## CHAPTER 8

**THE DOCTRINE OF EQUIVALENTS AND § 112 EQUIVALENTS**

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§ 8.01 OVERVIEW OF THE DOCTRINE OF EQUIVALENTS AND § 112, ¶ 6 EQUIVALENTS

There is perhaps no question more important to the health of patents than the scope and application of the judicially-created doctrine of equivalents. It permeates the entire fabric of patent law, and appears in virtually every case involving patent enforcement.1

Although the doctrine of equivalents is a substantially different doctrine from “equivalents” under § 112, ¶ 6, these doctrines have been, and will continue to be, intertwined in infringement analyses. The doctrine of equivalents is a judicially created doctrine that is expansive in nature. This doctrine expands the scope of patent protection beyond the literal words of the claims.

The continued existence of the doctrine of equivalents was reaffirmed by the Supreme Court in Warner-Jenkinson.2 However, Warner-Jenkinson contained language that should have substantially narrowed the scope of this doctrine and, as at least one Federal Circuit Judge noted, restrict “the mischief that the doctrine of equivalents can do to patent law.”3 The manner in which the Federal Circuit has addressed this potential for “mischief” will be analyzed in this chapter.

In particular, the Federal Circuit has answered the questions raised in its order granting a petition for rehearing en banc in Festo Corp. v. Shoketsu Kinzoku Kabushiki (a/k/a SMC Corp.).4

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4 Festo Corp. v. Shoketsu Kinzoku Kabushiki (a/k/a SMC Corp.), 187 F.3d 1381, 51 U.S.P.Q.2d
1. For the purposes of determining whether an amendment to a claim creates prosecution history estoppel, is “a substantial reason related to patentability,” . . . limited to those amendments made to overcome prior art under § 102 and § 103, or does “patentability” mean any reason affecting the issuance of a patent? -- Any reason.

2. Under Warner-Jenkinson, should a “voluntary” claim amendment -- one not required by the examiner or made in response to a rejection by an examiner for a stated reason -- create prosecution history estoppel? -- Yes

3. If a claim amendment creates prosecution history estoppel, under Warner-Jenkinson what range of equivalents, if any, is available under the doctrine of equivalents for the claim element so amended? -- Zero.

4. When “no explanation [for a claim amendment] is established,” . . . thus invoking the presumption of prosecution history estoppel under Warner-Jenkinson, what range of equivalents, if any, is available under the doctrine of equivalents for the claim element so amended? -- Zero.\(^5\)

This, decision, as well as others, that came down this year, signal a continuing trend of the Federal Circuit to restrict the application of the doctrine of equivalents.

In a series of cases the Federal Circuit continued to maintain the viability of the Wilson Sporting Goods\(^6\) hypothetical claim analysis. The court has also further defined the role that the burden of proof plays in an equivalents analysis, and in particular, in a hypothetical claim equivalents analysis. The court also clarified the after-arising-technology rule, holding that its applicability was limited to means- and step-plus-function claim elements. In a series of cases the Federal Circuit reinvigorated the rational of Sage Products, Inc. v. Devon Industries, Inc.,\(^7\) which provides that the doctrine of equivalents cannot

\(^{1959}\) (Fed. Cir. 1999).


\(^{7}\) 126 F.3d 1420, 44 U.S.P.Q.2d 1103 (Fed. Cir. 1997).
eliminate clear structural requirements from a claimed invention, and that the doctrine cannot undo strategic decisions and mistakes made during prosecution.

In contrast to the judicially created doctrine of equivalents, § 112, ¶ 6 equivalents, was a legislative response to the Supreme Court’s 1946 decision in *Halliburton Oil Well Cementing Co. v. Walker*, which prohibited functional claiming.\(^8\) In 1952, to partially overrule *Halliburton*, Congress enacted what has now become ¶ 6 of 35 U.S.C. § 112, which permits some functional claiming and provides:

An element in claim for a combination may be expressed as a means or step for performing a specified function without the recital of structure, material, or acts in support thereof, and such claim shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof.\(^9\)

Unlike the doctrine of equivalents, § 112, ¶ 6 equivalents is a narrowing doctrine that restricts the scope of protection afforded the patentee. In *Warner-Jenkinson* the Supreme Court found that applying § 112, ¶ 6 equivalents was in fact “an application of the doctrine of equivalents in a restrictive role, narrowing the application of broad literal claim elements.”\(^10\) The Supreme Court went on to find that “§ 112, ¶ 6 was enacted as a targeted cure to a specific problem, and … the reference to ‘equivalents’ (in that paragraph) appears to be no more than a prophylactic against potential side effects of that cure.”\(^11\)

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\(^8\) 329 U.S. 1, 71 U.S.P.Q. 175 (1946).

\(^9\) This paragraph was originally ¶ 3 in § 112 and care should be taken in reviewing older case law, which frequently refers to it as such. See 35 U.S.C. § 112 (1952); see, e.g., *In re Zimmerley*, 153 U.S.P.Q. 367, 369 (Pat. Off. Bd. App. 1966).


Thus, § 112 equivalents serves to limit the literal scope of the claims to the structures or acts that are specifically disclosed in the specification. The Federal Circuit has described § 112, ¶ 6 equivalents as the “price that must be paid” for drafting claims in means- or step-plus-function format. The recent decisions of the Federal Court have continued this trend of viewing § 112, ¶ 6 equivalents as a narrowing restrictive doctrine.

In particular, the Federal Circuit has continued to address the need for a patent to have sufficient structure in the specification that corresponds to the means- or step-plus-function claim element. The court has heightened its focus on the relationship between § 112, ¶ 2 and ¶ 6. The court has also explored the relationship between the infringement analysis for § 112, ¶ 6 equivalents (which is a literal infringement analysis) and an analysis under the doctrine of equivalents.

§ 8.02 THE DOCTRINE OF EQUIVALENTS

In Winans v. Demmead, the Supreme Court first ruled that infringement may occur even though the literal language of the claims was avoided. This ruling evolved into the present day doctrine of equivalents, which was first set out by the Supreme Court in Graver Tank & Mfg. Co. v Linde Air Products Co. Under this doctrine, an accused article or method that does not literally meet the limitations of a claim may nevertheless infringe. Thus, even if there is no literal infringement, infringement could be found under the doctrine of equivalents if the accused article or method was equivalent to the claimed invention.

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13 56 U.S. 330 (1854).
15 "Infringement, both literal and under the doctrine of equivalents, is a question of fact which [the
Determining what counts as an equivalent has been a critical, difficult, and central issue to patent jurisprudence. The doctrine of equivalents has created a tension between two important public policies. One policy focuses on the importance of providing public notice as to what infringes by requiring clear and distinct claims. The other policy focuses on the need to prevent an infringer from avoiding liability by merely playing semantic games or by making only minor changes in the accused article or method to avoid the literal language of the claims. These issues and policy considerations were addressed by the Supreme Court in *Warner-Jenkinson Co. v. Hilton Davis Chemical Co.*

In *Warner-Jenkinson*, the Court reaffirmed the existence of the doctrine of equivalents, and in light of the public policy tensions associated with it “endeavor[ed] to clarify the proper scope of the doctrine.” Quoting its earlier decision in *Graver Tank*, the *Warner-Jenkinson* Court held:

> What constitutes equivalency must be determined against the context of the patent, the prior art, and the particular circumstances of the case. Equivalence, in the patent law, is not the prisoner of a formula and is not an absolute to be considered in a vacuum. It does not require complete identity for every purpose and in every respect. In determining equivalents, things equal to the same thing may not be equal to each other and, by the same token, things for most purposes different may sometimes be equivalents. Consideration must be given to the purpose for which an ingredient is used in a patent, the qualities it has when combined with the other ingredients, and the function which it is intended to perform. An important factor is whether persons

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16 See, e.g., 35 U.S.C.; § 112, ¶ 2 (1994) (“The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter . . .:”).


reasonably skilled in the art would have known of the interchangeability of an ingredient not contained in the patent with one that was. 19

The Warner-Jenkinson Court then clarified and restricted the application of the doctrine of equivalents, holding that:

Each element contained in a patent claim is deemed material to defining the scope of the patented invention, and thus the doctrine of equivalents must be applied to individual elements of the claim, not to the invention as a whole. It is important to ensure that the application of the doctrine, even as to an individual element, is not allowed such broad play as to effectively eliminate that element in its entirety.20

This restriction of the doctrine of equivalents is referred to as the all elements rule.21 The Court, however, rejected other restrictions on the doctrine of equivalents that the litigants requested. The Court declined to make the doctrine a purely equitable tool, which would be applied at the discretion of a court after weighing the equities of the case. It declined to recognize independent experimentation as an equitable defense to the doctrine. Finally, it declined to limit the doctrine to only embodiments disclosed in the patent.22

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20 520 U.S. 17, 29, 41 U.S.P.Q.2d at 1871 (emphasis added).
21 This rule eliminates one of the greatest mischiefs that the doctrine of equivalents can work on the patent law. Prior to this rule, although several Federal Circuit panels had adopted and previously applied the all elements rule, see e.g., Pennwalt Corp. v Durland-Wayland, Inc., 833 F.2d 933-34, 41 U.S.P.Q.2d, 1737, 1739 (Fed. Cir. 1987), a patent lawyer could attempt to use the doctrine of equivalents to ignore the patent claims. Rather than focusing on the specific claim language and the elements of the claim, the case could be tried based on the claim as a whole and how the accused device was equivalent to that claim as a whole. As one litigant brazenly asserted to a district court:

The question isn’t what the claims say, and the question isn’t whether it [the accused product] looks different. The question is what are the qualitative attributes or characteristics of what they’ve done and are they the same. Do they capture the heart of the invention. . . .

Vehicular Technologies Corp. v. Titan Wheel International, Inc., 141 F.3d 1084, 1089, 46 U.S.P.Q.2d 1257, 1260 (Fed. Cir. 1998) (emphasis added). The Supreme Court’s adoption of the all elements rule should put an end to this type of chicanery.

22 520 U.S. 17, 35-40, 41 U.S.P.Q.2d 1865, 1871-76.
The Warner-Jenkinson Court further held that the equivalence determination is made at the time of the alleged infringement and not at the time the patent issued.\textsuperscript{23} On the other hand, it expressly declined to adopt a specific linguistic test for a doctrine of equivalents analysis.\textsuperscript{24} Thus, it is on this framework that the Federal Circuit has continued to develop and refine the doctrine of equivalents.

The playing field for an infringement analysis has now been clearly and succinctly articulated by the Federal Circuit:

Determining whether an accused process or device infringes a patent claim is a two-step process. “The first step is claim construction, which involves ascertaining the scope and meaning of the claims at issue, while the second step involves determining whether the claims as construed read on the accused device.” \textit{Streanfeeder, LLC v Sure-Feed Sys., Inc.}, 175 F.3d 974, 981, 50 USPQ2d 1515, 1519 (Fed. Cir. 1999).

Claim construction is a question of law that we review \textit{de novo}. \textit{See Cybor Corp. v. FAS Techs., Inc.}, 138 F.3d 1448, 1456, 46 USPQ2d 1169, 1174 (Fed. Cir. 1998) (en banc).

Infringement, either literal or under the doctrine of equivalents, is a question of fact that we review for clear error when tried without a jury. \textit{See Insituform Techs., Inc. v Cat Contracting, Inc.}, 161 F.3d 688, 692, 48 USPQ2d 1610, 1614 (Fed. Cir. 1998).

Whether an asserted scope of equivalents would impinge on prior art is an issue of law that we review \textit{de novo}. \textit{See Wilson}, 904 F.2d at 683-84, 14 USPQ2d at 1948.\textsuperscript{25}

\textsuperscript{23} 520 U.S. 17, 37, 41 U.S.P.Q.2d, 1865, 1874.

\textsuperscript{24} 520 U.S. 17, 39-40, 41 U.S.P.Q.2d 1865, 1875-76.

\textsuperscript{25} \textit{Ultra-Tex Surfaces, Inc. v Hill Brothers Chemical Co.}, 204 F.3d 1360, 1363, 53 U.S.P.Q.2d 1892, 1895 (Fed. Cir. 2000) (paragraph structure added). \textit{See also Festo}, 234 F.3d 558, 586, 56 U.S.P.Q.2d 1865, 1886 (en banc) (“Infringement under the doctrine of equivalents is a question of fact. \textit{Warner-Jenkinson}, 520 U.S. at 38. We must overturn the jury’s finding on a factual issue if it is not supported by substantial evidence or if it is based on an erroneous legal determination. \textit{Kearns v Chrysler Corp.}, 32 F.3d 1541, 1547-48, 31 U.S.P.Q.2d 1746, 1751 (Fed. Cir. 1994). Prosecution history estoppel is a legal question that is subject to \textit{de novo} review by this court. \textit{LaBounty}, 867 F.2d at 1576, 9 USPQ2d at 1998. Thus, when reviewing the jury verdict, we will independently decide the
In a series of cases the Federal Circuit continued to maintain the viability of the Wilson Sporting Goods\textsuperscript{26} hypothetical claim analysis after Warner-Jenkinson. In Marquip, Inc. v Fosber America, Inc., the court affirmed a summary judgment of no infringement under the doctrine of equivalents.\textsuperscript{27} In doing so the court reaffirmed the general rule that the prior art belongs to the public:

Based on the fundamental principle that no one deserves an exclusive right to technology already in the public domain, this court has consistently limited the doctrine of equivalents to prevent its application to ensnare prior art (citing Wilson Sporting Goods ).\textsuperscript{28}

The court then stated that a helpful illustration of this principle is to visualize a hypothetical claim that was broad enough in scope to literally cover the accused device. Finding that such a hypothetical claim would indeed cover the prior art, the court found that there could be no infringement under the doctrine of equivalents, and thus affirmed the grant of summary judgment.\textsuperscript{29} The court went on to note that it is the patentee’s burden to establish that the hypothetical claim does not cover the prior art and that the entry of summary judgment is appropriate when this has not occurred:


\textsuperscript{27} 198 F.3d 1363, 1364, 53 U.S.P.Q.2d 1015, 1016 (Fed. Cir. 1999). It may come as no surprise, but a quick review of last year’s cases shows that the vast majority of them came up to the Federal Circuit after the entry of summary judgment. Thus, it appears that Judge Mayer’s prediction that Markman hearings will result in the vast majority of patent cases being resolved on summary judgment has come true. Markman v Westview Instruments, Inc., 52 F.3d 967, 989, 34 U.S.P.Q.2d 1321, 1337 (Fed. Cir. 1995) (en banc) (Mayer J., concurring) (“to decide what the claims mean is nearly always to decide the case”).

\textsuperscript{28} Marquip, 198 F.3d 1363, 1367, 53 U.S.P.Q.2d 1015, 1018.

\textsuperscript{29} 198 F.3d 1363, 1368, 53 U.S.P.Q.2d 1015, 1019.
Marquip [the patentee] does not show any genuine disputes of material fact to satisfy its burden “to prove that the range of equivalents which it seeks would not ensnare the prior art.” *Wilson Sporting Goods*, 904 F.2d at 685 (“The patent owner has always borne the burden of proving infringement.” . . .)\(^3^0\)

In *Ultra-Tex Surfaces, Inc. v Hill Brothers Chemical Co.*,\(^3^1\) the Federal Circuit again turns to a hypothetical claim analysis to determine whether there is infringement under the doctrine of equivalents. The court further articulated how the burden of proof is allocated in a hypothetical claim analysis:

> while the accused infringer must come forward with evidence that the hypothetical claim reads on the prior art, once the patentee makes out a *prima facie* case of infringement by equivalence, the *ultimate burden of persuasion rests on the patentee to show that the hypothetical claim does not read on the prior art. See id. at 982-83, 50 USPQ2d at 1520-21.\(^3^2\)

The court went on to note that a hypothetical claim cannot expand the scope of some claim elements while narrowing the scope of others:

> Despite the utility of this methodology, in *Streamfeeder* we emphasized that hypothetical claim analysis is not a vehicle for a patentee to “freely redraft granted claims” by expanding some limitations in order to read on an accused process or device while narrowing other limitations to avoid prior art. See *Streamfeeder*, 175 F.3d at 983, 50 USPQ2d at 1521 . . . .

We first note that as in *Streamfeeder*, Ultra-Tex used hypothetical analysis to “freely redraft” its claim by impermissibly broadening and narrowing it at the same time, a practice our case law clearly forbids . . . . Thus, the hypothetical claim is only a device for limited, not substantial, inclusion of unclaimed subject matter and not for exclusion of unduly limiting subject matter. The claim created by Ultra-Tex here does not pass muster.\(^3^3\)

\(^3^0\) *Id.*

\(^3^1\) 204 F.3d 1360, 1364, 53 U.S.P.Q.2d 1892, 1896 (Fed. Cir. 2000).

\(^3^2\) 204 F.3d 1360, 1365, 53 U.S.P.Q.2d 1892, 1896 (emphasis added).

\(^3^3\) 204 F.3d 1360, 1365-66, 53 U.S.P.Q.2d 1892, 1896-97.
In *Fiskars, Inc. v Hunt Manufacturing Co.*, the Federal Circuit further defined the role of the burden of proof in an equivalents analysis. In *Fiskars*, the court affirmed a jury finding of infringement under the doctrine of equivalents, reasoning that:

Hunt [the accused infringer] does not argue that a hypothetical claim embracing its device would not be patentable. Hunt simply argues that Fiskars (the patentee) had the burden of presenting evidence and establishing that Hunt’s device was not in the prior art, as part of its burden of proof of infringement. Hunt states that the district court misplaced the burden of proof, thus requiring a new trial.

Hunt’s theory is incorrect. It is an affirmative defense of the accused infringer to allege and to show that it is practicing the prior art. When the patentee has presented a *prima facie* case of infringement, the burden shifts to the accused infringer to come forward with evidence to establish this defense.

Thus, the burdens of proof in a doctrine of equivalents analysis can be summarized as:

1. The patentee has the burden of presenting a prima facie case of infringement under the doctrine of equivalents, i.e., the hypothetical claim covers the accused product;
2. the accused infringer then has the burden of coming forward with a showing that the accused device is practicing the prior art, i.e., the hypothetical claim is unpatentable; and,
3. the patentee then has the ultimate burden of persuasion to establish that the accused device infringes under the doctrine of equivalents and that the accused device is not practicing the prior art, i.e., the hypothetical claim is both infringed and patentable.

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34 221 F.3d 1318, 55 U.S.P.Q.2d 1569 (Fed. Cir. 2000).
35 221 F.3d 1318, 1324, 55 U.S.P.Q.2d 1569, 1573.
The *Fiskars* court also reconciled the all elements rule with the defense of practicing the prior art. That court soundly rejected the accused infringer’s argument that any claim element found in the prior art was not entitled to equivalents, stating:

Hunt [the accused infringer] also states that if any individual element of the Hunt device is in the prior art, that element cannot be deemed equivalent to any claimed element. That theory is incorrect. A claim to a mechanical device usually recites a combination of several elements, most or all of which may be separately known . . . . That an element of an accused device already exists does not bar equivalency as to that element.36

In *Kraft Foods, Inc. v International Trading Co.*,37 the Federal Circuit confirmed that the after-arising-equivalents rule set out in *Chiuminatta Concrete Concepts, Inc. v Cardinal Industries, Inc.*,38 did not apply to regular claims, but was limited to means- and step-plus-function claims. In *Chiuminatta* the court had held that for means- and step-plus-function claims the doctrine of equivalents was available only for technology that was developed after the patent issued.39

The district court in *Kraft Foods* granted summary judgment of no infringement under the doctrine of equivalents because the technology employed by the accused device was known at the time the patent issued.40 The Federal Circuit rejected this analysis holding that:

We agree with Kraft that the district court incorrectly applied our holding in *Chiuminatta* and consequently improperly granted summary judgment of non-infringement under the doctrine of equivalents . . . .

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36 221 F.3d 1318, 1323, 55 U.S.P.Q.2d 1569, 1574.
As Kraft correctly notes, however, *Chiuminatta*’s preclusion of a finding of infringement under the doctrine of equivalents for pre-existing technology after an adverse holding of no literal infringement for the same technology applies only to means-plus-function claim limitations . . . . Thus, *for a claim limitation not drafted in means-plus-function language, the mere fact that the asserted equivalent structure was pre-existing technology does not foreclose a finding of infringement under the doctrine of equivalents.*

The Federal Circuit appears to be moving away from the dicta in *Ethicon*, which limited the applicability of *Sage*. The court in a series of cases has reinvigorated the rationale of *Sage*, which provides that the doctrine of equivalents cannot eliminate clear structural requirements of the claims, nor is the doctrine intended to undo strategic decisions and mistakes made during prosecution.

In *Zodiac Pool Care, Inc. v Hoffinger Industries, Inc.*, the Federal Circuit affirmed summary judgment of no infringement under the doctrine of equivalents for a pool vacuum. In *Zodiac Pool Care* the claim limitation at issue called for a stop to be located “substantially inward of the peripheral edge” of the unit. In the accused infringing unit the stop extended to the edge of the unit. In affirming the district court’s non-infringement ruling, the Federal Circuit held:

First, the language of the limitation itself provides for a “stop . . . located . . . substantially inward of the peripheral edge.” *It defies common usage to suggest that a stop which is “substantially inward” of an edge could at the same time extend at least to that same edge.* Zodiac contends that as long a substantial portion of the stop is in fact inward of the edge, both conditions could be satisfied. This contention, however, ignores that the limitation recites

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a relationship between the edge and the stop, not a relationship between the edge and a portion of the stop . . . .

We conclude that the equivalence issue is resolved by our decision in *Sage Products*.

“Because this issued patent contains clear structural limitations, the public has a right to rely on those limits in conducting its business activities. This court will not effectively remove such a limitation under a doctrine designed to prevent ‘fraud on the patent.’” *Id* at 1425-26, 44 USPQ2d at 1108.

However, like the patent at issue in *Sage Products*, the ‘382 patent contains “clear structural limitations,” including a limitation that the stop be located “substantially inward” of the peripheral edge of the disc. Given the proper construction of this limitation, a verdict of infringement under the DOE would reduce the claims to nothing more than “functional abstracts, devoid of meaningful structural limitations on which the public could rely.” *Sage Products*, 126 F.3d at 1424, 44 USPQ2d at 1107 (citing *Conopco, Inc. v May Dept Stores Co.*, 46 F.3d 1556, 1562, 32 USPQ2d 1225, 1228 (Fed. Cir. 1994)).

In *Vehicular Technologies Corp. v Titan Wheel International, Inc.* the Federal Circuit took a similarly restrictive view towards the doctrine of equivalents. In this case the court refused to allow the patentee to expand the scope of a claim that contained the introductory phrase “consisting of” to include the presence of additional elements:

Moreover the patent drafter underscored this limitation with the introductory phrase “consisting of.” The term “consisting of” is a term of art in patent law signifying restriction and exclusion, while, in contrast, the term “comprising” indicates an open-ended construction . . . . In simple terms, a drafter uses the phrase “consisting of” to mean “I claim what follows and nothing else.” A drafter uses the term “comprising” to mean “I claim at least what follows and potentially more.”

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In a concurring opinion, Judge Rader stressed that this was a situation that “fits well within” the rationale of Sage:

In this case as in Sage, a skilled patent drafter would readily foresee the limiting potential of the “consisting of two concentric springs limitation.” . . . In such a case as this, this court does not employ the doctrine of equivalents to alter the limitations the drafter chose to prosecute in the Patent and Trademark Office.

“[A]s between the patentee who had a clear opportunity to negotiate broader claims but did not do so, and the public at large, it is the patentee who must bear the cost of his failure to seek protection for this foreseeable alteration of its claimed structure.” Sage, 126 F.3d at 1424.48

This rationale of Sage was again applied in Moore U.S.A., Inc. v Standard Register Co. 49 In Moore the court held that a claim limitation calling for the “majority of the length” was entitled to zero equivalents. In particular, the court rejected an argument that 48 percent was an insubstantial difference from 50.001 percent. Significantly, this rationale was not based on prosecution history estoppel. Instead, the court reasoned:

We cannot agree with any of Moore’s theories on infringement by equivalents. If our case law on the doctrine of equivalents makes anything clear, it is that all claim limitations are not entitled to an equal scope of equivalents. Whether the result of the All Limitations Rule, see Pennwalt Corp. v. Durand-Wayland, Inc., 833 F.2d 931, 934-35, 4 USPQ2d 1737, 1739-40 (Fed. Cir. 1987) (en banc), prosecution history estoppel, see Warner-Jenkinson, 520 U.S. at 33-34, or the inherent narrowness of the claim language, see Sage, 126 F.3d at 1425, 44 USPQ2d at 11, marry limitations warrant little, if any; range of equivalents.

In this case, we hold that the applicant’s use of the term “majority” is not entitled to a scope of equivalents covering a minority for at least two reasons. First, to allow what is undisputedly a minority (i.e., 47.8%) to be equivalent to a majority would vitiate the requirement that the “first and second longitudinal strips of adhesive . . . extend the majority of the lengths of said longitudinal marginal portions.” ‘464 patent, col. 10, 11. 56-60. If a minority could be

49 229 F.3d 1091, 56 U.S.P.Q.2d 1225 (Fed. Cir. 2000).
equivalent to a majority, this limitation would hardly be necessary, since the immediately preceding requirement of a “first and second longitudinal strips of adhesive disposed in said first and second longitudinal marginal portions, respectively, of said first face” would suffice. Second, it would defy logic to conclude that a minority—the very antithesis of a majority—could be insubstantially different from a claim limitation requiring a majority, and no reasonable juror could find otherwise.50

The Federal Circuit again reminded patentees that it is their burden to prove infringement under the doctrine of equivalents and that lawyer testimony or mere conclusory statements alone will not meet this burden. Specifically, in Speedplay, Inc. v Bebop, Inc., the Federal Circuit affirmed a holding of non-infringement because the patentee’s expert had failed to address the “way” prong of the function-way-result test.51

§ 8.03 PROSECUTION HISTORY ESTOPPEL

Prosecution history estoppel, or file wrapper estoppel, is an important limit to the doctrine of equivalents. In theory, prosecution history estoppel uses the public record of what the patentee did before the Patent Office to restrict a patentee from relying on the doctrine of equivalents. “Prosecution history estoppel precludes a patentee from obtaining under the doctrine of equivalents coverage of subject matter that has been relinquished during the prosecution of its patent application.”52

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50 Moore, 229 F.3d 1091, 1106, 56 U.S.P.Q.2d 1225, 1235-36 (emphasis added).

51 211 F.3d 1245, 125-58, 53 U.S.P.Q.2d 1984, 1993 (Fed. Cir. 2000). See also Ultra-Tex Surfaces, 204 F.3d 1360, 1364, 53 U.S.P.Q.2d 1892, 1895 (“As an initial matter, it is beyond dispute that Ultra-Tex [the patentee] bore the burden of proving the composition of the accused template. While Ultra-Tex argues that Hill Brothers failed to prove the composition of the accused template, it is axiomatic that the patentee bears the burden of proving infringement.”).

The *Warner-Jenkinson* Court relied upon the doctrine of prosecution history estoppel as a reason why the doctrine of equivalents did not violate the public notice policy of requiring clear and distinct claims.\(^5\) Thus, as a basis for reaffirming the existence of the doctrine of equivalents, the *Warner-Jenkinson* Court set forth a framework for the application of the doctrine of prosecution history estoppel.\(^4\) It is the application of this framework and its reconciliation with prior case law that gave rise to a split on the Federal Circuit,\(^5\) which the *en banc* decision in *Festo Corp. v. Shoketsu Kinozku Kogyo Kabushiki Co.*, attempts to resolve.\(^6\)

\(^5\) 520 U.S. at 34, 41 U.S.P.Q.2d at 1873.

\(^4\) 520 U.S. at 30-33 & n.7, 41 U.S.P.Q.2d at 1872-73 & n.7.

\(^5\) The split in the Federal Circuit has resulted in more than a few scathing dissents. For example, Judge Gajarsa viewed the majority opinion in *Litton Systems, Inc. v. Honeywell, Inc.*, 140 F.3d 1449, 46 U.S.P.Q.2d 1321 (Fed. Cir. 1998), as “a tortured interpretation of *Warner-Jenkinson*.\(^6\)” *Litton Systems, Inc. v. Honeywell, Inc.*, 145 F.3d 1472, 1476, 47 U.S.P.Q. 1106, 1110 (Fed. Cir. 1998) (emphasis added) (Gajarsa, J. dissenting from denial of a request for rehearing *en banc*). As Judge Clevenger put it “[s]omeone, in this case [Litton] or in another case soon, should explain to the Supreme Court that—if this panel is correct in granting a range of equivalents to limitations of claims amended for patentability reasons—its *Warner-Jenkinson* decision had no meaningful effect at all on the doctrine of equivalents.” *Litton Systems, Inc. v. Honeywell, Inc.*, 145 F.3d 1472, 1473, 47 U.S.P.Q. 1106, 1107 (Fed. Cir. 1998) (Clevenger, J. dissenting from denial of a request for rehearing *en banc*).

\(^6\) *Festo Corp. v. Shoketsu Kinozku Kogyo Kabushiki Co.*, 234 F.3d 558, 56 U.S.P.Q.2d 1865 (Fed. Cir. 2000) (*en banc*). In the earlier decision in the *Festo* case, which was vacated by the order granting the petition for rehearing, the Federal Circuit applied the rationale of *Corning Glass Works v. Sumitomo Electric U.S.A. Inc.*, 868 F.2d 1251, 9 U.S.P.Q.2d 1962 (Fed. Cir. 1989), and found infringement under the doctrine of equivalents even though there was not a one-to-one correspondence between the accused device and the claims at issue. In *Festo*, the claims called for sealing rings (plural) and the accused device only had a singular sealing ring. *See Festo Corp. v. Shoketsu Kinozku Kogyo Kabushiki (a/k/a SMC Corp.),* 172 F.3d 1361, 50 U.S.P.Q.2d 1385 (Fed. Cir. 1999), withdrawn, 187 F.3d 1381, 51 U.S.P.Q.2d 1959 (Fed. Cir. 1999). It would not be out of the question for the *en banc* decision to be reviewed by the Supreme Court. The likelihood of the Supreme Court review is enhanced, in view of the importance of these issues and the fact that this case has already been before the Supreme Court and was remanded for reconsideration in view of the Supreme Court’s *Warner-Jenkinson* decision. *See Shoketsu Kinozku Kogyo Kabushiki v. Festo Corp.*, 520 U.S. 1111 (1997).
The en banc decision in Festo answers four of the five questions set out in the order granting the petition for hearing.\(^{57}\)

1. For the purposes of determining whether an amendment to a claim creates prosecution history estoppel, is “a substantial reason related to patentability,” \(Warner-Jenkinson\) Co. v. Hilton Davis Chem. Co., 520 U.S. 17, 33, 117 S. Ct. 1040, 137 L. Ed. 2d 146 (1997), limited to those amendments made to overcome prior art under § 102 and § 103, or does “patentability” mean any reason affecting the issuance of a patent?

In response to En Banc Question 1, we hold that “a substantial reason related to patentability” is not limited to overcoming prior art, but includes other reasons related to the statutory requirements for a patent. Therefore, an amendment that narrows the scope of a claim for any reason related to the statutory requirements for a patent will give rise to prosecution history estoppel with respect to the amended claim element.\(^{58}\)

2. Under \(Warner-Jenkinson\), should a “voluntary” claim amendment--one not required by the examiner or made in response to a rejection by an examiner for a stated reason--create prosecution history estoppel?

In response to En Banc Question 2, we hold that “voluntary” claim amendments are treated the same as other claim amendments; therefore, any voluntary amendment that narrows the scope of a claim for a reason related to the statutory requirements for a patent will give rise to prosecution history estoppel with respect to the amended claim element.\(^{59}\)

3. If a claim amendment creates prosecution history estoppel, under \(Warner-Jenkinson\) what range of equivalents, if any, is available under the doctrine of equivalents for the claim element so amended?

In response to En Banc Question 3, we hold that when a claim amendment creates prosecution history estoppel, no range of equivalents is available for the amended claim element.\(^{60}\)

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\(^{58}\) Festo, 234 F.3d 558, 563, 56 U.S.P.Q.2d 1865, 1867-68 (en banc) (11 of 12 judges joined in the holding on question 1).

\(^{59}\) Festo, 234 F.3d 558, 563-64, 56 U.S.P.Q.2d 1865, 1867-68 (en banc)(11 of 12 judges joined in the holding on question 2).

\(^{60}\) Festo, 234 F.3d 558, 563-64, 56 U.S.P.Q.2d 1865, 1867-68 (en banc) (8 of 12 judges joined in the holding on question 3).
4. When “no explanation [for a claim amendment] is established,” Warner-Jenkinson, 520 U.S. at 33, 117 S. Ct. 1040, thus invoking the presumption of prosecution history estoppel under Warner-Jenkinson, what range of equivalents, if any, is available under the doctrine of equivalents for the claim element so amended?

In response to En Banc Question 4, we hold that “unexplained” amendments are not entitled to any range of equivalents.61

5. Would a judgment of infringement in this case violate Warner-Jenkinson’s requirement that the application of the doctrine of equivalents “is not allowed such broad play as to eliminate [an] element in its entirety,” 520 U.S. at 29, 117 S. Ct. 1040. In other words, would such a judgment of infringement, post Warner-Jenkinson, violate the “all elements” rule?

We do not reach En Banc Question 5, for reasons which will become clear in our discussion of the specific case before us.62

This decision, and in particular the answers to questions 2 and 3, which increase the scope of protection a defendant can obtain from prosecution history estoppel, should come as no surprise. The trend of the Federal Circuit over the last few years, as evidenced by the cases discussed above applying the rationale of Sage, has been to narrow, or rein in, the doctrine of equivalents. The free wheeling days of infringement litigation are over.

It is also clear, or will become so all to quickly, that substantially greater care and expense need to be taken in patent prosecution. For example, the rationale of Sage and Festo substantially box in a patentee. If the claim terms are clear, e.g., “majority of the length” and detailed, thus giving rise to a first office action allowance and avoiding any prosecution history estoppel, the rationale of Sage would nevertheless prohibit the doctrine of equivalents from applying. On the other hand, if the claims were less clear, and broader, the patentee

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61 Festo, 234 F.3d 558, 563-64, 56 U.S.P.Q.2d 1865, 1867-68 (en banc) (11 of 12 judges joined in the holding on question 4).
62 Festo, 234 F.3d 558, 563-64, 56 U.S.P.Q.2d 1865, 1867-68 (en banc).
most likely would be forced to amend and narrow those terms during prosecution, thus creating an estoppel and again precluding any application of the doctrine of equivalents.

In reaching its answers in *Festo* the Federal Circuit relied heavily on the public notice purpose of patent claims:

The doctrine of equivalents prevents an accused infringer from avoiding liability for infringement by changing only minor or insubstantial details of a claimed invention while retaining the invention’s essential identity. *Graver Tank & Mfg. Co. v. Linde Air Prods. Co.*, 339 U.S. 605, 608 (1950). The doctrine of equivalents is utilized “[t]o temper unsparing logic and prevent an infringer from stealing the benefit of the invention.” *Id.* (quoting *Royal Typewriter Co. v. Remington Rand, Inc.*, 168 F.2d 691, 692, 77 USPQ 517, 518 (2d Cir. 1948) (Hand, J.)). In pursuing these goals, the doctrine attempts to strike a balance between ensuring that the patentee enjoys the full benefit of his patent and ensuring that the claims give “fair notice” of the patent’s scope. *London v. Carson Pirie Scott & Co.*, 946 F.2d 1534, 1538, 20 USPQ2d 1456, 1458-59 (Fed. Cir. 1991). This balance can be easily upset, however, because “the doctrine of equivalents, when applied broadly, conflicts with the definitional and public-notice functions of the statutory claiming requirement.” *Warner-Jenkinson*, 520 U.S. at 29.

Prosecution history estoppel is one tool that prevents the doctrine of equivalents from vitiating the notice function of claims. *Charles Greiner & Co. v. Mari-Med Mfg., Inc.*, 962 F.2d 1031, 1036, 22 USPQ2d 1526, 1529-30 (Fed. Cir. 1992). Actions by the patentee, including claim amendments and arguments made before the Patent Office, may give rise to prosecution history estoppel. *Pharmacia & Upjohn Co. v. Mylan Pharms., Inc.*, 170 F.3d 1373, 1376-77, 50 USPQ2d 1033, 1036 (Fed. Cir. 1999). “Prosecution history estoppel precludes a patentee from obtaining under the doctrine of equivalents coverage of subject matter that has been relinquished during the prosecution of its patent application.” *Id.* at 1376, 50 USPQ2d at 1036. Therefore, “[t]he doctrine of equivalents is subservient to . . . [prosecution history] estoppel.” *Autogiro Co. v. United States*, 384 F.2d 391, 400-01, 155 USPQ 697, 705 (Ct. Cl. 1967). The logic of prosecution history estoppel is that the patentee, during prosecution, has created a record that fairly notifies the public that the patentee has surrendered the right to claim particular matter as within the reach of the patent.63

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63 *Festo*, 234 F.3d 558, 564-65, 56 U.S.P.Q.2d 1865, 1868-69 (emphasis added) (*en banc*).
In answering question one—what does substantially related to patentability mean?—the court essentially stated that everything that happens in prosecution is related to patentability and can potentially give rise to prosecution history estoppel. In particular, the court found that an amendment substantially related is patentability is any amendment that is made for the purposes of:

• novelty;
• non-obviousness;
• utility;
• written description requirement;
• enablement;
• best mode; and,
• definiteness.64

In answering question two--what is the effect of a voluntary amendment?--the court essentially stated that it is the same as any other amendment. Specifically, the Festo court held that:

Therefore, a voluntary amendment that narrows the scope of a claim for a reason related to the statutory requirements for a patent will give rise to prosecution history estoppel as to the amended claim element.

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64 Festo, 234 F.3d 558, 566-67, 56 U.S.P.Q.2d 1865, 1870-71 (emphasis added) (en banc). The inclusion of this requirement in its list of things related to patentability perhaps shows the zeal that the court has for restricting the doctrine of equivalents and to bring certainty to an area of the patent law, which by its very nature can not be certain. The best mode requirement looks to what the inventors believed to be their best mode of practicing the invention at the time the application is filed. It thus seems quite impossible for an amendment that is made to the claims after the application has been filed to correct any best mode problems or for that matter to ever be related to the best mode requirement. Nevertheless, the Federal Circuit felt compelled to add it to their list of amendments that are related to patentability.
Both voluntary amendments and amendments required by the Patent Office signal to the public that subject matter has been surrendered. There is no reason why prosecution history estoppel should arise if the Patent Office rejects a claim because it believes the claim to be unpatentable, but not arise if the applicant amends a claim because he believes the claim to be unpatentable.\textsuperscript{65}

Again the Federal Circuit based its rationale for applying the doctrine of equivalents to voluntary claim amendments on the public notice policy of patent claims. The court also notes in dicta that the application of prosecution history estoppel to voluntary claim amendments is consistent with the doctrine of “argument-based estoppel.” Under that doctrine arguments “made voluntarily during prosecution may give rise to prosecution history estoppel if they evidence a surrender of subject matter.”\textsuperscript{66}

It is significant to note that the \textit{Festo} questions can be broken down into two basic issues. First, what actions give rise to an estoppel. Second, what are the consequences once an estoppel occurs. The answers to \textit{Festo} questions one and two address the first issue, while the answers to questions three and four address the second issue.

A very important aspect of \textit{Festo}, and one that applies across the entire decision regarding the first issue, is that an estoppel is only created if the amendment is narrowing. Thus, in its answer to question one, the court limits the applicability of prosecution history estoppel to only “an amendment that \textit{narrows the scope} of the claim.”\textsuperscript{67} The court similarly

\textsuperscript{65} 234 F.3d 558, 568, 56 U.S.P.Q.2d 1865, 1871-72 (emphasis added) (\textit{en banc}).


\textsuperscript{67} 234 F.3d 558, 563, 56 U.S.P.Q.2d 1865, 1868 (emphasis added) (\textit{en banc}).
limits the applicability of prosecution history estoppel in answering question two to only “[a]
voluntary amendment that narrows the scope of a claim.”\textsuperscript{68}

In answering question three--what is the effect of an estoppel?-the court stated that it
creates a complete bar to the doctrine of equivalents. Specifically, the court held that:

When a claim amendment creates prosecution history estoppel with regard to a
claim element, there is no range of equivalents available for the amended
claim element. Application of the doctrine of equivalents to the claim element
is completely barred (a “complete bar”).\textsuperscript{69}

Recognizing that with one stroke of the pen they changed some 20 years of patent
jurisprudence, and that the court had taken the exact opposite position for the last three years,
the majority in \textit{Festo} went to great lengths to support their holding:

Today, we revisit the question we first addressed in \textit{Hughes I} and come to a
different conclusion as to the proper scope of equivalents that is available
when prosecution history estoppel applies than we did in that case. \textit{We hold
that prosecution history estoppel acts as a complete bar to the application of
the doctrine of equivalents when an amendment has narrowed the scope of a
claim for a reason related to patentability.} Our decision to reject the flexible
bar approach adopted in \textit{Hughes I} comes after nearly twenty years of
experience in performing our role as the sole court of appeals for patent
matters. In those years, the notice function of patent claims has become
paramount, and the need for certainty as to the scope of patent protection has
been emphasized. A problem with the flexible bar approach is that it is
virtually impossible to predict before the decision on appeal where the line of
surrender is drawn . . . .

We believe that the current state of the law regarding the scope of equivalents
that is available when prosecution history estoppel applies is “unworkable.” In
patent law, we think that rules qualify as “workable” when they can be relied
upon to produce consistent results and give rise to a body of law that provides
guidance to the marketplace on how to conduct its affairs. After our long
experience with the flexible bar approach, we conclude that its “workability”
is flawed. . . .

\textsuperscript{68} 234 F.3d 558, 563, 56 U.S.P.Q.2d 1865, 1868 (emphasis added) (\textit{en banc}).

\textsuperscript{69} 234 F.3d 558, 569, 56 U.S.P.Q.2d 1865, 1872 (\textit{en banc}).
By making prosecution history estoppel act as a complete bar, we enforce the disclaimer effect of a narrowing claim amendment. By narrowing his claims, a patentee disclaims subject matter encompassed by the original claims. E.g., *Exhibit Supply*, 315 U.S. at 136-37; *Magic City Kennel Club*, 282 U.S. at 790; *Shepard*, 116 U.S. at 598 (noting that a patentee who has narrowed a claim during prosecution cannot “enlarge her patent by argument so as to cover elements not falling within its terms, and which she had explicitly abandoned”). As the Supreme Court has stated, “By amendment [the patentee] recognize[s] and emphasize[s] the difference between the “original claim and amended claim “and proclaim[s] . . . abandonment of all that is embraced in that difference.” *Exhibit Supply*, 315 U.S. at 136. Amendments “must be strictly construed against the inventor and in favor of the public, and looked upon as in the nature of disclaimers.” *Hubbell*, 179 U.S. at 83-84. In order to construe such amendments strictly against the patentee, no scope of equivalents can be afforded to a claim element that was narrowed because of patentability concerns. . . .

If prosecution history estoppel acts as a complete bar to application of the doctrine of equivalents, both the patentee and the public are on notice as to the scope of protection provided by a claim element narrowed for a reason related to patentability. The patentee and the public can look to the prosecution history, a public record, to determine if any prosecution history estoppel arises as to any claim element. If so, that element’s scope of protection is clearly defined by its literal terms.

The Supreme Court recognized the value of a complete bar in *Warner-Jenkinson* when it discussed the presumption that prosecution history estoppel applies when an amendment is unexplained. The Court, keeping in mind “that claims do indeed serve both a definitional and a notice function,” held that if the presumption was not rebutted, “prosecution history estoppel would bar the application of the doctrine [of] equivalents as to that element.” . . .

*With a complete bar, neither the public nor the patentee is required to pay the transaction costs of litigation in order to determine the exact scope of subject matter the patentee abandoned when the patentee amended the claim.*

Thus, under the complete bar approach, technological advances that would have lain in the unknown, undefined zone around the literal terms of a narrowed claim under the flexible bar approach will not go wasted and undeveloped due to fear of litigation. The public will be free to improve on the patented technology and design around it without being inhibited by the threat of a lawsuit because the changes could possibly fall within the scope of equivalents left after a claim element has been narrowed by amendment for a reason related to patentability. This certainty will stimulate investment in
improvements and design-arounds because the risk of infringement will be easier to determine . . . .

Finally, we see no overriding benefit to the flexible bar approach. Although a flexible bar affords the patentee more protection under the doctrine of equivalents, we do not believe that the benefit outweighs the costs of uncertainty. The Supreme Court noted in *Warner-Jenkinson* that the doctrine of equivalents has “taken on a life of its own, unbounded by the patent claims.” *Warner-Jenkinson*, 520 U.S. at 28-29. A complete bar reins in the doctrine of equivalents, making claim scope more discernible and preserving the notice function of claims. The Court indicated that the application of a complete bar allowed prosecution history estoppel to place “reasonable limits on the doctrine of equivalents, and further insulate[] the doctrine from any feared conflict with the Patent Act.” *Id*. The application of a complete bar to the doctrine of equivalents whenever a claim amendment gives rise to prosecution history estoppel similarly reduces the conflict and tension between the patent protection afforded by the doctrine of equivalents and the public’s ability to ascertain the scope of a patent.\(^\text{70}\)

Thus, one thing is clear, at this point, at least, the public notice function of claims has won out over the desire to protect an inventor from infringers and unscrupulous copyists. In answering question four--what is the effect of an estoppel when the reason for the amendment is unclear?--the court stated that such an amendment creates a complete bar to equivalents. Specifically, the court held:

We answer Question 4 as follows: When no explanation for a claim amendment is established, no range of equivalents is available for the claim element so amended.

This question is answered by *Warner-Jenkinson*:

Where no explanation is established, . . . . prosecution history estoppel would *bar the application of the doctrine [of] equivalents* as to that element.

*Warner-Jenkinson*, 520 U.S. at 33 (emphasis added). In answering this question, we affirm what we stated in *Sextant*, 172 F.3d at 832, 49 USPQ2d at 1875: when “the *Warner-Jenkinson* presumption is applicable, . . . the

\(^{70}\) 234 F.3d 558, 574-78, 56 U.S.P.Q.2d 1865, 1877-80 (emphasis added) (*en banc*).
prosecution history estoppel arising therefrom is total and completely ‘bars’ the application of the doctrine of equivalents as to the amended limitation.”71

The court then raised the bar, to an unobtainable height, for a patentee to get the benefit of the doctrine of equivalents where the amendment is unexplained. Specifically, the court held:

In order to give due deference to public notice considerations under the Warner-Jenkinson framework, a patent holder seeking to establish the reason for an amendment must base his arguments solely upon the public record of the patent’s prosecution, i.e., the patent’s prosecution history. To hold otherwise—that is, to allow a patent holder to rely on evidence not in the public record to establish a reason for an amendment—would undermine the public notice function of the patent record. If the reasons for the amendment do not appear in the public record of the patent’s prosecution, the reasons in most cases will be known only to the patent holder. We therefore hold that a narrowing amendment will give rise to prosecution history estoppel unless the prosecution history of the patent reveals that the amendment was made for a purpose unrelated to patentability concerns.72

This added hurdle creates a procedural catch-22 that a patent owner can never overcome. If the reasons for the amendment are unexplained from the file history there is a presumption that an estoppel applies. The patent owner, however, can rebut that presumption with evidence that the amendment was made for reasons unrelated to patentability. Now, however, after Festo, the only evidence that the patent owner can rely on to rebut the presumption is from the file history, which had no evidence in the first place giving rise to the presumption of an estoppel. Simply put, after Festo, all narrowing, unexplained amendments will create an estoppel.

71 Festo, 234 F.3d 558, 578, 56 U.S.P.Q.2d 1865, 1880 (emphasis original) (en banc).

72 Festo, 234 F.3d 558, 586, 56 U.S.P.Q.2d 1865, 1886 (en banc) (emphasis added).
Based on its rulings regarding questions one to four the court determined that there was no need to address question five, which related to whether one-to-one correspondence of elements was necessary for a finding of infringement under the doctrine of equivalents.73

Having set forth the rule for determining whether an estoppel applies and what effect that estoppel may have, the Festo court then set out procedural guidelines for implementing these rules. Essentially, a court must make two legal determinations associated with a doctrine of equivalents case: whether there is prosecution history estoppel and whether the all elements rule is met. Specifically, the Federal Circuit ruled:

When infringement is alleged to occur under the doctrine of equivalents, two primary legal limitations on the doctrine “are to be determined by the court, either on a dispositive pretrial motion or on a motion for judgment as a matter of law at the close of evidence and after the jury verdict.” Warner-Jenkinson, 520 U.S. at 39 n.8. Those legal limitations are prosecution history estoppel and the “all elements” rule. Id.

The first legal limitation a court should consider is prosecution history estoppel, because prosecution history estoppel may completely bar the application of the doctrine of equivalents to a given claim element. The first step in a prosecution history estoppel analysis is to determine which claim elements are alleged to be met by equivalents. Then, the court must determine whether the elements at issue were amended during prosecution of the patent. If they were not, amendment-based estoppel will not bar the application of the doctrine of equivalents. However, the court still may need to consider whether statements made during prosecution give rise to argument-based estoppel. See e.g., Pharmacia & Upjohn, 170 F.3d at 1377, 50 USPQ2d at 1036.

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73 234 F.3d 558, 578, 56 U.S.P.Q.2d 1865, 1880 (en banc). Question five asked: “[w]ould a judgment of infringement in this case violate Warner-Jenkinson’s requirement that the application of the doctrine of equivalents ‘is not allowed such broad play as to eliminate [an] element in its entirety,’ 520 U.S. at 29, 117 S. Ct. 1040. In other words, would such a judgment of infringement, post Warner-Jenkinson, violate the ‘all elements’ rule?” Festo, 234 F.3d 558, 578, 56 U.S.P.Q.2d 1865, 1880 (en banc). Interestingly, it was this question that the first panel in Festo originally addressed and based its decision on. In that decision the first Festo paneled the rationale of Corning Glass Works v. Sumitomo Electric U.S.A. Inc., 868 F.2d 1251, 9 U.S.P.Q.2d 1962 (Fed. Cir. 1989), and found infringement under the doctrine of equivalents even though there was not a one-to-one correspondence between the accused device and the claims at issue. Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki (a/k/a SMC Corp), 172 F.3d 1361, 50 U.S.P.Q.2d 1385 (Fed. Cir. 1999), withdrawn, 187 F.3d 1381, 51 U.S.P.Q.2d 1959 (Fed. Cir. 1999).
If the claim elements at issue were amended, the court first must determine whether the amendment narrowed the literal scope of the claim. If so, prosecution history estoppel will apply unless the patent holder establishes that the amendment was made for a purpose unrelated to patentability. *Warner-Jenkinson*, 520 U.S. at 40-41. If the patent holder fails to do so, prosecution history estoppel will bar the application of the doctrine of equivalents to that claim element. . . .

If prosecution history estoppel does not bar the application of the doctrine of equivalents, the court should consider the second legal limitation on the doctrine, the “all elements” rule, see, e.g., *Pennwalt Corp. v Durand-Wayland, Inc.*, 833 F.2d 931, 4 USPQ2d 1737 (Fed. Cir. 1987) (en banc) (holding that there can be no infringement under the doctrine of equivalents if even one element of a claim or its equivalent is not present in the accused device). If the court determines that a finding of infringement under the doctrine of equivalents “would entirely vitiates a particular claim element,” then the court should rule that there is no infringement under the doctrine of equivalents. *Warner-Jenkinson*, 520 U.S. at 39 n.8.74

From this procedural framework, as well as the court’s answers to questions one through four, the battleground for the coming years becomes apparent. First, the question over whether an amendment was a narrowing one will become a significant issue. Second, defining the claim terms that make up the claim element for which no equivalent will be available will become a litigator’s playground and a patent prosecutor’s nightmare.

As noted above, *Festo* repeatedly stresses that an estoppel will only apply in the context of a narrowing amendment. If the amendment does not narrow the claim, then there is no estoppel. This should be a relatively straightforward analysis in most situations dealing with the prior art. This analysis becomes much more complex in the context of § 112 rejections. Prior to *Festo*, amendments in response to a § 112 rejection most likely did not create an estoppel, and if they did it was not a total bar to protection under the doctrine of equivalents.

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74 234 F.3d 558, 586-87, 56 U.S.P.Q.2d 1865, 1886 (en banc) (emphasis added).
equivalents.\textsuperscript{75} Now such amendments can have draconian results. However, because these rejections and amendments are not truly dealing with “patentability,” i.e., the prior art, a reasonably skilled practitioner should be able to respond to them in a manner that does not narrow the claim, or at a minimum creates a public record that appears to not narrow the claim.

The second issue, determining what is the claim element to which the estoppel applies, gives prosecutors and litigators even more room to maneuver. \textit{Festo} has in all likelihood brought an end to the claim style of providing separate paragraphs and subparagraphs, which of late has become widespread and popular. Instead, the practice may see a return to the (good old?) days of 100-word, single paragraph claims with little or no punctuation. Although this does not add certainty to the patent system, as intended by the \textit{Festo} decision, it does create a scenario by which a doctrine of equivalents argument can be kept alive and presented to a jury. Similarly, the practice may see disclaimers with every amendment identifying those claim terms, elements, or limitations that were not amended and were not relied upon for the purposes of patentability. The difficulty and confusion that

\textsuperscript{75} However, if such amendments or arguments supporting those amendments evidence a clear and unmistakable surrender of subject matter, or otherwise relinquishes rights to that subject matter, than the patentee will be unable to recover that subject matter under the doctrine of equivalents. See \textit{e.g.}, \textit{Vehicular Technologies Corp. v. TitanWheel International, Inc.}, the Federal Circuit squarely addresses the admission estoppel issue and acknowledged the existence of what, at that time was yet an unnamed doctrine:

\begin{quote}
The available scope of protection of a patent under the doctrine of equivalents is not, however, limited solely by prosecution history estoppel . . . In addition, a separate body, of case law confirms that a patentee may otherwise lose the right to assert coverage of allegedly equivalent structure or matter.
\end{quote}

\textit{Vehicular Technologies}, the patent specification had repeatedly identified and stressed the function of the claim element at issue. This function, however, was not performed or found anywhere in the accused device. Thus, there could be no infringement under the doctrine of equivalents. \textit{Vehicular Technologies Corp. v TitanWheel International, Inc.}, 141 F.3d 1084, 1090-91, 46 U.S.P.Q.2d 1257, 1262-63 (Fed. Cir. 1998) (emphasis added).
the “claim element” issue will create is perhaps best foretold by the Festo panel’s own inability to use the correct nomenclature in its analysis:

In our prior cases, we have used both the term “element” and the term “limitation” to refer to words in a claim. It is preferable to use the term “limitation” when referring to claim language and the term “element” when referring to the accused device. However, because the en banc questions use the term “element,” we use that term in this opinion.76

Having reviewed the legal and procedural frameworks that the Festo decision sets forth, an analysis of how the court applied them to the facts of the Festo decision illustrates the great lengths to which the court will go to avoid applying the doctrine of equivalents. In one situation in Festo, the patentee submitted a new claim incorporating the elements of an independent claim and a dependent claim, canceling the old independent and dependent claims. The amendment was submitted in response to an office action, but was not responsive to any of the rejections in that action. The court held that this unexplained amendment narrowed the claim—it added an element. Thus, the amendment created the presumption of an estoppel. The court then held that the estoppel applied, noting that “there is no statement in the prosecution history that explains why this element was included in the independent claim.”77 In another situation, the patentee amended the claim to substitute the corresponding structure for a means-plus-function element in the claim. The court held that this was a narrowing amendment that created an estoppel.78

76 234 F.3d 558, 563 n.1, 56 U.S.P.Q.2d 1865, 1868 n.1 (en banc) (citations omitted).
77 234 F.3d 558, 588, 56 U.S.P.Q.2d 1865, 1887-88 (en banc).
The Festo decision, however, is not the only pronouncement from the Federal Circuit on the doctrine of prosecution history estoppel and related rationale that limit the scope of protection afforded a claimed invention.

In Fiskars, Inc. v Hunt Manufacturing Co., the Federal Circuit held that amendments made to one claim did not create an estoppel as to another claim for which no amendments were made:

The claims in suit were not amended to add the limitation of the spring in the rail. The district court correctly ruled that the claims in suit are not limited to a device wherein the spring is located in the rail, and that there is no estoppel against equivalency based on the location of the spring.79

In Bayer AG v Pharmaceutical Research Corp., the Federal Circuit again followed the rule set forth in Pharmacia & Upjohn v. Mylan Pharmaceuticals,80 that the objective reasonable competitor standard would be used to make the estoppel determination based on argument-based estoppel:

Unmistakable assertions made by the applicant to the . . . PTO . . . in support of patentability, whether or not required to secure allowance of the claim, . . . may operate to preclude the patentee from asserting equivalency. . . . In determining whether there has been a clear and unmistakable surrender of subject matter, the prosecution history must be examined as a whole. . . . An objective standard is applied when looking at the prosecution history, the proper inquiry being “whether a competitor would reasonably believe that the applicant had surrendered the relevant subject matter.”81


80 170 F.3d 1373, 1377, 50 U.S.P.Q.2d 1033, 1037 (Fed. Cir. 1999); see also Augustine Medical, Inc. v. Gaymar Industries, Inc., 181 F.3d 1291, 1298, 50 U.S.P.Q.2d 1900, 1906 (Fed. Cir. 1999) (“To determine the scope of estoppel, this court examines objectively whether a competitor would reasonably conclude that an applicant’s prosecution conduct had surrendered the disputed subject matter.’’).

The court went on to find that Bayer, the patentee, had indeed evidenced such a clear and unmistakable surrender by arguing the significant benefits of a claimed range. Specifically, in applying prosecution history estoppel the court found:

In this case, during prosecution, Bayer emphasized the inventive nature of its claimed SSA range and the disadvantages of SSAs outside its claimed range. Thus, Bayer’s statements, in total, amount to a “clear and unmistakable surrender,” so that a competitor would reasonably believe that Bayer had surrendered SSAs outside the claimed range.82

The effect of Festo on argument-based estoppel has yet to be determined. Although referred to several times in the Festo decision, the doctrine of argument-based estoppel was not directly before that court. In all likelihood, however, the Festo decision should have little effect on this doctrine. By its very nature the doctrine produces a clear and unmistakable surrender of subject matter, and it is that surrendered subject matter that the patentee is prevented from recovering under the doctrine of equivalents. Thus, even before Festo, the doctrine of argument-based estoppel, in essence, provided that there was zero range of equivalents for the surrendered subject matter. Moreover, by its own nature, focusing on what the ordinary competitor would believe based on the public record, the doctrine of argument-based estoppel already fulfills the public notice function that was stressed so heavily in Festo.

In Toro Co. v. White Consolidated Industries, Inc., the Federal Circuit limited the claim terms to the preferred embodiment, where that embodiment was the only one disclosed in the patent. Specifically, the court held that:

82 212 F.3d 1241, 1254, 54 U.S.P.Q.2d 1710, 1719.
The specification shows only a structure whereby the restriction ring is “part of” the cover, in permanent attachment. This is not simply the preferred embodiment; it is the only embodiment. . . .

This is not a case of limiting the claims to a “preferred embodiment” of an invention that has been more broadly disclosed. It is well established that the preferred embodiment does not limit broader claims that are supported by the written description. . . . Nor is this a case of limiting claims to immaterial details of a broader invention as set forth in the specification. . . . No such broader invention is here described. Instead, the invention is described throughout the specification as it is claimed, whereby the cover “included” the ring, so that the ring is inserted by closing the cover and removed by opening the cover, “automatically.” There is no basis for construing “including” the ring to mean not including the ring.83

Although this was based on claims construction, rather than the doctrine of equivalents, it is significant in that it dispels the common misconception that by merely calling an embodiment in the disclosure “preferred” the patentee will somehow obtain a greater scope of protection. As stated in Wang Laboratories, Inc. v. America Online, Inc., “[t]he usage “preferred” does not of itself broaden the claims beyond their support in the specification.”84

§ 8.04 MEANS- AND STEP-PLUS-FUNCTION CLAIMS—DETERMINING WHAT CLAIM ELEMENTS INVOCFOR § 112, ¶ 6

The Federal Circuit has continued to refine and articulate the analysis that is used to determine whether a claim element invokes § 112, ¶ 6. At present, this analysis can be distilled down to a five part inquiry:

1. the claim element must recite function without structure or acts;\textsuperscript{85}

2. nouns that take their name from the function that they perform do not invoke § 112, ¶ 6;

3. the use of the term “means for” or “step for”\textsuperscript{86} creates a rebuttable presumption that invokes § 112, ¶ 6;

4. the absence of the terms “means for” and “step for” creates a rebuttable presumption that § 112, ¶ 6 was not invoked; and,

5. the use of a functional element that calls particular structure or devices to the mind of one of ordinary skill does not invoke § 112, ¶ 6.

The fifth part of the inquiry was first set out in \textit{Personalized Media Communications v. International Trade Commission}, \textsuperscript{87} and was again applied in \textit{Matts v. XL Systems, Inc.}\textsuperscript{88}

In \textit{Watts} the Federal Circuit sets out a general test for determining whether a claim element invokes § 112, ¶ 6:

\begin{quote}
In \textit{Personalized Media Communications, LLC v. Int'l Trade Comm'n}, 161 F.3d 696, 48 USPQ2d 1880 (Fed. Cir. 1998), building upon a line of cases
\end{quote}

\textsuperscript{85} In \textit{Al-Site Corp. v. VSI International, Inc.}, 174 F.3d 1308, 1318, 50 U.S.P.Q.2d 1161, 1167 (Fed-Cir. 1999), the Court found that the claim element “eyeglass hanger member” did not invoke § 112, ¶ 6 because that claim element recited sufficient structure to preclude the application of § 112, ¶ 6. The claim element required that hanger member be “made from a flat sheet material,” and that it have an “opening means formed . . . below [its] upper edge. Thus, the Court concluded that this structure removed the claim element from the purview of § 112, ¶ 6. \textit{Al-Site}, 174 F.3d at 1318, 50 U.S.P.Q. at 1167-68. See \textit{Rodine PLC v. Seagate Technology, Inc.}, 174 F.2d 1294, 1304, 50 U.S.P.Q.2d 1429, 1437 (Fed. Cir. 1999), in which the Court noted that to remove a claim from § 112, ¶ 6, the claim need not include every detail of the structure disclosed in the specification. “Instead, the claim need only recite ‘sufficient’ structure to perform entirely the claimed function.”


\textsuperscript{87} 161 F.3d 696, 703-04, 48 U.S.P.Q.2d 1880, 1887-88 (Fed. Cir. 1998).

\textsuperscript{88} 232 F.3d 877, 56 U.S.P.Q.2d 1836 (Fed. Cir. 2000).
interpreting 35 U.S.C. § 112, paragraph 6, we stated that the failure to use the word “means” in a claim element created a rebuttable presumption that 35 U.S.C. § 112, paragraph 6 did not apply. See Personalized Media, 161 F.3d at 703-04, 48 USPQ2d at 1886-87. We also reiterated that in determining whether a presumption is rebutted, “the focus remains on whether the claim . . . recites sufficiently definite structure.” Id. at 704, 48 USPQ2d at 1887. We noted, however, that the claim limitation need not “connote a precise physical structure.” Id. at 705, 48 USPQ2d at 1888. The following year, we further clarified that the presumption that § 112, paragraph 6 did not apply could be rebutted by showing that the claim element recited a function without reciting sufficient structure for performing that function. See Rodime PLC v. Seagate Tech., Inc., 174 F.3d 1294, 1302, 50 USPQ2d 1429, 1434 (Fed. Cir. 1999) (explaining the converse rules for rebutting a presumption that § 112, paragraph 6 does apply). As an aid in determining whether sufficient structure is in fact recited by a term used in a claim limitation, this court has inquired into whether the “term, as the name for structure, has a reasonably well understood meaning in the art.” Greenberg, 91 F.3d at 1583, 39 USPQ2d at 1786 (applying this test to the term “detent mechanism”).

Applying this test the court held that the claim term--“joints each having a second end formed with tapered external threads dimensioned such that one such joint may be sealingly connected directly with another such joint”90--did not invoke § 112, ¶ 6. The court reasoned:

the sealingly connected limitation is not a means-plus-function limitation. First, the presumption applies that because the limitation does not recite the word “means” it is not a means-plus-function limitation. Second, the presumption is not rebutted because the claim limitation recites or refers to terms that are reasonably well understood in the art as names for structure and which perform the recited function of sealing. Specifically, the claim limitation recites “a second end formed with tapered external threads” and refers to “a first end” with “tapered internal threads.” These terms clearly have reasonably well understood meanings in the art as names for structure.91

In Enviro Corp. v Clestra Cleanroom, Inc., the court was presented with a claim element for:

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second baffle means disposed radially outwardly of said centrifugal fan means and said first baffle means, said second baffle means having inner surfaces for directing the airflow from said centrifugal fan means inwardly of said primary housing and between said first baffle means and said filter means whereby. . . .

The Federal Circuit reversed the district court’s holding that this claim element invoked § 112, ¶ 6. In so holding the Federal Circuit reasoned:

Although using the word “means” to describe the second baffle, the ‘395 claims also recite sufficient structure to rebut the presumption that the term is in means-plus-function form. *The term “baffle” itself is a structural term. The dictionary definition of the word “baffle” is “a device (as a plate, wall or screen) to deflect, check, or regulate foils “Webster’s Ninth New Collegiate Dictionary 124 (1990).* Because the term “baffle” itself imparts structure, meaning a surface which deflects air, its use in the claims rebuts the presumption that § 112, ¶ 6 applies.

Further, the claims describe the particular structure of this particular baffle (“having inner surfaces for directing airflow . . . radially outward . . . and thereafter . . . between said first baffle means and said air filter means”). This recital of structure conflicts with the statutory requirement that means-plus-function claim elements state a function “without the recital of structure.” 35 U.S.C. § 112, ¶ 6.

. . . Therefore the second baffle limitation is not a means-plus-function claim element. Because the claims recite sufficient structure, including details about the location and formational details about the second baffle, this court holds that the district court erred in construing the “second baffle means” as a means-plus-function claim element under § 112, ¶ 6.93

§ 8.05 MEANS- AND STEP-PLUS-FUNCTION CLAIMS ARE NARROWLY CONSTRUED

The Federal Circuit continued its line of cases that generally construe means- and step-plus-function claim elements narrowly. In *Atmel Corp. v. Information Storage Devices, Inc.*,94 the Federal Circuit added a new twist that will not only restrict the scope of means-

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and step-plus-function claims but could result in a larger number of such claims being found invalid.

In *Atmel* the court was presented with a claim element calling for a “high voltage generating means disposed on said semiconductor circuit for generating a high voltage from a lower voltage power supply . . .”\(^95\) The district court entered summary judgment holding the claim invalid under § 112, ¶ 2 because there was no corresponding structure for the high voltage generating means. The only disclosure in the specification corresponding to the generating means was a reference to a technical article, which was incorporated by reference into the specification.\(^96\) In reversing the district court’s grant of summary judgment, the Federal Circuit entered into a detailed analysis of the interplay between ¶ 2 and ¶ 6 of § 112. Specifically, the Federal Circuit stated:

That the “one skilled in the art” analysis should apply in determining whether sufficient structure has been disclosed to support a means-plus-function limitation flows naturally from the relationship between claim construction and § 112, ¶ 2. We have previously observed that an analysis under § 112, ¶ 2 is inextricably intertwined with claim construction, . . . and that in the § 112, ¶ 6 context, a court’s determination of the structure that corresponds to a particular means-plus-function limitation is indeed a matter of claim construction.

. . .

Thus, in order for a claim to meet the particularity requirement of ¶ 2, the corresponding structure(s) of a means-plus-function limitation must be disclosed in the written description in such a manner that one skilled in the art will know and understand what structure corresponds to the means limitation. Otherwise, one does not know what the claim means.

Fulfillment of the § 112, ¶ 6 tradeoff cannot be satisfied when there is a total omission of structure. There must be structure in the specification . . . .

\(^95\) 198 F.3d 1374, 1376, 53 U.S.P.Q.2d 1225, 1226 (Fed. Cir. 1999).

Paragraph 6 does not contemplate the kind of open-ended reference to extrinsic works that ¶ 1, the enablement provision does.97

The *Atmel* court found that the structure corresponding to a means-plus-function claim element could not be incorporated by reference. The case, however, was remanded to the district court, because that court had not considered expert testimony that one of ordinary skill in the art, by merely seeing the title of the incorporated text, would have had a clear understanding of specific structures.98

In *Clearstream Wastewater Systems, Inc. v. Hydro-Action, Inc.*,99 the Federal Circuit declined to limit a means-plus-function claim element to exclude the prior art. In *Clearstream*, the means claim element was in the preamble of a Jepson-type claim. Thus, it was admitted that the corresponding structure to that means element was old, i.e., it was prior art. In construing the claim, the court found that the corresponding structure to this means element could be the prior art structures disclosed in the specification.

In contrast to *Clearstream*, the court in *Wang Laboratories, Inc. v. American Online, Inc.*, declined to permit a reference to a prior art approach in the background section of the patent to expand the scope of a means-plus-function claim element. The *Wang* court addressed the issue of whether a means claim element that corresponded to character-based protocols could also be construed to correspond to bit-mapped based protocols. The character-based protocols were disclosed in the specification as the invention, while the


98 *Atmel*, 198 F.3d 1374, 1382, 53 U.S.P.Q.2d 1225, 1230 (Fed. Cir. 1999); *See also Kemco Sales, Inc. v. Control Papers Co.*, 208 F.3d 1352, 1360-61, 54 U.S.P.Q.2d 1308, 1313 (Fed. Cir. 2000) (“If a patentee fails to satisfy the bargain because of a failure to disclose adequate structure, the claim will be rendered invalid as indefinite under section 112, paragraph 2.”).

bit-mapped based protocols were only disclosed in the background section of the patent.

Moreover, the evidence showed that the inventors could not get a bit-mapped protocol to work. On these facts the Federal Circuit held that the claims could not be construed to include the bit-mapped protocol as corresponding structure to the means claim element. In so holding the court reasoned:

The only system that is described and enabled in the ‘669 patent specification and drawings uses a character-based protocol. The specification mentions non-character-based protocols, for example, in the “Background of the Invention” statement . . . . The district court viewed the references to bit-mapped protocols as acknowledgments of the state of the art, and not as an enlargement of the invention described in the patent. We agree, and conclude that the reference to other known protocols do not describe them as included in the applicant’s invention, . . .

Reinforcing this conclusion, it is not disputed that Wang had not been able to implement a bit-mapped protocol in the claimed system . . .

§ 8.06 INFRINGEMENT ANALYSIS OF MEANS- AND STEP-PLUS-FUNCTION CLAIMS

A literal infringement analysis under § 112, ¶ 6 is a two-part inquiry. First, the claimed function must be performed “exactly” in the accused device. Second, identical or equivalent structures or acts to those disclosed in the patent specification must be found in the accused device or process. Thus, the Federal Circuit has framed the test for literal infringement as:

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100 197 F.3d 1377, 1382, 53 U.S.P.Q.2d 1161, 1164-65 (Fed. Cir. 1999).

101 E.g., IMS Technology, Inc. v Haas Automation, Inc., 206 F.3d 1422, 1430, 54 U.S.P.Q.2d 1129, 1133 (Fed. Cir. 2000); see generally Pennwalt Corp. v. Durand-Wayland, Inc., 833 F.2d 931, 933-34, 41 U.S.R.Q.2d 1737, 1739 (Fed. Cir. 1987) (emphasis original); General Electric Co. v Nintendo Co., 179 F.3d 1350, 1356, 50 U.S.P.Q.2d 1910, 1915 (Fed. Cir. 1999) (holding that “[w]e therefore do not need to determine whether the accused devices use the same structure as described in the [specification] or its equivalent. Since the accused devices do not perform the identical function to that of [the claim], the accused devices cannot literally infringe [the claim].”).
for a means-[or step]-plus-function limitation to read on an accused device, the accused device must employ means [or steps] identical to or the equivalent of the structures, material, or acts described in the patent specification. The accused device must also perform the identical function as specified in the claims.102

In view of Festo, means- and step-plus-function claim elements now provide a very useful tool for the practitioner to greatly increase the likelihood that the patent owner’s case gets to the jury under an equivalence theory. Although a § 112, ¶ 6 equivalents analysis is not as broad as a doctrine of equivalents analysis, it is nevertheless an equivalents argument that gives a patent owner the freedom necessary to present a creative infringement argument. Because a § 112, ¶ 6 equivalents analysis is performed under the mantle of literal infringement, the restrictions placed on the doctrine of equivalents by Festo will not apply. Thus, even if an applicant amends a means-plus-function claim element for the purposes of patentability, that claim element will nevertheless be entitled to its “equivalents” under § 112, ¶ 6.

The Federal Circuit continues to refine the rules governing both what constitutes a § 112, ¶ 6 equivalent in a literal infringement analysis, and when a patent owner will be able to rely on the doctrine of equivalents to establish infringement of means- and step-plus-function claims.

In Al-Site Corp. a VSI International, Inc.,103 the Federal Circuit addressed in a comprehensive way the distinctions between infringement under § 112, ¶ 6 equivalents, i.e.,


structural equivalents, and *Graver Tank*\(^{104}\) equivalents, i.e., the doctrine of equivalents. The court first set out the test for literal infringement of a means- or step-plus-function claim element under § 112, noting the restrictive role that the term “equivalents” plays in this analysis. The court then noted the general rule that the doctrine of equivalents was an expansive doctrine, while § 112, ¶ 6 was restrictive.\(^{105}\) The court, however, went on to set a bright line test for what structures may be considered a structural equivalent under § 112, ¶ 6, i.e., literally infringe a means- or step-plus-function claim. The court held:

\[
\ldots a \text{ structural equivalent under } \S\ 112 \text{ must have been available at the time of the issuance of the claim . . . . An equivalent structure or act under } \S\ 112 \\
\text{cannot embrace technology developed after the issuance of the patent because the literal meaning of a claim is fixed upon its issuance. An “after arising equivalent” infringes, if at all, under the doctrine of equivalents . . . . Thus, the temporal difference between patent issuance and infringement distinguishes an equivalent under } \S\ 112 \text{ from an equivalent under the doctrine of equivalents . . . . In other words, an equivalent structure or act under } \S\ 112 \\
\text{for literal infringement must have been available at the time of patent issuance while an equivalent under the doctrine of equivalents may arise after patent issuance and before the time of infringement.}^{106}
\]

Thus, under the after-arising-technology rule, if the technology employed by the accused infringer was known at the time the patent was issued, the infringement analysis will be under literal infringement, i.e., § 112 structural equivalents. On the other hand, if the accused technology became known after the issuance of the patent, then the infringement analysis will be under the doctrine of equivalents, i.e., *Graver Tank* equivalents.

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\(^{105}\) *Al-Site*, 174 F.3d 1308, 1320, 50 U.S.P.Q.2d 1161, 1168 (“Thus, an equivalent under Section 112, ¶ 6 forms [sic] the claim meaning for a literal infringement analysis. The doctrine of equivalents, on the other hand, extends enforcement of claim terms beyond their literal reach in the event ‘there is ‘equivalence’ between the elements of the accused product or process and the claimed elements of the patented invention. *Warner-Jenkinson*, 117 S. Ct. at 1045.”).

\(^{106}\) *Al-Site*, 174 F.3d 1308, 1320-21, 50 U.S.P.Q.2d 1161, 1168 (emphasis added).
Putting this in context with *Festo*, if the accused infringing technology was known at the time the claim issued, then *Festo* plays no role in the infringement analysis. The analysis will be limited to literal infringement, i.e., § 112 structural equivalents. On the other hand, if the accused technology was not known until after the claim issued, i.e., it was an after-arising-technology, then *Festo* would apply in full force, because any infringement analysis would be limited to the doctrine of equivalents.

For example, a claim is filed with elements A, B, and C. In response to a prior art rejection, element D is added and this element is in a means-plus-function format. Under this scenario, if the accused infringing technology existed when the patent issued, the infringement analysis for element D would be under literal infringement, i.e., § 112 equivalence. Thus, *Festo* would not create a bar to a finding of equivalents, because in this context it would be a finding of literal infringement. If on the other hand, the accused infringing technology came into existence after the patent issued, the infringement analysis would be under the doctrine of equivalents and *Festo* would create a total bar to such a finding of infringement.

In *Kemco Sales, Inc. v. Control Papers Co.*, the Federal Circuit further addressed the relationship between equivalents under a § 112 analysis and the doctrine of equivalents. In *Kemco* the court first noted that equivalents tinder § 112 is a literal equivalents analysis and then compared this analysis to the function-way-result test for the doctrine of equivalents:

In order for an accused structure to literally meet a section 112, paragraph 6 means-plus-function limitation, the accused structure must either be the same

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as the disclosed structure or be a section 112, paragraph 6 “equivalent,” i.e., (1) perform the identical function and (2) be otherwise insubstantially different with respect to structure . . . . Under a modified version of the function-way-result methodology described in Graver Tank & Manufacturing Co. v. Linde Air Products Co . . . . , two structures may be “equivalent” for purposes of section 112, paragraph 6 if they perform the identical function, in substantially the same way, with substantially the same result. If an accused structure is not a section 112, paragraph 6 equivalent of the disclosed structure because it does not perform the identical function of that disclosed structure and hence does not literally infringe, it may nevertheless still be an “equivalent” under the doctrine of equivalents. Thus, if one applies the traditional function-way-result test, the accused structure must perform substantially the same function, in substantially the same way, to achieve substantially the same result, as the disclosed structure . . . . A key feature that distinguishes “equivalents” under section 112, paragraph 6 and “equivalents” under the doctrine of equivalents is that section 112, paragraph 6 equivalents must perform the identical function of the disclosed structure, . . . while equivalents under the doctrine of equivalents need only perform a substantially similar function, . . .

Because the “way” and “result” prongs are the same under both the section 112, paragraph 6 and doctrine of equivalents tests, a structure failing the section 112, paragraph 6 test under either or both prongs must fail the doctrine of equivalents test for the same reason(s). That was the case in Chiuminatta, in which the “way” was determined to be substantially different under a section 112, paragraph 6 analysis . . . . Accordingly, we concluded that the accused structure did not infringe under the doctrine of equivalents for precisely the same reason.108

The Federal Circuit continued its analysis of the relationship of § 112 equivalents and the doctrine of equivalents in IMS Technologies, Inc. v. Haas Automation, Inc.109 In IMS the court stressed that the equivalents analysis cannot be done in a vacuum and that the analysis should not focus solely on the physical structures at issue to the exclusion of how those structures are used and interact with the other components of the claimed invention or the accused device. Specifically, the court stated:

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In light of the similarity of the tests for equivalence under Section 112, Para. 6 and the doctrine of equivalents, the context of the invention should be considered when performing a Section 112, Para. 6 equivalence analysis just as it is in a doctrine of equivalents determination. See Texas Instruments, Inc. v. ITC, 805 F.2d 1558, 1563, 231 USPQ 833, 835 (Fed. Cir. 1986) (“It has long been recognized that the range of permissible equivalents depends upon the extent and nature of the invention . . . .”); cf. Warner-Jenkinson, 520 U.S. at 40, 41 USPQ2d at 1875 (noting that in a doctrine of equivalents determination, “[a]n analysis of the role played by each element in the context of the specific patent claim will thus inform the inquiry as to whether a substitute element matches the function, way, and result of the claimed element, or whether the substitute element plays a role substantially different from the claimed element”). As a result, two structures that are equivalent in one environment may not be equivalent in another. More particularly, when in a claimed “means” limitation the disclosed physical structure is of little or no importance to the claimed invention, there may be a broader range of equivalent structures than if the physical characteristics of the structure are critical in performing the claimed function in the context of the claimed invention. Thus, a rigid comparison of physical structures in a vacuum may be inappropriate in a particular case. Indeed, the statute requires two structures to be equivalent, but it does not require them to be “structurally equivalent,” i.e., it does not mandate an equivalency comparison that necessarily focuses heavily or exclusively on physical structure.

In some cases, an analysis of insubstantial differences in the context of the invention results in a finding of equivalence under Section 112, Para. 6 even though two structures arguably would not be considered equivalent structures in other contexts, e.g., if performing functions other than the claimed function. See Odetics, 185 F.3d at 1269-71, 51 USPQ2d at 1231-32 (reinstating jury verdict of infringement when there was evidence that a “bin array” with a cam and cam follower mechanism performed a rotary function in the same way as a “rotary means” with a gear mechanism by receiving force); Al-Site, 174 F.3d at 1315-17, 50 USPQ2d at 1164-65 (affirming jury verdict of infringement based on expert testimony of known interchangeability of glue and rivet as a “fastening means” on hanger tag for glasses). But see Odetics, 185 F.3d at 1277-79, 51 USPQ2d at 1237-38 (Lourie, J., dissenting) (criticizing majority for focusing exclusively on function and an analysis not on structure). In other cases, in which the specific physical features of the structure corresponding to the “means” limitation may have more relevance to the claimed invention, a finding of noninfringement results. See Chiominatta, 145 F.3d at 1309-10, 46 USPQ2d at 1757 (finding wheels and skid plate not equivalent for supporting surface of concrete, particularly since there was no allegation that one skilled in the art
recognized the interchangeability of structures for performing claimed function)."\(^{110}\)

To illustrate this point, the IMS court also used an example that it borrowed from the late Judge Rich:

A claim includes part A, part B, and “means for securing parts A and B together in a fixed relationship.” The written description discloses that parts A and B are made of wood and are secured together by nails. For purposes of the invention, it does not matter how parts A and B are secured; nails are not a critical part of the invention. A screw is not a nail, but for purposes of Section 112, Para. 6, it is equivalent structure in the context of the invention, though it is not the “structural equivalent” of a nail.\(^ {111}\)

In \textit{Odetics, Inc. v. Storage Technology Corp.}, the Federal Circuit, at first glance, appeared to totally ignore the all elements rule\(^ {112}\) when it severely criticized a district court’s ruling that § 112, ¶ 6 requires “‘component by component’ equivalence between the relevant structure identified in the patent and the portion of the accused device asserted to be structurally equivalent.”\(^ {113}\) The \textit{Odetics} Court, however, did not abandon the all elements rule, instead it took issue with the district court’s dissection of the structure that corresponded to the means-plus-function claim element at issue. In essence, the district court had added a component by component analysis to the element by element analysis required


\(^{111}\) 206 F.3d 1422, 1436 n.3, 54 U.S.P.Q. 1129, 1138 n.3 (Fed. Cir. 2000).

\(^{112}\) The all elements rule provides that “[e]ach element contained in a patent claim is deemed material to defining the scope of the patented invention, and thus the doctrine of equivalents must be applied to individual elements of the claim, not to the invention as a whole. It is important to ensure that the application of the doctrine, even as to an individual element, is not allowed such broad play as to effectively eliminate that element in its entirety.” \textit{Warner-Jenkinson Co. v Hilton Davis Chemical Co.}, 520 U.S. 17, 21-25, 41 U.S.P.Q.2d 1865, 1869 (1997).

under the all elements rule. Accordingly, the Federal Circuit rejected this additive analysis stating that:

It is of course axiomatic that “[e]ach element contained in a patent claim is deemed material to determining the scope of the patented invention.” *Warner-Jenkinson*, 520 U.S. at 29, 41 U.S.P.Q.2d at 1871. Thus a claim limitation written in § 112, ¶ 6 form, like all claim limitations, must be met, literally or equivalently, for infringement to lie. See, e.g., *Penwalt*, 833 F.2d at 935, 4 U.S.P.Q.2d at 1739 . . . . The individual components, if any, of an overall structure that corresponds to the claimed function are not claim limitations. Rather, the claim limitation is the overall structure corresponding to the claimed function. This is why structures with different numbers of parts may still be equivalent under § 112, ¶ 6, thereby meeting the claim limitation. See, e.g., *Al-Site*, 174 F.3d at 1321-22, 50 U.S.P.Q.2d at 1169 (upholding jury verdict of § 112, ¶ 6 equivalence between “a mechanically-fastened loop . . . includ[ing] either the rivet fastener or the button and hole fastener” and “holes in the arms [of an eyeglass hanger tag]”). The appropriate degree of specificity is provided by the statute itself; the relevant structure is that which “corresponds” to the claimed function. See, e.g., *Chiuminatta*, 145 F.3d at 1308-09, 46 U.S.P.Q.2d at 1756 (structure “unrelated to the recited function” disclosed in the patent is irrelevant to § 112, ¶ 6); *Valmont*, 983 F.2d at 1044, 25 U.S.P.Q.2d at 1455 (identifying structure referring to the claimed function). Further deconstruction or parsing is incorrect.114

The Federal Circuit has continued to apply the *Odetics* rationale. In *Caterpillar, Inc. v. Deere & Co.*,115 the Federal Circuit reversed a finding of no equivalents because the district court had “conducted an impermissible component-by-component analysis to determine that no reasonable jury could find structural equivalence.”116

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114 *Odetics*, 185 F.3d at 1268, 51 U.S.P.Q.2d at 1231 (Fed. Cir. 1999).
