

CLAIM RE-CONSTRUCTION: THE DOCTRINE OF EQUIVALENTS IN THE POST-MARKMAN ERA

by
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In the post-Markman era, the Federal Circuit has focused attention on the public notice function of patent claims in equivalents cases, and it has come to emphasize precision and accuracy in claim drafting. This Article argues that recent judicial emphasis on the public notice function of patent claims is an inappropriate innovation policy. The demand for highly refined patent claims increases patent acquisition expenditures that are unlikely to increase social welfare, cause patent rights to be distributed unevenly, and are inconsistent with the structural features of the patent system.

This Article presents two mechanisms to accommodate the doctrine of equivalents in the post-Markman era. One is the reinvigoration of the reissue proceeding. The other is allowing judicial amendment of patent claims during infringement litigation proceedings, much like the longstanding British practice. This shift would allow courts to pursue the policy goals of Markman for literal and equivalent infringement alike.

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I. INTRODUCTION

The jury is still out on whether the policy aspirations that animated the *Markman v. Westview Instruments, Inc.* opinion have been achieved.¹ That the characterization of claim interpretation as a matter of law has made literal infringement determinations more deliberative, better articulated, and more

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¹ 52 F.3d 967 (Fed. Cir. 1995).

consistent remains an open question.² Plainly, however, these benefits have not been obtained with respect to nontextual infringement. Infringement under the doctrine of equivalents continues to be characterized as a question of fact.³ It therefore remains possible that two manufacturers of an identical product could be accused of infringing the same patent, yet be subject to conflicting infringement judgments in the courts.

The incompatibility of the doctrine of equivalents with *Markman*'s policy goals may partially explain the increasing disdain with which the Federal Circuit has viewed arguments of equivalent infringement.⁴ As the Federal Circuit has focused attention upon the public notice function of patent claims, it has come to emphasize precision and accuracy in the drafting exercise.⁵ Originally incorporated into patent instruments in order to expand the rights of inventors,⁶ claims have been reconceived as a mechanism for curtailing the patentee's proprietary interest.⁷

Given the recent decline of the doctrine of equivalents, it is troubling that patent proprietors dissatisfied with their choice of wording have been left to two other moribund alternatives. The administrative reissue procedure remains obscure. Even though contemporary Federal Circuit opinions read less like the majority opinion in *Graver Tank & Manufacturing Co. v. Linde Air Products Co.*,⁸ and more like Justice Black's famous dissent, few patentees seek reissue.⁹ The continued disuse of reissue in the post-*Markman* era speaks volumes about the perceived speed and effectiveness of this post-grant proceeding. Recent Federal Circuit case law has also placed severe constraints upon the ability of the judiciary to correct claims during litigation.¹⁰

Limitations upon the ability of patentees to expand their claims, no matter what the mechanism, arise from a common policy argument. The courts have reasoned that claims should provide clear notice to competitors of the scope of the patentee's asserted rights, and to stray from their exact wording may offend the reliance interests of others.¹¹ Although long acknowledged,¹² the public

² See, e.g., Kimberly A. Moore, *Are District Court Judges Equipped to Resolve Patent Cases?*, 15 HARV. J.L. & TECH. 1 (2001).

³ See, e.g., *Nystrom v. Trex Co.*, 374 F.3d 1105, 1110 (Fed. Cir. 2004) ("Infringement, whether literal or under the doctrine of equivalents, is a question of fact.").

⁴ See, e.g., Kelly D. Talcott, *Intellectual Property Under Siege—Federal Circuit Takes Another Swipe at the Doctrine of Equivalents*, N.Y.L.J., June 15, 2004, at 5.

⁵ See, e.g., *Sage Prods., Inc. v. Devon Indus., Inc.*, 126 F.3d 1420, 1425 (Fed. Cir. 1997) ("This court recognizes that such reasoning places a premium on forethought in patent drafting. Indeed this premium may lead to higher costs of patent prosecution.").

⁶ See John F. Duffy, *The Festo Decision and the Return of the Supreme Court to the Bar of Patents*, 2002 SUP. CT. REV. 273, 308.

⁷ See *Toro Co. v. White Consolidated Indus., Inc.*, 383 F.3d 1326 (Fed. Cir. 2004).

⁸ 339 U.S. 605, 612 (1950).

⁹ Of the 187,017 patents procured in 2003, only 421 were reissue patents. See PATENT TECH. MONITORING DIV., U.S. PATENT & TRADEMARK OFFICE, U.S. PATENT STATISTIC CHART: CALENDAR YEARS 1963–2003, http://www.uspto.gov/web/offices/ac/ido/oeip/taf/us_stat.htm (last visited Nov. 1, 2004) [hereinafter U.S. PATENT STATISTIC CHART].

¹⁰ *Chef Am., Inc. v. Lamb-Weston, Inc.*, 358 F.3d 1371, 1374 (Fed. Cir. 2004).

¹¹ See, e.g., M. Scott Boone, *Defining and Refining the Doctrine of Equivalents: Notice and Prior Art, Language and Fraud*, 43 IDEA 645, 663 (2003) ("The policy of fair notice to

notice function of claims has only recently had dramatic doctrinal consequences.¹³ This shift has significant implications upon the care with which patent instruments should be prepared, the value of issued patents, and ultimately, the innovation policies that inspire the patent system.

Skeptical over the recent emphasis upon the public notice function of patent claims, as well as the resulting implications for the doctrine of equivalents, this Article considers alternative mechanisms for reconciling the doctrine of equivalents with *Markman*. Part I of this Article offers an introduction to the law and policy of nontextual infringement. Part II reasons that recent judicial emphasis upon the public notice function of patent claims is an inappropriate innovation policy. The demand for highly refined patent claims portends drastic increases in patent acquisition expenditures that are unlikely to increase social welfare, cause the breadth of patent rights to be distributed on an uneven basis, and are inconsistent with structural features of the patent system.

Part III considers other mechanisms to accommodate the doctrine of equivalents in the post-*Markman* era. One option is the reinvigoration of the administrative reissue proceeding. Taking a page from longstanding British practice, this Article also explores the possibility of judicial amendment of patent claims during infringement litigation. Replacing the doctrine of equivalents with “judicial reissue,” accompanied by intervening rights available to adjudicated infringers, would upset the hoary patent law maxim that courts may not amend patent claims.¹⁴ Yet this shift would allow courts to pursue the *Markman* goals of deliberation, articulation, and conformity within the context of literal and equivalent infringement alike. Part IV is a conclusion.

II. CONSTRUING MARKMAN

The *Markman* opinion secured its place as a central text of modern patent law by defining a protocol for determining the scope of patent claims. However, the *Markman* interpretational methodology does not tell the entire story of judicial determinations of patent scope. Although the proprietary rights awarded to a patent proprietor are based upon a patent’s claims, they are not

the public is based on the idea that a patent, especially the claims of a patent, put the public on notice as to what the scope of the patent is.”); Gretchen Ann Bender, *Uncertainty and Unpredictability in Patent Litigation: The Time is Ripe for a Consistent Claim Construction Methodology*, 8 J. INTELL. PROP. L. 175, 214 (2001) (“The statutory language and history plainly require the patentee, who alone controls the claim language, to sufficiently and clearly claim the invention and to inform the public of the scope of the claim.”).

¹² See, e.g., *Winans v. Denmead*, 56 U.S. (15 How.) 330, 347 (1853) (Campbell, J., dissenting).

¹³ See Nicole S. Robbins, *The Curtailment of the Doctrine of Equivalents: Courts Emphasize the Public Notice Function of Patent Claims*, 35 SUFFOLK U. L. REV. 323 (2001).

¹⁴ See, e.g., *Quantum Corp. v. Rodime, PLC*, 65 F.3d 1577, 1584 (Fed. Cir. 1995) (“Although we construe claims, if possible, so as to sustain their validity . . . it is well settled that no matter how great the temptations of fairness or policy making, courts do not redraft claims.”); *Becton Dickinson & Co. v. C.R. Bard, Inc.*, 922 F.2d 792, 799 n.6 (Fed. Cir. 1990) (“Nothing in any precedent permits judicial redrafting of claims.”).

entirely confined to them. Courts may also employ the doctrine of equivalents to expand the reach of a patent's claims beyond their literal language.¹⁵ Even though the doctrine of equivalents has a long history in U.S. law,¹⁶ courts continue to struggle in their efforts to identify when its use is appropriate and precisely what its contours should be.

The current policy framework for discussing the doctrine of equivalents remains deeply rooted in the 1950 Supreme Court decision in *Graver Tank & Manufacturing Co. v. Linde Air Products Co.*¹⁷ There, the Supreme Court majority described a doctrine of equivalents founded upon fairness and utilitarian justifications. The Court observed that confining patent rights to cases of literal infringement would merely encourage competitors to make minor changes to the claimed invention, thereby profiting from the teachings of the patent but avoiding the patent owner's proprietary interest. Such a "fraud on a patent" would not only be unjust to the patent proprietor, but it would also encourage inventors to forgo the patent system in favor of trade secrecy.¹⁸

Justice Black's dissenting opinion offered a different perspective upon the doctrine. To expand a patentee's rights beyond the precise wording of the claims, he explained, would impose a stifling burden of uncertainty upon free enterprise.¹⁹ Justice Black also believed that the judiciary's free hand in applying the doctrine of equivalents would eviscerate the reissue statute. He noted, in particular, that an infringer of a reissued patent may qualify for an intervening right to employ the patented invention.²⁰ Because an equivalent infringer is subject to all the remedies available under the Patent Act, however, patentees would seem to have few incentives to seek reissue rather than rely upon the doctrine of equivalents in court.

The dialectic in *Graver Tank* was therefore one of rules versus standards. The majority opinion favored a standards-oriented doctrine of equivalents that was amenable to judicial discretion. The majority reasoned that limiting patent scope to the bright-line rule of literal infringement would encourage behavior to the boundaries of prohibited conduct and prevent the fine-tuning needed to reach wise judgments in individual cases. In contrast, the dissent contended that formally realized claims provided competitors with the certainty necessary to order their affairs in an efficient fashion. The dissent might also have added, in the tradition of the rules-standards debate, that constraining the doctrine of equivalents would encourage inventors to draft claims with more care, thereby limiting a moral hazard problem.²¹

Like most disputes over rules and standards, this exchange of views was not especially productive. The very structure of the debate left the justices without a way to integrate their views into a coherent legal principle. The lower

¹⁵ *Tate Access Floors, Inc. v. Interface Architectural Res., Inc.*, 279 F.3d 1357, 1367 (Fed. Cir. 2002).

¹⁶ *See Duffy, supra* note 6, at 307–10.

¹⁷ 339 U.S. 605 (1950).

¹⁸ *Id.* at 608.

¹⁹ *Id.* at 617 (Black, J., dissenting).

²⁰ The intervening rights statute is codified at 35 U.S.C. § 252 (2000).

²¹ *See generally* Pierre Schlag, *Rules and Standards*, 33 UCLA L. REV. 379 (1985).

courts, and especially the Federal Circuit, were left to assess these competing concerns in particular cases. The response was not so much a balancing as a marked preference for a rules-based or standards-based approach to nontextual infringement at any particular moment in time. Interestingly, although it was strictly a literal infringement case, the *Markman* decision marked a turning point in Federal Circuit equivalents jurisprudence as well.

Prior to *Markman*, Federal Circuit equivalents cases emphasized fairness to the patentee over the public notice function of claims. In particular, the court's early cases held that the doctrine of equivalents could permissibly be employed to correct applicant drafting errors. Among many examples, the well known decision in *Hughes Aircraft Co. v. United States* stands out.²² Although the applicant did not draft claims to the full extent of a patent's disclosure within the confines of the teachings of the prior art, the Federal Circuit nonetheless awarded him the shortfall via an equivalency theory.

The *Hughes Aircraft* case involved the so-called Williams patent, which related to a synchronous communications satellite. In order to control the position of the satellite, information about the satellite's position and movement was gathered and analyzed. The claims of the Williams patent required that the satellite transmit this data to an external location—namely, a ground crew—which would then retransmit control signals back to the satellite. Because the accused satellites took advantage of on-board computers to complete some of the calculations, they did not literally infringe the Williams patent.²³

The Federal Circuit nonetheless concluded that the accused satellites infringed the Williams patent under the doctrine of equivalents. Chief Judge Markey reasoned that using an on-board computer to perform the required calculations was the “modern-day equivalent” of providing data to the ground crew for the same purpose.²⁴ This was the case even though “Williams did not submit claims broadly covering all ground controllable spacecraft, as he might have. Had he done so . . . literal infringement would have been present here.”²⁵ The analysis quoted heavily from the majority opinion in *Graver Tank*, giving short shrift to possible public reliance upon the specific choice of words found in the claims.²⁶

Over time, the Federal Circuit began to retreat from the enthusiastic view of the doctrine of equivalents evidenced in *Hughes Aircraft*. In opinions such as *Pennwalt Corp. v. Durand-Wayland, Inc.*,²⁷ the Federal Circuit began to place more emphasis upon the public notice function of claims. The *Pennwalt* decision confirmed the “All Elements Rule”: The principle that the doctrine of equivalents must be established to each claim limitation rather than the claimed invention as a whole.²⁸ The All Elements Rule discounted the availability of the

²² 717 F.2d 1351 (Fed. Cir. 1983).

²³ *Id.* at 1357–58.

²⁴ *Id.* at 1365.

²⁵ *Id.* at 1363.

²⁶ *Id.* at 1365–66.

²⁷ 833 F.2d 931 (Fed. Cir. 1987).

²⁸ See *Warner-Jenkinson Co. v. Hilton Davis Chem. Co.*, 520 U.S. 17, 19 (1997).

doctrine of equivalents as a mechanism for correcting claim-drafting errors; instead, it emphasized that “the limitations defining the invention tell the public what it can make, use, or sell without violating the patentee’s rights.”²⁹

The public notice function of claims grew even more prominent once the Federal Circuit issued its *Markman* opinion.³⁰ Among other rationales, the Federal Circuit reasoned that claim construction should be decided as an issue of law because competitors should “be able to ascertain to a reasonable degree the scope of the patentee’s right to exclude.”³¹ In the well-known decision in *Vitronics Corp. v. Conceptronic, Inc.*,³² the Federal Circuit also identified the public notice function of patent claims as buttressing the previously established demarcation between intrinsic and extrinsic evidence. If the public record of patent documents could be distorted by extrinsic evidence introduced at trial, the Federal Circuit reasoned, then competitors would be less able 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.”³³ Thus, both significant aspects of the *Markman* decision—the categorization of claim construction as an issue of law and the ordering of intrinsic and extrinsic evidence—were premised, at least partially, upon a policy of public notice.

When the Supreme Court later affirmed the *Markman* holding, Justice Souter partly relied upon the premise that judges, rather than juries, were better suited to construe patent claims.³⁴ So it came as a surprise when the Court’s next patent case, issued only one year after *Markman*, continued to characterize the doctrine of equivalents as presenting a question of fact. In *Warner-Jenkinson Co. v. Hilton Davis Chemical Co.*,³⁵ the Court did drop a footnote suggesting that the Federal Circuit “implement procedural improvements to promote certainty, consistency, and reviewability to this area of the law.”³⁶ Given the Federal Circuit’s lack of authority to oversee the district courts,³⁷ as well as its role as a court of review, this advice was certainly misdirected.

²⁹ *Pennwalt Corp.*, 833 F.2d at 949.

³⁰ Craig Allen Nard, *Process Considerations in the Age of Markman and Mantras*, 2001 U. ILL. L. REV. 355, 360 (“The importance of the notice function of the patent claim has always been appreciated or, at least, understood by judges on the Federal Circuit and its predecessor, the Court of Customs and Patent Appeals. It was not until the 1995 en banc Federal Circuit decision in *Markman* . . . that it reached the forefront of patent law jurisprudence.”).

³¹ *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 978 (Fed. Cir. 1995).

³² 90 F.3d 1576 (Fed. Cir. 1996).

³³ *Id.* at 1583.

³⁴ 517 U.S. 370, 388–89 (1996).

³⁵ 520 U.S. 17 (1997).

³⁶ *Id.* at 39 n.8.

³⁷ *See, e.g., In re Mark Indus.*, 751 F.2d 1219, 1222 (Fed. Cir. 1984) (“This court has no administrative authority over any district court.”); *In re Oximetrix, Inc.*, 748 F.2d 637, 643 (Fed. Cir. 1984) (“This court lacks the general authority over district courts exercisable, for example, under 28 U.S.C. § 332.”); *Petersen Mfg. Co. v. Cent. Purchasing, Inc.*, 740 F.2d 1541, 1552 (Fed. Cir. 1984) (“Unlike other Circuit Courts of Appeal, we have no direct supervisory authority over district courts.”).

Unsurprisingly, in the seven years since *Warner-Jenkinson*, the Federal Circuit has yet to follow through on the Court's proposal.

Federal Circuit response to the uneasy fit between *Markman* and nontextual infringement has not been innovative procedural reform, but rather ad hoc substantive restrictions upon the doctrine of equivalents. The increasing emphasis upon prosecution history estoppel³⁸ and the newly minted public dedication doctrine of *Johnson & Johnston Associates, Inc. v. R.E. Service Co.*³⁹ are perhaps the court's more notable mechanisms for restricting the doctrine of equivalents. However, the Federal Circuit has also stressed the obligation to claim precisely an inventor's asserted proprietary interest.⁴⁰ Emblematic of the cases is the well-known post-*Markman* opinion in *Sage Products, Inc. v. Devon Industries, Inc.*⁴¹

In *Sage Products*, the asserted patent claimed a disposal container for depositing hazardous medical waste. Rather than describing the invention in broad functional terms, the patent's claims were drafted toward a specific structure. In particular, the claims required that the container include two specific features: a slot (through which the waste was inserted) located at the top of container, and a "first constriction extending over said slot" (to prevent users from touching previously inserted waste).⁴² The accused device was constructed somewhat differently, with the slot located within, rather than on top of, the container body, and the barrier consisting of a hinged member that did not constrict over the slot. Under these circumstances, the Federal Circuit refused to apply the doctrine of equivalents, explaining:

[F]or a patentee who has claimed an invention narrowly, there may not be infringement under the doctrine of equivalents in many cases, even though the patentee might have been able to claim more broadly. If it were otherwise, then claims would be reduced to functional abstracts, devoid of meaningful structural limitations upon which the public could rely.

. . . [A]s between the patentee who had a clear opportunity to negotiate broader claims but did not do so, and the public at large, it is the patentee who must bear the cost of its failure to seek protection for this foreseeable alteration of its claimed structure.⁴³

³⁸ See *Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co.*, 344 F.3d 1359 (Fed. Cir. 2003), *cert. denied*, 124 S. Ct. 2018 (2004).

³⁹ 285 F.3d 1046 (Fed. Cir. 2002).

⁴⁰ See, e.g., *Moore U.S.A., Inc. v. Standard Register Co.*, 229 F.3d 1091, 1106 (Fed. Cir. 2000) (rejecting argument of equivalent infringement where the claim called for adhesive strips placed along a "majority" of the length of an envelope, while the accused product placed strips at 47.8% of the length, the court reasoned that "it would defy logic to conclude that a minority—the very antithesis of a majority—could be insubstantially different from a claim limitation requiring a majority, and no reasonable juror could find otherwise").

⁴¹ 126 F.3d 1420 (Fed. Cir. 1997).

⁴² *Id.* at 1422.

⁴³ *Id.* at 1424–25.

With its disavowal of the doctrine of equivalents as an error correction mechanism, *Sage Products* stands in high relief to early Federal Circuit cases. Previously, the Federal Circuit viewed a patentee's ability to claim the accused product literally as favoring a conclusion of equivalent infringement.⁴⁴ Today, a patent proprietor is barred from asserting equivalent infringement as to disclosed, but unclaimed subject matter.⁴⁵

Cases such as these demonstrate that increasing the emphasis upon the public notice function of patent claims has had significant doctrinal implications. In the post-*Markman* era, Federal Circuit jurists can still say that "we protect the inventive contribution of patentees, even when the drafting of their patents has been less than ideal,"⁴⁶ but only when they are discussing the claim definiteness doctrine.⁴⁷ The Court's discussion concerning the appropriate scope of patent rights has instead come to stress not fairness to the inventor, but rather warning to the public.⁴⁸ The strength of this trend, as well as its increasing impact upon legal doctrine, justifies further reflection upon the public notice function of patent claims. This Article takes up this topic next.

III. DECONSTRUCTING PATENT CLAIMS AND PUBLIC NOTICE

Public accessibility is an intuitively resonant and deeply embedded value in the U.S. legal system. From Sarbanes-Oxley to secured transactions to government in the sunshine, we can concur with the observation of Justice Brandeis that "[s]unlight is said to be the best of disinfectants; electric light the most efficient policeman."⁴⁹ Notice of the patentee's proprietary interest has long been considered of equal importance within intellectual property law, providing industrial actors with guidance as to both permissible and inappropriate activities.⁵⁰ Innovation policy is said to compel the conclusion that the issued patent instrument should provide clear notice to the public of the patentee's proprietary interest.⁵¹

Despite the conviction and frequency with which this statement is made, however, it has never been the law that the claims provide the entirety of the metes and bounds of the patent right.⁵² Historically, of course, the concept of the doctrine of equivalents preceded the development of claiming practice in

⁴⁴ See *supra* text accompanying notes 22–26.

⁴⁵ *Johnson & Johnston Assoc., Inc. v. R.E. Serv. Co.*, 285 F.3d 1046, 1054–55 (Fed. Cir. 2002).

⁴⁶ *Exxon Research & Esg Co. v. United States*, 265 F.3d 1371, 1375 (Fed. Cir. 2001).

⁴⁷ 35 U.S.C. § 112, para. 2 (2000).

⁴⁸ *Graver Tank & Mfg. Co. v. Linde Air Products Co.*, 339 U.S. 605, 612 (1950).

⁴⁹ LOUIS D. BRANDEIS, *OTHER PEOPLE'S MONEY* 92 (1914).

⁵⁰ See Craig Allen Nard, *Certainty, Fence Building and the Useful Arts*, 74 IND. L.J. 759, 759–60 (1999).

⁵¹ See Martin J. Adelman & Gary L. Francione, *The Doctrine of Equivalents in Patent Law: Questions that Pennwalt Did Not Answer*, 137 U. PA. L. REV. 673, 682 (1989).

⁵² See, e.g., *Corning Glass Works v. Sumitomo Elec. U.S.A., Inc.*, 868 F.2d 1251, 1257 (Fed. Cir. 1989) ("A claim in a patent provides the metes and bounds of the right which the patent confers on the patentee to exclude others from making, using, or selling the protected invention.").

the United States. When claims began routinely appearing in patent instruments, it was not because of an outpouring of cries for a greater degree of public notice from patent instruments. Rather, formalized claiming practice coincided with the reestablishment of patent examination procedures in the 1836 Act. Concise summaries of the asserted invention served only the modest goal of easing the tasks associated with patent administration.⁵³

Even the elevation of claims in the 1870 Act did not convert claims into the sole measure of patentee rights.⁵⁴ Industry remained aware that the courts might apply the doctrine of equivalents to extend infringement liability beyond the literal wording of the claims. This state of affairs continues today. Even at a time where the doctrine of equivalents is less than what it once was, proprietary rights may be awarded to the full extent of a patent's inventive contribution, guided by the teachings of the prior art and the concessions yielded in the prosecution history.

Some of the practical workings of the patent system further suggest that publicizing the precise scope of a patentee's proprietary rights is not the preeminent policy goal it is sometimes made out to be. The U.S. patent system is unique among industrialized nations by continuing to lack a full-fledged pre-grant publication regime. The Domestic Publication of Foreign Filed Patent Applications Act of 1999 requires the PTO to publish pending patent applications eighteen months from the earliest filing date to which they are entitled.⁵⁵ However, if an applicant certifies that the invention disclosed in the application will not be the subject of a patent application in another country that requires publication of applications eighteen months after filing, then the application will not be published. As a result, some, but certainly not all, patent applications are published prior to the day the patent becomes legally enforceable.⁵⁶

This piecemeal publication regime makes it possible for each of us to be sued for infringement with no possible forewarning of the existence of the asserted patent, not to mention the particular language of the claims. Indeed, patent proprietors not uncommonly enforce their rights on the day a patent issues.⁵⁷ This reality certainly dims the rhetoric that the public is entitled to

⁵³ See T. Whitney Chandler, *Prosecution History Estoppel, the Doctrine of Equivalents, and the Scope of Patents*, 13 HARV. J.L. & TECH. 465, 468–69 (2000).

⁵⁴ See Harold C. Wegner, *Equitable Equivalents: Weighing the Equities to Determine Patent Infringement in Biotechnology and Other Emerging Technologies*, 18 RUTGERS COMPUTER & TECH. L.J. 1, 18 (1992).

⁵⁵ 35 U.S.C. § 122(b) (2000).

⁵⁶ See generally Reiko Watase, *The American Inventors Protection Act of 1999: An Analysis of the New Eighteen-Month Publication Provision*, 20 CARDOZO ARTS & ENT. L.J. 649 (2002).

⁵⁷ See, e.g., *Univ. of Rochester v. G.D. Searle & Co.*, 358 F.3d 916, 918 (Fed. Cir. 2004); *Plant Genetic Sys., N.V. v. DeKalb Genetics Corp.*, 315 F.3d 1335, 1337 (Fed. Cir. 2003); *United Sys. of Ark., Inc. v. Laser Substrates, Inc.*, No. 01-1224, 2002 WL 243448 (Fed. Cir. Feb. 19, 2002); *Robotic Vision Sys., Inc. v. View Eng'g, Inc.*, 112 F.3d 1163, 1164 (Fed. Cir. 1997); *GAF Bldg. Materials Corp. v. Elk Corp. of Dallas*, 90 F.3d 479, 480 (Fed. Cir. 1996); *National Presto Indus., Inc. v. West Bend Co.*, 76 F.3d 1185, 1193 (Fed. Cir. 1996).

notice of claim scope. But even for patents that are published prior to grant, or that are enforced later in their term, identification of their relevance and appraisal of their precise scope is not a straightforward proposition.

One initial difficulty is the tendency of contemporary industry toward patent portfolio practice. Even small innovative firms are decreasingly likely to hold merely a patent or two. They instead have acquired extensive patent suites. Nearly 300 firms acquired at least 1000 patents between 1977 and 2003, for example, with the heaviest PTO user, the IBM Corporation, procuring 35,341 patents during this period. Overall, the PTO granted 187,017 patents in 2003, as compared to 109,746 in 1993. This staggering growth in patent acquisition shows no sign of abating: in 1993 inventors filed 188,739 applications at the PTO; 366,043 applications were filed in 2003.⁵⁸

These patents collectively present an enormous amount of industrial regulation. Sorting through this volume of text presents a complex challenge, a task made more difficult by the unreliable PTO patent classification system.⁵⁹ Patents on business methods and software are well-known to have been scattered across many classifications,⁶⁰ but incorrect classifications are not uncommon for more traditional technologies as well.⁶¹ Interested parties have little choice but to consult the entire PTO oeuvre, for limiting inquiry to the relevant categories in the *Manual of Patent Classification* is a precarious searching strategy.

Longstanding claiming practices also increase the difficulty of assessing patents. Patent attorneys often write in fields that lack consistent technical terminology. In contrast to patents arising in biotechnology and chemistry, for example, business method and software patents are more prone to describing the identical technical feature using different words.⁶² Exacerbating these difficulties is the ability of the drafter to coin his own terms to include in claims.⁶³ This “lexicographic privilege” has been justified on the inability of existing language to characterize innovative products and processes.⁶⁴

⁵⁸ U.S. PATENT STATISTIC CHART, *supra* note 9, at http://www.uspto.gov/web/offices/ac/ido/oeip/taf/us_stat.htm.

⁵⁹ John R. Allison & Mark A. Lemley, *Who's Patenting What? An Empirical Exploration of Patent Prosecution*, 53 VAND. L. REV. 2099 (2000).

⁶⁰ John R. Allison & Emerson H. Tiller, *The Business Method Patent Myth*, 18 BERKELEY TECH. L.J. 987 (2003); John W. Bagby, *Business Method Patent Proliferation: Convergence of Transactional Analytics and Technical Scientifics*, 56 BUS. LAW. 423 (2000).

⁶¹ Allison & Lemley, *supra* note 59, at 2102.

⁶² See Jay P. Kesan, *Carrots and Sticks to Create a Better Patent System*, 17 BERKELEY TECH. L.J. 763, 784 (2002) (“[P]atentees used different terminologies (based on their individual organizations) to refer to the same underlying technique. This makes the problem of locating relevant prior art even more difficult. . . . [T]he English language is a blunt instrument to describe computer software.”).

⁶³ See, e.g., *Bell Atl. Network Servs., Inc. v. Covad Communications Group, Inc.*, 262 F.3d 1258, 1268 (Fed. Cir. 2001).

⁶⁴ *Autogiro Co. v. United States*, 384 F.2d 391, 397 (Ct. Cl. 1967) (“Often the invention is novel and words do not exist to describe it. The dictionary does not always keep abreast of the inventor. It cannot. Things are not made for the sake of words, but words for things. To overcome this lag, patent law allows the inventor to be his own lexicographer.”).

Unfortunately, it also results in idiosyncratic claim limitations that can require a great deal of effort to decipher.

The Federal Circuit's permissive posture toward the definiteness standard further undermines the public notice of patent claims. The Patent Act requires claims "particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention."⁶⁵ Yet in recent years the Federal Circuit upheld a claim calling for fibers that are "substantially completely wetted" over a definiteness challenge.⁶⁶ A claim directed toward treating a catalyst for a "period 'sufficient to increase substantially the initial catalyst activity'" was likewise confirmed.⁶⁷ Perhaps the most extreme example was a claim reciting concrete "hardened sufficiently to allow cutting by a . . . saw, while still producing an acceptable surface finish," which also withstood scrutiny for indefiniteness.⁶⁸ Such a lenient definiteness jurisprudence suggests that patent claims do not always provide neatly defined markers of the patentee's proprietary interest.

The uncertainty of judicial claim construction also casts considerable doubt upon the notion that the public can reliably read claims in order to determine the scope of the patentee's proprietary interest. A telling number of recent Federal Circuit claim interpretation decisions have issued with a dissent.⁶⁹ Other results seem quite unpredictable. In one recent opinion the Federal Circuit reasoned that the claim term "acid" meant "salt" —a conclusion with which any sophomore chemistry major would take considerable issue.⁷⁰ Yet, in another case, the Federal Circuit refused to substitute the term "at" for "to" in a claim calling for "heating . . . dough to a temperature in the range of about 400° F. to 850° F.," even though even a novice baker would realize that dough this hot would be virtually incinerated.⁷¹

Another practical factor detracting from a high degree of public notice in patent claims is that, in practice, the patent regime permits savvy inventors to manipulate the claims of issued patents. Although neither post-grant proceeding is often used, both reissue and reexamination allow changes to patent claims

⁶⁵ 35 U.S.C. § 112, para. 2 (2000).

⁶⁶ *LNP Eng'g Plastics, Inc. v. Miller Waste Mills, Inc.*, 275 F.3d 1347 (Fed. Cir. 2001).

⁶⁷ *Exxon Research & Eng'g Co. v. United States*, 265 F.3d 1371, 1379 (Fed. Cir. 2001).

⁶⁸ *Chiuminatta Concrete Concepts, Inc. v. Cardinal Indus., Inc.*, 145 F.3d 1303, 1306 (Fed. Cir. 1998).

⁶⁹ See, e.g., *Nystrom v. Trex Co.*, 374 F.3d 1105, 1119 (Fed. Cir. 2004); *Goldenberg v. Cytogen, Inc.*, 373 F.3d 1158, 1169 (Fed. Cir. 2004); *Metabolite Labs., Inc. v. Lab. Corp. of Am. Holdings*, 370 F.3d 1354, 1372 (Fed. Cir. 2004); *Housey Pharm., Inc. v. Astrazeneca UK Ltd.*, 366 F.3d 1348, 1356 (Fed. Cir. 2004); *Microsoft Corp. v. Multi-Tech Sys., Inc.*, 357 F.3d 1340, 1354 (Fed. Cir. 2004); *Schwarz Pharma, Inc. v. Warner-Lambert Co.*, No. 03-1384, 2004 WL 193228, at *6 (Fed. Cir. Jan. 29, 2004); *Liquid Dynamics Corp. v. Vaughn Co.*, 355 F.3d 1361, 1371 (Fed. Cir. 2004); *Golight, Inc. v. Wal-Mart Stores, Inc.*, 355 F.3d 1327, 1340 (Fed. Cir. 2004).

⁷⁰ *Merck & Co. v. Teva Pharm. USA, Inc.*, 347 F.3d 1367, 1372 (Fed. Cir. 2003).

⁷¹ *Chef Am., Inc. v. Lamb-Weston, Inc.*, 358 F.3d 1371, 1371 (Fed. Cir. 2004) (emphasis added).

after they have issued.⁷² So-called “continuation practice”—where inventors maintain a series of continuation applications at the PTO—provides another vehicle for inventors to obtain additional claims that make up for shortcomings in previously issued patents.⁷³ Even for those firms that diligently conduct freedom to operate searches, commission invalidity and noninfringement opinions from patent counsel, and attempt to design around the claims of existing patents, it is simply unknowable whether next week’s issue of the PTO *Official Gazette* will thwart their investment-backed expectations or not.

Of course, many of these factors are cited against patentees in the claim construction literature. Because inventors can draft claims as they see fit, obtain virtually as many claims as they are willing to pay for, and even amend the patents they have already procured, many commentators believe that it is only fair that inventors should claim their inventions precisely.⁷⁴ By the same token, however, these capabilities also depress the public notice function of patent claims. The patent system is effectively a fluid regulatory environment, and placing great reliance upon the wording of any one patent’s claims is a perilous commercial strategy.

Finally, other patent law doctrines actively discourage the public to read patents. Consulting the patent literature has been likened to a “dangerous sport” due to the doctrine of willful infringement.⁷⁵ Reading a patent may well result in costly duties to ascertain the scope of its claims and consider their applicability to one’s own activities.⁷⁶ Failure to fulfill these obligations may in turn subject the reader to enhanced damages for infringement.⁷⁷ Although the Federal Circuit has recently mitigated some of the harshness of willful infringement doctrine,⁷⁸ the conflict with the public notice function of patent claims remains.⁷⁹ The doctrine of inducement infringement⁸⁰—with its requirement that the indirect infringer have knowledge of the patent⁸¹—further

⁷² See Stephen G. Kunin & Anton W. Fetting, *The Metamorphosis of Inter Partes Reexamination*, 19 BERKELEY TECH. L.J. 971 (2004).

⁷³ 35 U.S.C. § 120 (2000). See Mark A. Lemley & Kimberly A. Moore, *Ending Abuse of Patent Continuations*, 84 B.U. L. REV. 63 (2004).

⁷⁴ E.g., Paul M. Janicke, *Heat of Passion: What Really Happened in Graver Tank*, 24 AIPLA Q.J. 1 (1996).

⁷⁵ Edwin H. Taylor & Glenn E. Von Tersch, *A Proposal to Shore Up the Foundations of Patent Law that the Underwater Line Eroded*, 20 HASTINGS COMM. & ENT. L.J. 721 (1998).

⁷⁶ *Crystal Semiconductor Corp. v. TriTech Microelectronics Int’l, Inc.*, 246 F.3d 1336, 1351 (Fed. Cir. 2001) (“When an infringer has actual notice of a patentee’s rights, the infringer has an affirmative duty of due care to avoid infringement.”).

⁷⁷ 35 U.S.C. § 284 (2000).

⁷⁸ *Knorr-Bremse Systeme fuer Nutzfahrzeuge GmbH v. Dana Corp.*, 383 F.3d 1337, 1343–44 (Fed. Cir. 2004).

⁷⁹ See Mark A. Lemley & Ragesh K. Tangri, *Ending Patent Law’s Willfulness Game*, 18 BERKELEY TECH. L.J. 1085, 1092–93 (2003).

⁸⁰ 35 U.S.C. § 271(b) (2000).

⁸¹ See *Mickowski v. Visi-Trak Corp.*, 36 F. Supp. 2d 171, 180 (S.D.N.Y. 1999) (a patentee must “prove that the defendant acted with knowledge of the patent infringed” under § 271(b)); *Young Dental Mfg. Co. v. Q3 Special Prods. Inc.*, 891 F. Supp. 1340, 1348 (E.D.

encourages industry to avoid reading patent claims, no matter how artfully they are drafted.

As a practical matter, the patent system cannot credibly be said to have emphasized the public notice function of patent claims. In circumstances where the patent regime could have ensured greater public access to claims, it instead adopts mechanisms that are more convenient to administer or serve other policy goals. The fluidity of the patent regulatory regime also reveals that only a foolhardy firm would place great reliance upon the particular wording of a modest number of patent claims. The most diligent search strategy might have overlooked other patents, other relevant patent applications may remain on the PTO docket, and claim interpretation remains an unpredictable endeavor. The demand for precision claim drafting cannot overcome significant structural features of the patent regime that create industrial uncertainty.

We could, of course, contemplate legal reforms that would provide the public with a level of notice of claims consistent with the rhetoric of claim interpretation jurisprudence. Many observers have already suggested that we adopt an ecumenical pre-grant publication system.⁸² More serious consideration could be given to a prior user rights regime, based on acts performed prior to the first publication date of patent claims in reasonably final form.⁸³ For good measure, we could consider legal reform for the standards of claim definiteness, willful infringement, and claim drafting. The point of this Article is not to advocate these reforms, however, but rather to point out how far we must go to validate contemporary judicial attitudes towards claim scope.

Even without regard to the pragmatics of the patent system, however, emphasis upon the public notice function of patent claims would remain a troubling innovation policy. Patent instruments have long been acknowledged as exceedingly difficult texts to draft properly. As the Supreme Court recognized in its 1892 decision in *Topliff v. Topliff*,

The specification and claims of a patent, particularly if the invention be at all complicated, constitute one of the most difficult legal instruments to draw with accuracy, and in view of the fact that valuable inventions are often placed in the hands of inexperienced persons to prepare such specifications and claims, it is no matter of surprise that the latter frequently fail to describe with requisite certainty the exact invention of the patentee, and err either in claiming that which the patentee had not in fact invented, or in omitting some element which was a valuable or essential part of his actual invention.⁸⁴

This statement was written at a time when the patent system was the province of the manual and mechanical arts of the nineteenth century. It is hard to imagine that claim drafting has somehow become a more straightforward

Mo. 1995) (“[T]he accused infringer must be shown to have had actual knowledge of the patent and the actual intent to induce the infringement.”).

⁸² E.g., Watase, *supra* note 56, at 649.

⁸³ See Paul R. Morico, *Are Prior User Rights Consistent with Federal Patent Policy?: The U.S. Considers Legislation to Adopt Prior User Rights*, 78 J. PAT. & TRADEMARK OFF. SOC’Y 572 (1996).

⁸⁴ 145 U.S. 156, 171 (1892).

endeavor in the Federal Circuit era. The diversity and dizzying complexity of contemporary innovation, the broader reach of patentable subject matter, and the brisker pace of technological advancement render prescient claim drafting an ideal far more difficult to achieve today.⁸⁵

Yet what was once seen as a lamentable shortcoming of the patent system has today been reconceived as a virtue. The patent law's balance between encouraging innovation and preserving competition now appears to depend upon the consistent underrepresentation of inventors by the patent bar. This policy is troubling because it advises drastic increases in patent acquisition expenditures that are unlikely to increase social welfare, and because it causes the breadth of patent rights to be distributed on an uneven basis, heedless of industrial policy.

Among the Federal Circuit's more troubling recent advice is its suggestion that inventors and patent attorneys should devote additional efforts towards patent acquisition.⁸⁶ An apparent difficulty with this approach is that industry has been steadily pursuing this course for the past two decades. Since the advent of the Federal Circuit, more patents are being obtained than ever before, the attention paid to patents in business transactions and corporate boardrooms has dramatically increased, and public interest in the patent system is arguably at an all-time high.⁸⁷ For all of this, the case law evidences no reduction in the complexities of patent claim scope determinations.

We should also recall that only a small number of issued patents are subject to litigation or commercial transactions. As Mark Lemley has already asserted, even modest increases in patent acquisition expenditures are unlikely to be cost-effective.⁸⁸ Indeed, that small subset of patents that are being enforced may already fulfill the Federal Circuit demand for more careful acquisition efforts. Research by John Allison, Mark Lemley, Kimberly Moore, and Derek Trunkey reveals that litigated patents incorporate more claims and spend longer periods of time in prosecution than non-litigated patents.⁸⁹ The claims the Federal Circuit construes are therefore already more likely to have been prepared with greater deliberation, and at a higher cost, than those of the average patent instrument.⁹⁰ That even these heightened efforts persistently come up short suggests that claim drafting remains the difficult professional task that the Supreme Court described over a century ago.

The notoriously poor correlation between patenting and R&D further suggests that higher patent-based transaction costs are unlikely to be socially

⁸⁵ See John R. Allison & Mark A. Lemley, *The Growing Complexity of the United States Patent System*, 82 B.U. L. REV. 77, 135 (2002).

⁸⁶ See, e.g., *Sage Prods., Inc. v. Devon Indus., Inc.*, 126 F.3d 1420, 1425 (Fed. Cir. 1997).

⁸⁷ See Robert D. Taylor, *Twenty Years of the Federal Circuit: An Overview*, in 1 PLI'S EIGHTH ANNUAL INSTITUTE FOR INTELLECTUAL PROPERTY LAW 9 (PLI Intellectual Prop. Course, Handbook Series No. E-716, 2002).

⁸⁸ See Mark A. Lemley, *Rational Ignorance at the Patent Office*, 95 NW. U. L. REV. 1495, 1511 (2001).

⁸⁹ John R. Allison et al., *Valuable Patents*, 92 GEO. L.J. 435, 451, 459 (2004).

⁹⁰ See F. Scott Kieff, *The Case for Registering Patents and the Law and Economics of Present Patent-Obtaining Rules*, 45 B.C. L. REV. 55, 101-02 (2003).

efficient expenditures. John Barton has already pointed out, for example, that the number of intellectual property attorneys has grown faster than the amount of research over the past two decades.⁹¹ Other studies show that while innovative enterprises have filed an increasing number of patent applications since the early 1980s, they have not increased R&D spending over the same time frame.⁹² These data suggest that dramatic increases in claim drafting expenditures are unlikely to be socially efficient, particularly when assessed against the poorly executed goal of public notice of claim scope.

Commentators have sought other justifications in favor of precision claim drafting, however, including one that relies upon the notion of comparative efficiencies. This position relies on the view that patent proprietors stand in the best position to determine the appropriate scope of their claims. For example, Michael Meurer and Craig Nard assert that “[p]otential infringers are usually poorly positioned compared to the inventor to judge whether an embodiment would be blocked by enablement or prior arts constraints.”⁹³ Polk Wagner has reasoned similarly, stating that “[a]mong the ‘parties’ to the patent transaction, the patentee is either the best informed or the one who can most easily and cheaply become the best informed about the context of her innovation.”⁹⁴ Where the patent proprietor is necessarily the entity that can provide information about claim scope at the lowest cost, judicial emphasis upon well-drafted claims seems a plausible proposition.

Whether the patentee knows his patent best is not an entirely certain assertion, however. Accused infringers are, after all, not merely casual observers of the patent system. They are putatively putting the patented invention to some use themselves. They may well have developed its product on their own, unaware of the patent they are accused of infringing, and presumably they possess at least some knowledge about the invention and the state of the art. Indeed, it is not uncommon in patent cases for accused infringers to invalidate an asserted patent by relying upon their own publications, sales, or other activities.⁹⁵ In such cases, surely this patent-defeating information was more readily provided by the defendant than the patent proprietor.

⁹¹ John H. Barton, *Reforming the Patent System*, 287 SCIENCE 1933, 1933 (2000).

⁹² Bronwyn H. Hall & Rosemarie Ham Ziedonis, *The Patent Paradox Revisited: An Empirical Study of Patenting in the U.S. Semiconductor Industry, 1979–1995*, 32 RAND J. ECON. 101, 102 (2001); JAMES BESSEN & ERIC MASKIN, SEQUENTIAL INNOVATION, PATENTS, AND IMITATION (Mass. Inst. Tech. Economics Working Paper No. 00-01, 1999), <http://www.researchoninnovation.org/patent.pdf>.

⁹³ MICHAEL J. MEURER & CRAIG ALLEN NARD, INVENTION, REFINEMENT AND PATENT CLAIM SCOPE: A NEW PERSPECTIVE ON THE DOCTRINE OF EQUIVALENTS 53 n.265 (Boston Univ. Sch. of Law, Law & Econ. Working Paper Series, Working Paper No. 04-03, 2004) (Case Sch. of Law, Research Paper Series in Legal Studies, Working Paper No. 04-05, 2004), <http://www.ssrn.com/abstract=533083>.

⁹⁴ R. Polk Wagner, *Reconsidering Estoppel: Patent Administration and the Failure of Festo*, 151 U. PA. L. REV. 159, 213 (2002).

⁹⁵ See, e.g., *Unitherm Food Sys., Inc. v. Swift Eckrich, Inc.*, 375 F.3d 1341, 1352–53 (Fed. Cir. 2004).

Further, most accused infringers are patentees themselves.⁹⁶ They are likely to be familiar with at least the rudiments of the patent system and its principles of claim construction. To the extent we do observe asymmetries in patent litigation, the most common scenario involves large corporate defendants being sued by individuals or small firms that are not otherwise involved in the marketplace for the patented invention.⁹⁷ In these circumstances the most efficient information provider is likely the accused infringer rather than the plaintiff-patentee. As the *Markman* opinion itself recognized,⁹⁸ that a patent owner is ordinarily the least-cost information provider concerning claim scope is not an entirely satisfactory account.

Placing a premium upon artful claim drafting also distributes the scope of patent rights on an uneven basis. The quality of patent claims varies, of course, because drafters possess differing degrees of legal competence and technical foresight. It is nonetheless an extremely difficult task to assess the capabilities of a particular claim drafter beyond a rudimentary level. In this rarefied field, identifying cues of professional competence may prove difficult even for sophisticated enterprises. The most reliable measure of drafters' skills, the litigation track record of their patent claims, is virtually never available. Only a small percentage of patent claims are litigated, and only a fraction of those asserted ever receive a full-blown construction by the judiciary.⁹⁹ Absent unusual circumstances, this construction will take place many years—sometimes decades—after the claims were initially submitted to the PTO.¹⁰⁰

Even the PTO realized that assessing claim drafting skills is quite difficult. Recently, the PTO abandoned the claim drafting portion of its registration examination in favor of a series of multiple-choice questions.¹⁰¹ The official explanation for the shift was that the examination was too time-consuming to grade,¹⁰² although persistent complaints were heard about the subjectivity and inconsistency of PTO exam scoring as well. PTO difficulties with respect to a simplified, stylized claim drafting exercise suggest more daunting concerns for competitive enterprises in high-tech industry. Suboptimally drafted claims may arise not from applicant shirking, but rather from a persistent and widespread inability to discern good claim drafters from bad. Judicial stress upon the

⁹⁶ ROGER E. SCHECHTER & JOHN R. THOMAS, PRINCIPLES OF PATENT LAW § 2.10 (2004).

⁹⁷ See Mark D. Janis, *Reforming Patent Validity Litigation: The "Dubious Preponderance,"* 19 BERKELEY TECH. L.J. 923, 923 n.1 (2004).

⁹⁸ 52 F.3d at 983 ("[T]he testimony of Markman and his patent attorney on the proper construction of the claims is entitled to no deference.").

⁹⁹ See Lemley, *supra* note 88, at 1501.

¹⁰⁰ See John R. Allison & Mark A. Lemley, *Empirical Evidence on the Validity of Litigated Patents*, 26 AIPLA Q.J. 185, 236 tbl.11 (1998) (concluding that it takes over twelve years on average from the time a patent application is filed to the time litigation is completed).

¹⁰¹ See Registration Examination for Patent Practitioners and the Establishment of a Continuing Legal Education Requirement and an Annual Fee for Registered Patent Practitioners, 61 Fed. Reg. 51,072, 51,073 (Sept. 30, 1996).

¹⁰² See Changes to Representation of Others Before the United States Patent and Trademark Office, 69 Fed. Reg. 35,428 (June 24, 2004) (to be codified at 37 C.F.R. pts. 1, 10–11).

individual skills of the claim drafter may be founded on a demand for due diligence by patent proprietors, but it seems particularly prone to arbitrary claim scope determinations and incoherent industrial policy.

All of this is not to say that the public notice function of patent claims lacks any significance. Patent professionals conduct freedom-to-operate searches and draft opinion letters on a daily basis.¹⁰³ All things being equal, it would be preferable if these tasks could be conducted expeditiously based upon well-drafted claims, rather than the combination of the prior art, prosecution history, and patent instrument as a whole. The long history of our patent system suggests that patent professionals have consistently failed to draft claims of optimal scope, however, and that imposing more onerous obligations upon them is unlikely to enhance social welfare. Judicial focus upon the public notice function of patent claims has not resolved the problems inherent to claim drafting, but it has cast severe doubt upon the traditional vehicle courts used to address these shortcomings. This Article next considers prospects for an accommodation between the sensibilities of the post-*Markman* era, on one hand, and the policy foundations of the doctrine of equivalents on the other.

IV. RECONSTRUCTING CLAIMS

Since *Markman*, courts have struggled to give effect to the traditional fairness and utilitarian justifications for the doctrine of equivalents, while at the same time encouraging more deliberative, better articulated, and more consistent claim interpretations. Current judicial emphasis upon the public notice function of patent claims proves unpersuasive due to inconsistency with the structural features of the patent regime and troubling implications for innovation policy. This Article briefly explores two other possibilities for reconciling the doctrine of equivalents with *Markman*: the prospect of judicial amendment of patent claims during enforcement litigation and reinvigoration of the statutory reissue proceeding.

A. Judicial Amendment of Patent Claims

A productive way to engage the nontextual infringement policy is to revisit the Supreme Court's decision in *Graver Tank*.¹⁰⁴ Here the majority stressed the benefits of a standards-based principle of nontextual infringement, with Justice Black more enamored with a rules-oriented emphasis upon literal infringement and the availability of reissue.¹⁰⁵ That the doctrine of equivalents remains among patent law's most controversial doctrines reveals that this conversation was not of great use to the patent community.¹⁰⁶ The majority and dissent

¹⁰³ See Mark A. Lemley & Ragesh K. Tangri, *Ending Patent Law's Willfulness Game*, 18 BERKELEY TECH. L.J. 1085, 1092–93 (2003).

¹⁰⁴ *Graver Tank & Mfg. Co. v. Linde Air Products Co.*, 339 U.S. 605 (1950).

¹⁰⁵ See *supra* text accompanying notes 17–19.

¹⁰⁶ Hon. Paul R. Michel, *The Role and Responsibility of Patent Attorneys in Improving the Doctrine of Equivalents*, 40 IDEA 123, 123 (2000) (describing the doctrine of equivalents as “the most difficult and least predictable of all doctrines in patent law to apply”).

talked past each other, leaving the reader with no way to synthesize their views into a plausible middle ground.

Although the *Graver Tank* jurists seemed locked into irreconcilable positions, there was a possibility for compromise. The Court might have approved of continued judicial application of the doctrine of equivalents on the condition that equivalent infringers enjoy intervening rights commensurate with the reissue statute. The same equitable powers that allowed courts to employ the doctrine of equivalents in the first place could also be employed to fashion an appropriate remedy in individual cases.¹⁰⁷

The proposal that courts employ equitable remedies in equivalents cases is not a new idea. Judge Helen Nies suggested this approach to an equivalents case in her dissent in *Hilton Davis*,¹⁰⁸ and Paul Janicke has persuasively elaborated upon her proposal.¹⁰⁹ Under this concept of a “judicial reissue,” equivalency determinations could be made contingent upon allowing the defendant some capability to continue employing the infringing product or process. Judicial precedent discussing equitable intervening rights suggests different factors the courts could consider:

- Whether the availability of the infringing product would improve social welfare due to its lower cost, technological advantages, tendency to promote competition, or other factors.
- The extent of the infringer’s investment in the patented technology.
- Whether the infringer possessed actual notice of the asserted patent and planned its affairs accordingly.
- The ease with which the infringer can “design around” the patent in order to again participate in the relevant market.
- The degree of equivalence between the claimed invention and the adjudicated infringement.
- Whether the patent proprietor learned of the accused infringement and failed to seek reissue within the two-year statutory period.
- Whether the patent’s claims were drafted with reasonable care.¹¹⁰

The prospect of “judicial reissue” would effectively create a flexible remedial scheme that would apply to nontextual infringement cases. Such an approach would ease the usual absolutism of a finding of patent infringement. Empowered to establish what are effectively degrees of infringement liability, courts would be better able to account for the unique circumstances of

¹⁰⁷ *Tate Access Floors, Inc. v. Interface Architectural Res., Inc.*, 279 F.3d 1357, 1367 (Fed. Cir. 2002) (“[T]he doctrine of equivalents is an equitable doctrine . . .”).

¹⁰⁸ *See Hilton Davis Chem. Co. v. Warner-Jenkinson Co.*, 62 F.3d 1512, 1560 (Fed. Cir. 1995) (en banc) (Nies, J., dissenting).

¹⁰⁹ Paul M. Janicke, *When Patents Are Broadened Midstream: A Compromise Solution to Protect Competitors and Existing Users*, 66 U. CIN. L. REV. 7, 48 (1997).

¹¹⁰ *See* J. Christopher Carraway, *The Uncertain Future of Enforcing Patents that Have Been Broadened Through Reissue*, 8 FED. CIR. B.J. 63, 68–70 (1998); Jonathan A. Platt, *Protecting Reliance on the Patent System: The Economics and Equities of Intervening Rights*, 47 CASE W. RES. L. REV. 1031, 1055–67 (1997); P.J. Federico, *Intervening Rights in Patent Reissues*, 30 GEO. WASH. L. REV. 603, 604 (1961).

particular cases.¹¹¹ It would also offer courts a more practical way to effect innovation policy than the blunt formulation of the current doctrine of equivalents. Rather than discuss innovation and competition merely as detached policy preferences, courts would be able to balance these concerns within the context of individual decision making.

This reformulated nontextual infringement mechanism would also address one of the perceived problems of our current doctrine of equivalents. In an environment where courts routinely correct drafting errors through infringement doctrines, patent attorneys may possess diminished incentives to prepare patents with a reasonable level of care.¹¹² The desire to avoid remedial restraints would encourage patentee incentives to draft claims correctly and reduce incentives for shirking.

The concept of tempering the doctrine of equivalents with reissue-like remedial limitations has many virtues. Yet it does not fully reconcile the doctrine of equivalents with the demands of the post-*Markman* era. Infringement under the doctrine of equivalents continues to be characterized as a question of fact.¹¹³ Equivalent infringement therefore remains a jury issue that is resolved without explanation. Further, given the deferential standard of review for factual determinations,¹¹⁴ the Federal Circuit might theoretically be required to affirm conflicting determinations of equivalent infringement. Under current law, one firm could be judged a noninfringer, while another that manufactures the identical product could be held to be an equivalent infringer, subject to all the remedies available under the Patent Act.

Building upon this proposal, another alternative would call for the judiciary not merely to mimic the statutory intervening rights provisions of the reissue statute. Power to conduct reissue proceedings could instead be vested in the courts, either exclusively or as an alternative to the PTO. Rather than assert equivalent infringement as a question of fact, patentees would be required to formally amend their patent instrument to include claims that literally covered the accused device. In turn, the adjudicated infringer would be able to assert absolute or equitable intervening rights as currently stated in the reissue statute.¹¹⁵

¹¹¹ Cf. Maureen A. O'Rourke, *Toward a Doctrine of Fair Use in Patent Law*, 100 COLUM. L. REV. 1177, 1241 (2000) ("To the extent that a jury or judge is reluctant to enter an all-for-nothing holding of invalidity, fair use offers another option. It provides for a judgment that the patent is valid and infringed but that infringement is excused, sometimes for free.").

¹¹² Wagner, *supra* note 94, at 222–24; Kieff, *supra* note 90, at 120.

¹¹³ E.g., *Nystrom v. Trex Co.*, 374 F.3d 1105, 1110 (Fed. Cir. 2004) ("Infringement, whether literal or under the doctrine of equivalents, is a question of fact.").

¹¹⁴ See *Metabolite Labs., Inc. v. Lab. Corp. of Am. Holdings*, 370 F.3d 1354, 1370 (Fed. Cir. 2004) ("The standard of review for this court is whether substantial evidence supports the jury's finding.").

¹¹⁵ 35 U.S.C. § 252 (2000).

At first blush, this scheme may appear to add an intolerable level of complexity to patent enforcement litigation.¹¹⁶ Current judicial assignments are not so far off from this proposal, however. In the post-*Markman* era, courts may adopt claim constructions advocated by neither the patent proprietor nor the accused infringer.¹¹⁷ They may declare a patent infringed even though the accused product or process falls outside the literal scope of the claims.¹¹⁸ Additionally, they may even draft hypothetical patent claims.¹¹⁹ Formal amendment of the claims issued by the PTO may be a more modest step than it may initially appear.

This approach would also overturn the venerable tenet that courts may not redraft patent claims.¹²⁰ Although this principle is billed as a self-evident axiom in the United States, formal amendment of patent claims has in fact been a working reality for British patent jurists since at least 1835.¹²¹ Under British practice, some of these amendments consist merely of the deletion of claims that have been held invalid, analogous to domestic statutory disclaimers.¹²² Yet a U.K. court is also able to make a so-called “‘validating’ amendment,” consisting of “writing into the claim a feature not found in any other claim in order to validate, or at least strengthen it, against a possible attack.”¹²³

Although requests to amend claims during patent infringement litigation are commonplace,¹²⁴ British patent owners do not get an entirely free lunch in these circumstances. One consequence of patent amendment is that “no damages shall be awarded in proceedings for an infringement of the patent committed before the decision to allow the amendment unless the court or the comptroller is satisfied that the specification of the patent as published was framed in good faith and with reasonable skill and knowledge.”¹²⁵ The U.K. patent statute therefore accounts both for patentee shirking and for third party reliance interests. Borrowing from the more sophisticated intervening rights

¹¹⁶ Such concerns suggest that the primary practical function of patent claims is not to provide public notice of the scope of the patentee's rights, but rather to expedite patent litigation once those rights have been asserted.

¹¹⁷ See *J.T. Eaton & Co. v. Atl. Paste & Glue Co.*, 106 F.3d 1563, 1568–70 (Fed. Cir. 1997); *Exxon Chem. Patents, Inc. v. Lubrizol Corp.*, 64 F.3d 1553, 1557–58 (Fed. Cir. 1995).

¹¹⁸ See *Ericsson, Inc. v. Harris Corp.*, 352 F.3d 1369, 1374 (Fed. Cir. 2003).

¹¹⁹ See *Wilson Sporting Goods Co. v. David Geoffrey & Assocs.*, 904 F.2d 677, 684–85 (Fed. Cir. 1990).

¹²⁰ See, e.g., *Quantum Corp. v. Rodime, PLC*, 65 F.3d 1577, 1584 (Fed. Cir. 1995) (“Although we construe claims, if possible, so as to sustain their validity . . . it is well settled that no matter how great the temptations of fairness or policy making, courts do not redraft claims.”); *Becton Dickinson & Co. v. C.R. Bard, Inc.*, 922 F.2d 792, 799 n.6 (Fed. Cir. 1990) (“Nothing in any precedent permits judicial redrafting of claims.”).

¹²¹ See *Palmaz's European Patents*, [1999] R.P.C. 47, 59 (Patents Ct.) (U.K.).

¹²² 35 U.S.C. § 253 (2000).

¹²³ *Instance v. Ccl Label Inc.*, [2002] F.S.R. 27 para. 2 (Patents Ct.) (U.K.); see also *Petrolite Holdings Inc. v. Dyno Oil Field Chems. UK Ltd.*, [1998] F.S.R. 646 para. 9 (Patents Ct.) (U.K.) (“‘Validating’ amendments” are “effected by writing a new allegedly valid claim where no corresponding claim existed before.”).

¹²⁴ *Palmaz's European Patents*, [1999] R.P.C. at 59.

¹²⁵ Patents Act, 1977, c.37, § 62(3) (U.K.).

principles found in the U.S. Patent Act could achieve the same benefits domestically.¹²⁶

The impact of British amendment practice should not be overstated. It has never been exclusive of a nontextual infringement theory.¹²⁷ Further, amendment of claims during litigation is in principle founded more upon validity than enforcement concerns.¹²⁸ The British experience nonetheless shows that judicial amendment of patent claims is a legitimate possibility for accommodating the doctrine of equivalents within the post-*Markman* era.

B. Reforming Reissue

Another vehicle for reconciling *Markman* and the doctrine of equivalents is a more effective reissue proceeding.¹²⁹ One option is to increase the attractiveness of reissue by default, through the abolition of the doctrine of equivalents. This step would seemingly encourage patentees to make use of administrative opportunities, such as reissue or continuation applications, in order to expand upon overly cabined claims.¹³⁰

Existing distinctions between the doctrine of equivalents and reissue suggest that this option is not an entirely attractive one. In particular, the reissue statute incorporates a number of restrictions that do not apply to the doctrine of equivalents. Among them is the two-year limitations period for broadening the scope of the patent claims.¹³¹ Presumably, this deadline was intended to promote industrial certainty by providing a date certain beyond which the claims could not be administratively broadened. In practice, however, two years is an entirely arbitrary period. Cunning use of continuation practice allows patentees effectively to ignore this restriction,¹³² and of course the doctrine of equivalents remains available throughout the term of the patent. Adjudicated infringers are also able to seek intervening rights no matter when the reissue application was filed.¹³³ With the reissue proceeding having fallen virtually into a state of desuetude, the current two-year limitations period deserves reconsideration.

A second apparent shortcoming is the reissue statute's current proscription against the introduction of new matter into reissue applications.¹³⁴ The prospect of unforeseen, after-arising technologies has been a persistent theme in Federal

¹²⁶ See 35 U.S.C. § 252 (2000).

¹²⁷ *Free World Trust v. Electro Sante Inc.*, [2001] F.S.R. 45 para. 28 (Can.) (discussing similarities and distinctions between United States doctrine of equivalents and patent claim scope principles under Commonwealth law).

¹²⁸ *Palmaz's European Patents*, [1999] R.P.C. at 59 ("The purpose of making an amendment to a patent is to avoid a finding of invalidity.").

¹²⁹ See Allen G. Altera, *Expanding the Reissue Procedure: A Better Way to Do Business*, 1 J. INTEL. PROP. L. 185, 218 (1993).

¹³⁰ See Joshua D. Sarnoff, *Abolishing the Doctrine of Equivalents and Claiming the Future After Festo*, 19 BERKELEY TECH. L.J. 1157, 1158 (2004).

¹³¹ 35 U.S.C. § 251, para. 4 (2000).

¹³² See Lemley & Moore, *supra* note 73, at 65.

¹³³ 35 U.S.C. § 252 (2000).

¹³⁴ 35 U.S.C. § 251, para. 1.

Circuit discussion concerning the doctrine of equivalents.¹³⁵ Indeed, for many observers, this scenario represents the only compelling case for a nontextual infringement theory.¹³⁶ However, the reissue proceeding is utterly inapplicable in cases of subsequently developed technologies, because the Patent Act does not allow patent proprietors to account for them by amending their specifications. The current judicial mindset about the doctrine of equivalents suggests a rethinking of this statutory constraint as well.

Additional statutory features may further discourage use of reissue and further distance this proceeding from the doctrine of equivalents. Although current PTO regulations require patent proprietors to profess only a single error in order to commence reissue proceedings,¹³⁷ subsequent dialogue with the examiner is not limited to this shortcoming.¹³⁸ A more narrow scope to reissue may increase predictability and resort to reissue by patent proprietors. Further, although issued patents enjoy a statutory presumption of validity,¹³⁹ this presumption is erased once the patent is resubmitted to the PTO.¹⁴⁰ Given that examiners are already tasked with generating a *prima facie* case of any invalidity rejections they raise,¹⁴¹ retaining a presumption of validity during reissue proceedings may be more appropriate.

Finally, the PTO is far more solicitous of third party inputs for reissue applications than it is for ordinary applications. The PTO publishes an announcement of a reissue application in its *Official Gazette*, and will then ordinarily delay further consideration of that application for a two-month period.¹⁴² Third parties are then invited to file protests against the reissue application. The PTO has also reasoned that since reissue applications are not subject to the Patent Act's eighteen-month publication provisions, the statutory prohibition against pre-grant oppositions does not apply to reissue proceedings.¹⁴³ As a result, the PTO will accept third-party protests until such time as it formally notifies the patent proprietor that the reissue application has been approved.¹⁴⁴

¹³⁵ *Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co.*, 344 F.3d 1359, 1369, *cert. denied*, 124 S. Ct. 2018 (2004).

¹³⁶ *See SmithKline Beecham Corp. v. Excel Pharm., Inc.*, 356 F.3d 1357, 1364 (Fed. Cir. 2004) (“[T]he quintessential example of an enforceable equivalent, after-arising technology, would always be unclaimable new matter. In that sense, the doctrine of equivalents compensates for the patentee’s inability to claim unforeseeable new matter.”). *But see* MEURER & NARD, *supra* note 93, at 53 n.265.

¹³⁷ 37 C.F.R. § 1.175 (2004).

¹³⁸ 37 C.F.R. § 1.176 (2004).

¹³⁹ 35 U.S.C. § 282 (2000).

¹⁴⁰ *In re Sneed*, 710 F.2d 1544, 1550 n.4 (Fed. Cir. 1983) (“[C]laims in a reissue application enjoy no presumption of ‘validity.’” (citing *In re Doyle*, 482 F.2d 1385, 1392, (Cust. & Pat.App. 1973))).

¹⁴¹ *In re Piasecki*, 745 F.2d 1468, 1472 (Fed. Cir. 1984).

¹⁴² U.S. PAT. & TRADEMARK OFFICE, U.S. DEPT. OF COMMERCE, MANUAL OF PATENT EXAMINING PROCEDURE § 1441 (8th ed., rev. 1 Feb. 2003) [hereinafter MANUAL OF PATENT EXAMINING PROCEDURE].

¹⁴³ 35 U.S.C. § 122(c) (2000).

¹⁴⁴ MANUAL OF PATENT EXAMINING PROCEDURE, *supra* note 142, § 1441.01.

Interestingly, the terse reissue statute does not describe any of these unique administrative features. Given the atypical origin of reissue proceedings—the nineteenth century Patent Office began conducting reissue proceedings without even a trace of legislative or judicial imprimatur—this state of affairs is not unusual as an historical matter.¹⁴⁵ These longstanding administrative practices may be chilling patentee resort to reissue, however. Although few would contest the desirability of providing the PTO with the most relevant information for making patentability determinations, it should be noted that the PTO established the current reissue mechanisms long before the availability of reexamination proceedings.¹⁴⁶ Perhaps it is time to consider disengaging opposition-style procedures from reissue, given the availability of reexamination today.

Given these significant procedural, temporal, and remedial distinctions between the doctrine of equivalents and reissue, the current case for wholly abolishing one in favor of the other is weak.¹⁴⁷ However, to the extent that judicial precedent or legislative reform brings greater symmetry between the two, consolidation of these vehicles for post-grant patent claim amendments may be in order. Comparative institutional competence will likely be the deciding factor between the administrative reissue proceeding and the judicial doctrine of equivalents.

V. CONCLUSION

The rapid decline of the doctrine of equivalents was perhaps the least predictable consequence of the seminal *Markman* opinion. Elevation of the public notice function of claims and emphasis upon the duties of the drafter have left little room for a nontextual theory of patent infringement. This Article has instead called for a more realistic judicial posture towards the public notice function of patent claims. Allowance for judicial amendment of patent claims, along with reinvigoration of the statutory reissue proceeding, would enable us to retain, rather than reject, the traditional policy goals for the doctrine of equivalents, and to do so in a way that is in keeping with our post-*Markman* sensibilities.

¹⁴⁵ See *Grant v. Raymond*, 31 U.S. (6 Pet.) 218 (1832).

¹⁴⁶ 35 U.S.C. §§ 302–307 (2000).

¹⁴⁷ See MEURER & NARD, *supra* note 93, at 43.