to focus their attention on the prosecution history and avoid consulting extrinsic evidence, except for clarification about the

42. *Id.*

43. *Id.* at 1367-68, 1369 n.3 (noting that prosecution history estoppel is an equitable remedy imposed by the court and that the rebuttal of the presumption of estoppel should also be evaluated by the court). Interestingly, the court cited *Markman I* as support for the assertion that a judge may properly resolve underlying issues of fact which relate to a question of law. *Markman I*, 52 F.3d 967, 980-81 (Fed. Cir. 1995) (determining the proper legal standard for claim construction). However, as will be discussed in greater detail in Part IV, the court in *Markman I* took great care to clarify that the factual issues involved in claim construction only relate to educating the judge about the underlying technology, and do not affect the meaning of claims. *Id.* at 981. Therefore, the judge is not resolving factual issues but is instead gathering factual information to come to an educated conclusion about the meaning of claim terms. In contrast, when determining if a patentee has rebutted the presumption of prosecution history estoppel, the court will likely have to hear testimony and weigh the credibility of experts, a fundamentally different analysis. *See infra* Part IV.

44. *Festo X*, 344 F.3d at 1369.

45. *Id.*

46. *Id.*

47. *Id.*

48. *Id.*

49. *Id.*

technology in question.⁵⁰ The court noted that any amendment made to avoid specific prior art is inherently non-tangential if the accused equivalent embodies that prior art.⁵¹ However, the court gave no guidance about what kinds of amendments *would* be considered only tangentially related to an accused equivalent.

While acknowledging that the reasonable description test is intended to allow a patentee to present reasons, other than foreseeability and tangentialness, why he was unable to claim an accused equivalent at the time of claim amendment,⁵² the Federal Circuit expressed concern that it might become an over-expansive exception to prosecution history estoppel, and advocated limited application of the test.⁵³ Echoing the concerns of the Supreme Court about the vagueness of language as a means to describe technological innovation,⁵⁴ the Federal Circuit suggested that shortcomings in language might be a reason to invoke the reasonable description test.⁵⁵ The court gave little guidance about appropriate evidence for the judge to consider, noting that “[w]e need not decide now what evidence outside the prosecution history record, if any, should be considered in determining if a patentee has met its burden under this third rebuttal criterion.”⁵⁶ However, the court did note that if an amendment was made to avoid specific prior art, and the accused equivalent embodied that art, the patentee cannot rely on the reasonable description test to avoid prosecution history estoppel.⁵⁷

After discussing these three tests, the court applied them to the patents in suit. The court first determined that there was insufficient evidence in the record to decide if the accused equivalents (a non-magnetizable aluminum sleeve and a single sealing ring) were unforeseeable when the “magnetizable sleeve” and “dual sealing ring” limitations were added to the Stoll and Carroll patents.⁵⁸ The court therefore remanded these issues to the district court for resolution.⁵⁹

As to the two remaining tests, “tangentialness” and “reasonable description,” the court found sufficient evidence in the record to determine that Festo failed both tests for both patents. Festo argued that the “mag-

50. *Id.* at 1369-70.

51. *Id.*

52. *Id.* at 1370.

53. *Id.*

54. *Festo VIII*, 535 U.S. 722, 731-32 (2002).

55. *Festo X*, 344 F.3d at 1370.

56. *Id.*

57. *Id.*

58. *Id.* at 1371-74.

59. *Id.* at 1373-74.

netizable sleeve” amendment was not required to avoid rejection by the patent examiner and therefore was inherently tangential to the claim.⁶⁰ However, according to the court, this was the wrong inquiry. The issue was not whether the amendment was tangential to the reason for amending the claim, but rather, whether the amendment was only tangentially related to the accused equivalent, the non-magnetizable aluminum sleeve.⁶¹ Since the amendment was clearly relevant to the accused equivalent, the court held that Festo failed to rebut the presumption of prosecution history estoppel under the tangentialness test.⁶² Similarly, the court held that the “sealing ring” amendment was made to avoid prior art references discussing sealing rings and was therefore directly related to the accused equivalent.⁶³

For both patents, Festo argued that the accused product embodied inferior design elements that the patentees could not reasonably be expected to have described in their claims.⁶⁴ The court responded that the reasonable description test focuses on the ability of the patentee to describe an accused equivalent, not its merit.⁶⁵ The knowledge that the accused design elements were inferior suggests that, rather than being unable to describe them, the patentees specifically chose to exclude them from the scope of the patents.⁶⁶ Therefore, Festo failed to demonstrate that it would be unreasonable to expect the inventors to have described these elements when amending the Stoll and Carroll patents.

Judge Rader, joined in part by Judge Newman, filed a concurring opinion, which agreed with the majority’s holding, but discussed some issues not addressed in that opinion. Judge Rader noted that while rebuttal of the presumption of prosecution history estoppel “presents some exceptions to an exception to an exception to the standard rule of infringement,” it will likely be an important issue due to the common practice of claim amendment.⁶⁷ He expressed concern about how frequently patent law has been changing recently and how such changes may undermine the Federal Circuit’s mandate to bring predictability and uniformity to the patent system.⁶⁸ However, the bulk of his concurrence focused on the question of

60. *Id.* at 1371.

61. *Id.* at 1371-72.

62. *Id.* at 1371.

63. *Id.* at 1373.

64. *Id.* at 1372-73.

65. *Id.*

66. *Id.*

67. *Id.* at 1374 (Rader, J., concurring).

68. *Id.* at 1375-76 (Rader, J., concurring).

foreseeability and its central role in controlling the doctrine of equivalents.⁶⁹ According to Judge Rader, by focusing on whether an equivalent was foreseeable, courts can give force both to the reasonable expectations of the patentee, and the patent's public notice function.⁷⁰ Judge Rader further suggested that foreseeability should serve as a limiting factor on *all* applications of the doctrine of equivalents, not simply to claim elements that were amended during prosecution.⁷¹

In addition to joining Judge Rader's concurrence, Judge Newman filed a dissenting opinion, joined by Judge Mayer. Although she agreed with some of the holdings of the majority, she found flaws with its analysis of the claims at issue. Judge Newman agreed that rebuttal of the presumption of prosecution history estoppel is properly a question of law to be evaluated by the court.⁷² However, she argued that the majority disposed of the issues of tangential relationship and reasonable description too quickly. She pointed to substantial evidence in the record indicating that Festo might have been able to rebut the presumption of estoppel if given the chance to present additional evidence. Judge Newman believed that Festo should have been given this opportunity before the Federal Circuit ruled on the issues.⁷³ She also expressed concern that all three tests, unforeseeability, tangentialness, and reasonable description, would require resolution of substantial factual issues outside the prosecution history, and questioned the majority's focus on the prosecution history as a primary source of information.⁷⁴ Her dissent concluded by noting that the combination of a liberal application of estoppel coupled with a rigorous rebuttal standard would likely act as a complete bar to application of the doctrine of equivalents.⁷⁵

69. *Id.* at 1377 (Rader, J., concurring).

70. *Id.* (Rader, J., concurring). This echoes Judge Rader's views in previous rulings involving the doctrine of equivalents. *See, e.g.,* Johnson & Johnston Assoc. v. R.E. Serv. Co., 285 F.3d 1046 (Fed. Cir. 2002) (Rader, J., concurring); Sage Prods. Inc. v. Devon Indus., 126 F.3d 1420 (Fed. Cir. 1997) (Rader, J.).

71. *Festo X*, 344 F.3d at 1377 (Rader, J., concurring); *see also* Fu, *supra* note 13, at 133-34 (arguing that *Graver Tank* should be overturned and that foreseeability should be used to limit all assertions of the doctrine of equivalents).

72. *Festo X*, 344 F.3d at 1378-79 (Newman, J., dissenting).

73. *Id.* at 1379-83 (Newman, J., dissenting).

74. *Id.* at 1384-85 (Newman, J., dissenting).

75. *Id.* (Newman, J., dissenting).

IV. IMPLICATIONS OF *FESTO X*

A. Benefits and Pitfalls of Rebuttal as a Question of Law

While juries play an enormously important role in resolving legal disputes, the rebuttal of the presumption of prosecution history estoppel is an issue better suited for resolution by a judge. As Judge Rader noted in his dissenting opinion in *Cybor Corp. v. FAS Technologies, Inc.*:

Trial judges can spend hundreds of hours reading and rereading all kinds of source material, receiving tutorials on technology from leading scientists, formally questioning technical experts and testing their understanding against that of various experts, examining on site the operation of the principles of the claimed invention, and deliberating over the meaning of the claim language. If district courts are not satisfied with the proofs proffered by the parties, they are not bound to a prepared record, but may compel additional presentations or even employ their own court-appointed expert.⁷⁶

These advantages are denied to juries.

The rebuttal of the presumption of prosecution history estoppel is likely to be a complex question requiring mastery of intricate technology. Juries play a passive part in trials in that they are allowed to hear and evaluate testimony, but not to interrogate witnesses or seek clarification of complex points. In contrast, judges can take an active role in informing themselves about the relevant legal or technological issues. Therefore, the Federal Circuit's choice that judges should resolve the issues involved in the rebuttal of prosecution history estoppel is appropriate.

This choice by the Federal Circuit is not unprecedented: the court made a similar decision in *Markman I* when defining the role of judge and jury during claim construction.⁷⁷ In *Markman I* the Federal Circuit emphasized that judges, when construing claims, should focus their inquiry on the intrinsic record, and consult extrinsic evidence only as a means to educate themselves about the technology involved.⁷⁸ By focusing on the pat-

76. 138 F.3d 1448, 1477 (Fed. Cir. 1998) (Rader, J., dissenting) (arguing that district courts have a much greater ability to investigate claim meaning at trial than does the Federal Circuit during appeal, and therefore should be shown greater deference). Although Judge Rader was discussing the district court's role during claim construction, his observation is equally applicable to the rebuttal inquiry.

77. *Markman I*, 52 F.3d 967, 971 (Fed. Cir. 1995).

78. *Id.* at 981. The court stated that:

Through this process of construing claims by, among other things, using certain extrinsic evidence that the court finds helpful and rejecting

ent and the prosecution history, the “undisputed public record,”⁷⁹ judges perform their traditional role of determining the objective meaning of a written document.⁸⁰ Since extrinsic evidence is only used to educate the judge, and is not a significant part of claim interpretation, there is no need to involve a jury.⁸¹

The Supreme Court affirmed the way the Federal Circuit allocated power between the judge and jury, and its evaluation of the separate roles of extrinsic and intrinsic evidence.⁸² Although the Court noted that experts might legitimately dispute the meaning of claim terms, it agreed that judges are best suited to perform claim analysis and resolve such disputes.⁸³ Based on this determination, the Court justified taking the resolution of claim construction away from the jury.⁸⁴

The analogy between claim construction and rebuttal of the presumption of prosecution history estoppel, however, has limits. In both the Federal Circuit and Supreme Court *Markman* opinions, the courts focused on the intrinsic record as the source for information to resolve claim meaning.⁸⁵ In contrast, in *Festo X*, the Federal Circuit contemplates consulting extrinsic evidence as a routine part of the rebuttal inquiry, particularly in regard to the foreseeability test.⁸⁶ In the rebuttal analysis, judges do not

other evidence as unhelpful, and resolving disputes en route to pronouncing the meaning of claim language as a matter of law based on the patent documents themselves, the court is not crediting certain evidence over other evidence or making factual evidentiary findings.

Id.; see also *Cybor Corp. v. FAS Tech., Inc.*, 138 F.3d 1448, 1454 (Fed. Cir. 1998).

79. *Markman I*, 52 F.3d at 978-79.

80. *Id.* at 978.

81. *Id.* at 981.

82. *Markman II*, 517 U.S. 370, 389-90 (1996).

83. *Id.* at 388-89.

84. For discussion of the Seventh Amendment implications of *Markman*, see Margaret L. Moses, *What the Jury Must Hear: The Supreme Court's Evolving Seventh Amendment Jurisprudence*, 68 GEO. WASH. L. REV. 183 (2000), and Greg J. Michelson, *Did the Markman Court Ignore Fact, Substance, and the Spirit of the Constitution in its Rush Toward Uniformity?*, 30 LOY. L.A. L. REV. 1749 (1997).

85. See *Markman II*, 517 U.S. at 380-85 (taking a historical perspective and noting that construction of the meaning of patent claims has always been the duty of judges); *Markman I*, 52 F.3d at 981.

86. *Festo X*, 344 F.3d 1359, 1369 (Fed. Cir. 2003). The court in *Festo X* held that: [O]bjective unforeseeability depends on underlying factual issues relating to, for example, the state of the art and the understanding of a hypothetical person of ordinary skill in the art at the time of the amendment. Therefore, in determining whether an alleged equivalent would have been unforeseeable, a district court may hear expert testimony and consider other extrinsic evidence relating to the relevant factual inquiries.

simply interpret written documents; they decide what the state of the art was at the time of claim amendment, and what a patentee should have been able to claim at that time. This requires resolution of factual issues never contemplated in the *Markman* inquiry. Nevertheless, in *Festo X*, the Federal Circuit relied on *Markman I* as support for the assertion that the court may properly resolve factual issues underlying a legal question by consulting extrinsic evidence.⁸⁷ This reliance extends the scope of the reasoning in *Markman I*, and may indicate a shift in the court's view of the roles of intrinsic and extrinsic evidence.

B. Uncertainty and the New Rebuttal Standard

The *Festo X* court's treatment of rebuttal of the presumption of prosecution history estoppel as a question of law probably stems, at least partly, from the standard of review such a decision will receive at the appellate level. On appeal, the Federal Circuit, or any appellate court, typically analyzes a question of law under a *de novo* standard, giving the decision of the trial court little or no deference.⁸⁸ While this standard of review grants the Federal Circuit tremendous control over doctrinal development, it can lead to significant uncertainty about the finality of judgments at trial. Recent studies indicate that, on appeal, the Federal Circuit reverses approximately one third of claim construction decisions.⁸⁹ The uncertainty this reversal rate brings to infringement actions is only exacerbated by the Federal Circuit's reluctance to grant interlocutory appeals.⁹⁰ A similar uncertainty problem looms on the horizon in the *Festo* inquiry. We might ultimately see reversal rates in the *Festo* analysis comparable to those for claim construction. To avoid this problem, the Federal Circuit should provide clear guidance on how district courts should perform the rebuttal analysis. Furthermore, the Federal Circuit should give significant deference to factual decisions made by the district court during the rebuttal inquiry, thus promoting predictability and allowing the district court to take

Id.

87. *Id.* at 1368, 1369 n.3.

88. See e.g., *Cybor Corp. v. FAS Tech., Inc.*, 138 F.3d 1448, 1455 (Fed. Cir. 1998) (holding that the court should use a *de novo* standard when reviewing claim interpretations from the district court).

89. Arti K. Rai, *Engaging Facts and Policy: A Multi-Institutional Approach to Patent System Reform*, 103 COLUM. L. REV. 1035, 1058 (2003).

90. Andrew T. Zidel, Comment, *Patent Claim Construction in the Trial Courts: A Study Showing the Need for Clear Guidance From the Federal Circuit*, 33 SETON HALL L. REV. 711, 729 (2003).

full advantage of its unique ability to evaluate the relevant technology.⁹¹ Finally, although it is likely impractical due to limitations on judicial resources, a more lenient policy towards interlocutory appeals could help reduce the costs and length of litigation. If the policy towards interlocutory appeals on claim construction also applies to the rebuttal inquiry, parties will have to litigate an infringement action to a final judgment before they are able to appeal it to the Federal Circuit and determine if the district court's decision about rebuttal is valid. An early resolution of this issue could save all parties involved a significant amount of time and money.

C. Implications of the Foreseeability Standard

Even before the Supreme Court articulated the three tests for the rebuttal of prosecution history estoppel in *Festo VIII*, Conigliaro, Greenberg, and Lemley had suggested the application of foreseeability as a means to rein in the doctrine of equivalents.⁹² They argued that neither the complete bar nor the flexible bar offered the proper incentive to patent holders and that instead a bar based on foreseeability would be most appropriate.⁹³ While the goal of their foreseeability test was to create an adaptable bar to assertions of equivalence,⁹⁴ as discussed below, the formulation of the foreseeability test adopted by the Federal Circuit may make it almost impossible for litigants to rebut the presumption of estoppel.

1. *Foreseeability and the Person Having Ordinary Skill in The Art*

When describing the application of the foreseeability test, the Federal Circuit observed that “[t]his criterion presents an objective inquiry, asking whether the alleged equivalent would have been unforeseeable to *one of ordinary skill in the art at the time of the amendment*.”⁹⁵ Presumably, the court is referring to the fictitious individual responsible for analyzing the obviousness of a patent, the person having ordinary skill in the art, or PHOSITA.⁹⁶ There is no strict definition of who the PHOSITA is; the determination typically requires a technology and invention specific analy-

91. Judge Rader suggests this sort of deference in his concurring opinion in *Festo X*, 344 F.3d 1359, 1377 (Fed. Cir. 2003).

92. See Matthew J. Conigliaro et al., *Foreseeability in Patent Law*, 16 BERKELEY TECH. L.J. 1045 (2001).

93. *Id.* at 1060-64.

94. *Id.* at 1069.

95. *Festo X*, 344 F.3d 1359, 1369 (Fed. Cir. 2003) (emphasis added).

96. 35 U.S.C. § 103(a) (2000).

sis.⁹⁷ However, during the obviousness analysis, one thing remains constant for all PHOSITAs—they have knowledge of, and access to, all prior art in the field of the invention, although defining the scope of that field is frequently difficult.⁹⁸ During the obviousness analysis, the court, or the PTO, in the guise of the PHOSITA, consults the prior art for the claimed elements, and the motivation to combine them to achieve the patented invention.⁹⁹ If, at the time of *invention*, all claimed elements existed in the prior art, and there was a reason to combine them, then the invention is typically viewed as obvious and the patent is either denied or rendered invalid.¹⁰⁰

While the Federal Circuit invoked the person having ordinary skill in the art as the standard for evaluating foreseeability, there are two principal differences between the foreseeability analysis and the obviousness bar to patentability. The first is timing. As mentioned above, the obviousness inquiry takes place at the time of invention. Therefore, the PHOSITA has access only to technology available while the patentee was developing the invention. This helps to ensure that the patentee is not denied a patent due to hindsight bias.¹⁰¹ In contrast, the foreseeability analysis takes place at the time of claim amendment.¹⁰² Therefore, the PHOSITA may consult all of the art in the relevant field, including art developed between the creation of the invention and the time of the amendment, which could, potentially, be years apart.

The second difference between the foreseeability and obviousness inquiries is the type of prior art available. During the obviousness analysis, the PHOSITA can consult any relevant references *except* the patent at issue.¹⁰³ Therefore, the PHOSITA cannot use the patent as a guide for assembling pieces of prior art to re-create the invention.¹⁰⁴ In contrast, during the foreseeability analysis, the PHOSITA may be encouraged to use

97. Joseph P. Meara, Note, *Just Who is the Person Having Ordinary Skill in the Art? Patent Law's Mysterious Personage*, 77 WASH. L. REV. 267, 276-77 (2002).

98. *Id.* at 276.

99. *Id.* at 275; see also Joshua McGuire, Note, *Nonobviousness: Limitations on Evidentiary Support*, 18 BERKELEY TECH. L.J. 175, 175 (2003).

100. See McGuire, *supra* note 99, at 178-182 (discussing the different standards used by the Federal Circuit to determine when references should properly be combined).

101. *Id.* at 276-77.

102. *Festo X*, 344 F.3d 1359, 1369 (Fed. Cir. 2003). The Federal Circuit was careful to clearly articulate this standard since there had previously been some confusion about the timing of this analysis. See *id.* at 1365 n.2.

103. Meara, *supra* note 97, at 277.

104. *Id.*

the patent as a blue-print to assemble diverse pieces of technology to create the complete invention.

Unlike the obviousness analysis, which is concerned with whether the invention is trivial based on the prior art, the foreseeability test looks at whether the patentee could have claimed other embodiments of her invention. The Federal Circuit's articulation of the foreseeability test focuses on whether the PHOSITA could foresee that an accused equivalent could function as a substitute for an element of the invention at the time of amendment.¹⁰⁵ This means that the PHOSITA understands the invention embodied in the patent, and can accurately identify substitute technologies. Therefore the PHOSITA in the rebuttal analysis may essentially have a higher level of skill than the PHOSITA during the obviousness analysis. This could expand the scope of relevant prior art since, a PHOSITA could use his or her understanding to consult tangentially related art for substitutes, and use those substitutes to create new embodiments of the invention. A patentee could not simply argue that because a substitute was outside the field of the invention it was unforeseeable. By employing the PHOSITA, the Federal Circuit severely limits the use of unforeseeability to rebut the presumption of prosecution history estoppel because the PHOSITA can foresee such a broad array of embodiments of an invention. However, because the PHOSITA is not omniscient, there still must be some showing that an accused equivalent was known in a relevant field before the foreseeability test fails.¹⁰⁶ With this expansive definition, the Federal Circuit seems to intend to use the foreseeability test as a means to ensure that patentees fulfill their obligation to provide notice about the full scope of their patent claims.

a) After-arising Technologies and Foreseeability

The abilities of the PHOSITA bring up an interesting question: does foreseeability necessarily end at the moment of claim amendment? Many technologies predict the next step of their own development. The micro-processor industry has followed Moore's law for more than thirty years,¹⁰⁷ assuming that there will always be a new processor that is both faster and cheaper. Similarly, sharing of text and graphics files over the Internet ar-

105. *Festo X*, 344 F.3d at 1369.

106. *Id.* (arguing that old technology is often, though not always, foreseeable to the PHOSITA).

107. See *Moore's Law*, Intel Corp., at <http://www.intel.com/research/silicon/mooreslaw.htm> (last visited Mar. 5, 2004) (discussing Moore's law, which predicts that the number of transistors on a silicon chip will roughly double every 18-24 months, thus increasing microprocessor speed on a regular basis).

guably presaged the sharing of music and movies as internet bandwidth increased and data compression improved. Furthermore, engineers can often reliably predict and incorporate “over the horizon” technology which does not yet exist but is likely to by the time a project is complete. All of these are examples of technologies arguably foreseeable to someone having ordinary skill in the art. The question then becomes, does the fact that an innovation can be imagined also make it legally foreseeable at the time of claim amendment? Phrased in a slightly different way, should the PHOSITA in the foreseeability analysis be able to combine prior art references with predictable improvements in technology to render an accused equivalent foreseeable? I think the answer should be yes, although it may lead to some strange results.

If a new technological innovation is foreseeable to the PHOSITA, who is by definition a skilled technician, and would function in a patentee’s invention, the patentee should be forced to claim it, or lose the ability to argue that the innovation is within the scope of their patent. This requirement would give force to the Federal Circuit’s goal of requiring a patentee to put the public on notice about the full scope of his or her patent. However, it might have the perverse effect that a patentee could argue that a truly novel innovation, one unforeseeable to the PHOSITA, is an equivalent while being precluded from arguing the equivalence of a simple, inconsequentially different, substitute. This turns the application of the doctrine of equivalents on its head, allowing a patentee to employ the doctrine to cover major changes, but not giving protection for minor variations.¹⁰⁸ There may also be difficulties with enablement of after-arising technologies. If this does become an issue, the patentee can argue that it was impossible to describe the equivalent at the time of claim amendment, even though it was foreseeable. This test would ensure that patents give notice although, as a practical matter, it may be difficult to enforce, and would require judges to make extensive factual evaluations about not only where the state of the art was, but also where it was going, at the time of claim amendment. If the foreseeability test is given this wide application it may become no more predictable than the pre-*Festo* flexible bar. However, in contrast to the old flexible bar, this expansive test will weigh heavily against the patentee.

108. *Winans v. Denmead*, 56 U.S. 330, 343 (1854) (noting that patentees claimed inconsequential substitutes when claiming a particular invention); *see also Graver Tank & Mfg. Co. v. Linde Air Prods. Co.*, 339 U.S. 605, 608 (1950) (holding that something which performs substantially the same function in substantially the same way to achieve the same result is an equivalent).

2. *An Alternative to the PHOSITA*

In his concurring opinion, Judge Rader suggests an attractive alternative to the PHOSITA, the “skilled patent drafter,” as the yardstick for measuring foreseeability.¹⁰⁹ Under this formulation of the foreseeability test, the doctrine of equivalents would only be available against after-arising technology because the skilled patent drafter is capable of finding, understanding, and incorporating all prior art into a claim, perhaps even more capable than the PHOSITA.¹¹⁰ However, Judge Rader acknowledged that the skilled patent drafter is not an inventor; she can describe permutations of the prior art at the time of claim amendment, but cannot anticipate future developments.¹¹¹ Therefore, the skilled patent drafter would only need to include matter present in the prior art at the time of claim amendment, and would not need to include any “foreseeable” after-arising technologies. This would lead to a simple, though arguably arbitrary, bright-line rule for evaluating foreseeability based strictly on the dates of claim amendments without the need to evaluate the state of the art.

3. *Return of a Complete Bar?*

Whether using the PHOSITA, or a skilled patent drafter, as the standard, patentees will likely find it difficult to satisfy the foreseeability test when attempting to rebut the presumption of prosecution history estoppel, as Judge Newman noted in her dissenting opinion.¹¹² Judge Newman expressed concern that the majority impermissibly expanded the scope of surrender of equivalents, and advocated a more subjective analysis of the surrendered material. She suggested a focus on the differences between what the patentee originally claimed and what was covered by the amended claim, essentially the material truly surrendered by the patentee.¹¹³ Under this view, claim amendment should only surrender equivalents present in the original claim, but placed outside the amended claim. This test would sacrifice predictability in favor of strengthening the patent grant, and would certainly effectuate the Supreme Court’s mandate not to

109. *Festo X*, 344 F.3d at 1377 (Rader, J., concurring).

110. Judge Rader retreats from the assertion that *all* accessible prior art could have been incorporated into the claims by the skilled patent drafter and suggests that the scope of the prior art is a factual inquiry for the court. *Id.* (Rader, J., concurring).

111. *Id.* (Rader, J., concurring) (observing that “any after-arising technology or later developments or advances would not fall within the scope of what a drafter should have foreseen and claimed. After all, a skilled patent drafter is a legal technician, not an inventor”).

112. *Id.* at 1385 (Newman, J., dissenting).

113. *Id.* at 1378 (Newman, J., dissenting).

create a complete bar by another name.¹¹⁴ However, it would frustrate the Federal Circuit's goal of giving notice about the scope of claims.

4. *Making Foreseeability a Practical Test*

Of the three foreseeability standards discussed in *Festo X*, Judge Rader's is the most practical. It requires the patentee to claim all technologies that would serve in their patent at the time of amendment, but leaves open the possibility of claiming after-arising technologies under the doctrine of equivalents. This does, in effect, create a modified complete bar since the patentee is precluded from claiming any technology that was known at the time of claim amendment. However, this is not a particularly onerous burden because the patentee is in the best position to determine what technology will function in her patent, and to claim every embodiment she wishes to protect. Furthermore, this test creates a clear, bright-line rule for courts to apply when determining if an equivalent was or was not foreseeable, thus effectuating the notice function of a patent. The arbitrary nature of the test is offset by the certainty it creates. It will also help reduce the likelihood that decisions about the rebuttal of prosecution history estoppel will be overturned on appeal since courts will seldom need to make a factual determination about the scope of foreseeable technology.

As Judge Rader noted in his concurring opinion in *Festo X*, the recent changes in the application of the doctrine of equivalents and prosecution history estoppel have unsettled the expectations of patent holders about the scope of patent coverage.¹¹⁵ The foreseeability tests proposed by the majority and Judge Rader do not provide the same scope of protection as the old flexible bar of *Hughes Aircraft*. Most patentees are burdened with a prosecution record created at a time when foreseeability was not a consideration. This will preclude many patentees from arguing that an accused equivalent was unforeseeable under either the majority's test or Judge Rader's. They may be best served by attempting to rebut the presumption of prosecution history estoppel under the tangential relationship or reasonable description tests. Judge Rader's test is attractive not because it treats current patent holders most equitably, but because it restores a level of predictability absent from the application of prosecution history estoppel since the *Festo* line began. Although this may prejudice many patent holders, the long term benefits of predictability arguably outweigh the short term costs.

114. *Festo VIII*, 535 U.S. 722, 741 (2002).

115. *Festo X*, 344 F.3d at 1374 (Fed. Cir. 2003) (Rader, J., concurring).

D. Effects of *Festo X* on Litigation Procedure and Patent Prosecution

The Federal Circuit's decision in *Festo X* may have a significant impact on procedural, as well as doctrinal, aspects of patent litigation. In the wake of *Markman*, courts began to hold claim construction hearings as a distinct step in patent infringement suits. However, no uniform standard has been adopted to guide the procedure for those hearings.¹¹⁶ Only the Northern District of California has specific rules concerning patent claim construction.¹¹⁷ In the wake of *Festo X*, this *ad hoc* system must change. Rebuttal of the presumption of prosecution history estoppel has a critical impact on what kind of infringement actions parties will have to argue. Similarly, this has a significant impact on the scope of discovery, summary judgment motions, and trial strategy, as well as settlement negotiations. Therefore, courts should resolve rebuttal of the presumption of prosecution history estoppel as early as possible. Since resolving the meaning of claim terms is a critical first step in determining the scope of material a patentee has surrendered, the *Festo* inquiry should take place after claim construction. Because of its mandate to bring uniformity to patent law the Federal Circuit should promulgate a set of uniform rules for how and when both *Markman* and *Festo* hearings should take place.

In addition to its effect on patent litigation, *Festo X* will likely have a significant impact on patent prosecution. The *Festo* cases underscore the impact claim amendment can have on the value of patents, particularly if the Federal Circuit continues to apply a strong bar to the rebuttal of the presumption of prosecution history estoppel. Therefore, patent prosecutors will be more likely to dispute rejections, likely leading to more litigation, and increasing the cost and time required to receive a patent.

Application of the foreseeability test as suggested by Judge Rader might help to reduce this conflict since a patent drafter could avoid some of these problems by performing a rigorous prior art search. At the same time, this could avoid invalidity challenges in the future by improving the record used by the PTO examiner to evaluate a patent. If most or all of the available prior art is already part of the record then it is less likely that a patent would be rendered invalid by unknown prior art in the future. Thus, not only would Judge Rader's test help protect the scope of a patent, it could help ensure the validity of granted patents, although arguably at greater initial cost to the patentee since they would have to finance a more extensive prior art search.

116. Zidel, *supra* note 90, at 728.

117. *Id.* at 730.

V. CONCLUSION

In *Festo X* the Federal Circuit outlined how district courts should apply the three tests for rebuttal of the presumption of prosecution history estoppel the Supreme Court created in *Festo VIII*. The court properly held that rebuttal of the presumption of prosecution history estoppel should be treated as a question of law. However, the use of the person having ordinary skill in the art as the benchmark for determining if an equivalent was foreseeable will bar assertion of equivalence against many old technologies and possibly some future ones. A more practical foreseeability test is the one suggested by Judge Rader in his concurring opinion which uses the skilled patent drafter as a guide. This test essentially bars all assertions of equivalence against technologies known at the time of claim amendment but allows a patentee access to the doctrine of equivalents for any after-arising technologies. This test is easily applied and fulfills the notice function of patents, although it creates an arbitrary bright-line rule.

Beyond its impact on patent litigation, *Festo X* is likely to have a chilling effect on patent prosecution. Prosecutors will be unwilling to accept claim amendments because they will have a substantial limiting effect on the scope of patent claims. Rather, rejections by the PTO will be litigated, raising the price in both time and money for gaining a patent.

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