

INTERMEDIATE DRAFT

The Unfinished Tasks of Festo: What More Needs to Be Done to Balance the Doctrine of Equivalents and Prosecution History Estoppel

In a decision eagerly awaited by the entire patent community, the Supreme Court recently vacated the Federal Circuit's *en banc* decision adopting a "complete bar" against application of the doctrine of equivalents to amended claims.¹ The Court held that the doctrine of equivalents is still available to narrowed claims, albeit at a more limited scope.² Because the vast majority of patents currently in force have amended claims, the Federal Circuit's "complete bar" approach³ would have significantly reduced the scope of protection to inventors and dramatically changed the way new patent applications are prosecuted.⁴ To most inventors and patent attorneys, the Supreme Court decision brings a welcome return of the doctrine of equivalents and the expectations unsettled by the Federal Circuit.⁵

This decision represents a continued effort by the Court to balance the two conflicting purposes of our patent system: protecting the rights of patent owners and providing notice to the public as to the boundaries of the patent rights. This Note

¹ Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co, 122 S. Ct. 1831, 1842 (2002), hereinafter Festo.

² *Id.*

³ Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co., 234 F.3d 558, 618 (Fed. Cir. 2000), hereinafter Festo III.

⁴ See, e.g., Steven H. VerSteeg, Parallel Applications to Preserve the Doctrine of Equivalents in a Post Festo World, 84 J. Pat. & Trademark Off. Soc'y, 341 (2002); Glen P. Belvis, An Analysis of the En Banc Decision in Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co. and the Doctrine of Equivalents, 11 Fed. Circuit B.J. 59, 99-110 (2002).

⁵ See, e.g., Richard A. Kaplan, Festo Brings the Return of the Doctrine of Equivalents, 25 Chicago Lawyer 71 (2002); Steve Anderson, Festo, Finally: Doctrine of Equivalents Withstands Test, with Concessions, 12 Corp. Legal Times 62, col. 1 (2002); *But see*, R. Polk Wagner, Reconsidering Estoppel: Patent Administration and the Failure of Festo, 151 U. Pa. L. Rev. -- (2002).

examines the significance of the decision in the development of the doctrine of equivalents and prosecution history estoppel and argues that the Court's adoption of a foreseeability test is contradictory to the Court's view on the doctrine of equivalents stated in *Graver Tank*.⁶ This Note also examines the ambiguity of the foreseeability, tangentiality and reasonableness tests proposed by the Court and suggests that the Federal Circuit's correct application of the tests are critical in carrying out the Court's balancing effort. In addition, the Note analyzes the potential impact of the decision on patent prosecution and litigation.

II. HISTORIC DEVELOPMENT

The purpose of the patent law is to "promote the Progress of Science and useful Arts."⁷ The patent system serves two major functions: providing incentives to innovators and notice to the public.⁸ The first function is to encourage innovation by giving the patentee a market monopoly to make profit out of the invention; and the second function is to benefit the public by allowing the public to make further improvements on the invention without the risk of patent infringement.

These two functions, however, are frequently at tension with each other. While a patentee seeks to maximize patent protection, the public benefits from limiting the scope of the patent so that more royalty free use of the invention can be achieved. Two legal doctrines, the doctrine of equivalents and prosecution history estoppel, play an important role in balancing the two conflicting functions of the patent law.⁹

A. The Doctrine of Equivalents

⁶ *Graver Tank & Mfg. Co., Inc. v. Linde Air Products Co.*, 339 U.S. 605 (1950).

⁷ U.S. Const. art. I §8, cl. 8.

⁸ See Matthew J. Conigliaro, Andrew C. Greenberg and Mark A. Lemley, *Foreseeability in Patent Law*, 16 *Berkeley Tech. L.J.* 1045, 1046 (2001).

⁹ *Id.* at 1047.

While a reasoning similar to the doctrine of equivalents can be found more than two centuries ago,¹⁰ it is in *Winans v. Denmead*, decided in 1853, that the Supreme Court cemented the doctrine into law.¹¹ In *Winans*, the Court held that an octagonal-shaped coal car with a pyramidal-shaped base is equivalent to a cylindrical-shaped one with a tapered cone-like base.¹² This debut of the doctrine of equivalents was achieved over the dissent of four justices, who raised a strong concern of the uncertainty that the doctrine would bring to the patent scopes.¹³

The next seminal decision on the doctrine of equivalents was the Court's ruling in *Graver Tank & Manufacturing Co. v. Linde Air Products*¹⁴ more than half a century ago. Here the Court laid a firm foundation for the modern doctrine of equivalents. In *Graver Tank*, the patentee claimed an electric welding composition that contained alkaline earth metal silicates, including calcium or magnesium silicates.¹⁵ The only difference in the alleged infringer's product was the replacement of magnesium silicate by manganese silicate, which is not an earth metal silicate.¹⁶ The issue in *Graver Tank* centered on whether manganese silicon is an equivalent of magnesium silicate in the welding composition.¹⁷

¹⁰ See Jay I. Alexander, *Cabining the Doctrine of Equivalents in Festo: A Historic Perspective on the Relationship Between the Doctrine of Equivalents and Prosecution History Estoppel*, 51 Am. U.L. Rev. 553, 556-57 (2002) (finding the application of a reasoning similar to the doctrine of equivalents in a 1798 case).

¹¹ 56 U.S. 330 (1853).

¹² The patentee only patented the cylindrical-shaped car, not the octagonal-shaped one used by the defendant. The Court found that the advantage of a cylindrical-shaped coal cart with a cone-like base is to disperse the pressure of the load outwards in every direction, which can be achieved similarly by the octagonal-shaped car with a pyramid-like base.

¹³ See *id.* at 347 (Campbell, J., dissenting).

¹⁴ 339 U.S. 605 (1950).

¹⁵ *Id.* at 610.

¹⁶ *Id.*

¹⁷ *Id.*

Protecting patent rights clearly gained an upperhand in *Graver Tank*, where the majority stated that "to permit imitation of a patented invention which does not copy every literal detail would be to convert the protection of the patent grant into a hollow and useless thing."¹⁸ In an effort to provide a framework for the doctrine of equivalents, the Court proposed that "a patentee may invoke [the doctrine of equivalents] to proceed against the producer of a device if it performs substantially the same function in substantially the same way to obtain the same result."¹⁹ This "function/way/result" test gained widespread acceptance after *Graver Tank*. According to the Court, an important factor in determining equivalence is whether persons reasonably skilled in the art would have known of the interchangeability of the unclaimed elements with the claimed ones.²⁰ Finding that manganese silicate is widely-known to be substantially identical in operation and result to magnesium silicate in the welding composition, the Court held that it is an equivalent of magnesium silicate.²¹

Despite the firm establishment of the doctrine of equivalents, the concerns raised by the dissenting justices in *Winans* never subsided, and the wide application of the doctrine following *Graver Tank* further exacerbated the problem. The Supreme Court recognized in *Warner-Jenkinson Co. v. Hilton Davis Chemical Co.* that after *Graver Tank* the doctrine "has taken a life of its own, unbounded by the patent claims."²²

To rein in the application of the doctrine of equivalents, the Court endorsed two rules in *Warner-Jenkinson*, both of which have deep roots in the Court's patent

¹⁸ *Id.* at 607.

¹⁹ *Id.* at 608.

²⁰ *Id.* at 609.

²¹ *Id.* at 612.

²² 520 U.S. 17, 28-29 (1997).

adjudication. The first rule is the "all elements rule,"²³ which requires the doctrine of equivalents be applied to individual elements of the claim, not to the invention as a whole.²⁴ This element-by-element analysis of the applicable equivalents limits a patentee's overreaching argument of overall similarity in function.

The second rule is prosecution history estoppel, the subject of central contention in the Federal Circuit in *Festo*.²⁵ Although the Supreme Court stated in *Warner-Jenkinson* that "*Graver Tank* did not dispose of prosecution history estoppel as a legal limitation on the doctrine of equivalents,"²⁶ the scope of the application of the rule was not made very clear. In fact, the scope of the rule has never been very clear from the origination of the rule more than a century ago.

B. PROSECUTION HISTORY ESTOPPEL

The Supreme Court firmly decided in 1879 that a patentee could not recapture intentionally disclaimed subject matter through subsequent expansion of the claims.²⁷ A few years later, the Court applied the principle to bar a patent owner from claiming infringement by the doctrine of equivalents when the equivalent structure was

²³ The framework of the "all elements rule" appeared much earlier than *Warner-Jenkinson*. In *Water Meter Co. v. Desper*, 101 U.S. 332 (1879), the Court held that defendant's meter did not infringe upon the patented meter because the defendant's meter lacked one material element and substituted no equivalent for the element. In *Greg v. Herring*, 107 U.S. 640 (1883), the Court dismissed the infringement complaint because all the elements of the claimed invention were not present in the defendant's product. The Court stated that every claimed element is material and the Court can only decide whether any part omitted by an alleged infringer is supplied by some other device or instrumentality which is its equivalent. *Id.* at 648. See also *Alexander*, supra note _ at 565.

²⁴ 520 U.S. at 29.

²⁵ See *Festo III*, 234 F.3d 558 (Fed. Cir. 2000).

²⁶ *Id.* at 30.

²⁷ See *Leggett v. Avery*, 101 U.S. 256 (1879). The patentee applied for extension of seven claims, six of which were rejected for anticipation by prior art and disclaimed by the patentee. Only the fifth claim was granted. The patentee later filed reissue application containing claims essentially the same as the previously disclaimed ones and was granted the patent. The Court held the reissued patent invalid, for the patentee could not recapture claims he already abandoned. *Id.* at 259.

specifically disclaimed during reissuance proceedings.²⁸ As to subject matters unaffected by the disclaimer, the Court held the position that the doctrine of equivalents should still be available.²⁹

The more difficult question concerning prosecution history estoppel and the doctrine of equivalents arises when a disclaimer (or amendment) narrows the originally claimed subject matter but the alleged infringing device is not clearly surrendered. In *Hurlbut v. Schillinger* the Court faced such a situation.³⁰ The patentee in *Hurlbut* had disclaimed a portion of his invention to avoid prior art and was found in a prior litigation to be precluded from asserting claims against an accused device in light of the disclaimer.³¹ Nevertheless, the Court allowed the application of the doctrine of equivalents and found infringement of a device equivalent to the invention.³² This ruling is one of the earliest Supreme Court precedent consistent with the "flexible bar" approach most often applied in later cases.³³

However, the Supreme Court has not been consistent itself in applying the "flexible bar." The Court used languages in later decisions that are consistent with a

²⁸ See *Union Metallic Cartridge Co. v. United States Cartridge Co.*, 112 U.S. 624 (1884). The patent is for the construction of an organized automatic machine for heading cartridge shells, where the patentee described and claimed a process in which a movable "die" struck a fixed "bunter" to form the cartridge flange. The patentee's widow later tried to claim a fixed "die" and a movable "bunter" through re-issuance of the patent and her application was rejected for introduction of new matter. She disclaimed the added structure to obtain the re-issuance. The Court held that she could not claim the "fixed die" and movable "bunter" as equivalents to movable "die" and fixed "bunter" claimed in the patent, because she already disclaimed that structure during application for the re-issuance.

²⁹ See *Goodyear Dental Vulcanite Co. v. Davis*, 102 U.S. 222 (1880). The patentee claimed the use of vulcanized rubber for the making of artificial teeth and disclaimed a specific material called "gutta -percha" for the purpose. The Court held that the doctrine of equivalents was still available to "vulcanized rubber."

³⁰ *Hurlbut v. Schillinger*, 130 U.S. 456 (1889)

³¹ *Id.* at 465-66.

³² *Id.* at 472.

³³ The Court applied a similar reasoning in *Sutter v. Robinson*, 119 U.S. 530 (1886). In a patent claiming a process of re-sweating tobacco leaves, the patentee narrowed his claim to porous wooden box in order to distinguish prior art, which used metal box. The Court analyzed whether the uses of cases, boxes or packages in which the tobacco leaves are originally packed by the producer is equivalent to the porous wooden box.

more restricted application of the doctrine of equivalent to narrowed claims. In *Hubbell v. United States*, the Court stated that "limitations imposed by the inventor . . . must be strictly construed against the inventor and in favor of the public. . . ." ³⁴ Again, in *Weber Electric Co. v. E.H. Freeman Electric Co.*, the Court stated that when a patentee narrowed his claim in order to obtain a patent, he may not resort to the doctrine of equivalents to claim the larger scope which it might have had without the amendments. ³⁵ *Exhibit Supply Co. v. Ace Patents Corp.* represents the Court's furthest deviation from the "flexible bar", where the Court stated: "By the amendment [the patentee] recognized and emphasized the difference between the two phrases and proclaimed his abandonment of all that is embraced in that difference." ³⁶

However, the Court never overruled its earlier flexible bar approach. The contradiction of the Court's own line of cases produced inconsistency in the lower courts, where both a "flexible bar" approach and a more limiting approach were applied. ³⁷ After the establishment of the Federal Circuit in 1982, the Circuit embraced the "flexible bar" approach in its first case concerning the prosecution history estoppel, *Hughes Aircraft Co. v. United States* (hereinafter "*Hughes I*"). ³⁸ As a hallmark of the "flexible bar" approach, the Federal Circuit stated that no reason or warrant exists for limiting application of the doctrine of equivalents to the few unamended claims, and that the effect of the amendment to the scope of available equivalents can range "from great to

³⁴ 179 U.S. 77, 83-84 (1900).

³⁵ 256 U.S. 668, 677-78 (1921).

³⁶ 315 U.S. 126, 136 (1942).

³⁷ For a general discussion of circuit court approaches to prosecution history estoppel and the doctrine of equivalents, see Alexander, *supra* note_ at 584-92. See also *Hughes Aircraft Co. v. United States*, 717 F.2d 1351, 1362-63 (Fed. Cir. 1983).

³⁸ 717 F.2d 1351 (Fed. Cir. 1983) (holding that the later developed technology to use onboard computers to control satellite orientation is equivalent to receive signals from the satellite and use the computers on earth to control the orientation of the satellite).

small to zero," depending on the nature and purpose of the amendment.³⁹ A majority of cases decided by the Federal Circuit between 1984 and 1997 followed the *Hughes I* reasoning and the "flexible bar" approach.⁴⁰ However, in *Kinzenbaw v. Deere & Co.*, a case decided less than one year after *Hughes I*, a five-judge panel refused to analyze the availability of the doctrine of equivalents to a claim element narrowed by amendment, despite the argument by the patentee that the amendment was not necessary for patentability.⁴¹ In contrast to the "flexible bar" approach, *Kinzenbaw* resembles more of the "complete bar" approach that is consistent with the Supreme Court's language in *Exhibit Supply Co.*⁴²

C. The Implication of *Warner-Jenkinson* on Prosecution History Estoppel

The Supreme Court's last decision regarding prosecution history estoppel and the doctrine of equivalents before its *Festo* decision is *Warner-Jenkinson v. Hilton Davis*.⁴³ In *Warner-Jenkinson*, the patentee amended his claim to limit the application of his invention, an ultrafiltration process, to approximately pH 6.0 to 9.0.⁴⁴ The upper limit of pH 9.0 was added to distinguish from a prior art, which disclosed an ultrafiltration process at pH above 9.0. However, the reason for adding a lower limit of pH.6.0 was not clear from the record.⁴⁵ The accused infringing process was conducted at pH 5.0, out of the claimed literal range.⁴⁶

³⁹ *Id.* at 1363.

⁴⁰ Donald S. Chisum, *Chisum on Patents* § 18.05[3][b][i], at 18-497 (1998).

⁴¹ 741 F.2d 383 (Fed. Cir. 1994). In a patent for row planter, the patentee amended during prosecution his original claim to include a limitation that the radius of the gauge wheel exceeded the radius of the disc, though the rejection by the patent examiner was on another limitation. The Court nevertheless applied the prosecution history estoppel and limited this claim element to its literal meaning.

⁴² 315 U.S. 126, 136 (1942).

⁴³ 520 U.S. 17 (1997).

⁴⁴ *Id.* at 32.

⁴⁵ *Id.*

⁴⁶ *Id.* at 23.

The Court first declined to invoke prosecution history estoppel to every amendment, regardless of reasons.⁴⁷ The Court stated that "[w]here the reason for the change was not related to avoiding the prior art, the change may introduce a new element, but it does not necessarily preclude infringement by equivalents of that element."⁴⁸

However, to further the definitional and notice function of the claims, the Court placed the burden on the patentee to establish the reason for an amendment required during prosecution, and instructed courts to determine whether the reason is sufficient to overcome prosecution history estoppel as a bar to application of the doctrine of equivalents to the amended element.⁴⁹ When no reason for the amendment could be established, the Warner-Jenkinson Court instructed courts to presume that the patent applicant had a "substantial reason" related to patentability for including the limitation, in which case the application of the doctrine of equivalent as to that element will be barred.⁵⁰

In *Warner-Jenkinson*, the Court only addressed in what situations a voluntary narrowing amendment triggers prosecution history estoppel. It did not resolving the confliction between a flexible bar and a complete bar, where the scope of the prosecution history estoppel is the central contention. However, the Court confused itself on the two different questions. The Court seems to equal the application of the prosecution history estoppel to a complete bar, where no doctrine of equivalents is available if prosecution history estoppel applies. Essentially, the Court failed to consider the situation when the patentee provides a reason for amendment that is related to patentability and is not

⁴⁷ *Id.* at 32.

⁴⁸ *Id.* at 33.

⁴⁹ *Id.*

⁵⁰ *Id.*

sufficient to overcome prosecution history estoppel. Should the application of the doctrine of equivalent be completely barred in this situation as when no reason is provided? It is this ambiguity that triggered the debate in *Festo*.

II. CASE SUMMARY

A. FACTS AND PROCEDURAL HISTORY

Festo Corporation owns two patents, the Stoll Patent (U.S. Patent No. 4,354,125) and the Carroll Patent (U.S. Patent No. 3,779,401), for an improved magnetic rodless cylinder.⁵¹ Stoll added two new limitations to the claims during prosecution--that the invention contains a pair of sealing rings and that the cylindrical sleeve is made of magnetizable material-- after the examiner rejected the original claims for ambiguity under 35 U.S.C. §112.⁵² Carroll added the same requirement of a pair of sealing rings during a reexamination proceeding to more specifically define his invention and to distinguish it from the prior art references.⁵³

Shoketsu Kinzoku Kogyo Kabushiki Co. (hereinafter "SMC") made a device similar to Festo's except that SMC employs a single sealing ring with a two-way lip instead of Festo's two one-way sealing rings, and that SMC's device does not use magnetizable sleeve.⁵⁴ Since SMC's device falls outside of the literal claims of the two Festo patents, the question at issue is whether SMC infringed the patents under the doctrine of equivalents.⁵⁵

⁵¹ *Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co.*, 234 F.3d 558, 578-82 (Fed. Cir. 2000), hereinafter "Festo III."

⁵² *Id.* at 583.

⁵³ *Id.* at 584.

⁵⁴ *Id.* at 582.

⁵⁵ *Id.*

The United States District Court for the District of Massachusetts found that Festo's amendments were not related to the examiner's §112 rejections or to avoid prior art, therefore it declined to apply the prosecution history estoppel.⁵⁶ The court granted Festo's summary judgment motion on the infringement of the Carroll patent. The jury also found SMC infringed the Stoll patent under the doctrine of equivalents.⁵⁷ A panel of the Court of Appeals for the Federal Circuit affirmed.⁵⁸ The Supreme Court granted *certiorari*, vacated and remanded to the Federal Circuit for further consideration in light of the Court's intervening Warner-Jenkinson decision.⁵⁹ After a decision by the original panel on remand,⁶⁰ the Federal Circuit ordered rehearing *en banc* and reversed the District Court's ruling (hereinafter "Festo III").⁶¹ The *en banc* court held that prosecution history estoppel arises from any amendment that narrows a claim to comply with the Patent Act, not only from amendments made to avoid prior art.⁶² Furthermore, the court held that when estoppel applies, it stands as a complete bar against any claim of equivalence for the element that was amended.⁶³ This ruling stood in sharp contrast to the flexible bar approach that had been in place for over a century and generated a huge controversy in the patent community.⁶⁴ The Supreme Court granted *certiorari* in June

⁵⁶ *Id.* at 585.

⁵⁷ *Id.* at 584-85.

⁵⁸ *Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co.*, 72 F.3d 857 (Fed. Cir. 1995), hereinafter "Festo I."

⁵⁹ *Shoketsu Kinzoku Kogyo Kabushiki Co., Ltd. v. Festo Corp.*, 520 U.S. 1111 (1997).

⁶⁰ *Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co.*, 172 F.3d 857 (Fed. Cir. 1999), hereinafter "Festo II."

⁶¹ *Festo III*, 234 F.3d 558 (Fed. Cir. 2000).

⁶² *Id.* at 566.

⁶³ *Id.* at 574-75.

⁶⁴ *See, e.g.*, William M. Atkinson, Bruce J. Rose & John A. Wasleff, Was Festo Really Necessary?, 83 J. Pat. & Trademark Off. Soc'y 111 (2001); Alan P. Kline, The Doctrine of Equivalents: Where it is now, what it is, 83 J. Pat. & Trademark Off. Soc'y 514 (2001); Matthew J. Conigliaro, Andrew C. Greenberg & Mark A. Lemley, Foreseeability in Patent Law, 16 Berkeley Tech. L.J. 1045 (2001); Glen P. Belvis, An Analysis of the *en banc* Decision in *Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co.* and the

2001 and vacated the Federal Circuit's complete bar ruling in May 2002 (hereinafter "Festo IV").⁶⁵

B. THE FEDERAL CIRCUIT'S ANALYSIS

In Festo III, the Federal Circuit first analyzed whether the "substantial reason related to patentability" as required by *Warner-Jenkinson* to invoke prosecution history estoppel is limited to those amendments made to overcome prior art under §102 and §103.⁶⁶ Acknowledging that the Supreme Court in *Warner-Jenkinson* focused on claim amendments made to overcome prior art, the court reasoned that other statutory requirements, such as 35 U.S.C. § 101 and § 112 requirements, are equally important in patentability analyses, as the Patent Office will reject a patent application that fails to satisfy any of these statutory requirements.⁶⁷ The court concluded that since an amendment related to any of these statutory requirements is an amendment made for "a substantial reason related to patentability," such amendment triggers the prosecution history estoppel.⁶⁸

Second, the Federal Circuit analyzed whether a voluntary claim amendment--one not required by the examiner or made in response to a rejection by an examiner for a stated reason--creates prosecution history estoppel.⁶⁹ Since voluntary amendments, like amendments required by the Patent Office, signal to the public that subject matter has been surrendered, the court saw no reason to treat them differently.⁷⁰

Doctrine of Equivalents, 11 Fed. Circuit B.J. 59 (2002); Faith S. Fillman, *Doctrine of Equivalents: Is Festo the Right Decision for the Biomedical Industry?*, 33 St. Mary's L. J. 493 (2002).

⁶⁵ Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co., 122 S. Ct. 1831 (2002), hereinafter "Festo IV."

⁶⁶ Festo III, 234 F.3d at 566.

⁶⁷ *Id.*

⁶⁸ *Id.* at 567.

⁶⁹ *Id.* at 568.

⁷⁰ *Id.*

Third, the Federal Circuit asked what range of equivalents, if any, is available to amended claim elements subject to prosecution history estoppel.⁷¹ This question sharply divided the court. The seven-member majority claimed that the Supreme Court never directly addressed this question, at least in circumstances where the claim was amended for a reason related to patentability.⁷² After analyzing several Supreme Court cases, including *Warner-Jenkinson*, the majority concluded that in all those cases, the Supreme Court only resolved the question of whether there will be a prosecution history estoppel, but did not address the scope of the equivalents available after the estoppel.⁷³ The majority concluded that the Federal Circuit must "independently decide the issue."⁷⁴

The majority then analyzed the Federal Circuit's own precedents, and acknowledged that in most of those cases, the court applied a "flexible bar" approach in deciding the scope of the equivalents.⁷⁵ As the court stated in *Modine Manufacturing Co v. United States Int'l Trade Comm'n.*: "[A]lthough the available range of equivalency is limited, by estoppel, . . . the prosecution history and the prior art do not eliminate equivalence."⁷⁶

In one case, *Kinzenbaw v. Deere & Co.*, however, the majority found that the court applied a more stringent standard where it refused to apply the doctrine of equivalents to a claim element narrowed by amendment.⁷⁷

Despite the weight of the Federal Circuit's own precedent, the majority nonetheless held that based on the Circuit's long experience, the flexible bar approach is

⁷¹ *Id.* at 569

⁷² *Id.*

⁷³ *Id.* at 569-71.

⁷⁴ *Id.* at 571.

⁷⁵ *Id.* at 572-74.

⁷⁶ 75 F.3d 1545, 1555-56 (Fed. Cir. 1996)

⁷⁷ 741 F.2d 383 (Fed. Cir. 1984).

"unworkable."⁷⁸ Emphasizing the paramount importance of the notice function and the need for certainty as to the scope of patent protection,⁷⁹ the majority proposed a "complete bar" approach, under which no range of equivalents is available for an element amended for patentability reasons.⁸⁰ According to the majority, with a complete bar technological advances that would have lain in the unknown, undefined zone around the literal terms of narrowed claim under the flexible bar approach will not go wasted and undeveloped due to fear of litigation.⁸¹ As for the reduced protection to the patentees under the complete bar, the majority cursorily concluded that the benefits to patentees under the flexible bar do not outweigh the costs of uncertainty.⁸²

The fourth holding addressed voluntary, unexplained claim amendments. Based on *Warner-Jenkinson* and the majority's holding on the previous questions, the majority in *Festo III* concluded that no range of equivalents is available to those amended elements.⁸³

Finally, as to the amendments made to the two patents at issue, the court held that prosecution history estoppel applies, and no range of equivalents is available to the two amended claim elements⁸⁴. The District Court's infringement ruling was reversed.⁸⁵

Five of the twelve judges dissented as to the "complete bar" approach.⁸⁶ Judge Michel in particular wrote a lengthy dissenting opinion in which he stated that the

⁷⁸ 234 F.3d at 575.

⁷⁹ *Id.*

⁸⁰ *Id.* at 569.

⁸¹ *Id.* at 576-77.

⁸² *Id.* at 578.

⁸³ 234 F.3d at 578.

⁸⁴ *Id.* at 591.

⁸⁵ *Id.*

⁸⁶ *Id.* at 598-642.

"complete bar" approach contradicts to settled law.⁸⁷ To support his opinion, he listed numerous cases that, according to him, were overturned by the majority's ruling.⁸⁸

C. THE SUPREME COURT'S ANALYSIS

The Supreme Court agreed with the Federal Circuit that a narrowing amendment made to satisfy any requirement of the Patent Act may give rise to an estoppel, but it vacated the Federal Circuit's "complete bar" approach.⁸⁹ While the Court acknowledged the importance of certainty and clarity in defining the boundary of patent rights, it also recognized the impreciseness of language in fully describing an invention.⁹⁰ Since a narrowing amendment may demonstrate what the claim is not; but may still fail to capture precisely what the claim is,⁹¹ the Court held that "there's no more reason for holding the patentee to the literal terms of an amended claim than there is for abolishing the doctrine of equivalents altogether and holding every patentee to the literal terms of the patent."⁹²

In addition, the Court found no case in its precedent that supported the sweeping "complete bar" approach and was mindful of the settled expectations of the inventing community.⁹³ Since inventors who amended their claims under the previous regime had no reason to believe they were conceding all equivalents, the Court found "no justification for applying a new and more robust estoppel to those who relied on prior doctrine."⁹⁴

⁸⁷ *Id.* at 612.

⁸⁸ *Id.* at 613-619.

⁸⁹ *Festo IV*, 122 S. Ct. at 1839-41.

⁹⁰ *Festo V.*, 122 S. Ct. at 1837.

⁹¹ *Id.* at 1841.

⁹² *Id.*

⁹³ *Id.*

⁹⁴ *Id.*

To be consistent with *Warner-Jenkinson*, the Court retained a limited version of the "complete bar" in situations where the patentee is unable to explain the reason for an amendment.⁹⁵ In addition, when prosecution history estoppel applies to an amended element, the Court placed the burden on the patentee to show that the amendment does not surrender the particular equivalent in question.⁹⁶ The Court provided three scenarios where the patentee can satisfy that burden: 1) The equivalent may have been unforeseeable at the time of the application; 2) the rationale underlying the amendment may bear no more than a tangential relation to the equivalent in question; 3) there may be some other reason suggesting that the patentee could not reasonably be expected to have described the insubstantial substitution in question.⁹⁷

Applying these principles to the case before it, the Court determined that the amendments were made for reasons relating to patentability.⁹⁸ It held that the question is not whether estoppel applies but what territory the amendments surrendered.⁹⁹ It remanded the case to the Federal Circuit for further proceedings.¹⁰⁰

III. DISCUSSION

The Supreme Court in *Festo* addressed two issues relating to prosecution history estoppel and the doctrine of equivalents: 1) What kinds of claim amendment trigger prosecution history estoppel and 2) if prosecution history estoppel applies to an amended claim element, what is the remaining scope of protection available to that claim element

⁹⁵ *Id.* at 1842.

⁹⁶ *Id.*

⁹⁷ *Id.*

⁹⁸ *Id.*

⁹⁹ *Id.*

¹⁰⁰ *Id.*

under the doctrine of equivalents? Both questions were leftovers by the ambiguity of the *Warner-Jenkinson* Court.

A. Any narrowing amendment made to satisfy the Patent Act may give rise to prosecution history estoppel

The Supreme Court agrees with the Federal Circuit on this issue, and it is by all means a correct holding.

In a majority of precedent cases, prosecution history estoppel was raised in the context to avoid prior art references. However, the same rationale should apply to other narrowing amendment. The key term here is "narrowing." If a patentee has to narrow his claim scope to obtain the patent, it means the original broad claim is not patentable. He should thus be barred from broadening his narrowed claim to the extent of his original broad claim through the doctrine of equivalents.¹⁰¹

If the rejection on patentability is due to ambiguity of the term, then the amendment is arguably not a narrowing amendment, since the scope of the original term is uncertain.¹⁰² The potential problem here is that some indefinite terms nevertheless has a scope, though an uncertain scope. For example, if a patentee originally used the term "substantially horizontal," the examiner rejected the term "substantial" for indefiniteness, and the patentee removed "substantial" to obtain the patent. Is this a narrowing amendment? Arguably it is. Then should the patentee be barred from claiming a slightly unhorizontal equivalent?

B. The "presumptive bar" approach

¹⁰¹ This is the principle of prosecution history estoppel, to prevent "backdoor" patenting. *See, e.g., Leggett v. Avery*, 101 U.S. 256 (1879), *supra* note 27. The Court went one step further in *Festo IV* by stating that "even if the amendment's purpose were unrelated to patentability, the court might consider whether it was the kind of reason that nonetheless might require resort to the estoppel doctrine. 122 S. Ct. at 1839.

¹⁰² The Court refers to this kind of amendments "cosmetic." *Id.* at 1841.

The more important and controversial holding is the Court's adoption of a "presumptive bar" to the scope of equivalents available to amended claim elements. Following its own language from *Warner-Jenkinson*, the Court held that "when the patentee is unable to explain the reason for amendment, estoppel not only applies but also bars the application of the doctrine as to that element."¹⁰³ In contrast to the complete bar approach adopted by the Federal Circuit, however, this limited version of a total bar can be rebutted if the patentee can show that the amendment does not surrender the particular equivalent in question.¹⁰⁴

This burden, however, may not be an easy task to meet for the patentees. According to the Court, a patentee's narrowing amendment may be presumed to be a general disclaimer of the territory between the original claim and the amended claim,¹⁰⁵ and the Court's guidance as to in what situations the patentee can rebut that presumption is by no means a clear standard.

1. The foreseeability test

The first situation where the Court stated that a rebut may be granted is when the equivalent may have been unforeseeable at the time of the application.¹⁰⁶

First, the Court is inconsistent in the opinion as to the timing of the foreseeability test. In the earlier part of the opinion, the Court expressed that there is no reason why a narrowing amendment should be deemed to relinquish equivalents unforeseeable at the time of the amendment,¹⁰⁷ while in the later part the test seems to apply at the time of application. However, the time between application and amendment may be several

¹⁰³ *Id.* at 1842.

¹⁰⁴ *Id.*

¹⁰⁵ *Id.*

¹⁰⁶ *Id.*

¹⁰⁷ *Id.* at 1840.

years apart, and the equivalents unforeseeable at the time of application may be foreseeable at the time of amendment. From the spirit of the Court's reasoning, it is more logic to apply the foreseeability test at the time of amendment, which action triggers the prosecution history estoppel.

Second, the idea of foreseeability in patent law has very few precedents.¹⁰⁸ It is not clear who should determine which equivalent is foreseeable and which is not.¹⁰⁹ Since patents are only applied by inventors or their patent attorneys and meant to be understood by persons with an ordinary skill in the art, presumably such persons should determine the foreseeability of the equivalent in question. However, neither a jury nor a judge is a person with an ordinary skill in the art. Thus expert witnesses will often be needed in trials to help determine the foreseeability issue.

Should the jury or the judge be the final decision maker? Some commentators suggest a pretrial Festo hearing, either together or separate from a Markman hearing, to address the foreseeability issue.¹¹⁰ To promote consistency and increase predicatability, it is probably better for the judge to decide. However, since expert witnesses on both

¹⁰⁸ The Court largely adopted the foreseeability test from an amicus brief filed on behalf of the Institute of Electrical and Electronics Engineers (the "IEEE") (No. 00-1543), rewritten in Matthew J. Conigliaro, Andrew C. Greenberg & Mark A. Lemley, *Foreseeability in Patent Law*, 16 Berkeley Tech. L.J. 1045 (2001) (hereinafter "Conigliaro"). The authors only provided two Federal Circuit cases to support their proposition, *Kinzenbaw v. Deere & Co.*, 741 F. 2d 383 (Fed. Cir. 1994) and *Sage Products, Inc. v. Devon Industries*, 126 F. 3d 1420 (Fed. Cir. 1997). In *Kinzenbaw*, the Federal Circuit only stated that the doctrine of equivalents is designed to protect inventors from unanticipated equivalents, 741 F.2d at 389 (citing *Hughes Aircraft*, 717 F.2d at 1362), and found that the alleged variation was not. The treatment of the anticipation question is very cursory. In *Sage Products*, the Federal Circuit placed the burden on the patentee to bear the cost of its failure to seek protection for a foreseeable alteration of its claimed structure, 126 F. 3d at 1425. However, that idea is not expressed in the context of prosecution history estoppel, and it is arguably inconsistent with the Supreme Court's opinion in *Graver Tank*. See discussion below.

¹⁰⁹ In *Johnson & Johnson Assocs. v. R.E. Service*, 285 F.3d 1046 (Fed. Cir. 2002), the Federal Circuit decided that subject matter disclosed by not claimed belongs to the public. Judge Rader in his concurring opinion proposed to use a foreseeability test to guide the scope of the doctrine of equivalents. *Id.* at 1056-58. Judge Lourie, in a separate concurring opinion, opposed. *Id.* at 1063. One of his reasons is that foreseeability will make the doctrine of equivalents adjudication more complicated. In his opinion, foreseeability is not solely a question of law.

¹¹⁰ See, e.g., Frank J. Derosa and Steven E. Halpern, *Assessing Impact of the 'Festo' Cases*, 228(18) N.Y.L.J. s4, col. 3 (2002).

sides are likely to present competing views, creditability will likely be a crucial issue in the determination, which is traditionally a jury question.

It is true that courts are familiar with foreseeability issues in other types of cases, such as in the context of a common law duty of care in torts, foreseeable reliance in contracts, or foreseeability in the context of limiting damages,¹¹¹ however, foreseeability of equivalents provides a unique challenge to the courts due to the frequent complexity of the underlying technology. A common sense is usually sufficient to determine the other foreseeability issues, which is probably not enough in many patent cases.¹¹²

Although the Federal Circuit in its recent order to reconsider *Festo* in light of the Supreme Court decision has asked the parties to submit briefs and sought amicus curie briefs regarding the function of jury and judge in the determination of rebuttal of presumption,¹¹³ the Federal Circuit itself¹¹⁴ and several District Courts have already decided a few cases on the foreseeability issue, and inconsistency in applying the test has emerged in the District courts.¹¹⁵ While the Northern District of California had no

¹¹¹ Conigliaro, 16 Berkeley Tech. L.J. at 1065.

¹¹² One reason that the Court easily applied a foreseeability test in *Sage Products* is that the patent involved is easily understandable by a lay person.

¹¹³ *Festo Corp. v. Shoketsu Kinzoko Kogyo Kabushiki Co., LTD*, 2002 U.S. App. Lexis 19734 (Fed. Cir. 2002).

¹¹⁴ *E.g.*, in *Schwing GMBH v. Putzmeister Aktiengesellschaft*, 2002 U.S. App. Lexis 20205 (Fed. Cir. 2002), the Federal Circuit remanded on one alleged infringing device for consideration of the rebuttal in light of the Supreme Court decision. It decided on the record before it that the other alleged infringing device is foreseeable, therefore the rebuttal failed on the part of the patentee.

¹¹⁵ *See, e.g.*, *Smithkline Beecham Corp. v. Excel Pharmaceuticals, Inc.*, 214 F. Supp. 2d 581 (E.D. Va. 2002); *Glaxo Wellcome, Inc. v. EON Labs Mfg, Inc.*, 2002 U.S. Dist. LEXIS 14923 (S.D. NY. 2002); *Glaxo Wellcome v. IMPAX Laboratories, Inc.*, 2002 U.S. Dist. Lexis 15966 (N.D. Cal. 2002). The three cases are on the same patent regarding the sustained release of an anti-depression drug. The patentee narrowed several claims by the addition of a specific sustained release agent, HPMC, through amendment. Excel used PVA, and both EON and IMPAX used HPC, instead of HPMC, as sustained release agent. The Northern District of Virginia held that even if the use of PVA is unforeseeable at the time of amendment, the patentee should try to draft a category claim that encompasses PVA. *EXCEL*, --- F. Supp. at ---. The Northern District of California held that the use of HPC is foreseeable to anyone skilled in the art at the time of amendment and the patentee was barred from using the doctrine of equivalents. *IMPAX*, --- F. Supp. at ---. In contrast, the Southern District of New York held that whether the use of HPC was

problem granting summary judgment on the issue of foreseeability, the Southern District of New York deciding on the same equivalent and the same patent held that a jury determination is proper.¹¹⁶ A guidance by the Federal Circuit on this issue is clearly required.

2. The foreseeability test is inconsistent with the doctrine of equivalents expressed in *Graver Tank*.

In addition to the ambiguity and administrative difficulty of the foreseeability test, it is also in contradiction to the spirit of the doctrine of equivalents expressed by the Court in its seminal *Graver Tank* decision.

In *Graver Tank*, manganese silicate was held as an equivalent to magnesium silicate in an electric welding composition.¹¹⁷ At that time, the Court regarded the case as a perfect example to apply the doctrine of equivalents, where it is well-known that manganese silicate and magnesium silicate "performs substantially the same function in substantially the same way to obtain the same result" in electric welding compositions.¹¹⁸ However, despite the well-known knowledge, the patentee failed to include manganese silicate into his literal scope of the claim. In *Festo IV*, the Court stated that "[t]he patentee, as the author of the claim language, may be expected to draft claims encompassing readily known equivalents."¹¹⁹ If that is the reasoning, should not *Graver Tank* be expected to draft claim language that encompasses manganese silicate?

foreseeable at the time of amendment is a triable question of fact that precludes summary judgment. EON, -
-- F. Supp. at ---.

¹¹⁶ See supra note 104.

¹¹⁷ *Graver Tank*, 339 U.S. at 612.

¹¹⁸ *Id.* at 608.

¹¹⁹ *Festo IV*, 122 S. Ct. at 1842.

One may try to reconcile the two cases by pointing out that in *Graver Tank*, the claim was not amended, while in *Festo IV*, the Court was addressing the amended claims. That is certainly the case. However, I do not see why amendments should so drastically change the way the doctrine of equivalents is applied.

First, drafting original claims and amending claims are very similar practice. Both represent the effort of the patentee to define a protection scope for the underlying invention. Conceivably, an unamended claim can be understood as defining a flexible scope from the entire universe, and a narrowing amended claim can be understood as defining a somewhat smaller flexible scope inside the original flexible scope. If defining the original flexible scope is given the benefit of the full protection of the doctrine of equivalents, i.e., the patentee's inadvertence in failing to include a foreseeable equivalent can be recovered, why not give the same inadvertence in defining a smaller scope the same treatment? Most times it is the same patent attorney doing the original application and the amendment. Does the Court intend to hold that the same patent attorney, when facing a rejection, all of a sudden becomes so much more insightful so he has to conceive everything foreseeable to a person with an ordinary skill in the art?

Second, it is a common knowledge that the majority of the claims are amended during prosecution. Amendments in many cases are simply a strategy to get the patent issued without staging a lengthy fight against the examiner. The PTO, on the other hand, is not imposing a high standard on its examiners in the examination of patent applications. The total average time an examiner spends on an application is only

eighteen hours, and issued patents are held invalid forty-six percent of time.¹²⁰ Given the low standard in examining patent applications, one can imagine the error rate in PTO's rejections. Although theoretically the patentee can appeal the rejection, practically he is limited by a number of factors, including the added cost and the additional time required for the appeal. In many cases appeal may simply not be a viable alternative.

Third, the opposite roles foreseeability plays in amended and unamended claims significantly affect the scope that amendments have on claims and increase the difficulty in predicting the value of an invention before the patent issues, because it is unpredictable as to which claim language will need to be amended. This discrepancy focuses on formality rather than substance. The same invention, simply because of the different prosecution history, may have very different value. Let's take *Graver Tank* as an example. If the same claim in *Graver Tank* was originally drafted to cover all metal silicates and was rejected for lack of enablement, and it was later narrowed to cover only alkaline earth metal silicates, based on the *Festo IV* reasoning, manganese silicate is a foreseeable alternative and should be barred from the doctrine of equivalents. Two drastic different outcomes will result from two identical patents facing the same equivalent in question. I fail to see any rationale behind this difference.

3. A uniform foreseeability test better balances the protection function and the notice function.

If the Court determines to change the adjudication of the doctrine of equivalents, it should at least apply a uniform standard to all situations. Comparing to the traditional "flexible bar" rule, where "depending on the nature and purpose of an amendment, it may

¹²⁰ Mark A. Lemley, Rational Ignorance at the Patent Office, 95 Nw. U.L. Rev. 1495, 1500 (2001). In fact, Professor Lemley suggested that it is more cost effective to the society to have a rational ignorance in the PTO than to examine every patent with greater care.

have a limiting effect from great to small to zero,"¹²¹ foreseeability test at least provides a workable standard. It is certainly not a bright line rule that the *en banc* Federal Circuit wanted, but it is a significant development and arguably is in the right direction. For it to be applied in a full force, *Grave Tank* should be overruled and a uniform foreseeability test should be put in place irrespective of the amendment history of the claims.¹²²

It is true that the foreseeability test places a heavy burden on the patentees to claim every foreseeable equivalent. However, comparing to the public at large, patentee is the best party to bear that burden. Nobody knows the invention better than the patentee. The doctrine of equivalents should not be used to reward inadvertence in patent drafting at the expense of the public. In addition, the patentee has other means to safeguard his practice, which I will discuss in part C below.

The tension between the protection function and the notice function of our patent law demands a balanced approach. Unbalanced emphasis on either one function at the expense of the other will undermine the purpose of our patent law to "promote the progress of science." The complete bar approach focuses too much on the notice function and ignores the protection function. The traditional flexible bar approach, on the other hand, lacks a required amount of certainty as to the scope of the patent rights.¹²³ The foreseeability test as a framework provides a middle ground. When adjudicated correctly, it may provide a better outcome than either the complete bar or the flexible bar.

¹²¹ Hughes Aircraft Co. v. United States, 717 F.2d 1351, 1363 (Fed. Cir. 1983).

¹²² In fact, Judge Rader in his concurring opinion in *Johnson & Johnson Assocs. v. R.E. Service Co.*, 285 F.3d 1046, 1056-58 (Fed. Cir. 2002) has already proposed a foreseeability test to guide the application of the doctrine of equivalents, in contradiction to the teachings of *Graver Tank*. See supra at note 109. See also *Sage Prods. Inc. v. Devon Indus., Inc.*, 126 F.3d 1420, discussed supra at note 108.

¹²³ See Conigliaro, , 16 Berkeley Tech. L.J. at 1059-63.

However, it is up to the Federal Circuit to work out the details. The Federal Circuit still has the opportunity to limit the test in a way that resembles a complete bar: All the current available technology is foreseeable, and even later developed technologies may not be truly unforeseeable. As one commentator puts it, "[I]anguage is nearly always available to describe an invention--in hindsight."¹²⁴ If the Federal Circuit embraces itself with this line of reasoning, then the foreseeability test will become "a complete bar in another name." Development of case law in this area is therefore critical to the viability of the test and the Supreme Court should keep a close look at the future cases from the Federal Circuit.

4. The tangential relationship test and the reasonableness test

In addition to the foreseeability test, the Supreme Court provided two other situations where the presumption can be rebutted: the amendment bears only tangential relationship to the equivalent in question; or it is unreasonable to expect the patentee to claim the equivalents in question.¹²⁵

These two tests are even more ambiguous than the foreseeability test. The Court provides no guidance as to what it considers as a tangential relationship, and certainly no judicial precedence is available on this issue. The most logic reading of this test is that the amendment, though on the same claim element, does not narrow the scope that affects the equivalent in question. For example, if the amendment limits the length of an element, and the equivalent in question is different from the width of that element, the amendment bears only a tangential relationship to the equivalent. This is precisely the

¹²⁴ Steve J. Frank, *Festo, Schmesto!*, IEEE Spectrum, July 2002, at 38.

¹²⁵ *Festo IV*, 122 S. Ct. at 1841.

reading the District Court takes with regard to this test in *Vardon Golf Co. v. Karsten Manufacturing Corp.*¹²⁶

The reasonableness test bears many similarities to the foreseeability test. The same question of whether a judge or a jury should decide the reasonableness has the Federal Circuit pondering.¹²⁷ Unlike the foreseeability test, whose major application may be later developed technologies, the reasonableness test focuses on current available equivalents. It is unreasonable to require the patentee to exhaust every potential equivalent in the world, therefore if he reasonably misses some, he will not be punished. It is certainly an equitable idea, but the Federal Circuit has a lot of work to do to establish an equitable guideline. It has an even fewer judicial precedent in patent law than the foreseeability doctrine.

One kind of patent that I foresee will benefit greatly from the reasonableness test is the biotech patents. Small nucleotide or protein sequence variations usually will not alter the function of the gene. However, it is practically impossible to describe all the analogues of a given sequence in the claim language.¹²⁸ In this case, if the sequence is narrowed by amendments, the patentee will not lose the protection of the doctrine of equivalents.

C. Effect of *Festo IV* on patent prosecution

The Supreme Court's *Festo IV* decision is generally believed to be a savor to patent prosecutors, since they will bear a tremendous burden under the Federal Circuit's

¹²⁶ 2002 U.S. Dist. Lexis 11802 (N.D. Ill. 2002). In a patent infringement action concerning golf clubs, the court held that the amendments focused primarily on structural explanations and descriptions on the club, not the ring and dot elements in question.

¹²⁷ *Festo Corp.*, 2002 U.S. App. Lexis 19734 (Fed. Cir. 2002).

¹²⁸ *See, e.g., Amgen, Inc. v. Chugai Pharmaceutical Co.*, 927 F.2d 1200, 1213 (Fed. Cir. 1991) (finding over 3600 different EPO analogs with a single amino acid substitution).

complete bar approach. However, the presumptive bar is still different from the traditional flexible bar. It is true that doctrine of equivalents is still available to amended claim elements, but to what extent the door is kept open largely depends on the Federal Circuit's interpretation of the three Supreme Court tests.

In any case, it is safe to say that *Festo IV* still places a heavier burden than before on the shoulder of patent prosecutors, especially when facing rejections from the patent examiner.

During claim amendment, if a foreseeable equivalent or an equivalent reasonably could be drafted in claims is not literally captured, it may be lost forever. Facing this dire consequence, patent prosecutors have to be very diligent and try to claim as much as possible by literal language the difference between the original scope and the narrowed scope. Carelessness and inadvertence can be fatal.

After the Federal Circuit's *Festo III* decision, many commentators proposed various patent prosecution strategies to preserve the doctrine of equivalents. However, many of the strategies will not work.¹²⁹ I believe only the following three strategies will provide a cushion to the potential eviscerating effect of *Festo IV* on the doctrine of equivalents.

¹²⁹ For example, in Steven H. VerSteeg, Parallel Application to Preserve the Doctrine of Equivalents in a Post Festo World, 84 J. Pat. & Trademark Off. Soc'y 341, the author proposed a strategy to file a broad and a narrow application for the same invention. He suggested that any amendments made to the broad application can be rewritten on a clean slate on the narrow application, therefore preserving the doctrine of equivalents on the narrow application. However, the Federal Circuit has specifically stated that the relevant prosecution history includes not only the application but also the parent and grandparent applications. *Mark I Mktg. Corp. v. R.R. Donnelley & Sons Co.*, 66 F.3d 285, 291 (Fed. Cir. 1995). Similarly, starting with a narrow claim and broadening the scope of the claim to the point of rejection by the examiner will not help either, since when prosecution history estoppel applies, it applies with equal force to all claims with the same limitation. *Intermatic Inc. v. Lamson & Sessions Co.*, 273 F.3d 1355, 1366-67 (Fed. Cir. 2001). Canceling instead of amending the broad claims is equally unavailing, since the Federal Circuit still considers the scope of the cancelled broad claim as abandoned by the patentee. *See Diversitech Corp. v. Century Steps, Inc.*, 850 F.2d 675, 681 (Fed. Cir. 1988).

One strategy is to keep the application alive by filing continuation applications. If an unclaimed equivalent coming out of the horizon is barred from the amended claim language, as long as it is still supported by the original description, a new claim can be added to the continuation application to recapture that equivalent.

A second strategy is to appeal, not to amend the claims, especially for important inventions. Any amendment may result in unintentional surrender. Without amendment, the full force of the doctrine of equivalents governed by *Grave Tank* still applies. Of course, appeal is associated with an increased financial and time commitment. The inventor has to decide whether it is worthwhile to fight against the examiner. With the increased risk of forfeiting the doctrine of equivalent protection, more situations will warrant an appeal.

Lastly, the best strategy is to submit a set of well-thought claims to begin with. Try to avoid rejection by the examiner from the very beginning. No rejection, no need for amendments. It certainly requires a lot of research of prior arts and a lot of thinking before submitting the first draft to the PTO. It may not be practical for every patent, but may be worth the extra effort for high value inventions.

IV. CONCLUSION

The Supreme Court's *Festo IV* decision is one of the most important decisions affecting patent law adjudication. It represents the Court's most recent effort to balance the two competing functions of the patent law, the protection function and the notice function. It clarifies the circumstances where prosecution history estoppel should be triggered, and by vacating the Federal Circuit's complete bar approach, the Court restores the doctrine of equivalent to amended claims. However, the presumptive bar is not the

same as the traditional flexible bar applied in the majority of Federal Circuit precedents. The three tests that the Court provides to rebut the presumptive bar are almost entirely new in patent jurisprudence. The Federal Circuit needs to establish a line of authorities to interpret the meats and bounds of the three tests. By any means, the available doctrine of equivalents will be narrower under the *Festo IV* opinion than under the flexible bar approach, and the burden is greater on the patent prosecutor to draft complete claims. In addition, one big problem of the foreseeability test is its inconsistency with *Graver Tank*. To better serve the patent community and the public, a uniform standard concerning foreseeability is necessary, and *Graver Tank* should be overruled.