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Patent Scope and Competition: Is The Federal Circuit's Approach Correct?

By Gerald Sobel *

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* Attorney at Kaye Scholer, L.L.P.

I. INTRODUCTION

1. The legal arena for competition extends to patents and patent infringement litigation, in particular. Here competitors are often litigating over the right of one to compete with the other. It is here that direct competitors square off, the patentee/innovator against the follow-on firms: with an improvement, with a slightly different design that does the same thing, with a copy. Patent law determines the extent to which a second comer can emulate a patented product.
2. Motivated by a view of competition policy reflecting an overriding concern for the impact of patents on competitors of the patentee, the Federal Circuit, in recent decisions, has transformed patent law by restricting patent scope. It is the thesis of this paper that the court is applying a view of competition policy that is incomplete and has been abandoned in antitrust, where competition is the governing value. The Federal Circuit majority overlooks the role of patents in stimulating innovation and the competition engendered by it. This oversight is somewhat reminiscent of the views of Justices Black and Douglas in decisions of the Supreme Court in the 1940s and 1950s concerning both patents and antitrust. The Black and Douglas view was that patents were a special exception to a general scheme of competition and, as such, were to be severely limited in favor of giving competitors broad range. In antitrust, those views have been bypassed in favor of a policy which recognizes and emphasizes the role of patents as a stimulus for competition because of the incentive they create for inventors and investors.
3. We turn first to several fundamental changes made by the Federal Circuit in the law governing patent breadth driven by its view of competition policy, then to the parallel views of Justices Black and Douglas in the 1940s and 1950s and finally to how competition policy has since been altered in the realm of antitrust in ways which undercut the Federal Circuit's premise.

II. THE FEDERAL CIRCUIT'S TRANSFORMATION OF THE LAW

4. The principal changes made by the Federal Circuit in light of its competition policy concern claim construction and infringement under the doctrine of equivalents.

A. CLAIM CONSTRUCTION

1. *The Governing Law Before Markman*

5. Prior to the Federal Circuit's 1995 decision in *Markman v. Westview Instruments, Inc.*,¹ the meaning of claims was routinely submitted to juries as questions of fact in light of expert testimony. The patent specification is required by statute "to enable any person skilled in the art . . . to make and use [it]."² The claims must "point[] out and distinctly claim[] the subject matter."³ The meaning of a claim was typically a subject for expert

¹ *Markman v. Westview Instruments, Inc.*, 52 F.3d 967 (Fed. Cir. 1995), *aff'd*, 517 U.S. 370 (1996).

² 35 U.S.C. § 112 (2001).

³ *Id.*

testimony from those skilled in the art to which the patent related and was a question of fact for the jury.⁴ In all but “simple” cases, the district courts risked reversible error by not considering expert testimony.⁵ Jury verdicts concerning claim interpretation were reviewed by the Federal Circuit under the deferential standard,⁶ rather than *de novo*⁷ review without deference to the decision below.

2. *The Federal Circuit’s Markman Decision*

6. The Federal Circuit changed the law in two major respects in *Markman*. First, the court reclassified claim construction as a matter of law. This, according to the court’s view, increases predictability by assigning the issue to the trial judge for decision, rather than the jury,⁸ and allows the Federal Circuit to review the trial court’s determination *de novo*, rather than by the deferential standard of review which is applied to a jury’s (or court’s when it acts as trier of fact) findings.
7. Second, in deciding the scope of patent claims, the court has made “intrinsic” evidence the “Bible” for construction. The test remained “what one of ordinary skill in the art at the time of the invention would have understood the term to mean.”⁹ However, the publicly available claims and specification of the patent and its prosecution history were to govern against “extrinsic” evidence, such as expert testimony as to what persons of

⁴ See, e.g., *Moeller v. Ionetics, Inc.*, 794 F.2d 653, 657 (Fed. Cir. 1986), *overruled by Markman*, 52 F.3d 967 (holding that the district court abused its discretion in excluding expert testimony on the meaning of the claims).

⁵ In *Moeller*, for example, the Federal Circuit held that the district court abused its discretion in refusing to allow expert testimony as to the meaning of the claims directed to an electrode system for measuring cation concentration where it viewed “the interpretation of these claims as so ‘simple’ that the question could be resolved without expert testimony”:

In a patent case involving complex scientific principles, it is particularly helpful to see how those skilled in the art would interpret the claim. Indeed, the test of claim interpretation is directed to one skilled in the art, and it makes sense therefore to elicit testimony from such individuals. Though we do not establish that as a requirement in all cases, and leave it to the general discretion of the trial judge, we conclude that in this case the trial judge’s failure to allow such testimony was an abuse of discretion.

Id. at 657 (citations omitted). Similarly, in *P.M. Palumbo v. Don-Joy Co.*, 762 F.2d 969, 975-76 (Fed. Cir. 1985), *overruled by Markman*, 52 F.3d 967, the court, noting that expert testimony would be “helpful in ascertaining what one of ordinary skill in the art would consider,” reversed the district court’s grant of summary judgment and held that statements by one of skill in the art as to claim coverage could raise a genuine issue of material fact calling for a trial.

⁶ *Markman*, 52 F.3d at 1018 (“no reasonable juror could have interpreted the claim in the fashion that supports the infringement finding . . .”).

⁷ See, e.g., *Tol-O-Matic, Inc. v. Proma Produkt-Und Marketing Gesellschaft m.b.H.*, 945 F.2d 1546, 1549-50 (Fed. Cir. 1991).

⁸ *Markman*, 517 U.S. at 388-89 (“The construction of written instruments is one of those things that judges often do and are likely to do better than jurors unburdened by training in exegesis. Patent construction in particular ‘is a special occupation, requiring, like all others, special training and practice. The judge, from his training and discipline, is more likely to give a proper interpretation to such instruments than a jury; and he is, therefore, more likely to be right . . .’) (citation omitted).

⁹ *Markman*, 52 F.3d at 986.

ordinary skill in the art at the time of the invention would understand the claims to mean.¹⁰

8. The court explained that it was motivated by its desire to protect competitors:

[I]t is only fair (and statutorily required) that *competitors* be able to ascertain to a reasonable degree the scope of the patentee's right to exclude. . . . *They* may understand what is the scope of the patent owner's rights by obtaining the patent and prosecution history -- "the undisputed public record," -- and applying established rules of construction to the language of the patent claim in the context of the patent. Moreover, *competitors* should be able to rest assured, if infringement litigation occurs, that a judge, trained in the law, will similarly analyze the text of the patent and its associated public record and apply the established rules of construction, and in that way arrive at the true and consistent scope of the patent owner's rights to be given legal effect.¹¹

The Supreme Court affirmed, observing that "[i]t has long been understood that a patent must . . . 'apprise the public of what is still open to them.'"¹²

9. Similarly, as the Federal Circuit later said on the same subject in *Vitronics*:

"[C]ompetitors are entitled to review the public record, apply the established rules of claim construction, ascertain the scope of the patentee's claimed invention and, thus, *design around the claimed invention*."¹³

10. The Federal Circuit later extended its pro-competitor policy in this area by holding that where a claim remains ambiguous after consideration of the relevant evidence and there is an equal choice between a broad and a narrower meaning of the claim, the policy that

¹⁰ *Id.* at 979-81. Recently, a Federal Circuit case opened the door to "trustworthy extrinsic evidence" as a basis for foreclosing a meaning "inconsistent with clearly expressed, plainly apposite, and widely held understandings in the pertinent technical field." *Pitney Bowes v. Hewlett-Packard*, 182 F.3d 1298, 1308-09 (Fed. Cir. 1999). In any event, extrinsic evidence may always be examined to help [the district court] understand the underlying technology. *Id.* at 1308.

¹¹ *Markman*, 52 F.3d at 978-79 (citation omitted) (emphasis added). The facts of *Markman* were as follows: Markman invented a system to track articles of clothing and associated business transactions for use in the dry cleaning industry. *Id.* at 971-73. Markman's patent claims were drawn to an "inventory and control reporting system." *Id.* Westview produced and sold an electronic system capable of tracking cash and invoice totals, but not articles of clothing. *Id.* at 972-73. Markman sued Westview for infringement alleging that Westview's system, by virtue of tracking cash and invoices, fulfilled Markman's claim requirement of tracking "inventory." *Id.* Westview countered that cash and invoices do not constitute "inventory." *Id.* at 979-83. Based on its analysis of Markman's claim language, specification, and prosecution history, the Federal Circuit agreed with Westview's interpretation of the term "inventory." *Id.*

¹² *Markman*, 517 U.S. at 373 (regarding notice to the public) (citing *McClain v. Ortmyer*, 141 U.S. 419 (1891)).

¹³ *Vitronics Corp. v. Conceptor, Inc.*, 90 F.3d 1576, 1583 (Fed. Cir. 1996) ("In those cases where the public record unambiguously describes the scope of the patented invention, reliance on any extrinsic evidence is improper. The claims, specification, and file history, rather than extrinsic evidence, constitute the public record of the patentee's claim, a record on which the public is entitled to rely.") (citations omitted) (emphasis added).

notice to competitors is the uppermost value resulted in taking the narrow meaning.¹⁴ Thus, in *Athletic Alternatives*, the Federal Circuit explained that the meaning of the claim term at issue had two conflicting possibilities, since the specification was silent and the prosecution history had “[t]wo strong and contradictory interpretive strands.”¹⁵ Confronted with “two equally plausible meanings of Claim 1,” the court adopted the narrower meaning in view of the “fair notice function” of claims.¹⁶

B. INFRINGEMENT BY EQUIVALENTS AND PROSECUTION HISTORY ESTOPPEL

11. The doctrine of equivalents presents the most striking test of attitudes toward competitors versus the patentee. It assigns liability for utilizing a version of the patented invention even though the patent claims have been literally avoided. The push and pull of patentees’ scope of protection and incentive to invent versus competitors’ freedom to operate play out in two areas concerning the doctrine: first, the test for equivalency and, second, prosecution history estoppel, the extent of surrender of scope of equivalency by reason of events in prosecution.

1. *The Governing Law Before Festo as to Equivalents*

12. The Supreme Court’s first discussion of the doctrine of equivalents was about 100 years earlier in *Winans v. Denmead*.¹⁷ The Court recognized the ease with which minor changes in a patent could avoid literal infringement and gave broader protection. “Where form and substance are inseparable, it is enough to look at the form only. Where they are separable; where the whole substance of the invention may be copied in a different form, it is the duty of courts and juries to look through the form for the substance of the invention. . . .”¹⁸ The governing decision of the Supreme Court between 1950 and 1997 was *Graver Tank*.¹⁹ The Supreme Court held there, Justices Black and Douglas dissenting, that infringement occurred even though the claim is not literally satisfied under the doctrine of equivalents.²⁰ As the Supreme Court wrote, this scope was allowed in order to hinder the “unscrupulous copyist” and to assure the patentee of the benefit of

¹⁴ *Athletic Alternatives, Inc. v. Prince Mfg., Inc.*, 73 F.3d 1573, 1580-81 (Fed. Cir. 1996); *see also* *Ethicon Endo-Surgery, Inc. v. United States Surgical Corp.*, 93 F.3d 1572, 1581-82 (Fed. Cir. 1996) (“[t]o the extent that the claim is ambiguous, a narrow reading which excludes the ambiguously covered subject matter must be adopted. . . . [w]e conclude that the term ‘pusher assembly’ unambiguously describes only the pusher bars and the cam bar retainer, but does not unambiguously cover any other portions of the ’519 patent’s firing means. In view of the above, Ethicon’s claim 24 would read on a lockout which engaged the cam bar retainer, such as U.S. Surgical’s open linear cutters, while it would not read on a lockout which engaged any other portion of the firing means, such as U.S. Surgical’s endoscopic lockouts.”).

¹⁵ *Athletic Alternatives*, 73 F.3d at 1580.

¹⁶ *Id.* at 1581.

¹⁷ *Winans v. Denmead*, 56 U.S. 330 (1853). The patent claimed a circular railroad car with a conical design. The accused device was octagonal but otherwise similar to a conical design and achieved the same benefits. *Id.* at 340.

¹⁸ *Id.* at 343.

¹⁹ *Graver Tank & Mfg. Co. v. Linde Air Prods. Co.*, 339 U.S. 605 (1950). The patent claims at issue involved an electrical welding composition employing a combination of an alkaline earth metal silicate and any other silicate. The Court held that the use of manganese (a non-alkaline earth metal) instead of magnesium (an alkaline earth metal) was a sufficiently insubstantial change which justified application of the doctrine of equivalents to find infringement.

²⁰ *Id.* at 612.

his invention.²¹ Thus, a person could not imitate a patented invention by making some “unimportant and insubstantial” changes to the claimed invention.²² The rationale for not limiting patents to their literal scope was described in practical terms. It was necessary to avert making patents into “a hollow and useless thing” which would “encourage the unscrupulous copyist to make unimportant and insubstantial changes and substitutions in the patent which, though adding nothing,” would avoid the claim.²³ To prohibit only literal duplication “would place the inventor at the mercy of verbalism and would be subordinating substance to form.”²⁴ The Court expressed concern for loss to the patentee of the “benefit of his invention” and for “foster[ing] concealment rather than disclosure of inventions, which is one of the primary purposes of the patent system.”²⁵ Infringement by equivalency was held to apply: “if two devices do the same work in substantially the same way, and accomplish substantially the same result, [because] they are the same, even though they differ in name, form or shape.”²⁶

13. In 1995, in *Hilton Davis Chemical Co. v. Warner-Jenkinson Co.*,²⁷ the Federal Circuit *en banc* reconsidered the doctrine. The court affirmed, by seven to five, a jury’s finding of infringement by equivalents and ruled that the doctrine of equivalents “requires proof of insubstantial differences” between the claimed and accused products, was an issue of fact for the jury,²⁸ and is not a discretionary remedy.²⁹ The court remanded for consideration of possible application of prosecution estoppel.³⁰ As for the equivalency test, the court observed that the function-way-result test was not “‘the’ test” but “often suffices.”³¹ The test for a finding of infringement under the doctrine of equivalents was declared to be a finding of “insubstantial differences” between the claimed and accused products or processes. The measure is objective, not subjective.³²

²¹ *Id.* at 607.

²² *Id.* at 607; *see also* *Lear Siegler, Inc. v. Sealey Mattress Co.*, 873 F.2d 1422, 1425 (Fed. Cir. 1989) (citing *Graver Tank*, 339 U.S. at 607).

²³ *Graver Tank*, 339 U.S. at 607.

²⁴ *Id.*

²⁵ *Id.*

²⁶ *Id.*

²⁷ *Hilton Davis Chemical Co. v. Warner-Jenkinson Co.*, 62 F.3d 1512 (Fed. Cir. 1995), *rev’d on other grounds*, 520 U.S. 17 (1997). The Court reaffirmed the doctrine of equivalents, but reversed the Federal Circuit for a determination of whether prosecution history estoppel limited the scope of equivalents and thereby precluded a finding of infringement.

²⁸ *Hilton Davis*, 62 F.3d at 1522. The Federal Circuit “reviews a jury verdict on the fact question of infringement under the doctrine of equivalents for prejudicial error in the jury instructions, and lack of substantial evidence supporting the verdict.” *Id.* at 1522 (citations omitted). If the Federal Circuit reviews a question of infringement from a bench trial, as in *Graver Tank*, it reviews the trial court’s infringement finding for “clear error.” *Id.* at 1521.

²⁹ *Id.* at 1521-22. *See also* *Lifescan Inc. v. Home Diagnostics Inc.*, 76 F.3d 358 (Fed. Cir. 1996) (where there is substantial evidence to support a factual conclusion, summary judgment is improper and the issue should be weighed by the trier of fact).

³⁰ The claim at issue was to a dye purification process utilizing a pressure of 200 to 400 p.s.i.g. and a pH from approximately 6 to 9. The jury found infringement by a pH of 5 under the doctrine of equivalents. The patentee’s claims at issue recited a pH “from approximately 6.0 to 9.0.” *Warner-Jenkinson* at times, according to the court, used a lower pH of 5.0 in its process. The claims at issue also recited a pressure of “approximately 200 to 400 p.s.i.g.” *Warner-Jenkinson* used a pressure somewhere in a range of 200 to nearly 500 p.s.i.g. *Hilton Davis*, 62 F.3d at 1524.

³¹ *Id.* at 1518.

³² *Id.* at 1518-19.

14. On review, in 1997³³ the Supreme Court declined Warner-Jenkinson’s invitation to “speak the death” of the doctrine of equivalents.³⁴ However, the Court found that “[t]here can be no denying that the doctrine of equivalents, when applied broadly, conflicts with the definitional and public-notice functions of the statutory claiming requirement.”³⁵ The Court’s response was to hold (as the Federal Circuit had for many years)³⁶ that the determination of infringement under the doctrine is to be made on a claim element-by-claim element basis and not with respect to the invention as a whole: “[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.”³⁷ With that requirement, the Supreme Court reasoned that “the doctrine will not vitiate the central functions of the patent claims themselves.”³⁸ The Court stated:

An 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.³⁹

Further development in the particular wording of the test was left by the Supreme Court to the Federal Circuit.⁴⁰

15. The Federal Circuit had previously recognized the tension between the doctrine of equivalents and encouraging competitors to design around patents, but, as the above

³³ Warner-Jenkinson Co. v. Hilton Davis Chem. Co., 520 U.S. 17 (1997).

³⁴ *Id.* at 21.

³⁵ *Id.* at 28.

³⁶ In *Intellicall, Inc. v. Phonometrics, Inc.*, 952 F.2d 1384 (Fed. Cir. 1992), the court explained:

Phonometrics argues that the accused devices are equivalent overall to the claimed invention. That view of the doctrine of equivalents was rejected in *Pennwalt Corp. v. Durand-Wayland, Inc.* . . . As this court has repeatedly stated, infringement requires that every limitation of a claim be met literally or by a substantial equivalent. *Id.* at 1389 (emphasis added) (citations omitted). The “all elements” rule had been adopted by the Federal Circuit in *Pennwalt Corp. v. Durand-Wayland, Inc.*, 833 F.2d 931, 938 (Fed. Cir. 1987), *cert. denied*, 485 U.S. 961, 1009 (1988), where the court held that a product does not infringe if it is missing an equivalent of a single limitation in a claim. The court decision stated that: “a court may not, under the guise of applying the doctrine of equivalents, erase a plethora of meaningful structural and functional limitations of the claim on which the public is entitled to rely in avoiding infringement. . . .” *Id.* at 935. The dissent stated:

On the one hand, there is the historic right of affording the public fair notice of what the patentee regards as his claimed invention in order to allow competitors to avoid actions which infringe the patent and to permit “designing around” the patent. On the other hand, equally important to the statutory purpose of encouraging progress in the useful arts, is the policy of affording the patent owner complete and fair protection of what was invented.

Id. at 945. (Bennett, J., dissenting) (citations omitted).

³⁷ *Warner-Jenkinson*, 520 U.S. at 29. Before *Pennwalt*, the doctrine of equivalents was applied to the “claimed invention as a whole.” *Hughes Aircraft Co. v. United States*, 717 F.2d 1351, 1364 (Fed. Cir. 1983) (“*Hughes I*”).

³⁸ *Warner-Jenkinson*, 520 U.S. at 30.

³⁹ *Id.* at 40.

⁴⁰ *Id.*

discussion shows, had opted to preserve the doctrine of equivalents.⁴¹ The Federal Circuit recognized that the doctrine of equivalents represents an exception to “the requirement that the claims define the metes and bounds of the patent protection,” but, it had explained, “we hearken to the wisdom of the court in *Graver Tank*, that the purpose of the rule is ‘to temper unsparing logic’ and thus to serve the greater interest of justice.”⁴²

2. *The Governing Law Before Festo as to Prosecution Estoppel*

16. The Supreme Court in *Warner-Jenkinson* also addressed the companion doctrine of prosecution history estoppel.⁴³ Prosecution estoppel is designed to prevent the patentee from recapturing by equivalence what it surrendered in prosecution to obtain the patent. The Supreme Court held that the doctrine of prosecution history estoppel limits the reach of the doctrine of equivalents where claimed subject matter was surrendered “to avoid the prior art, or otherwise to address a specific concern — such as obviousness — that arguably would have rendered the claimed subject matter unpatentable.”⁴⁴

⁴¹ See also *Haynes Int’l, Inc. v. Jessop Steel Co.*, 8 F.3d 1573, 1581 (Fed. Cir. 1994) (Newman, J., concurring) (“Patent protection, if easily circumvented, does not enhance the incentive for industrial innovation. Richard C. Levin *et al.*, in *Appropriating the Returns from Industrial Research and Development*, 3 BROOKINGS PAPERS ON ECONOMIC ACTIVITY 783 (1987), thus criticizes the effectiveness of the patent system as an innovation incentive. These policy issues are of particular concern to this court, which is charged with the body of law whose purpose is to support creativity and innovation. If it is desired to enlarge the restrictions on a patentee’s recourse to the doctrine of equivalents, by stretching the grounds of estoppel, this should be explored by the technology community, not legislated by this court.”); *State Indus., Inc. v. A.O. Smith Corp.*, 751 F.2d 1226, 1235-36 (Fed. Cir. 1985) (“Conduct such as Smith’s, involving keeping track of a competitor’s products and designing new and possibly better or cheaper functional equivalents is the stuff of which competition is made and is supposed to benefit the consumer. One of the benefits of a patent system is its so-called ‘negative incentive’ to ‘design around’ a competitor’s products, even when they are patented, thus bringing a steady flow of innovations to the marketplace. It should not be discouraged by punitive damage awards except in cases where conduct is so obnoxious as clearly to call for them. The world of competition is full of ‘fair fights,’ of which this suit seems to be one.”); *London v. Carson Pirie Scott & Co.*, 946 F.2d 1534, 1538 (Fed. Cir. 1991) (“Although designing or inventing around patents to make new inventions is encouraged, piracy is not. Thus, where an infringer, instead of inventing around a patent by making a substantial change, merely makes an insubstantial change, essentially misappropriating or even ‘stealing’ the patented invention, infringement may lie under the doctrine of equivalents.”) (citations omitted).

⁴² *Texas Instruments Inc. v. United States Int’l Trade Comm.*, 805 F.2d 1558, 1572 (Fed. Cir. 1986).

⁴³ The patent before the Court in *Warner-Jenkinson* disclosed a process for purifying dyes. *Warner-Jenkinson*, 520 U.S. at 21. During prosecution, the patentee amended the claims to recite that the process is carried out “at a pH from approximately 6.0 to 9.0.” *Id.* at 22. The accused process was carried out at a pH of 5.0. *Id.* at 23. In light of these facts, the Supreme Court embarked on an “endeavor to clarify the proper scope of the doctrine” of equivalents. *Id.* at 21. The court noted that, although the parties did not dispute that the upper pH limit of 9.0 was added to avoid the prior art, “the reason for adding the lower limit of 6.0 is unclear.” *Id.* at 32.

⁴⁴ *Id.* at 30. The Court implied that prosecution history estoppel may not apply to claim amendments made for other reasons, citing a number of its earlier decisions which involved claim amendments made to overcome prior art. See, e.g., *Exhibit Supply Co. v. Ace Patents Corp.*, 315 U.S. 126, 136 (1942); *Keystone Driller Co. v. Northwest Eng’g Corp.*, 294 U.S. 42, 48 (1935); *Smith v. Magic City Kennel Club, Inc.*, 282 U.S. 784, 788 (1931); *Computing Scale Co. of America v. Automatic Scale Co.*, 204 U.S. 609, 618-20 (1907); *Hubbell v. United States*, 179 U.S. 77, 83 (1900); *Sutter v. Robinson*, 119 U.S. 530, 541 (1886).

The Court stated that reasons for an amendment which would avoid prosecution history estoppel were provided in the amicus brief filed by the United States. *Warner-Jenkinson*, 520 U.S. at 31-32 (“as the United States informs us, there are a variety of other reasons why the PTO may request a change in claim language.”) (citing Brief for United States as amicus curiae at 22-23). In its amicus brief, 1996 WL 172221 (Apr. 11, 1996), the United States explained that amendments to reflect the proper scope of enablement or to add precision to the claims — as opposed

17. The Court in *Warner-Jenkinson* set forth a new procedure for determining whether there is a basis to apply prosecution history estoppel. This procedure created a new burden on the patent holder to show that an amendment was *not* made for a reason that would give rise to an estoppel. Where the file history does not provide the reason for the amendment, there is a rebuttable presumption against the patentee that the amendment causes an estoppel.⁴⁵
18. The rule typically and recently followed by the Federal Circuit was that the doctrine of equivalents was not foreclosed from applying to an amended claim, including claims amended to avoid prior art. The Federal Circuit had expressly recognized that it was necessary to scrutinize the prosecution to determine what had been surrendered. The standard for determining what was surrendered in applying prosecution history estoppel had been held by the Federal Circuit to be “an objective one, measured from the vantage point of what a competitor was reasonably entitled to conclude, from the prosecution history, that the applicant gave up to procure issuance of the patent.”⁴⁶ An applicant was estopped from recovering under the doctrine of equivalents subject matter actually surrendered during patent prosecution to secure issuance of the claim.⁴⁷ As the court said in 1998 in *Litton*, “[t]he common practice of amending a claim during prosecution, even amending to overcome prior art, does not necessarily surrender all subject matter beyond the literal scope of the amended claim limitation.”⁴⁸ The scope of subject matter surrendered by an amendment extended to “that which was deemed unpatentable in view of the prior art” and “‘trivial’ variations of such prior art features.”⁴⁹

to amendments to avoid the prior art — do not necessarily, but may, raise an estoppel. *Warner-Jenkinson*, 520 U.S. at 22-23.

⁴⁵ The Supreme Court explained:

[W]e think the better rule is to place the burden on the patent holder to establish the reason for an amendment required during patent prosecution. The court then would decide whether that reason is sufficient to overcome prosecution history estoppel as a bar to application of the doctrine of equivalents to the element added by that amendment. Where no explanation is established, however, the court should presume that the patent applicant had a substantial reason related to patentability for including the limiting element added by amendment. In those circumstances, prosecution history estoppel would bar the application of the doctrine of equivalents as to that element. The presumption we have described, one subject to rebuttal if an appropriate reason for a required amendment is established, gives proper deference to the role of claims in defining an invention and providing public notice, and to the primacy of the PTO in ensuring that the claims allowed cover only subject matter that is properly patentable in a proffered patent application.

Warner-Jenkinson, 520 U.S. at 33-34. The Court remanded for the Federal Circuit to determine whether a reason exists for applicants’ amending the claims to set the lower limit of the pH range at 6 and whether that reason would give rise to prosecution history estoppel precluding infringement by a pH of 5. *Id.* at 34.

⁴⁶ *Hoganas AB v. Dresser Indus., Inc.*, 9 F.3d 948, 952 (Fed. Cir. 1993).

⁴⁷ *See, e.g., Hughes Aircraft Co. v. United States*, 717 F.2d 1351 (Fed. Cir. 1983), *overruled by Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co.*, 234 F.3d 558 (Fed. Cir. 2000).

⁴⁸ *Litton Sys. Inc. v. Honeywell Inc.*, 140 F.3d 1449, 1455 (Fed. Cir. 1998).

⁴⁹ *Id.* at 1462.

3. *The Festo Decision*

19. The Federal Circuit majority, in an *en banc* decision in *Festo Corp. v. Shokestu_Kinzoku Kogyo Kabushiki Co.*⁵⁰ took another major step toward limiting patent scope based on its view of what is desirable for competitors. The court abolished the doctrine of equivalents for the large number of patent claim limitations as to which there had been a narrowing amendment⁵¹ for any reason relating to any statutory criterion for obtaining a patent.⁵² As to these claim limitations, everything but their literal terms was automatically surrendered. Since patent applications are routinely amended during the examination process,⁵³ equivalence protection under *Festo* is available only in the relatively small number of instances where there has been no amendment of the claims during patent prosecution. The court acknowledged that this was “a different conclusion” than its earlier rulings.⁵⁴

20. The majority explained its concern for competitors:

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

⁵⁰ *Festo Corp. v. Shokestu_Kinzoku Kogyo Kabushiki Co.*, 234 F.3d 558, 619 (Fed. Cir. 2000), *cert. granted*, 121 S. Ct. 2519 (2001).

⁵¹ *Id.* at 586. The facts in *Festo* were as follows: Festo Corporation sued the Shoketsu Kinzoku Kogyo Kabushiki Company (SMC) alleging infringement of its two patents on magnetically coupled cylinders. *Id.* at 578. The Festo patents claimed devices with a pair of sealing rings. The Stoll patent, in addition, claimed a sleeve made of a magnetized material. *Id.* at 580. SMC’s devices contained a single seal and had an outer portion of the sleeves made of an aluminum alloy, not a magnetizable material. *Id.* at 582. Stoll had amended claim 1 during prosecution for Section 112 reasons to recite “sealing rings” and “a cylindrical sleeve made of a magnetized material.” *Id.* at 583. During reexamination of the Carroll patent, Festo canceled claim 1, which did not recite “a sealing ring,” and added claim 9, which did recite such element. *Id.* at 590. The district court found defendants to have infringed both patents under the doctrine of equivalents. *Id.* at 585. The decision was affirmed on appeal. *Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co.*, 72 F.3d 857 (Fed. Cir. 1995). SMC had petitioned the Supreme Court for a writ of certiorari, which the court granted, vacating the judgment and the remanding the case for consideration in light of *Warner-Jenkinson*. See *Shoketsu Kinzoku Kogyo v. Festo Corp.* 520 U.S. 1111 (1997). On remand, the Federal Circuit, hearing the case *en banc*, reversed the judgment and barred the application of the doctrine of equivalents on the ground of prosecution history estoppel. The court found that the amendments in the Stoll patent that added a “magnetizable sleeve” or a “sealing ring” narrowed the literal scope of the claims. *Festo*, 234 F.3d at 588-89. Similarly, in the Carroll patent, the addition of the “sealing ring” narrowed the scope of the claims. The Federal Circuit held that the amended claim elements were not entitled to a range of equivalents and could not be infringed. *Id.* at 590-91.

⁵² The statutory requirements of patentability extend beyond distinguishing over prior art and encompass definiteness of claim language, disclosure of the best mode, enablement, and written description -- virtually all amendments that occur in prosecution. *Id.* at 566.

⁵³ As the Federal Circuit itself has observed, “[a]mendment of claims is a common practice in prosecution of patent applications,” and “comparatively few claims [are] allowed exactly as originally filed” *Hughes I*, 717 F.2d at 1363; *accord Festo*, 234 F.3d at 638 n.21 (“[F]or simple inventions, at most 10-15% of patents are granted without claim amendment. . . . For complex inventions the percentage of unamended applications is vanishingly small.”) (Newman, J., concurring in part and dissenting in part).

⁵⁴ *Festo*, 234 F.3d at 574.

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.⁵⁵

21. The freedom accorded by the new rule to competitors to copy with minor variation from the amended patent claims was the subject of extensive scrutiny in both the majority and minority opinions. The majority acknowledged the impact on patentees, but weighed the benefit from competitors more highly.⁵⁶ The rule announced by the *Festo* majority, as Judge Michel explained in dissent, facilitates copying of an invention because an infringer can review a patent prosecution history, identify an amended limitation, and then make a trivial change to attempt to bring the product outside of the literal meaning of the amended claim limitation.⁵⁷ The concurring opinion by Judge Lourie responded by acknowledging that “[I]n the future, a competitor may more closely approach the limits of the claims in a patent in which a narrowing amendment has been made without fear of liability.”⁵⁸ Judge Lourie favored the benefit from competitors over “occasional injustices” to patentees: “I believe that such occasional injustices will be greatly outnumbered by competitors who will be able to introduce innovative products outside the scope of claims without fear of unjustified, protracted, and expensive litigation.”⁵⁹
22. The dissenters had a negative view of the ease with which competitors could rely upon minor variations and “free ride” on patents. Judge Rader’s dissent identified troubling consequences in light of “the primary role of the doctrine,”⁶⁰ notably in rapidly developing technology fields for “after-arising technology”:⁶¹

⁵⁵ *Id.* at 577.

⁵⁶ “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.” *Festo*, 234 F.3d at 578.

⁵⁷ *Festo*, 234 F.3d. at 616-17. “Under the majority’s approach, anyone who wants to steal a patentee’s technology need only review the prosecution history to identify patentability-related amendments, and then make a trivial modification to that part of its product corresponding to an amended claim limitation. All the other limitations may be copied precisely. The competitor will then be free to make, use, or sell an insubstantial variant of the patentee’s invention.” *Id.* at 600-01.

⁵⁸ *Festo*, 234 F.3d at 597 (Lourie, J., concurring).

⁵⁹ *Id.*

⁶⁰ *Festo*, 234 F.3d at 619 (Rader, J., concurring in part and dissenting in part).

⁶¹ *Id.* In *Hughes Aircraft v. United States*, the Federal Circuit applied the doctrine of equivalents to reach technological alternatives not developed until after the patent application. The court held in *Hughes I* that a claim to a satellite navigation system in which the ground crew used data transmitted from the satellite to calculate existing and desired orientation was infringed under the doctrine of equivalents by a satellite which used an on-board computer to calculate the orientations. *Hughes I*, 140 F.3d at 1475. The court decided that, at the time of infringement, this was an insubstantial change in the claimed way. The court observed: “[T]he change in the S/E devices was the result of a technological advance not available until after the patent issued.” *Id.* “This is a case in which a ‘subsequent change in the state of the art, such as later-developed technology, obfuscated the significance of the limitation at the time of its incorporation into the claim.’” *Id.*

Rather, the majority's new bright line rule, by constraining limitations amended for a statutory purpose to their literal terms, is likely to encourage insubstantial changes to an established product, rather than investment in breakthrough technological advancements. Such a rule, therefore, promotes free riding and undercuts the return on a patentee's investment.⁶²

23. Judge Newman in dissent observed the same conflict, between “the creation and commercialization of new technologies,” and “appropriation of the creative product.”⁶³

The inventor and the imitator are affected by quite different economic considerations. The innovator takes the risk of commercial success or failure of new things in new markets — the risk of unfulfilled expectations, obsolescence, regulation, technologic failure. The imitator bears none of these risks; he is interested only in the successful products, not in the failures; he is interested only in the profitable products, not the marginal ones; he moves in only after the invention has been made and tested and the market developed, and can operate at lower margins. The patent system provides weight on the side of the innovator, aided by the doctrine of equivalents and its

⁶² *Festo*, 234 F.3d at 627 (Linn, J., concurring in part and dissenting in part, joined by Rader, J.). Judge Michel explained the impact in biotechnology:

A protein molecule can only be claimed as the complete and specific sequence of amino acids comprising the protein. See 37 C.F.R. § 1.821 (2000). The particular amino acids that comprise a protein chain are frequently interchangeable with other amino acids without changing the protein or its functions. As our court noted with respect to a patent claiming the protein erythropoietin, “over 3,600 different protein analogs can be made by substituting interchangeable acids at only a single amino acid position, and over a million different analogs can be made by substituting three amino acids.” *Amgen, Inc. v. Chugai Pharm. Co.*, 927 F.2d 1200, 1213, 18 U.S.P.Q.2D (BNA) 1016, 1026 (Fed. Cir. 1991). Many such analogs are functionally identical to the claimed protein. Thus, a competitor seeking to make, use, or sell a protein that is protected by a patent containing an amended claim limitation will only have to substitute at a particular location in the chain an interchangeable amino acid for the particular amino acid recited in the patent claim as occupying that location.

Festo, 234 F.3d at 617 (Michel, J., concurring in part and dissenting in part). Judge Lourie responded:

As for the biotechnology example hypothesized by one of the dissenters, I believe the concern is largely theoretical. The first inventors in a field are only entitled to claim what they can describe and enable, and I am confident that competent patent attorneys can readily craft their claims to cover that subject matter so that estoppel can be avoided. Moreover, subsequent inventors will be better able to find and develop improved products without fear of lawsuits. Predictability will be enhanced.

Festo, 234 F.3d at 597-98 (Lourie, J., concurring).

⁶³ *Festo*, 234 F.3d at 640 (Newman, J., concurring in part and dissenting in part).

inhibition of close copying, establishing an incentive whose value has been tested by time.⁶⁴

Judge Newman singled out the majority's "error of the 'simplified model,' which assumes a continuing supply of new products, and ignores the prior steps of invention and commercialization."⁶⁵

4. *Other Federal Circuit Efforts to Confine or Eliminate the Doctrine of Equivalents*

24. In a process begun before *Warner-Jenkinson*, the Federal Circuit had grafted several limiting doctrines onto the determination of equivalency.

a) Specific Exclusion

25. The Federal Circuit's decisions preceding *Warner-Jenkinson* include cases which held that the doctrine of equivalents cannot be used to cover structure in an accused device which the patent claim language, as the court characterized it, "specifically excludes" from a claim element. The doctrine was hard to distinguish from the exclusion of everything not literally claimed. One such case is *Dolly, Inc. v. Spalding & Evenflo Cos.*⁶⁶ The claim in *Dolly* covered a portable and adjustable chair for children and required a back panel and a seat panel, two side panels and "a stable rigid frame which is formed in part from said side panels and which along with said seat panel and said back panel provides a body supporting feature . . ."⁶⁷ The Federal Circuit held that the claim language specifically required that the "stable rigid frame [be] formed of components *other than* the seat and back panels."⁶⁸ Because the claim language specifically excluded the back panel and the seat panel from being part of the stable rigid frame ("along with said seat panel and said back panel"), the patentee could not assert that the back and seat panel in an alleged infringer's chair without a stable rigid frame was an equivalent to the stable-rigid-frame claim element.⁶⁹

⁶⁴ *Id.*

⁶⁵ *Id.* at 641.

⁶⁶ *Dolly, Inc. v. Spalding & Evenflo Cos.*, 16 F.3d 394 (Fed. Cir. 1994).

⁶⁷ *Id.* at 396.

⁶⁸ *Id.* at 399 (emphasis added).

⁶⁹ *Id.* Another case in this line is *Athletic Alternatives*. The claim related to the pattern of strings on a tennis racket, called a "splay pattern." *Athletic Alternatives, Inc. v. Prince Mfg., Inc.*, 73 F.3d 1573, 1577-78 (Fed. Cir. 1996). The Federal Circuit interpreted the claim to require a "splay pattern" where the distance between strings must have at least three difference values: "a minimum, a maximum, and at least one intermediate value." *Id.* at 1581. In contrast, the tennis racket accused of infringement had a splay pattern with only two distances between adjacent strings. Under this claim interpretation, the Federal Circuit held as a matter of law, that "the [accused tennis racket's] two-distance splayed string system was 'specifically excluded from the scope of the claims.'" *Id.* at 1582 (citation omitted). The intermediate value string structure specified by the claim was absent. The court stated:

Were we to allow [plaintiff] successfully to assert the broader of the two senses of "between" against [defendant], we would undermine the fair notice function of the requirement that the patentee distinctly claim the subject matter disclosed in the patent from which he can exclude others temporarily. Where there is an equal choice between a broader and a narrower meaning of a claim, and there is an enabling disclosure that indicates that the applicant is at least entitled to a claim

26. If each claim were to “specifically exclude” all alternatives not literally within it, the doctrine of equivalents would disappear. Accordingly, in *Ethicon Endo-Surgery*, the Federal Circuit retreated from its holdings that the words of the claims “specifically excluded” the device accused of equivalence.⁷⁰ “[A]ny analysis of infringement under the doctrine of equivalents necessarily deals with subject matter that is ‘beyond,’ ‘ignored’ by, and not included in the literal scope of a claim.”⁷¹ The court shifted its explanation of the summary judgments in *Dolly* to a factual determination that no reasonable jury could have found infringement by equivalence.

b) Foreseeability

27. The Federal Circuit invoked a test of foreseeability in another effort to limit the scope of equivalency. In *Sage Prods., Inc. v. Devon Indus., Inc.*, the Federal Circuit, in dictum, suggested that foreseeable alternatives not claimed should be excluded from equivalence.⁷² “It is the patentee [not the public] who must bear the cost of its failure to seek protection for this foreseeable alteration of its claimed structure.”⁷³ This dictum in *Sage* is at loggerheads with the Supreme Court’s decision in *Graver Tank*, where the Court held that the accused element was equivalent to the element found in the specification and expressly relied on two prior art patents which taught the use of the accused element as a substitute for the claimed element.⁷⁴ Under the rationale suggested in *Sage*, because the prior art taught that the accused element was a substitute for the claimed element, such a substitution necessarily would have been foreseeable and therefore would have precluded application of the doctrine of equivalents. The Federal Circuit itself said the opposite in the earlier *Pall* case: “It is not controlling whether the inventor foresaw and described [the] potential equivalent at the time the patent application was filed.”⁷⁵

having the narrower meaning, we consider the notice function of the claim to be best served by adopting the narrower meaning.

Athletic Alternatives, 73 F.3d at 1581; see also *Wiener v. NEC Elecs., Inc.*, 102 F.3d 534, 541-42 (Fed. Cir. 1996), *overruled by* *Cybor Corp. v. FAS Techs.*, 138 F.3d 1448 (Fed. Cir. 1998) (Noting that words of claim “specifically excluded” the accused memory. “Even if the accused device performs a substantially similar function and reaches a substantially similar result, this court cannot overlook the clear language of this limitation of the claims.”) (citation omitted). In *Eastman Kodak*, the Federal Circuit, citing *Dolly*, held that a claim which required that a process be performed in an “inert gas atmosphere,” where the specification referred to an “airtight seal,” specifically excluded the process with heated air as an equivalent. The court said that the specification “suggests . . . that the . . . [reaction] should take place without air.” *Eastman Kodak Co. v. Goodyear Tire & Rubber Co.*, 114 F.3d 1547, 1560 (Fed. Cir. 1997), *overruled by* *Cybor Corp. v. FAS Techs.*, 138 F.3d 1448 (Fed. Cir. 1998).

⁷⁰ *Ethicon Endo-Surgery, Inc. v. United States Surgical Corp.*, 149 F.3d 1309 (Fed. Cir. 1998).

⁷¹ *Id.* at 1317.

⁷² *Sage Prods., Inc. v. Devon Indus., Inc.*, 126 F.3d 1420 (Fed. Cir. 1997). The patent “discloses a disposal container that allows a user to deposit hazardous medical waste without touching waste already in the container.” *Id.* at 1422. The court rejected the patentee’s argument “that having two constrictions below the top of the container is the same, for purposes of infringement, as having one constriction above and one constriction below” because the patentee was seeking “to remove entirely” clear structural limitations, by reading out the top of the container and over said slot claim limitations. *Id.* at 1424. In addition to relying on the literal words of the claim, the court cited the lack of evidence of an insubstantial difference. *Id.*

⁷³ *Id.* at 1425 (citations omitted).

⁷⁴ *Graver Tank*, 339 U.S. at 611-12.

⁷⁵ *Pall Corp. v. Micron Separations*, 66 F.3d 1211, 1220 (Fed. Cir. 1995) (citation omitted).

c) The Patent Specification Precludes Equivalence⁷⁶

28. In *Maxwell v. Baker, Inc.*,⁷⁷ the Federal Circuit held that a patentee may not obtain coverage under the doctrine of equivalents of subject matter described in the specification. The court was concerned about encouraging a patent applicant “to present a broad disclosure in the specification of the application and file narrow claims, avoiding examination of broader claims that the applicant could have filed”⁷⁸
29. The Supreme Court in *Warner-Jenkinson*, however, suggested the opposite when it rejected the argument that “the doctrine of equivalents should be limited to equivalents that are disclosed within the patent”⁷⁹ The Court implied that disclosure of an alternative does not preclude being reached by equivalents. The Federal Circuit has since retreated from *Maxwell*, in a post-*Warner-Jenkinson* decision. In *YBM Magnex*,⁸⁰ the Federal Circuit expressly limited *Maxwell* to its “particular facts.”⁸¹ The court reversed

⁷⁶ The court’s sympathetic view of the latitude available to competitors of patentees extends to other areas as well. An example is the court’s recent decision holding that a first inventor’s demonstration that a method of treatment was effective for cancer, rather than ineffective, was in the public domain. In *Bristol-Myers Squibb Co. v. Ben Venue Labs., Inc.*, 246 F.3d 1368 (Fed. Cir. 2001), the Federal Circuit recently applied the inherency doctrine to deny patentability to discoveries of a new biological activity and result. The claim to a cancer treatment method was held to be inherently anticipated by a prior art reference disclosing the use of taxol within the claimed dosage range to treat cancer, but reported that no antitumor response was observed in the failed experiment. *Id.* at 1372. The court rejected Bristol’s argument that “its inventors achieved success, where Kris had assertedly failed” *Id.* at 1380. The court affirmed summary judgment invalidating claims to a method of treating cancer with an efficacious amount, within a stated dosage range, of taxol (an anticancer drug derived from the Pacific Yew tree). *Id.*; see also *Eli Lilly v. Barr Laboratories*, 251 F.3d 955, 970 (Fed. Cir. 2001) (patent claim invalid for double patenting, since administration of a compound in the earlier claim inherently caused the mechanism described in the later claim.) Dissenting in *Lilly*, Judge Newman wrote:

[E]very biological property is a natural and inherent result of the chemical structure from which it arises, whether or not it has been discovered. To negate the patentability of a discovery of biological activity because it is “the natural result” of the chemical compound can have powerful consequences for the patentability of biological inventions.

Id. at 976.

⁷⁷ *Maxwell v. Baker, Inc.*, 86 F.3d 1098 (Fed. Cir. 1996), *cert. denied*, 520 U.S. 1115 (1997). In *Maxwell*, the plaintiff devised a method to keep shoe pairs together in a store without having to punch a hole through the shoes. *Id.* at 1101. Plaintiff’s system involved inserting “tabs along the inside of each shoe [that] connected the shoes with a filament threaded through . . . each tab.” *Id.* In her patent, plaintiff claimed “a fastening tab . . . and means for securing said tab between said inner and outer soles.” *Id.* at 1102. Plaintiff also “disclosed in the specification, without claiming them, alternatives in which the fastening tabs could be ‘stitched into the lining seam of the shoes.’” *Id.* at 1108. The court stated that “[b]y failing to claim these alternatives, the Patent and Trademark Office was deprived of the opportunity to consider whether these alternatives were patentable.” *Id.* The court continued by stating that “[a] person of ordinary skill in the shoe industry, reading the specification and prosecution history, and interpreting the claims, would conclude that [the plaintiff], by failing to claim the alternative shoe attachment systems in which the tabs were attached to the inside shoe lining, dedicated the use of such systems to the public.” *Id.* Therefore, the court concluded that the defendant could not infringe the plaintiff’s patent by using one alternate shoe attachment system that plaintiff had given to the public. *Id.*

⁷⁸ *Id.* at 1107.

⁷⁹ *Warner-Jenkinson*, 520 U.S. at 37.

⁸⁰ *YBM Magnex, Inc. v. Int’l Trade Comm’n*, 145 F.3d 1317 (Fed. Cir. 1998).

⁸¹ *Id.* at 1321. The *YBM Magnex* court described *Maxwell* as an unusual case where the patentee “disclosed two distinct alternative ways in which pairs of shares are attached for sale, and only claimed one of them.” *Id.* at 1320.

the ITC's decision applying *Maxwell* to exclude from equivalence an alternative described in the specification. The court pointed out that *Maxwell*, as applied by the Commission, "would place *Maxwell* into conflict with Supreme Court and Federal Circuit precedent."⁸² In *Graver Tank* the Supreme Court upheld infringement by equivalence for an alternative disclosed in the specification.⁸³ The Federal Circuit has since agreed to *en banc* review of a case presenting the same issue.⁸⁴

30. Nevertheless, when an important function is identified for a claim element in the patent specification, the Federal Circuit has denied infringement by equivalence where the accused device lacked that "one key function."⁸⁵ The majority opinion expressed concern that "other players in the market place are entitled to rely on the record made in the Patent Office in determining the meaning and scope of the patent."⁸⁶

III. COMPETITION POLICY IN THE TREATMENT OF PATENTS

A. THE BLACK/DOUGLAS VIEW OF PATENTS IN THE CONTEXT OF ANTITRUST AND COMPETITION POLICY IN THE 1940S AND 1950S

31. Competition policy powerfully influenced the treatment of patents by the Supreme Court in both patent and antitrust decisions, particularly in the decades of the 1940s and 1950s. The Supreme Court frequently, and Justices Black and Douglas always, reflected a high regard for the interest of competitors in narrow patents. As explained above, the Federal Circuit's view has been similar in assigning a higher value to the interests of competitors than those of patentees with respect to patent scope.

1. Patent Law

32. The Supreme Court initially limited patent rights in this period by decisions applying a high standard of invention under the patent laws. In holding that patentable inventions must reveal a "flash of creative genius," Justice Douglas, writing for the Supreme Court

It then explained that "[i]n view of the distinctness of the two embodiments, both of which were fully described in the specification, [the *Maxwell* court] denied [patentee] the opportunity to enforce the unclaimed embodiment as an equivalent of the one that was claimed." *Id.*

⁸² *Id.* at 1320.

⁸³ *Graver Tank Mfg. Co. v. Linde Air Prods. Co.*, 339 U.S. 605 (1950).

⁸⁴ *Johnson & Johnston Assoc. Inc. v. R.E. Service Co.*, Nos. 99-1076, 99-1179, 99-1180, 2001 U.S. App. LEXIS 4038, at 1347 (Fed. Cir. Jan. 24, 2001). The *en banc* questions posed by the court are:

(1) Whether and under what circumstances a patentee can rely upon the doctrine of equivalents with respect to unclaimed subject matter disclosed in the specification.

(2) Whether in this case the jury's finding of infringement should be reversed because the patentee was foreclosed from asserting the doctrine of equivalents with respect to unclaimed subject matter disclosed in the specification.

Id.

⁸⁵ *Vehicular Tech. Corp. v. Titan Wheel Int'l, Inc.*, 141 F.3d 1084, 1093 (Fed. Cir. 1998) (Newman, J. dissenting in view of "new rule of law" contrary to precedent barring equivalency if the equivalent "does not possess the unclaimed advantages or functions described in the specification.")

⁸⁶ *Id.* at 1091.

majority in *Cuno Engineering Corp. v. Automatic Devices Corp.* expressed concern “lest . . . the heavy hand of tribute be laid on each slight technological advance in an art.”⁸⁷ The alternative of a lower standard of patentability, he wrote, “creates a class of speculative schemers who make it their business to watch the advancing wave of improvement, and gather its foam in the form of patented monopolies, which enable them to lay a heavy tax upon the industry of the country, without contributing anything to the real advancement of the arts.”⁸⁸ The result affected competitors, since it “embarrasses the honest pursuit of business with fears and apprehensions of concealed liens and unknown liabilities to lawsuits and vexatious accountings for profits made in good faith.”⁸⁹

33. In 1950, Justices Douglas and Black, in *Automatic Radio*, summarized the Supreme Court’s recent history of giving priority to the impact of patents on competitors, rather than on the patentee:

The Court in its long history has at times been more alive to that policy [constitutional patent clause re: “Progress of Science and Useful Arts”] than at other times. During the last three decades it has been as devoted to it (if not more so) than at any time in its history. I think that was due in large measure to the influence of Mr. Justice Brandeis and Chief Justice Stone. They were alert to the danger that business -- growing bigger and bigger each decade -- would fasten its hold more tightly on the economy through the cheap spawning of patents and would use one monopoly to beget another through the leverage of key patents. They followed in the early tradition of those who read the Constitution to mean that the public interest in patents comes first, reward to the inventor second.⁹⁰

⁸⁷ *Cuno Eng. Corp. v. Automatic Devices Corp.*, 314 U.S. 84, 92 (1941). The Supreme Court in *Cuno Engineering* reversed the judgment of the lower court finding that respondent had a valid patent that was infringed. “[T]he new device, however useful it may be, must reveal the flash of creative genius, not merely the skill of the calling. If it fails, it has not established its right to a private grant on the public domain.” *Id.* at 91; see also *Sears, Roebuck & Co. v. Stiffel Co.*, 376 U.S. 225, 230 (1964) (“a genuine ‘invention’ or ‘discovery’ must be demonstrated ‘lest in the constant demand for new appliances the heavy hand of tribute be laid on each slight technological advance in an art.’” *Cuno Eng. Corp. v. Automatic Devices Corp.*, 314 U.S. 84, 92 (1941); see *Great Atl. & Pac. Tea Co. v. Supermarket Equip.*, 340 U.S. 147, 152-153 (1950); *Atl. Works v. Brady*, 107 U.S. 192, 199-200 (1883).”)

⁸⁸ *Cuno Eng.*, 314 U.S. at 92.

⁸⁹ *Id.*

⁹⁰ *Automatic Radio Mfg. Co., Inc. v. Hazeltine Research, Inc.*, 339 U.S. 827, 837 (1950), (Douglas, J., dissenting). Similarly, Justice Black, dissenting in another case, expressed concern for competitors if the patentability standard was not high enough: “Those who strive to produce and distribute goods in a system of free competitive enterprise should not be handicapped by patents based on a ‘shadow of a shade of an idea.’” *Goodyear Tire & Rubber Co., Inc. v. Ray-O-Vac Co.*, 321 U.S. 275, 279 (1944) (citing *Atl. Works v. Brady*, 107 U.S. 192, 200). The Supreme Court in *Goodyear* affirmed the judgment for respondent holding that its patent for a flashlight battery cell was valid and infringed “since the petitioners’ substitutions of structure and material were no more than the choice of mechanical alternatives and did not avoid the practice of the principle disclosed by the patent.” *Goodyear*, 321 U.S. at 723-24.

34. Justices Black and Douglas, again in dissent, cited the burden on competitors for their strong disagreement with the majority's view upholding the Doctrine of Equivalents in *Graver Tank*. As Justice Black wrote:

The Court's ruling today sets the stage for more patent "fraud" and "piracy" against business than could be expected from faithful observance of the congressionally enacted plan to protect business against judicial expansion of precise patent claims. Hereafter a manufacturer cannot rely on what the language of a patent claims. He must be able, at the peril of heavy infringement damages, to forecast how far a court relatively unversed in a particular technological field will expand the claim's language after considering the testimony of technical experts in that field. To burden business enterprise on the assumption that men possess such a prescience bodes ill for the kind of competitive economy that is our professed goal.⁹¹

35. While the Supreme Court ultimately rejected a "flash of creative genius" as the standard for patentability,⁹² the Court in a concurring opinion by Justice Douglas in *Great Atlantic & Pacific Tea Co.* complained about the Patent Office and the lower courts' liberality in upholding patents, "The fact that a patent as flimsy and as spurious as this one has to be brought all the way to this Court to be declared invalid dramatically illustrates how far our patent system frequently departs from the constitutional standards which are supposed to govern."⁹³

36. The lower courts responded. By 1973, the Second Circuit observed that more than 80% of patents reviewed on appeal resulted in a decision that the patents were invalid.⁹⁴

2. *Antitrust Law*

37. In the area of antitrust policy the exclusive rights given to patentees were treated by the Supreme Court of Justices Black and Douglas as a "special privilege"⁹⁵ to be "narrowly

⁹¹ *Graver Tank & Mfg. Co., v. Linde Air Prods. Co.*, 339 U.S. 605, 617 (1950) (Black, J., dissenting). *See also* *Winans v. Denmead*, 56 U.S. 330, 347 (1853) ("The patentee is obliged, by law, to . . . particularly 'specify and point' out what he claims as his invention. Fullness [sic] clearness, exactness, preciseness, and particularity, in the description of the invention, its principle, and of the matter claimed to be invented, will alone fulfill [sic] the demands of Congress or the wants of the country. Nothing, in the administration of this law, will be more mischievous, more productive of oppressive and costly litigation, of exorbitant and unjust pretensions and vexatious demands, more injurious to labor, than a relaxation of these wise and salutary requisitions of the act of Congress." (Campbell, J., dissenting)). *See also Festo*, 234 F.3d at 628, n.17-18 (citing *Winans* and *Graver Tank*) (Linn, J., concurring in part and dissenting in part).

⁹² *Graham v. John Deere Co.*, 383 U.S. 1, 15 ("It also seems apparent that Congress intended by the last sentence of § 103 to abolish the test it believed this Court announced in the controversial phrase 'flash of creative genius,' used in *Cuno Corp. v. Automatic Devices Corp.*, 314 U.S. 84 (1941).").

⁹³ *Great Atl. & Pac. Tea Co. v. Supermarket Equip. Corp.*, 340 U.S. at 158.

⁹⁴ *Carter-Wallace, Inc. v. Davis-Edwards Pharmacal Corp.*, 443 F.2d 867, 872 (2d Cir. 1971), *cert. denied*, 412 U.S. 929 (1973).

⁹⁵ *Morton Salt Co. v. G.S. Suppiger Co.*, 314 U.S. 488, 492 (1942) (patent owner may not claim the protection of a patent to secure an exclusive right outside the scope of the patent by a tie-in) (Black & Douglas, JJ., on the opinion);

construed”⁹⁶ in a more general, more fundamental, scheme of competition.⁹⁷ In *Morton Salt*, the Supreme Court in 1942 in an opinion by Justice Stone created a “patent misuse” doctrine which denied legal relief to a patentee against infringers if it attempted to extend the scope of its patent monopoly.⁹⁸ Regardless of whether the patentee had actually violated the antitrust laws⁹⁹ or caused injury to anyone,¹⁰⁰ and even though there was a separate antitrust remedy against it which the government or an injured party could pursue if there had been a violation of the law,¹⁰¹ the right to enforce the patent was withdrawn.¹⁰² A similar attitude was reflected in Justice Douglas’ opinion for the Supreme Court describing the role of the Declaratory Judgment Act in allowing an early challenge to a patent as lifting “the heavy hand of that tribute from the business.”¹⁰³ Similarly, applying the same policy in 1969, the Supreme Court in *Lear v. Adkins* set aside “the technical requirements of contract doctrine” in favor of permitting licensees to challenge patents licensed to them regardless of an agreement to the contrary.¹⁰⁴

38. This approach also led to a series of Supreme Court decisions which held or suggested the illegality of certain patent license restrictions where patent leverage was arguably used to gain an advantage outside the patent. For example, in *Northern Pacific Railway v. United States*,¹⁰⁵ tie-ins were held to be *per se* illegal.¹⁰⁶ This principle was applied to patent tie-in cases such as *International Salt Co. v. United States*,¹⁰⁷ in which a licensing agreement that required the licensees to purchase their unpatented salt from the defendant as a condition to leasing his patented salt-making machinery was held to be illegal.¹⁰⁸ The Supreme Court ruled that the “seller must have ‘sufficient economic power with

see also *United States v. Line Material Co.*, 333 U.S. 287, 310 (1948) (“The monopoly granted by the patent laws is a statutory exception to [the] freedom for competition [of the Sherman Act] and consistently has been construed as limited to the patent grant.”) (Black & Douglas, JJ., on the opinion).

⁹⁶ *Mercoid Corp. v. Mid-Continent Inv. Co.*, 320 U.S. 661, 665 (1944) (“[T]he limits of the patent are narrowly and strictly confined to the precise terms of the grant.”) (Black & Douglas, JJ., on the opinion).

⁹⁷ However, the Supreme Court recognized as lawful under Section 2 of the Sherman Act the achievement of monopoly power by “a new discovery or an original entry into a new field,” *Am. Tobacco Co. v. United States*, 328 U.S. 781, 786 (1946), or “development . . . of a superior product, [or] business acumen,” *United States v. Grinnell Corp.*, 384 U.S. 563, 571 (1966).

⁹⁸ *See Morton Salt*, 314 U.S. at 492-93.

⁹⁹ The question is “not necessarily whether [the patentee] has violated the Clayton Act, but whether a court of equity will lend its aid to protect the patent monopoly.” *Id.* at 490.

¹⁰⁰ A misuse defense can be asserted even when actual damages did not result from the misuse and even in the absence of a showing of impact upon the party asserting the defense. *Id.* at 493-94.

¹⁰¹ Clayton Act § 4, 5, 15 U.S.C. § 4, 5 (1997).

¹⁰² For example, the Court of Appeals for the Fourth Circuit more recently in *Lasercomb American, Inc. v. Reynolds*, 911 F.2d 970, 978 (1990), applied patent misuse principles to copyright misuse in favor of an infringer who was not affected by the offending license clause: “The question is not whether the copyright is being used in a manner violative of the antitrust law . . . but whether the copyright is being used in a manner violative of . . . public policy . . .”

¹⁰³ *Altwater et al. v. Freeman et al.*, 319 U.S. 359, 365 (1943).

¹⁰⁴ *Lear, Inc. v. Adkins*, 395 U.S. 653, 670-71 (1969).

¹⁰⁵ *N. Pac. Ry. v. United States*, 356 U.S. 1 (1958). The Court found that to show a tie-in, one need not show “more than sufficient economic power to impose an appreciable restraint on free competition in the tied product.” *Id.* at 11. (Black, J.).

¹⁰⁶ A “tie-in” is an arrangement in which a seller conditions his sale of a product upon a buyer’s purchase of a separate product from the seller or a designated third party. The anti-competitive vice is that competitors are denied access to the market for the tied product. *See id.* at 5-6.

¹⁰⁷ *Int’l Salt Co. v. United States*, 332 U.S. 392 (1947) (Black & Douglas, J.J., on the opinion).

¹⁰⁸ *Id.* at 396, (holding that it is unreasonable, *per se*, to foreclose competitors from any substantial market).

respect to the tying product to appreciably restrain free competition in the market for the tied product,” and that the economic power necessary to impose a tie-in was “presumed when the tying product is patented.”¹⁰⁹

39. The limitation on the patent right that it was exhausted by sale of the patented article was a long-established principle.¹¹⁰ The frequently cited *Adams v. Burke* case held that an assignment of the right under a patent to make, use and sell coffin lids, but limited to within 10 miles of Boston, was not enforceable against the purchaser of the coffin without condition.¹¹¹ This principle was confirmed in *United States v. Univis Lens Co.*¹¹²
40. With respect to price restrictions on articles manufactured under patent licenses the Supreme Court had difficulty reaching a consensus. In *United States v. General Electric Co.*, the Court found that the imposition of price limitations on a single manufacturing licensee’s sales “is reasonably within the reward which the patentee by the grant of the patent is entitled to secure.”¹¹³ Subsequent decisions hemmed in the General Electric doctrine, holding price limitations unlawful in a variety of other circumstances. In *United States v. United States Gypsum Co.*, it was held that a patentee cannot, “acting in concert with all members of an industry, . . . issue substantially identical licenses to all members of the industry under the terms of which the industry is completely regimented. . . .”¹¹⁴ In *United States v. Line Material Co.*, the Supreme Court held that two or more patent owners cannot combine their patents and fix prices,¹¹⁵ and in *Newburgh Moire Co. v. Superior Moire Co.*, the Third Circuit held that a patentee may not issue a plurality of licenses fixing the licensees’ selling price.¹¹⁶ However, the *General Electric* doctrine survived challenge by the Department of Justice by an equally divided Supreme Court in 1948.¹¹⁷
41. In the area of enforcement, the Department of Justice’s Antitrust Division created a list of “Nine No-Nos,” reflecting the view of patents prevalent in these cases. These were license and sale restrictions associated with patents that, in the Department’s view, were automatically illegal. These included, for example, the following versions of the foregoing cases:

¹⁰⁹ *United States v. Loew’s, Inc.*, 371 U.S. 38, 45-47 (1962) (quoting *N. Pac. Ry. Co.*, 356 U.S. at 6).

¹¹⁰ *See, e.g.*, *Adams v. Burke*, 84 U.S. (17 Wall.) 453 (1873).

¹¹¹ *See id.*

¹¹² *United States v. Univis Lens Co.*, 316 U.S. 241, 249 (1942) (“An incident to the purchase of any article, whether patented or unpatented, is the right to use and sell it, and upon familiar principles the authorized sale of an article which is capable of use only in practicing the patent is a relinquishment of the patent monopoly with respect to the article sold.”).

¹¹³ *United States v. General Electric Co.*, 272 U.S. 476, 489 (1926).

¹¹⁴ *United States v. United States Gypsum Co.*, 333 U.S. 364, 400 (1948) (“Patents grant no privilege to their owners of organizing the use of those patents to monopolize an industry through price control, through royalties for the patents drawn from patent-free industry products and through regulation of distribution.”).

¹¹⁵ *United States v. Line Material Co.*, 333 U.S. 287, 308-10 (1948).

¹¹⁶ *Newburgh Moire Co. v. Superior Moire Co.*, 237 F.2d 283, 293-94 (3d Cir. 1956).

¹¹⁷ *See United States v. Line Material Co.*, 333 U.S. 287 (1948); *see also United States v. Huck Mfg. Co.*, 382 U.S. 197 (1965) (where the outcome was the same).

“No-No” Number 1: “It is clear that it is unlawful to require a licensee to purchase unpatented materials from the licensor”... “No-No” Number 3: “The Department believes it is unlawful to attempt to restrict a purchaser of a patented product in the resale of that product”... “No-No” Number 9: “[T]he Department of Justice considers it unlawful for a patentee to require a licensee to adhere to any specified or minimum price with respect to the licensee’s sale of the licensed products.”¹¹⁸

B. THE RENUNCIATION OF THE BLACK/DOUGLAS VIEW

42. A great change occurred in antitrust doctrine beginning in the 1970s. It led to abandonment of the Black/Douglas view.

1. *Economic Beginnings*

43. In 1950, Joseph Schumpeter identified innovation as an important source of competition when he called technological change a “gale of creative destruction.”¹¹⁹ Robert Solow

¹¹⁸ Abbott B. Lipsky, Jr., Current Antitrust Division Views on Patent Licensing Practices, Remarks Before the American Bar Association Antitrust Section, *in* 50 ANTITRUST L.J. 515, 518, 520, 523 (1981) [hereinafter Lipsky, Views] (citing Bruce B. Wilson, Law on Licensing Practices: Myth or Reality?, Department of Justice Luncheon Speech (Jan. 21, 1975)). The other “No-Nos” were:

“No-No” Number 2: “The Department views it as unlawful for a patentee to require a licensee to assign to the patentee any patent which may be issued to the licensee after the licensing arrangement is executed.”...

“No-No” Number 4: “A patentee may not restrict his licensee’s freedom to deal in the products or services not within the scope of the patent.”

“No-No” Number 5: “The Department believes it to be unlawful for a patentee to agree with his licensee that he will not, without the licensee’s consent, grant further licenses to any other person.”

“No-No” Number 6: “The Department believes that mandatory package licensing is an unlawful extension of the patent grant.”

“No-No” Number 7: “The Department believes that it is unlawful for a patentee to insist, as a *condition* of the license, that his licensee pay royalties in an amount not reasonably related to the licensee’s sales of products covered by the patent — for example, royalties on the total sales of products of the general type covered by the licensed patent.”

“No-No” Number 8: “It is pretty clearly unlawful for the owner of a process patent to attempt to place restrictions in his licensee’s sales of products made by the use of the patented process.”

Id. at 519-22.

¹¹⁹ JOSEPH SCHUMPETER, CAPITALISM, SOCIALISM, AND DEMOCRACY 84 (3d ed. 1950); *see also id.* at 83-110; 1 JOSEPH SCHUMPETER, BUSINESS CYCLES 84-192 (1939). Schumpeter’s theory did not focus on either patents or technologic innovations, but his analysis and conclusions are readily transposed to these situations. Schumpeter considered the term innovation to include the development of new consumer goods, forms of industrial organization,

was awarded the Nobel Prize for work published in 1957 demonstrating the positive impact of technologic change and innovation on growth in productivity in the U.S. economy,¹²⁰ and Edward Denison later reported that increases in productivity were primarily attributable to advances in scientific and technological knowledge.¹²¹

2. The Cases

44. It was only after the Black and Douglas era that a trend toward respectability began for patents in the cases. In 1974, the Supreme Court in *Kewanee* observed that the patent system stimulates invention and commercialization by providing a seventeen-year exclusive right to the inventor.¹²² The court held that trade secret law was not preempted by the patent law and that they could coexist. Taking a different tack than the Black and Douglas Supreme Court of the 1940s and 1950s, the court recognized that the patent exclusivity was “an incentive to inventors to risk the often enormous costs in terms of time, research, and development,” and had a “positive effect on society through the introduction of new products and processes of manufacture into the economy, and the emanations by way of increased employment and better lives for our citizens.”¹²³
45. A significant change occurred in antitrust law in connection with vertical restrictions in the *GTE-Sylvania* decision in 1977 when the Supreme Court recognized the negative effects of “free riding” and held that a restriction on competition was justified because it had a *pro*-competitive effect.¹²⁴ The Supreme Court overruled its earlier absolutist *Schwinn* decision, which had held that a vertical restriction on a product that had been sold to a wholesaler or retailer was *per se* unlawful as a “restraint on alienation.”¹²⁵ The Court upheld a television set supplier’s restriction on the geographic area in which its distributor could resell the sets.¹²⁶ The restriction encouraged promotion of competition among different brands by encouraging the distributor to promote the supplier’s brand – something he might not do if he feared that a neighboring distributor would “free ride” on his promotional effort and use it to take sales away.¹²⁷ The recognition that a restriction

markets, and methods of production. *Id.* at 82-84. He further defined innovation as putting new technologies into practice, as well as any combination of resources that establishes a “new production function.” *Id.* at 87.

¹²⁰ Robert M. Solow, *Technical Change and the Aggregate Production Function*, 39 REV. OF ECON. & STAT. 312 (1957). Solow determined that increases in capital intensity accounted for only 12.5 percent of the measured increase in output per labor hour while the other 87.5 percent increase in growth was attributed to technologic changes such as improvements in production practices and equipment. *Id.*; see also F.M. SCHERER & DAVID ROSS, INDUSTRIAL MARKET STRUCTURE AND ECONOMIC PERFORMANCE 613-14 (3d ed. 1990) (detailing Solow’s study and resulting conclusions).

¹²¹ Scherer & Ross, *supra* note 121, at 613 (citing EDWARD F. DENISON, TRENDS IN AMERICAN ECONOMIC GROWTH, 1929-1982 30 (1985)) (68%).

¹²² *Kewanee Oil Co. v. Bicron Corp.*, 416 U.S. 470, 480-81 (1974).

¹²³ *Id.* at 480.

¹²⁴ *Continental T.V., Inc. v. GTE Sylvania Inc.*, 433 U.S. 36, 54-55 (1977).

¹²⁵ *United States v. Arnold, Schwinn & Co.*, 388 U.S. 365 (1967) (holding that vertical restrictions on areas in which, and persons to whom, a product could be sold after the manufacturer had parted with ownership were *per se* violations of the Sherman Act).

¹²⁶ *GTE Sylvania*, 433 U.S. at 59.

¹²⁷ *Id.* at 51-52 n.19, 55.

Vertical restrictions promote interbrand competition by allowing the manufacturer to achieve certain efficiencies in the distribution of his products. These “redeeming

on competition benefits competition by deterring free riding and promoting more vigorous selling is analogous to the idea that a patent benefits competition by deterring free riding by others on a patented invention and promoting the risk-taking involved in research.

46. Then, in 1978, Judge Newman decided *SCM Corp. v. Xerox Corp.*¹²⁸ after a year-long antitrust trial concerning plaintiff's contention that Xerox had acquired and maintained a monopoly in plain paper office copiers. The claims against Xerox were predicated on its acquisition of thousands of patents by internal invention and external acquisition. It was alleged that the patents were used to exclude competition in the market for plain paper office copiers in which Xerox ultimately achieved a 100% share. The trial explored in great detail the origin and development of xerography and the Xerox Company, and the role of research, development, risk, patents and investment in creating and excluding competition in copiers.
47. Judge Newman's decision is noteworthy for three reasons. First, his assessment of the proper interplay of patents and the antitrust laws was based on an exhaustive evidentiary record which told how a new and major industry was created. Second, the possibility of conflict between the two was framed in stark terms since Xerox was determined ultimately to have achieved a monopoly (in the sense of 100% of the relevant market) by reason of the exclusionary power of acquired patents. Third, straightforward application of a Supreme Court precedent concerning § 7 of the Clayton Act would have resulted in a violation of law. The decision recognized that [t]his case presents important issues concerning the relationship between the patent laws and the antitrust laws."¹²⁹ Rather than the patent-competition conflict hypothesized by the Black/Douglas view, the court observed that "[e]conomic arguments can be made that these statutes have a common goal of maximizing wealth by facilitating the production of what consumers want at the lowest cost."¹³⁰ The court observed that the patent laws grant broad exclusionary power including, unlike chattels, "the exclusive power to prevent anyone else from using the

virtues" are implicit in every decision sustaining vertical restrictions under the rule of reason. Economists have identified a number of ways in which manufacturers can use such restrictions to compete more effectively against other manufacturers. . . . For example, new manufacturers and manufacturers entering new markets can use the restrictions in order to induce competent and aggressive retailers to make the kind of investment of capital and labor that is often required in the distribution of products unknown to the consumer. Established manufacturers can use them to induce retailers to engage in promotional activities or to provide service and repair facilities necessary to the efficient marketing of their products. Service and repair are vital for many products, such as automobiles and major household appliances. The availability and quality of such services affect a manufacturer's good will and the competitiveness of his product. Because of market imperfections such as the so-called "free rider" effect, these services might not be provided by retailers in a purely competitive situation, despite the fact that each retailer's benefit would be greater if all provided the services than if none did.

Id. at 54-55 (citations omitted) (emphasis added).

¹²⁸ *SCM Corp. v. Xerox Corp.*, 645 F.2d 1195 (2d Cir. 1981), *cert. denied*, 455 U.S. 1016 (1982), *aff'g* 463 F. Supp. 983 (C.D. Conn. 1978).

¹²⁹ *Id.* at 985.

¹³⁰ *Id.* at 996.

patented invention for economic gain, even a person who discovered or created the invention entirely independent of the patent owner.”¹³¹ Achieving the purpose of the patent law “to ‘promote’ the Progress of Science and useful Arts.’ U.S. Const., Art. 1 § 8, Cl. 8. . . . is not limited to internally developed inventions,” but extends to the “traditional approach . . . [of] assignment by the inventor of an exclusive license or the patent itself to a company willing to risk the investment needed for commercial success.”¹³² The court’s principal holdings concerned the acquisition of key improvement patents by Xerox from the Battelle Institute, a contract research organization, at an early stage in the development of xerography. The patents were acquired in 1956, four years prior to the production of Xerox’s first plain-paper copier, and at least eight years prior to the appearance of the relevant market.¹³³

48. The court upheld Xerox’s refusal to license the acquired patents to competitors. Not only is it “a premise of the patent laws that a company employing inventors must have substantial incentive to spend money for research that may lead to patentable inventions,” but ‘the Progress of Science and Useful arts’ is also aided by enabling a company, prior to the time it has developed a marketable product and thereby acquired any market power, to acquire patents from others, especially from non-competitor research entities.”¹³⁴ This followed because “[s]uch internal and external accumulations of patents may well lead to the development of inventions and products using inventions.”¹³⁵ The court cited the evidence at trial in support of its reasoning: “The history of plain paper copiers, as evidenced by the record in this case, is an extraordinary example of such a development.”¹³⁶ The court rejected SCM’s § 7 of the Clayton Act¹³⁷ and § 2 of the Sherman Act¹³⁸ claims based on the acquisition in 1956 on similar grounds.
49. The court also rejected the contention that a § 7 violation occurred in 1969 by which time the exclusionary power of the acquired patents had resulted in a share for Xerox of 100% of the relevant market. The court was confronted by the Supreme Court decision in *United States v. E.I. DuPont de Nemours & Co.*,¹³⁹ where DuPont had purchased shares in General Motors at a time when it imposed no restraint then, after holding the shares for 13 years, GM grew and DuPont’s ownership of the shares was held to violate § 7. The court, however, distinguished *DuPont* because, even if the holding theory of § 7 could create liability for the holding of some assets, the court concluded that the “proper reconciliation of the patent and antitrust laws precludes the application of such a doctrine to patents.”¹⁴⁰

¹³¹ *Id.* at 997.

¹³² *Id.* at 1001.

¹³³ *Id.* at 993, 995.

¹³⁴ *SCM Corp. v. Xerox Corp.*, 463 F. Supp. at 1013.

¹³⁵ *Id.*

¹³⁶ *Id.*

¹³⁷ *Id.* at 1003-04.

¹³⁸ *Id.* at 1014-15.

¹³⁹ *United States v. E.I. DuPont de Nemours & Co.*, 353 U.S. 586 (1957).

¹⁴⁰ *SCM Corp.*, 463 F. Supp. at 1003.

50. The Court of Appeals for the Second Circuit affirmed the district court.¹⁴¹ It recognized that “the public benefits from . . . the increased competition the patented product creates in the marketplace.”¹⁴² Not only were inventors important in the innovation process, but investors played a “key role” in “both the funding of research that leads to inventions and the promotion that necessarily must follow to achieve successful commercialization”¹⁴³ Agreeing with the trial court, the court held that the acquisition of patents covering inventions which were later successfully developed, leading to monopoly power, was lawful.¹⁴⁴ The court declined to follow *United States v. E.I. DuPont de Nemours & Co.*,¹⁴⁵ since illegality of Xerox’s continued “holding” of the acquired patents for thirteen years after the acquisition “would unduly trespass upon the policies that underlie the patent law system. The restraint placed upon competition . . . must, in deference to the patent system, be tolerated throughout the duration of the patent grants.”¹⁴⁶ In short, “to impose antitrust liability upon Xerox would severely trample upon the incentives provided by our patent laws and thus undermine the entire patent system.”¹⁴⁷

The courts also moved the law away from the prior strict views on patent misuse, which did not examine injury or anticompetitive effect. The Federal Circuit has ruled that there should be a showing of anticompetitive effects associated with challenged conduct which extends the patentee’s statutory rights, but is not a *per se* misuse.¹⁴⁸ The Federal Circuit summed up its analysis in *Virginia Panel*.¹⁴⁹ A court must determine if such a practice is “ ‘reasonably within the patent grant, i.e., that it relates to subject matter within the scope of the patent claims.’ ”¹⁵⁰ If the practice is within the patent grant, it does not have the effect of broadening the scope of the patent claims and cannot constitute patent misuse.¹⁵¹ “If, on the other hand, the practice has the effect of extending

¹⁴¹ *SCM Corp.*, 645 F.2d at 1195.

¹⁴² *Id.* at 1203.

¹⁴³ *Id.* at 1206 n.9.

¹⁴⁴ *Id.* at 1204.

¹⁴⁵ *DuPont*, 353 U.S. at 586.

¹⁴⁶ *SCM Corp.*, 645 F.2d at 1212.

¹⁴⁷ *Id.* at 1209.

¹⁴⁸ *Virginia Panel Corp. v. MAC Panel Co.*, 133 F.3d 860, 869 (Fed. Cir. 1997) (citing *Mallinckrodt, Inc. v. Medipart, Inc.*, 976 F.2d 700, 708 (Fed. Cir. 1992)). The Federal Circuit pointed out that practices which are *per se* patent misuse include “‘tying’ arrangements in which a patentee conditions a license under the patent on the purchase of a separable, staple good, *see, e.g.*, *Morton Salt Co. v. G.S. Suppiger Co.*, 314 U.S. 488, 491 (1942) and arrangements, in which a patentee effectively extends the term of its patent by requiring post-expiration royalties, *see, e.g.*, *Brulotte v. Thys Co.*, 379 U.S. 29, 33 (1964).” *Virginia Panel*, 133 F.3d at 869 (citations omitted).

¹⁴⁹ *Virginia Panel*, 133 F.3d at 869; *see also Mallinckrodt*, 976 F.2d at 708 (In the context of restriction on use of patented medical device after sale, “[t]he appropriate criterion is whether [the patentee’s] restriction is reasonably within the patent grant, or whether the patentee has ventured beyond the patent grant and into behavior having an anticompetitive effect not justifiable under the rule of reason. . . . should such inquiry lead to the conclusion that there are anticompetitive effects extending beyond the patentee’s statutory right to exclude, these effects do not automatically impeach the restriction.”); *Windsurfing Int’l, Inc. v. AMF, Inc.*, 782 F.2d 995, 1001-02 (Fed. Cir. 1986) (In context of rejecting misuse based on restriction on use of patent licensor’s trademarks, “[t]o sustain a misuse defense involving a licensing arrangement not held to have been *per se* anticompetitive by the Supreme Court, a factual determination must reveal that the overall effect of the license tends to restrain competition unlawfully in an appropriately defined relevant market.”).

¹⁵⁰ *Virginia Panel*, 133 F.3d at 869 (citing *Mallinckrodt*, 976 F.2d at 708).

¹⁵¹ *Id.*

the patentee's statutory rights and does so with an anticompetitive effect, that practice must then be analyzed in accordance with the 'rule of reason'."¹⁵²

51. With respect to tie-ins, a showing of market power in the relevant market for the tying product was added as a requirement. The Supreme Court had presumed that ownership of a patent conferred sufficient market power.¹⁵³ In *Jefferson Parish Hospital v. Hyde*,¹⁵⁴ tying was said to be *per se* illegal if "the seller's exploitation of its control over the tying product to force the buyer into the purchase of a tied product that the buyer either did not want at all, or might have preferred to purchase elsewhere on different terms."¹⁵⁵ The five-member majority (in dictum) agreed with the earlier rule that "if the Government has granted the seller a patent or similar monopoly over a product, it is fair to presume that the inability to buy the product elsewhere gives the seller market power."¹⁵⁶ That point, however, was sharply disputed by four Justices in a concurring opinion written by Justice O'Connor: "[A] high market share indicates market power only if the market is properly defined to include all reasonable substitutes for the product" and therefore "a patent holder has no market power in any relevant sense if there are close substitutes for the patented product."¹⁵⁷ After *Hyde*, the more recent lower federal court cases have ruled that the ownership of a patent creates no presumption of market power.¹⁵⁸
52. The patent misuse defense based on a tie-in was altered by statute in 1988 to require that "the patent owner has market power in the relevant market for the patent or patented product"¹⁵⁹ As Senator Leahy said in addressing the Senate, the legislation was

¹⁵² *Id.*

¹⁵³ See *Zenith Radio Corp. v. Hazeltine Research*, 395 U.S. 100, 137 (1969); *United States v. Loew's*, 371 U.S. 38, 45 (1962).

¹⁵⁴ *Jefferson Parish Hosp. v. Hyde*, 466 U.S. 2 (1984).

¹⁵⁵ *Id.* at 12 (holding that a 30% market share for tying product is insufficient to prove market power).

¹⁵⁶ *Id.* at 16 (citing *Loew's*, 371 U.S. at 45-47).

¹⁵⁷ *Id.* at 37 n.7.

¹⁵⁸ Compare *In re Indep. Serv. Org. Antitrust Litig.*, 203 F.3d 1322, 1325 (Fed. Cir. 2000) ("A patent alone does not demonstrate market power."), and *In re Pabst Licensing, GmbH Patent Litig.*, 2000 WL 1145725, at *6 (E.D. La. Aug. 11, 2000) (finding no presumption of market power solely by ownership of a patent), and *Schafly v. Carokann Corp.*, No. 98-1005, 1998 U.S. App. LEXIS 8250, at *19 (Fed. Cir. April 29, 1998) ("Mere possession of a patent . . . does not establish a presumption of antitrust market power"); *Little Caesar Enters. v. Smith*, 34 F. Supp.2d 459, 466 n.10 (E.D. Mich. 1998) (finding that ownership of a patent is only one factor towards a showing of market power), and *Northlake Mktg. & Supply Inc. v. Glaverbel*, 861 F. Supp. 653, 662 (N.D. Ill. 1994) ("mere possession of a 'patent does not establish presumption of market power...'") with *Grid Sys. Corp. v. Texas Instruments, Inc.*, 771 F. Supp. 1033, 1037 n.2 (N.D. Cal. 1991) ("the presumption of economic power, when the tying product is a patent or copyright, survives"), and *Klo-Zik Co. v. General Motors Corp.*, 677 F. Supp. 499, 505-06 (E.D. Tex. 1987) ("The fact that a product is patented is usually enough to create a presumption of market power."), and *Digidyne Corp. v. Data General Corp.*, 734 F.2d 1336, 1340 n.4 (9th Cir. 1984) ("when the tying product is patented or copyrighted . . . sufficiency of economic power is presumed"), *cert. denied*, 473 U.S. 908 (1985).

The Supreme Court in *Eastman Kodak Co. v. Image Tech. Serv., Inc.*, 504 U.S. 451 (1992), confirmed the necessity for true market power in a relevant market as to the tying product. It stated that an arrangement violates § 1 of the Sherman Act if the seller has "appreciable economic power in the tying [product] market," as in "the power 'to force a purchaser to do something that he would not do in a competitive market.' It has been defined as 'the ability of a single seller to raise price and restrict output.' The existence of such power ordinarily is inferred from the seller's possession of a predominant share of the market." *Id.* at 464 (citations omitted) (citing *Hyde*, discussed *infra*, and other cases).

¹⁵⁹ 35 U.S.C. § 271(d)(5)(2001).

intended “to support enhancement of the intellectual property rights” and to limit the application of the misuse doctrine.¹⁶⁰ In the area of post-sale restrictions the axiom that a sale of a patented product necessarily exhausted the patent monopoly was abandoned. In *Mallinckrodt*, the Federal Circuit held that a “single use only” restriction imposed on the sale of a medical device was enforceable as a matter of patent law in a suit for infringement against a contractually bound purchaser-user in disregard of the limitation.¹⁶¹ The court construed cases previously viewed as foreclosing post-sale restrictions on patented goods by exhaustion as limited to unconditional sales.¹⁶² The court distinguished earlier tying or price-fixing cases since the case before it was neither tying, nor price-fixing and was not *per se* illegal.¹⁶³ The court concluded that “should the restriction be found to be reasonably within the patent grant, i.e., that it relates to subject matter within the scope of the patent claims, the inquiry is over.”¹⁶⁴

No patent owner . . . shall be . . . guilty of misuse . . . by reason of . . . (5) condition[ing] the license of any rights to the patent or the sale of the patented product on the acquisition of a license to rights in another patent or purchase of a separate product, unless in view of the circumstances, the patent owner has market power in the relevant market for the patent or patented product on which the license or sale is conditioned.

Id.

Congress rejected the automatic inference of market power where a patent covers the tying product. It required consideration of a patent owner’s actual power in the relevant market to determine whether a tie-in constitutes patent misuse:

If the alleged infringer cannot prove that the patent owner has market power in the relevant market for the patent or patented product, the tying product, then there can be no patent misuse by virtue of the tie-in, and that is the end of the inquiry.

134 CONG. REC., S17147 (daily ed. Oct. 21, 1988) (statement of Sen. DeConcini Leahy); *see also* *LasercombAmerica, Inc. v. Reynolds*, 911 F.2d 970, 976 n.15 (4th Cir. 1990) (holding that “the primary effect of [§ 271(d)(5)] is to eliminate the presumption that use of a patent license to create a tie-in is *per se* misuse”).

¹⁶⁰ 134 CONG. REC. S17-147 (daily ed. Oct. 21, 1988) (statement of Sen. Leahy).

¹⁶¹ *Mallinckrodt*, 976 F.2d 700 (Fed. Cir. 1992). In *Jazz Photo Corp. v. ITC*, 264 F.3d 1094 (Fed. Cir. 2001), the court held that words on a camera box did not amount to a “single use” contract imposed on the sale of a camera. The Federal Circuit overturned an ITC ruling that *Jazz Photo* and others infringed patents of *Fuji* under § 337 of the Tariff Act by importing refurbished cameras. Statements on the box instructed the purchaser that the camera will not be returned to the purchaser after processing. The Federal Circuit held that “these package instructions [were] not in the form of a contractual agreement by the purchaser to limit reuse of the cameras. There was no showing of a ‘meeting of the minds.’” *Id.* at 1108. Accordingly, there was not a single use license which had been exceeded by the purchasers. *Id.* at 1107.

¹⁶² *Mallinckrodt*, 976 F.2d at 706.; *e.g.*, *Adams v. Burke*, 84 U.S. (17 Wall.) 453 (1873) (assignment of right to make, use and sell coffin lids within 10 miles of Boston not enforced against purchaser of coffin without condition). The Federal Circuit also relied upon *General Talking Pictures, supra*, which gave effect to a restriction on manufacture and sale of a patented amplifier for home radio use against a purchaser from the licensee with notice of the restriction. *See Mallinckrodt*, 976 F.2d at 705.

¹⁶³ *Mallinckrodt*, 976 F.2d at 708.

¹⁶⁴ *Id.* The court continued:

However should such inquiry lead to the conclusion that there are anticompetitive effects extending beyond the patentee’s statutory right to exclude, these effects do not automatically impeach the restriction. Anticompetitive effects that are not *per se* violations of law are reviewed in accordance with the rule of reason. Patent owners should not be in a worse position, by virtue of the patent right to exclude, than owners of other property used in trade.

53. Concerning price restrictions on articles manufactured under patent licenses, the Department of Justice was, again, unable to persuade a majority of the Supreme Court that a price limitation on a single licensee (“No-No Number 9”) was outside the patent grant and illegal. In *Huck Mfg. Co.*,¹⁶⁵ as it had in *Line Material*¹⁶⁶ seventeen years earlier, the Supreme Court divided equally on whether to overrule *General Electric*.¹⁶⁷
54. In sum, the antitrust cases began to recognize the contribution patents made to competition, to give more latitude to patentees to enjoy the exclusive rights provided by patents and engage in restrictive practices, and to be critical of free riding.

3. *The Antitrust Division’s View of the Role of Innovation in Competition*

55. About two years after the District court’s decision in favor of defendant in *Xerox*, the Antitrust Division of the Department of Justice undertook a reexamination of the role of patents in competition. The result was a sharp departure from the past. The Agency adopted policies that were emphatically pro-patent based on the positive role of patents in stimulating innovation, resultant competition and economic benefits. The Department’s speeches articulated the interaction of these factors in a depth that went beyond many of the cases and well beyond what the Federal Circuit majorities have attempted.
56. First, in 1981, the Department of Justice announced its reexamination of the prior Department’s negative view of patent license restrictions¹⁶⁸ with a speech by Deputy Assistant Attorney General Lipsky. He discredited the “Nine No-Nos.”¹⁶⁹ He said that the “‘Nine No-Nos’, as statements of rational economic policy, contain more error than accuracy.”¹⁷⁰ The speech contrasted a proper antitrust treatment of patents with antitrust in other areas, recognizing that the market power conferred by the patent was not “of independent competitive concern.”¹⁷¹

Id.

¹⁶⁵ *Huck Mfg. Co. v. NLRB*, 693 F.2d 1176 (5th Cir. 1982).

¹⁶⁶ *United States v. Line Material Co.*, 333 U.S. 287 (1948).

¹⁶⁷ *United States v. General Electric Co.*, 272 U.S. 476 (1926).

¹⁶⁸ See Lipsky, *Views*, *supra* note 119, at 515. Lipsky introduced his remarks by stating:

For the better part of the last decade, Division enforcement policy toward patent licensing has been advertised using a list of forbidden practices commonly known as the “Nine No-Nos.” Each of these practices is thought to be especially deserving of antitrust condemnation by virtue of some inherently anticompetitive feature.

Id. (footnote omitted).

¹⁶⁹ *Id.*

¹⁷⁰ *Id.*

¹⁷¹ Lipsky stated that:

While the antitrust analyst is at liberty outside the patent field to dabble in such issues as whether the market power of the seller was lawfully or unlawfully acquired, or whether the extent of that market power is or ought to be of independent competitive concern, the patentee comes to judgment with those questions settled according to constitutional and congressional instructions. . . . Thus, the independent decisions of the patentee regarding the means by which an invention is to be combined with other productive inputs ought to be regarded as

57. The Chief of the Intellectual Property Section of the Antitrust Division, Roger Andewelt, at the same time, characterized the changed point of view as “a second revolution.”¹⁷² He recognized the link between economic welfare and technological progress and cited the data:

It is estimated that during the past 80 years, technological progress has accounted for almost one-half of the growth in per capita real income. Companies that invest heavily in the research and development of new technologies have about three times the growth rate, twice the productivity rate, nine times the employment growth, and only one-sixth the price increases as companies with relatively low investments in R&D.¹⁷³

58. Andewelt commented on the “basic failure” of past courts and the Department of Justice “to recognize some fundamental facts about the nature of intellectual property and the beneficial role that technology licensing plays in a healthy, competitive economy.” Andewelt observed that:

The creation and development of sophisticated new technology is an enormously expensive and risky undertaking.¹⁷⁴ There is never any guarantee that years of hard work and bushels of money poured into R&D will result in usable technology or, even if it does result in usable technology, that commercial success will follow.¹⁷⁵

He recognized that “we must provide an adequate incentive” for this effort and that is the role of the patent laws.¹⁷⁶ Andewelt then explained that the patent system prevented “free riding” competitors from “appropriat[ing] to themselves much of [a patent’s] value, denying to the inventor the full fruits of his creation Unless the ‘free rider’ problem is somehow addressed, those who might otherwise undertake risky and expensive R&D will not do so. Fewer technologies will be developed and consumers will face higher prices and fewer choices.”¹⁷⁷

59. And in 1985, the Deputy Assistant Attorney General in Charge of the Antitrust Division, Charles Rule, pointed out that rather than “the patent grant [being] inconsistent with our free enterprise system¹⁷⁸ . . . the patent grant often can have a significant positive effect

having no inherent anticompetitive import.

Id. at 519.

¹⁷² Roger B. Andewelt, Basic Principles to Apply at the Patent-Antitrust Interface, Remarks to the Houston Patent Law Association (Dec. 3, 1981).

¹⁷³ *Id.*

¹⁷⁴ See generally ARROW, ECONOMIC WELFARE AND THE ALLOCATION OF RESOURCES FOR INVENTION, In the Rate and Direction of Inventive Activity, 610-14 (1962).

¹⁷⁵ Andewelt, *supra* note 175.

¹⁷⁶ *Id.*

¹⁷⁷ *Id.*

¹⁷⁸ In 1986, the same Assistant Attorney General explained that the antitrust laws and the pro-competitive policy they represent and the patent laws do not conflict:

That said, I would like to turn to the relationship between patent law and antitrust law. Contrary to popular opinion the two do not conflict [contrary to some

on competition.”¹⁷⁹ Patents benefit competition by encouraging inventions to reach the market¹⁸⁰ and by encouraging disclosure of inventions that otherwise would have been kept secret, making the disclosed information available to competitors.¹⁸¹

60. The Deputy Assistant Attorney General in a 1986 lecture elaborated on two ways in which the patentee’s right to exclude fosters competition. First, by preventing free riding, “the patent creates a market-based set of incentives for creating new technologies and for developing and exploiting those technologies once created.” The patentee can obtain a *quid pro quo* from others that want to use it “and the promise of that return creates the incentive for investments in research and development.” The results are those of increased competition -- “they bring down costs that enable society to use its limited resources more efficiently and effectively to meet consumers’ demands.” Second, by converting information into a legally defined piece of property that can be transferred according to well articulated legal rules, intellectual property substantially reduces the cost of market transactions that move information to its most highly valued uses. The availability of patent property rights accounts for technology “in its current abundance depends upon the availability of patent property rights and without [them] the market in technology would be unable to function.”¹⁸²
61. As for whether patents as an incentive for invention are a negative force for antitrust and competition, or a positive one, he concluded, “[t]here are few aspects of our legal and

statements, including mine]. Nevertheless, the perception that they do appears to be predominant in the antitrust bar. For example, only a few years ago the Antitrust Section of the ABA held a National Institute on patent licensing, at which one of the authors began with the bald assertion that “[the] antitrust and patent laws conflict at their interface.” In addition, in *International Wood Processors v. Power Dry, Inc.*, 792 F.2d 416 (4th Cir. 1986), the Fourth Circuit cited that assertion and rendered a decision that overlooked the potential economic benefits from the patent-related conduct at issue in the case.

Deputy Assistant Attorney General Charles F. Rule, “The Antitrust Implications of International Licensing: After The Nine No-Nos,” Remarks Before the Legal Conference Sponsored By The World Trade Association And The Cincinnati Patent Law Association (Oct. 21, 1986) [hereinafter Rule, Antitrust Implications].

¹⁷⁹ Deputy Assistant Attorney General Charles F. Rule, “Technology Licensing and the Second American Revolution: Storming the Ramparts of Antitrust and Misuse,” Statement Before The John Marshall Law School (Feb. 22, 1985) [hereinafter Rule, Technology Licensing].

¹⁸⁰ The availability of exclusive patent rights increases the possible reward for R&D. It thereby results in the development of some inventions that otherwise would not have been discovered and developed at all or, at least, not nearly as early as they were. For such inventions it is illogical to talk in terms of the patent grant conflicting with a competitive economic system. If there were no patent grant these inventions would not have reached the marketplace; therefore, the availability of a patent served only to benefit competition — to make additional or less expensive choices available to consumers. *Id.*

¹⁸¹ The patent grant also can yield significant pro-competitive benefits when it results in disclosure of inventions that otherwise could and would have been kept secret. If the inventions were kept secret, competitors could not have copied the invention and competed with the original inventor. The grant of a patent on such an invention, therefore, would not halt imitative competition that otherwise would occur. The grant of a patent, however, will result in disclosure of the invention, which is pro-competitive. Disclosure may permit competitors to “invent around” or invent improvements of the patented invention. Disclosure also adds to the body of available technology and scientific knowledge and, by so doing, may precipitate other inventions not anticipated or even dreamed of by the patentees. *Id.*

¹⁸² Rule, Antitrust Implications, *supra* note 174.

economic system that are more consistent with the objectives of antitrust than patent protection.”¹⁸³

62. In 1995 the Antitrust Guidelines for the Licensing of Intellectual Property, issued by the U.S. Department of Justice¹⁸⁴ and the Federal Trade Commission underscored the point that the “incentives for innovation and its dissemination and commercialization” in the intellectual property laws” and the antitrust laws share the common purpose of promoting innovation and enhancing consumer welfare.¹⁸⁵ By the same token, the Guidelines recognize the negative effect of “rapid imitation” because it “would reduce the commercial value of innovation and erode incentives to invest, ultimately to the detriment of consumers.”¹⁸⁶
63. In short, the view of the Antitrust Division and the FTC, the antitrust enforcement agencies expected to be most aggressive in their concern for competition,¹⁸⁷ favored the

¹⁸³ *Id.*

¹⁸⁴ U.S. DEPARTMENT OF JUSTICE AND THE FEDERAL TRADE COMMISSION, Antitrust Guidelines for the Licensing of Intellectual Property, (April 6, 1995). These Guidelines supersede section 3.6 in Part I, INTELLECTUAL PROPERTY LICENSING ARRANGEMENTS, and cases 6, 10, 11, and 12 in Part II of the U.S. Department of Justice 1988 Antitrust Enforcement Guidelines for International Operations.

¹⁸⁵ *Id.* “[T]he aims and objectives of patent and antitrust laws may seem, at first glance, wholly at odds. However, the two bodies of law are actually complementary, as both are aimed at encouraging innovation, industry and competition.” *Atari Games Corp. v. Nintendo of America, Inc.*, 897 F.2d 1572, 1576 (Fed. Cir. 1990).

¹⁸⁶ U.S. DEPARTMENT OF JUSTICE AND THE FEDERAL TRADE COMMISSION, Antitrust Guidelines for the Licensing of Intellectual Property, (April 6, 1995). Amicus curiae briefs of the Department of Justice in *Warner-Jenkinson* and *Festo* favored retaining equivalency, even for narrowed claims. In *Warner-Jenkinson* the government argued for the Doctrine of Equivalents set out in *Graver Tank*. Amicus Brief for U.S. at *13, *Warner-Jenkinson Co. v. Hilton Davis Chemical Co.*, 520 U.S. 17 (1997)(No. 95-728, 1996 WL 172221) (“As the court observed in *Graver Tank*, ‘[o]utright and forthright, duplication is a dull and very rare type of infringement.’ Patentees should be protected against imitations that involve only colorable or trivial deviation from the literal terms of the patent claims, and not placed ‘at the mercy of verbalism.’”) (citations omitted). The Division also supported a prosecution history estoppel which depended on a close examination of what had been surrendered. Amicus Brief for U.S., *Warner-Jenkinson*, at *20-21. (“[A]s the court correctly noted in *Insta-Foam Products, Inc. v. Universal Foam Sys., Inc.*, 906 F.2d 698, 703 (Fed. Cir. 1990), ‘[w]henver prosecution history estoppel is invoked as a limitation to infringement under the doctrine of equivalents, ‘a close examination must be made as to, not only what was surrendered, but also the reason for such a surrender.’”) In *Festo*, the United States, in 2001, also disagreed with the majority, and would not abolish prosecution history estoppel for amended claim limitations. Rather, the government suggests a rebuttable presumption, Amicus Brief for U.S. at 10, that can be overcome, for example, by a showing that the accused device is using a later-developed technology or could not reasonably have been included in the claims as drafted. *Id.* at 25-26. The Department’s brief offers no supporting competition analysis. While inconsistent with the Federal Circuit majority, the Department’s position would significantly limit the doctrine. Placing a heavy burden on the inventor to write all knowable variations of his invention into the claims is a way of reducing the scope of equivalency, out of keeping with *Graver Tank* (which applied equivalence to an unclaimed variation described in the specification) and the earlier thoughtful analyses of the Antitrust Division about the importance of a full patent reward. By the same token, applying equivalence only to later-developed technology extends the patent to apply to the more creative competitor, but leaves the straightforward free-rider outside the patent reward.

¹⁸⁷ “[T]he mission of the Antitrust Division [of the Department of Justice] has been to promote and protect the competitive process -- and the American economy -- through the enforcement of the antitrust laws.” Overview of the Antitrust Division of the Department of Justice, available at <http://www.usdoj.gov/atr/overview.html>. The mission of the FTC is to enforce “a variety of federal antitrust and consumer protection laws. The Commission seeks to ensure that the nation’s markets function competitively, and are vigorous, efficient, and free of undue restrictions. The Commission also works to enhance the smooth operation of the marketplace by eliminating acts or practices that are unfair or deceptive.” Federal Trade Commission’s Visions, Missions and Goals, available at <http://www.ftc.gov/mission.htm>.

competition created by the patentees' innovations. The free rider, on the other hand, was recognized as a negative force.

IV. PRECISE NOTICE TO COMPETITORS AND RULE OF REASON ANALYSIS UNDER THE ANTITRUST LAWS

64. Given the Federal Circuit's emphasis on precise notice of claim scope to competitors, it is informative to compare the precision the Federal Circuit is seeking with the precision of notice available to businesses concerning which practices violate the antitrust laws. The Federal Circuit's concern is to charge patentees and favor competitors with the imprecision in claim language by forcing narrow definitions of claim terms by the court, and by eliminating a penumbra of equivalency. If competition policy is comfortable with vagueness in antitrust, one asks whether perhaps some imprecision (as in equivalency, for example) is tolerable from the perspective of competition policy in the patent law.
65. The analysis under the antitrust laws necessary for determining whether particular restrictive practices unreasonably restrict competition under Section 1 of the Sherman Act is, with a few exceptions¹⁸⁸, the rule of reason. The long-accepted test under the rule of reason has at times been recognized to be a vague one.
66. The general contours of rule of reason analysis were articulated by Justice Brandeis in 1918 in *Chicago Board of Trade v. United States*: "The true test of legality is whether the restraint imposed is such as merely regulates and perhaps thereby promotes competition or whether it is such as may suppress or even destroy competition."¹⁸⁹ The test invited exploration of "the facts peculiar to the business to which the restraint is applied; its condition before and after the restraint was imposed; the nature of the restraint and its effect, actual or probable. The history of the restraint, the evil believed to exist, the reason for adopting the particular remedy, the purpose or end sought to be attained. . . ."¹⁹⁰
67. This remained the principal general statement of the rule of reason until the Supreme Court's decisions in the late 1970s in *Continental T.V., Inc. v. GTE Sylvania Inc.*,¹⁹¹ and *National Society of Professional Engineers v. United States*.¹⁹² In *GTE Sylvania*, the court explained that under the rule of reason "the fact-finder weighs all of the circumstances of a case in deciding whether a restrictive practice should be prohibited as imposing an unreasonable restraint on competition."¹⁹³ And in *NCAA v. Board of*

¹⁸⁸ See *White Motor Co. v. United States*, 372 U.S. 253, 265 (1963) (Brennan, J., concurring) (noting that "the *per se* rule of prohibition has been applied to price-fixing agreements, group boycotts, tying arrangements, and horizontal divisions of markets."); *Continental Airlines, Inc. v. United Airlines, Inc.*, 126 F. Supp. 2d 962, 971 (E.D. Va. 2001) ("Per se analysis applies to . . . price-fixing, market-allocation agreements among competitors, tying arrangements, and group boycotts") (footnotes omitted).

¹⁸⁹ *Chicago Board of Trade v. United States*, 246 U.S. 231 (1918). The rule of reason, which can be traced back to common law, was first applied in the Sherman Act context in *Standard Oil Co. v. United States*, 221 U.S. 1, 58 (1911).

¹⁹⁰ *Chicago Board of Trade*, 246 U.S. at 238.

¹⁹¹ *GTE Sylvania*, 433 U.S. at 36.

¹⁹² *National Soc'y of Prof'l Eng'rs v. United States*, 435 U.S. 679 (1978).

¹⁹³ *GTE Sylvania*, 433 U.S. at 49; accord *Business Elecs. Corp. v. Sharp Elecs. Corp.*, 485 U.S. 717, 723 (1988);

Regents,¹⁹⁴ “the essential inquiry [is] . . . whether or not the challenged restraint enhances competition.” The courts have observed that a restraint’s effect on competition depends on the restraint’s effect on output,¹⁹⁵ price,¹⁹⁶ resource allocation,¹⁹⁷ quality and consumer choice.¹⁹⁸ As a result, commentators have observed that the standard “is always something of a sliding scale in appraising reasonableness, but the sliding scale formula deceptively suggests greater precision than we can hope for . . . the quality of proof required should vary with the circumstances.”¹⁹⁹ From the businessmen’s perspective, “without further elaboration, reasonableness is too vague to guide the businessman’s actions or the judge’s discretion. Such openness is a mixed blessing. Unbounded by technical limitations, it reaches every evil. But unless disciplined by the purposes of the antitrust laws, it is a vagrant standard.”²⁰⁰

68. In short, our competition policy has accepted some vagueness in a fundamental antitrust principle. It follows that, from the same perspective, some imprecision in claims should be tolerable as well.

CONCLUSION

69. The Federal Circuit majority has dramatically changed the law of claim construction and the doctrine of equivalents based on its guiding principle of giving competitors of patentees wide breadth and confining the patent scope available to the patentee narrowly. In claim construction, the court left in place the rule that claims are to be read as those of

Metro Indus. v. Sammi Corp., 82 F.3d 839, 843 (9th Cir. 1996), *cert. denied*, 117 S. Ct. 181 (1996); *Wisconsin Music Network v. Muzak Ltd. Partnership*, 5 F.3d 218, 222 (7th Cir. 1993); *Capital Imaging Assocs. v. Mohawk Valley Med. Assocs.*, 996 F.2d 537, 543 (2d Cir.), *cert. denied*, 510 U.S. 947 (1993); *United States v. All Star Indus.*, 962 F.2d 465, 468 (5th Cir. 1992), *cert. denied*, 506 U.S. 940 (1992); *United States v. Sunstar Roofing, Inc.*, 897 F.2d 469, 472 (10th Cir. 1990); *Murrow Furniture Galleries v. Thomasville Furniture Indus.*, 889 F.2d 524, 527 (4th Cir. 1989); *DeLong Equip. Co. v. Washington Mills Abrasive Co.*, 887 F.2d 1499, 1507 (11th Cir. 1989), *cert. denied*, 494 U.S. 1081 (1990); *Thurman Indus. v. Pay ‘N Pack Stores*, 875 F.2d 1369, 1373 (9th Cir. 1989).

¹⁹⁴ *NCAA v. Board of Regents*, 468 U.S. 85, 104 (1984).

¹⁹⁵ *Id.* at 99, 114, 120; *Broadcast Music, Inc. v. CBS*, 441 U.S. 1, 19-20 (1979) (appearing to equate anticompetitive effect with a restriction on output and increase in price); *see also Chicago Prof’l Sports Ltd. P’ship v. NBA*, 961 F.2d 667, 673 (7th Cir. 1992) (noting in dictum that “a ‘restraint’ that in the end expands output serves the interests of consumers and should be applauded rather than condemned”), *cert. denied*, 506 U.S. 954 (1992); *Schachar v. American Academy of Ophthalmology, Inc.*, 870 F.2d 397, 399 (7th Cir. 1989) (“Antitrust law is about consumers’ welfare and the efficient organization of production. It condemns reductions in output that drive up prices.”); *Martin v. American Kennel Club*, 697 F. Supp. 997, 1002-03 (N.D. Ill. 1988). *But see Rothery*, 792 F.2d at 231 (“I think it premature to construct an antitrust test that ignores all other potential concerns . . . except for restriction of output and price raising.”) (Wald, J., concurring).

¹⁹⁶ *NCAA*, 468 U.S. at 109 n.38; *Wilk v. American Med. Ass’n*, 895 F.2d 352, 359 (7th Cir. 1990), *cert. denied*, 496 U.S. 927 (1990).

¹⁹⁷ *Les Shockley Racing, Inc. v. National Hot Rod Ass’n*, 884 F.2d 504, 508 (9th Cir. 1989) (“only when the restraining force of an agreement . . . affecting trade becomes unreasonably disruptive of market functions such as price setting, resource allocation, market entry or output designation is a violation of the Sherman Act threatened”).

¹⁹⁸ *E.g., Brown Univ.*, 5 F.3d at 668 (identifying “reduction in output, . . . increase in price [and] deterioration in quality” as anticompetitive effects in rule of reason analysis); *Tunis Bros Co. v. Ford Motor Co.*, 952 F.2d 715, 728 (3d Cir. 1991) (“An antitrust plaintiff must prove that challenged conduct affected the prices, quantity or quality ‘of goods or services.’”), *cert. denied*, 505 U.S. 1221 (1992).

¹⁹⁹ Phillip E. Areeda, *Antitrust Law: An Analysis of Antitrust Principles and Their Application* ¶ 1507, at 402 (1996).

²⁰⁰ *Id.* at 362.

persons of ordinary skill in the particular art at the time of the invention would understand them. Nevertheless, the court declared that expert testimony by such people as to what the claims meant would be irrelevant or secondary and the jury's role in resolving the parties' differences concerning meaning would be dropped. In order to maximize freedom for competitors of the patentee to avoid its patented invention, the written prosecution record would govern claim scope and judges would construe that record.

70. Similarly, rather than continuing to require a determination of the scope of what was surrendered in a narrowing claim amendment during prosecution, the court erased the doctrine of equivalence altogether for the many patent claims which had been narrowed in prosecution. In order to maximize the freedom of competitors of the patentee to avoid its patented invention, any minor change by the competitor in a claim element that was the subject of a narrowing amendment in prosecution would avoid the patent.
71. In both instances, increased quality in the notice provided to competitors of the patent comes at the expense of diminishing the patentee's reward for its innovation and its ability to stop infringers. This, however, reflects but one of the pro-competition policies underlying the patent law. The other is to promote progress and competition by providing the patentee with a robust reward as an incentive to innovate.
72. What the Federal Circuit has done, in substance, is embrace an approach that counts only competitors of the patentee, and not the patentee's contribution to competition and the reward necessary to elicit it. This approximates the view that patents are an exception to a general scheme of competition by emulation and are to be narrowly confined. This principle is somewhat reminiscent of views about the relationship between patents and competition of Justices Black and Douglas in the 1940s and 1950s.
73. The Black/Douglas restrictive view of patents was developed in light of the competition policy reflected in the antitrust laws. However, the Black/Douglas approach has been left behind in that realm. A sharply different view took hold beginning with *Kewanee* and manifest particularly in *SCM v. Xerox*. The *SCM v. Xerox* decision stressed the contribution of patentees to competition from the unique position of having a full record of the role of patents in one of the major innovations of the Twentieth Century.²⁰¹
74. The perspective introduced in *SCM v. Xerox* was developed at length by the Antitrust Division. The new approach, termed a "revolution" by the Antitrust Division, recognized the need for solid patent protection to encourage innovation by patentees because it was so important to competition and economic welfare. It led to the reversal of the Division's previous restrictive view of patent licensing practices and to criticism by the Division of the courts' misunderstanding of the role of patents in promoting competition by the patentee.

²⁰¹ The year-long trial was probably the most in-depth microeconomic industry study ever done. In contrast to the landmark industry studies done by Mansfield, the court had the benefit of exhaustive access to the parties' and competitors' internal records and full testimony in an adversary proceeding.

75. Beginning with the *GTE* case, antitrust policy identified free riding as a negative. The idea that free riding detracts from the incentive of businesses to promote their products led to reversal of the *Schwinn* decision which had condemned all vertical restrictions on resale. By the same token, rapid imitation or free riding by competitors of a patentee was viewed as a negative by the Antitrust Division in the patent context.
76. Later antitrust cases and the 1988 statute concerning patent misuse revised the Supreme Court's earlier antitrust doctrines, giving patentees more leeway to impose restrictions. This affected at least patent misuse, tie-ins and post-sale restrictions.
77. The Federal Circuit majority's dedication to narrowing the scope of patent protection and allowing competitors to design around patents with minor changes of the claimed invention promotes a form of free riding. The Federal Circuit majority reached that end by using an incomplete calculus that measures benefits to competition by how readily competitors are permitted to closely imitate the patent. That standard, however, omits weighing the contribution of patentees through promoting competition by their innovations. This omits a pro-competitive force powerful enough to have changed the law and its enforcement in antitrust where promoting competition is the governing principle. It also fails to recognize the analogy presented by the dramatic changes in antitrust law that the contribution of patentees to competition has caused.