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13 HVJLT 465
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(Cite as: 13 Harv. J.L. & Tech. 465)
Harvard Journal of Law and Technology
Summer, 2000

Note

*465 PROSECUTION HISTORY ESTOPPEL, THE DOCTRINE OF EQUIVALENTS, AND THE SCOPE OF PATENTS

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*466 I. INTRODUCTION

Imagine two United States patents, both with the same inventor, the same drawings, the same written description, the same claims, the same filing date, and the same issuance date. Is there any difference between these two

imaginary patents? The correct answer, as every law student knows, is "it depends." It depends on what the patent attorney responsible for each of these patents represented to the Patent Office during the application process. Unless the two patent attorneys made the exact same statements in response to the exact same questions by the Patent Office, then under current law the two patents very likely differ in the protection they afford their respective inventors. In other words, an inventor's right to his discoveries depends not only upon the final patent issued by the Patent Office, but also upon the additions, deletions, amendments, arguments, clarifications, statements, scribbles, scratches, yawns, and sideway glances made by his attorney.

The record made during the patent application process is known as the prosecution history and the practice of using this prosecution history to the chagrin of the inventor is known as prosecution history estoppel. Patent prosecution is a secret haggle between the inventor's attorney and the Patent Office. After the Patent Office issues the patent, it also reveals to the public the transcript of its secret dialogue with the inventor's attorney. To what extent can an accused infringer use the secret dialogue with the Patent Office to thwart the inventor?

The proper application of prosecution history estoppel, formerly known as file wrapper estoppel, [FN1] has been discussed for years without resolution. [FN2] This year, the Federal Circuit is poised to provide the *467 definitive answer to questions about the doctrine. [FN3] Before the Federal Circuit decides, and while this relatively obscure doctrine enjoys heightened attention from the bar, I would like to make the radical proposal that prosecution history estoppel should be abolished.

My complaint is not with prosecution historians but rather judges that use the prosecution history inflexibly. Prosecution history estoppel always has identified itself as a judge-made doctrine of equity -- a flexible tool to prevent absurd results. Today, ironically, the flexible tool is brittle and its handiwork promotes, rather than prevents, absurdity. Judges have transformed the conventional wisdom that the prosecution history might be used to interpret the meaning of a patent into the conclusion that the prosecution history must be used to determine the meaning of a patent. I disagree. The patent law should celebrate the patent itself rather than give importance to the slag produced while crafting the patent. Inventors and accused infringers care about the prosecution history not for its own sake, but for the artificial importance courts have attached to it. Were judges to pay less attention to the prosecution history, inventors and accused infringers would pay less attention as well, leaving more attention on the rightful star of the show, the final patent document.

But there is a problem: to abolish prosecution history estoppel would be to vindicate its arch-nemesis, the doctrine of equivalents. The doctrine of equivalents -- another judge-made doctrine of equity -- allows a finding of infringement if the accused device is "equivalent" to the patent. Critics find the doctrine of equivalents highly inequitable *468 because it disregards the literal meaning of the patent; these same critics find prosecution history estoppel highly equitable because it prevents a patent from regaining via the doctrine of equivalents what the inventor surrendered during prosecution. In other words, these critics see the doctrine of equivalents as Professor Moriarty and prosecution history estoppel as Sherlock Holmes.

I do not believe that detective work into the history of each patent is the best way to foil the doctrine of equivalents. Indeed, I think such sleuthing is wasteful and tangential to the merits. Part II of this Essay will provide a concise overview of the relevant patent law. Part III will explain why prosecution history estoppel is both harmful and unnecessary.

II. THE RELEVANT PATENT LAW

A. Background

1. The Patent Act

The only right in the original Constitution is found in the following passage: "The Congress shall have power .... [t]o promote the progress of science and useful arts, by securing for limited times to authors and inventors the exclusive right to their respective writings and discoveries ...." [FN4] The Constitution empowers, but does not require, Congress to grant patent rights. Nevertheless, Congress began promoting the progress of science and useful arts almost immediately.

The first Patent Act was enacted in 1790; [FN5] major revisions took place in 1793, [FN6] 1836, [FN7] 1870, [FN8] and 1952. [FN9] The original statute did not provide for a Patent Office but rather employed the Secretary of State, Secretary of War, and Attorney General to determine, by a majority vote, if an invention was "sufficiently useful and important" to be worthy of a patent. [FN10] The 1793 act replaced this examination system with a simple registration system, [FN11] but the 1836 act reverted to an examination system and, for the first time, required the inventor to *469 "particularly specify and point out the part, improvement, or combination, which he claims as his own invention or discovery." [FN12] In addition, the 1836 act established a Patent Office for the sole purpose of examining patent applications; [FN13] today that office also handles trademarks and thus may be referred to as the Patent and Trademark Office ("PTO"). [FN14] The 1870 act further refined the patent system and the 1952 act, which survives largely intact, codified for the first time the essential inquiry for patentability. [FN15] Specifically, the 1952 act established a new, objective nonobviousness test [FN16] to reverse a line of cases employing a hostile, subjective definition of "invention." [FN17]

The Supreme Court regularly reviewed patent cases until 1891, the year when Congress established the circuit courts of appeal and made Supreme Court review of patent cases discretionary. [FN18] However, disparate treatment of patents among the circuit courts of appeal persuaded Congress in 1982 to form a special Court of Appeals for the Federal Circuit to hear all patent appeals. [FN19] As intended by Congress, the Federal Circuit has unified patent doctrine significantly.

Title 35 of the United States Code contains the 1952 Patent Act and its amendments. The Patent Act is divided into parts, chapters, and sections. The four most important sections are ¤ 101 (inventions patentable), ¤ 102 (novelty requirement), ¤ 103 (nonobviousness requirement), and ¤ 112 (disclosure requirements). A valid patent must meet these four requirements. The United States Code organizes these four sections as follows:

*470 TITLE 35 -- PATENTS

...

PART II -- PATENTABILITY OF INVENTIONS AND GRANT OF PATENTS

Chapter 10 -- Patentability of Inventions

...

¤ 101. Inventions patentable.

¤ 102. Conditions for patentability; novelty and loss of right to patent.

¤ 103. Conditions for patentability; non-obvious subject matter.

...

Chapter 11 -- Application for Patent

...

¤ 112. Specification.

2. The Application Process

Almost every invention is patentable under ¤ 101. [FN20] A patent application consists of three parts: the specification, the drawings, and an oath. [FN21] The specification consists of a written description of the invention [FN22] and claims "particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention." [FN23] In common parlance, however, any reference to the "specification" usually is not intended to refer also to the claims. The claims are the most important part of the patent because they determine the extent of the inventor's right to exclude others from his invention. Each claim consists of one or more elements.

*471 The Patent Office keeps patent applications confidential. [FN24] During the prosecution of the patent, the Patent Office and the applicant haggle over the precise wording of the claims. [FN25] The Patent Office most frequently rejects claims because they are not novel under ¤ 102, they are obvious under ¤ 103, or they fail to "particularly point out and distinctly claim" under ¤ 112, ¦ 2. Rejections under ¤¤ 102 and 103 must be based upon the prior art, which consists of all patents and printed publications in the world and all things known, used, or invented in the United States. [FN26] Although the claims receive the most attention during prosecution, the Patent Office also might object to the written description for failing to meet the disclosure requirements of ¤ 112, ¦ 1. [FN27] The Patent Office keeps a record of all rejections and responses. An applicant dissatisfied with rejections by the Patent Office may appeal to the Board of Patent Appeals and Interferences [FN28] and then to the Federal Circuit. [FN29] As soon as the patent meets all the requirements of the Patent Act, the Patent Office is required to issue the patent. [FN30] The patent provides a monopoly from the date of issuance until twenty years from the date the application was filed. [FN31] After issuing the patent, the Patent Office makes the prosecution history available to the public. [FN32]

*472 3. Post-Issuance Procedures

After a patent issues, the Patent Office loses most of its jurisdiction to determine patentability. For the most part, federal courts determine the scope and validity of issued patents, usually during a suit for infringement. However, through reissue and reexamination, the Patent Office has the ability to reconsider an issued patent.

Reissue allows a patentee to correct mistakes in the patent that were made inadvertently and without deceptive intent. [FN33] The patentee may reduce the scope of the claims at any time but only may enlarge the claims within the first two years of the original patent grant. [FN34] If a third party reasonably relies upon the text of the original, flawed patent, only to learn later that the patent has been reissued to include broader claims, the doctrine of intervening rights allows a court to excuse infringement of the broadened claims to the extent equity requires. [FN35]

Reexamination allows anybody to request the Patent Office to narrow the scope of a claim in light of overlooked prior art. [FN36] If the Patent Office believes the request raises a substantial new question of patentability, the Patent Office will reexamine the patent. [FN37] The reexamination proceeding may be done in secret between the Patent Office and patentee [FN38] or it may include a third party. [FN39] However, if a third party participates in a reexamination proceeding and the claim is determined to be valid, the third party is prevented from asserting at a *473 later time that the claim is invalid for any reason that he raised or could have raised during the reexamination proceeding. [FN40]

4. Infringement

Determination of patent infringement is a two-step process: first a court determines the scope of the claims as a matter of law and then a jury compares the properly construed claims to the accused device. [FN41] The jury must decide, as a matter of fact, whether the accused device infringes the claims, either literally or under the doctrine of equivalents. [FN42] The traditional test for equivalence is whether the accused device performs substantially the same function in substantially the same way to obtain substantially the same result. [FN43] The prosecution history serves two functions during an infringement suit: it affects a court's determination of the proper scope of the claims and it prevents the scope of the claims from including any subject matter the inventor surrendered during prosecution. [FN44] The latter function is prosecution history estoppel. [FN45] A corollary to prosecution history estoppel is that a court must regard every element in a claim as material, even if the prior art did not require the claim to include the element. [FN46]

*474 B. Warner-Jenkinson

Three years ago, in Warner-Jenkinson Co. v. Hilton Davis Chemical Co., [FN47] a unanimous Supreme Court addressed the doctrine of equivalents and prosecution history estoppel. Hilton-Davis owned a patent that covered an ultrafiltration process operating at a pH from approximately 6.0 to 9.0; Warner-Jenkinson developed a similar process that operated at a pH of 5.0. [FN48] Hilton-Davis argued that a pH of 5.0 was equivalent to a pH from approximately 6.0 to 9.0 and thus Warner-Jenkinson infringed its patent; Warner-Jenkinson argued that prosecution history estoppel prevented application of the doctrine of equivalents because Hilton-Davis had amended its claim to avoid prior art disclosing a similar process operating at a pH above 9.0. For good measure, Warner-Jenkinson also made a broadside attack on the validity of the doctrine of equivalents.

With respect to the doctrine of equivalents, the Court held: (1) the doctrine of equivalents survived the 1952 Patent Act, [FN49] (2) equivalence must be determined element-by-element, not as a whole, [FN50] (3) the doctrine of equivalents is available in every case, regardless of any showing that the accused infringer had intent, [FN51] (4) equivalence must be determined as of the time of infringement, not as of the time the patent was issued, [FN52] and (5) the particular wording of the test for equivalence is less important than the substantive inquiry. [FN53] With respect to prosecution history estoppel, the Court fashioned a new rebuttable presumption:

*475 In this case, the patent examiner objected to the patent claim due to a perceived overlap with the [prior art], which revealed an ultrafiltration process operating at a pH above 9.0. In response to this objection, the phrase "at a pH from approximately 6.0 to 9.0" was added to the claim. While it is undisputed that the upper limit of 9.0 was added in

order to distinguish the [prior art], the reason for adding the lower limit of 6.0 is unclear. The lower limit certainly did not serve to distinguish the [prior art], which said nothing about pH levels below 6.0. Thus, while a lower limit of 6.0, by its mere inclusion, became a material element of the claim, that did not necessarily preclude the application of the doctrine of equivalents as to that element. Where the reason for the change was not related to avoiding the prior art, the change may introduce a new element, but it does not necessarily preclude infringement by equivalents of that element.

We are left with the problem, however, of what to do in a case like the one at bar, where the record seems not to reveal the reason for including the lower pH limit of 6.0. In our view, holding that certain reasons for a claim amendment may avoid the application of prosecution history estoppel is not tantamount to holding that the absence of a reason for an amendment may similarly avoid such an estoppel. Mindful that claims do indeed serve both a definitional and a notice function, we 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 PTO 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 *476 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. Applied in this fashion, prosecution history estoppel places reasonable limits on the doctrine of equivalents, and further insulates the doctrine from any feared conflict with the Patent Act. [FN54]

The Court provided no further explanation for its new rebuttable presumption of prosecution history estoppel.

C. Festo

Since Warner-Jenkinson, the Federal Circuit has struggled with the application of prosecution history estoppel. In particular, Warner-Jenkinson did not make clear exactly what triggers prosecution history estoppel, how the rebuttable presumption can be overcome, and whether prosecution history estoppel totally bars application of the doctrine of equivalents or only to the extent required by the prior art. Last year, the Federal Circuit vacated its decision in Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co. [FN55] to rehear the case en banc. The court asked counsel to brief the following questions related to prosecution history estoppel:

1. For the purposes of determining whether an amendment to a claim creates prosecution history estoppel, is "a substantial reason related to patentability," Warner-Jenkinson Co. v. Hilton Davis Chem. Co., 520 U.S. 17, 33 (1997), limited to those amendments made to overcome prior art under ¤ 102 and ¤ 103, or does "patentability" mean any reason affecting the issuance of a patent?

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

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

4. When "no explanation [for a claim amendment] is established," Warner-Jenkinson, 520 U.S. at 33, thus invoking the presumption of prosecution history estoppel under Warner-Jenkinson, what range of equivalents, if any, is available under the doctrine of equivalents for the claim element so amended? [FN56]

Each question presented has simple arguments on both sides. With respect to the first and second questions presented, a patent application must comply with ¤¤ 102, 103, and 112, but only ¤¤ 102 and 103 fall within the chapter of the Patent Act titled "Patentability of Inventions," [FN57] implying that ¤ 112 and voluntary amendments are not related to "patentability." With respect to the third and fourth questions presented, a notable Federal Circuit decision before Warner-Jenkinson states that "[d]epending on the nature and purpose of an amendment, it may have a limiting effect within a spectrum ranging from great to small to zero," [FN58] but Warner-Jenkinson ambiguously states that prosecution history estoppel "bars" application of the doctrine of equivalents, implying that the Supreme Court wants prosecution history estoppel and the doctrine of equivalents to be mutually exclusive. *478 Although these simple arguments could adequately answer the questions presented, the Federal Circuit likely will rest its decision on more sophisticated policy considerations.

III. WHY HAVE PROSECUTION HISTORY ESTOPPEL?

A. Reasons Against Prosecution History Estoppel

In response to Warner-Jenkinson, the Patent Office wants to make the prosecution history more detailed and complete than ever. [FN59] I think inflating the importance of the prosecution history is exactly the wrong approach: patent law should inflate the importance of the claims. As for the doctrine of equivalents, it seems silly to fight ambiguity with ambiguity. The prosecution history provides extrinsic evidence potentially useful for the construction of claims but irrelevant to the question of equivalence. Rather than use prosecution history estoppel to limit the doctrine of equivalents, courts should rely on more relevant and routine analyses.

*479 1. The Name of the Game is the Claim

Every patent decision today first pays homage to the exalted status of the claims. [FN60] Why? Because the right to exclude does not turn on what was invented, but what is claimed. The patent document gives pictures and written descriptions of the entire machine, but in the end, all that matters is what the inventor claims as his invention or discovery. The principal mission of the Patent Office when it examines a patent application is to determine what parts of the invention are new -- and thus what the inventor properly may claim. On average, the Patent Office and the inventor spend two years [FN61] determining the exact wording of the claims, hopefully saving the rest of the world (especially impatient judges) from the trouble of determining what exactly has been invented. When all works as planned, anybody skilled in the relevant art can read the claims and instantly learn the precise scope of the inventor's rights. Given the amount of attention received during prosecution, and the amount of attention sure to be received during any litigation, "the name of the game is the claim." [FN62]

*480 Although the Patent Act always has required the inventor to describe specifically his invention or discovery, [FN63] it was not until after the 1870 act that the claim became most important in litigation. [FN64] Before

*481 that time, courts took a more holistic approach when determining the scope of an inventor's rights: courts would consider the drawings, the written description, and the prosecution history. Thus, when common law doctrines such as prosecution history estoppel and the doctrine of equivalents first appeared, courts were not always strict about the language contained in the claims. Over time, courts focused more and more on the claims, but the common law doctrines detracting from the claims persisted. [FN65]

Both prosecution history estoppel and the doctrine of equivalents cause mischief by de-emphasizing the claims. However, prosecution history estoppel commits the greater offense by supplanting the claims with the prosecution history -- not only does prosecution history estoppel close its eyes to the claims, it opens its eyes to words not found within the patent. The irony, of course, is that detractors of the doctrine of equivalents look to prosecution history estoppel for salvation. A better strategy might be to show more respect for the claims by showing less respect for the prosecution history.

For evidentiary purposes, the prosecution history is most properly viewed as less important than the claims and specification of the patent. Courts generally agree with the following hierarchy of evidence in patent cases: [FN66]

*482 Hierarchy of Evidence

Claims

Specification

Prosecution History

Treatises

Prior Art

Testimony

However, rather than step down the hierarchy of evidence one rung at a time -- e.g., only look to the prosecution history if the specification and claims leave ambiguity -- the Federal Circuit divides the evidence into two camps, intrinsic and extrinsic: [FN67]

Intrinsic Evidence	Extrinsic Evidence
Claims	Treatises
Specification	Prior Art
Prosecution History	Testimony

The distinction between intrinsic and extrinsic evidence has important doctrinal consequences: in Vitronics Corp. v. Conceptronic, Inc., [FN68] the Federal Circuit condemned unneeded reliance on extrinsic evidence. [FN69] The Federal Circuit still observes a hierarchy of evidence, but it will consider all intrinsic evidence -- including the prosecution history -- whether or not ambiguity requires considering more than just the claims.

Why should the prosecution history be considered intrinsic evidence? Federal Circuit decisions categorizing the prosecution history as intrinsic evidence [FN70] cite Graham v. John Deere Co., [FN71] in which the *483 Supreme Court stated: "It is, of course, well settled that an invention is construed not only in the light of the claims, but also with reference to the

file wrapper or prosecution history in the Patent Office." [FN72] However, the statement in Graham and the support for the statement [FN73] do not specify whether the prosecution history is considered intrinsic or whether it has more or less weight than other evidence. The Federal Circuit rationalizes treating the prosecution history as intrinsic evidence by stating that the prosecution history is an "undisputed public record" of primary significance in understanding the claims. [FN74] However, this *484 description applies to extrinsic evidence, such as treatises, with equal force. [FN75]

A close reading of Federal Circuit decisions reveals that the Federal Circuit does not fully endorse reliance on the prosecution history. First, in Markman v. Westview Instruments, Inc., [FN76] the Federal Circuit said that a court "should" also consider the prosecution history; one year later in Vitronics, though, the Federal Circuit only ventured to say that a court "may" consider the prosecution history. [FN77] Second, if the prosecution history truly is an "undisputed public record," then a court should be free under the Federal Rules of Evidence to take judicial notice of the prosecution history, whether or not the prosecution history is in evidence. [FN78] However, both Markman and Vitronics state that the prosecution history should (or may) be considered "if in evidence." [FN79] Finally, in 1996, the Federal Circuit published an opinion stating that "[a]bsent ambiguities about the structure described in the patent claims and specification, there is no need to expand the search for claim meaning to encompass the prosecution history." [FN80] Two weeks later, however, the Federal Circuit "corrected" the opinion to remove this language. [FN81]

The prosecution history of a patent is most properly viewed as extrinsic evidence. [FN82] The prosecution history is "[e]vidence which does *485 not appear on the face of a document, but which is available from other sources such as statements by the parties and other circumstances surrounding the transaction." [FN83] The prosecution history is not integrated with the patent and is not freely available. [FN84] Thus, as a matter of definitions, the prosecution history is a textbook example of extrinsic evidence. More importantly, the prosecution history -- the unreliable rough drafts of the patent -- should not be placed on equal footing with the issued patent -- the final draft. [FN85]

The Federal Circuit has stated that patents are most analogous to statutes [FN86] and the Supreme Court has stated that statutes should be read *486 according to their plain meaning. Putting these two statements together creates judicial precedent for minimizing the importance of the prosecution history. Indeed, the argument for ignoring the "legislative history" of a patent is stronger than the argument for ignoring the legislative history of a statute. The Supreme Court downplays legislative history because of its ambiguity: often there is no reason to believe that the hundreds of legislators voting on a piece of legislation paid particular attention to the language in question, and if the legislators did focus on the language, often the legislative history only confirms that the issue was divisive and ambiguous language provided the compromise necessary for enactment. The Patent Office, on the other hand, is not in the business of compromising and is not in the business of leaving ambiguous language for courts to decipher later. To the contrary, the Patent Office speaks clearly through a single voice -- the same agent examines the patent throughout its prosecution -- and resolves legal ambiguity immediately through the appeals process. The principal mission of the Patent Office is to clarify the language of the claims and simplify the lives of accused infringers and judges reading the patent. Ignoring ambiguous actions by the inventor during prosecution makes sense because the Patent Office fully intends for the final patent to resolve all ambiguity.

Courts today properly recognize that the name of the game is the claim, but they cripple themselves by also relying on the prosecution history. If the prosecution history is to serve any function during an infringement suit, it should only serve as an aid to claim construction. For example, the prosecution history might provide a court with a useful starting point for comparing the claims to the prior art. In the end, though, a court must treat the prosecution history as extrinsic evidence: the court may consider the prosecution history, but the court may not allow the prosecution history to dictate a particular claim *487 construction. If courts relegated prosecution history to the realm of extrinsic evidence, that would bury prosecution history estoppel. Although the doctrine of equivalents would lose what is currently its most worthy adversary, other doctrines could fill the void and keep the doctrine of equivalents in check.

2. The Temporal Disjunction

Prosecution history estoppel is static while the doctrine of equivalents is dynamic. Together, the two doctrines form a temporal disjunction endorsed by the Supreme Court: the doctrine of equivalents looks to the time of infringement; [FN87] prosecution history estoppel necessarily looks to the time of prosecution. These two time frames may be twenty years apart, and over those twenty years, notions of equivalence likely will have changed.

Of all the ways of limiting the doctrine of equivalents, prosecution history estoppel is a poor match, especially because of the temporal disjunction. Imagine a patent prosecuted in 2000 and infringed under the doctrine of equivalents in 2020. Prosecution history estoppel concerns itself only with the events of 2000, regardless of their impact vel non in the future. The secret dialogue during prosecution is decidedly backwards-looking, consisting of much reference to prior art. With respect to the doctrine of equivalents, neither the inventor nor the Patent Office knows what terms are important and worth fighting over -- neither party can predict how the art will develop and thus what might be considered "equivalent." To apply prosecution history estoppel in the year 2020 based on what was known in 2000 is to protect only those inventors blessed with the prescience possessed by the likes of Jules Verne. The alternative -- to apply prosecution history estoppel based on what the inventor and Patent Office would have done had they known in 2000 what they know in 2020 -- would be an even more vexatious remedy, and one certainly worse than the disease.

The temporal disjunction is bad news for prosecution history estoppel but good news for the doctrine of equivalents. Equivalence changes as the art, and persons having ordinary skill in the art, develop over time. Therefore, at the time of prosecution the Patent Office is *488 best equipped to determine the scope of the claims, but at the time of infringement the court is best equipped. [FN88] The inquiry may be the same, but the results will differ. The temporal disjunction permits the doctrine of equivalents to serve its natural role: giving current meaning to a document drafted in the past.

3. Obviousness and the Doctrine of Equivalents

The doctrine of equivalents is best justified as a corollary to the statutory obviousness test. [FN89] The doctrine of equivalents looks beyond the claims of the patent to evaluate the accused device with reference to other publications in the art. The temporal disjunction allows the court to examine current publications in the art, permitting the court to make an inquiry into "obviousness" similar to the obviousness inquiries made by the Patent Office during prosecution. Just as an inventor cannot seek a patent for an invention made obvious by the prior art, an accused infringer should be held liable if he practices an "invention" made obvious by the infringed patent. [FN90]

*489 The Supreme Court decided in Graham v. John Deere Co. [FN91] that obviousness is an objective question of law determined by three underlying factual considerations: (1) the scope and content of the prior art, (2) the differences between the prior art and the claims, and (3) the level of skill in the pertinent art. [FN92] Secondary considerations, such as copying, long felt but unsolved need, failure of others, commercial success, unexpected results created by the claimed invention, unexpected properties of the claimed invention, licenses showing industry respect for the invention, and skepticism of skilled artisans before the invention, must also be considered. [FN93] A claimed invention fails the nonobviousness requirement if one or more references in the *490 analogous prior art suggest the invention as a whole. [FN94] In particular, the test is whether, in light of the prior art, the claimed subject matter would have been obvious at the time of invention and whether there would have been a reasonable likelihood of success. [FN95] When an obviousness determination relies on the combination of two or more prior art references, there must be some suggestion or motivation to combine the references. [FN96] The suggestion to combine may be found in explicit or implicit teachings within the references themselves, from the ordinary knowledge of those skilled in the art, or from the nature of the problem to be solved. [FN97]

Courts apply the obviousness test by imagining a hypothetical person of ordinary skill in the art working in his shop with all the analogous prior art references (which this hypothetical person is presumed to know) hanging on the walls around him. [FN98] Courts should hold an accused infringer to the same standard. Application of the doctrine of equivalents should begin by imagining the accused infringer sitting in his shop with the patented invention in the middle of the room and all the publications in the art hanging on the surrounding walls. [FN99] The accused infringer will argue that he was trying to design around the *491 patented invention and thus should not be held liable; the patent owner will argue that the "design around," even if it avoids literally infringing the patent, infringes under the doctrine of equivalents. How should the court decide the range of equivalence allowed for the doctrine of equivalents? The court should resolve the dispute by asking whether the "design around" was made obvious by the publications imagined to be hanging on the walls. Specifically, the court should ask whether a person having ordinary skill in the art would (1) find the "design around" to be obvious and (2) reasonably expect success. [FN100] If the "design around" is obvious in light of the publications, there has been infringement under the doctrine of equivalents; if the "design around" is nonobvious, there has not been infringement.

The standard of obviousness explains not only the doctrine of equivalents, but also the reverse doctrine of equivalents. The reverse doctrine of equivalents states that even if an accused device falls within the literal scope of a claim, the accused device will not infringe if it is sufficiently different from the patented invention. [FN101] Thus, equivalence cuts both ways, depending on whether the accused device is obvious.

The Supreme Court's reasoning in Warner-Jenkinson [FN102] supports the analogy between the doctrine of equivalents and the obviousness inquiry. After the Court decided Graver Tank fifty years ago, [FN103] some lower courts did not apply the doctrine of equivalents unless the patent owner showed that the accused infringer acted intentionally, with *492 copying being the most obvious example of intent. However, the Court made clear in Warner-Jenkinson that the intent of the accused infringer does not matter; [FN104] all that matters is the objective differences and similarities between the patent claims and the accused device. The Court's mention of "unscrupulous copyists" and "piracy" in Graver Tank [FN105] referred to a sufficient, but not necessary, description of what the doctrine of

equivalents prohibits: if a person intentionally tries to copy a patented invention, he likely will produce what is, objectively speaking, an equivalent device. On the other hand, if an accused infringer performs independent experiments, that supports the inference that the "design around" was not obvious to persons with ordinary skill in the art. [FN106] The Court's reference in Warner-Jenkinson to the probative value of independent experimentation echoes the Court's reference in Graham to "secondary considerations" that inform the *493 obviousness inquiry. [FN107] Together, the objective nature of the doctrine of equivalents and the doctrine's use of secondary considerations strengthen the link between obviousness and the doctrine of equivalents.

Under the doctrine of equivalents, the scope of a claim is not fixed at prosecution and can increase over time. Thus, on its face, the doctrine of equivalents produces a result as frustrating as the result of prosecution history estoppel: two imaginary patents with the exact same words can have different meanings. In the case of prosecution history estoppel, the different meanings result from the different prosecution histories. In the case of the doctrine of equivalents, the different meanings result from the development of the art over time. Both doctrines appear to have functional benefits: prosecution history estoppel protects reasonable reliance and promotes the primacy of the Patent Office; the doctrine of equivalents prevents obvious "design arounds." Both doctrines also have functional costs: prosecution history estoppel holds inventors responsible for knowing the prosecution history of each patent; the doctrine of equivalents holds *494 inventors responsible for knowing the current state of the art. However, the costs associated with the doctrine of equivalents do not amount to much.

Inventors care about the current state of the art; inventors do not care about lawyers and their drafts. If there were no doctrine of equivalents and no prosecution history estoppel, inventors still would read patents and publications to learn about their trade, but they would not read prosecution histories. Thus, the doctrine of equivalents holds inventors to a standard that does not affect their primary conduct. Prosecution history estoppel, on the other hand, either depends on the fiction that inventors read prosecution histories or creates a demand for documents that otherwise would sink into obscurity. Either way, prosecution history estoppel fosters a sideshow while the doctrine of equivalents does not. Both doctrines confuse the literal meaning of a patent, but the doctrine of equivalents employs familiar tools to reach its result.

Viewing the doctrine of equivalents as a corollary to the obviousness test reveals that the prosecution history of the patent is not relevant to the judicial determination of equivalence -- only the state of the art at the time of infringement is relevant. [FN108] The disconnection between the doctrine of equivalents and prosecution history estoppel is not only logical, it is the law of the land given the Supreme Court's endorsement of the temporal disjunction. Although the doctrine of equivalents diminishes the notice function of the patent at least as much as prosecution history estoppel, the doctrine of equivalents relies, or could rely, on a test -- the statutory obviousness test -- with which all *495 are familiar. If courts must resort to extrinsic evidence to interpret the scope of a patent, publications in the art provide a more relevant and accurate battle ground than does the prosecution history.

4. Other Ways to Check the Doctrine of Equivalents

Prosecution history estoppel is only one way to check the doctrine of equivalents; other ways include the "prior art" rule, the "all elements" rule, and stricter application of the doctrine of equivalents. If prosecution history estoppel serves no other function than to limit the doctrine of

equivalents, then it is not clear why another doctrine -- especially a more predictable doctrine -- could not serve this function instead.

The prior art rule is a corollary to the statutory novelty requirement: just as the Patent Office cannot issue a patent that covers the prior art, [FN109] a court cannot interpret a claim to cover the prior art. [FN110] Indeed, a patent is a measure of the difference between the invention and the *496 prior art. The doctrine of equivalents -- which looses the patent from its textual moorings -- tempts judges to interpret patent claims so broadly as to cover the prior art; the prior art rule reins in the temptation by erecting a fence at the boundary of the court's discretion.

Treating the doctrine of equivalents as a corollary to the nonobviousness requirement creates a predictable, objective method for expanding claims; treating the prior art rule as a corollary to the novelty requirement creates a predictable, objective method for limiting that expansion. The doctrines would interact as follows: First the court would consider literal infringement. If the court found no literal infringement, next it would consider infringement under the doctrine of equivalents, which would require comparing the accused device to the patent claims in light of current publications in the analogous art. If the court found infringement under the doctrine of equivalents, the defendant would have the opportunity to negate the finding by showing that the Patent Office would not have issued a patent with claims broad enough to cover the accused device because such claims would have trenched on the prior art.

Given the temporal disjunction, the doctrine of equivalents (obviousness of the accused device) should be judged as of the time of infringement but the prior art rule (novelty of the patented device) should be judged as of the time of prosecution. In other words, the outer bound of equivalence should be determined as of filing, while equivalence should be determined as of infringement, and between filing and infringement the scope of a claim could expand until it bumps into the predetermined prior art boundary. This creates the possibility that a claim could be interpreted to cover "prior" art that was published after the patent was issued, which seems contrary to the prior art rule. However, this possibility is neither earth shattering nor unfair: First, a patent never can be interpreted to include what another patent covers, so later patents will regulate the "expansion" of earlier patents. The prior art rule may allow an earlier claim to cover later art, but it does not allow an earlier claim to cover a later claim. Thus, the best defense against the doctrine of equivalents is a good offense: patent protection for the accused device. The accused infringer would benefit from the security provided by his own patent, the existing patent owner would benefit from the impartial line-drawing provided by the Patent Office, and society would benefit from the disclosure of a development in the art. Second, the rationale of the prior art rule is to prevent a court from giving to the patent owner what the Patent Office could not have given, and obviously the Patent Office does not reject applications based on future prior art. Finally, obvious improvements in the art should inure *497 to the benefit of patent owners rather than accused infringers. [FN111] Developments in the art will completely overcome any patent in its old age, tempting unscrupulous copyists to make one of many obvious variations to escape literal infringement of the patent. However, a patent lasts for twenty years, regardless of how trivial that patent becomes due to developments in the art. It is in the twilight of a patent's life that the doctrine of equivalents is most important, expanding the scope of the literal claims to combat newcomers from trespassing too close to the patent. If a twenty-year monopoly seems like an eternity in this age of rapid technological development, that is for Congress to consider, not the courts.

The "all elements" rule provides a second limit on the doctrine of equivalents, albeit one more confusing, less objective, and without statutory basis. The rule is a foundation of literal infringement: [FN112] an accused device literally infringes a patent if it infringes each and every element of a claim within the patent. [FN113] In an effort to cabin the potential breadth of the doctrine of equivalents, courts have expanded application of the all elements rule to the doctrine of equivalents. [FN114] Like prosecution history estoppel, the all elements rule is best justified as an artificial, judge-made limitation on the doctrine of equivalents. Unlike prosecution history estoppel, however, the all elements rule has proved a workable compromise.

*498 The all elements rule creates problems for the doctrine of equivalents and its justification. A fundamental problem is that an accused infringer could escape liability by making an obvious combination or division of elements, thus using the all elements rule to foil the patent owner. However, this problem presupposes that the all elements rule is a bright-line rule, which it likely is not. In fact, the Federal Circuit freely admits that the rule really should be called the "all limitations" rule, [FN115] since an element may consist of one or more limitations. [FN116] Determining how many limitations an element comprises is a judgment call akin to determining whether two claims are equivalent. Thus, there is play in the doctrine, prompting some judges to argue against a strict application of the rule. [FN117] On the other hand, the all elements rule clearly has some bite: at the very least, it prohibits a finding of equivalence that would vitiate a particular limitation in the patent. [FN118] Between these extremes -- literal comparison of "elements" on the one hand, rough comparison of equivalents on the other -- courts remain free to interpret the rule as they wish, solving the problem of opportunistic infringers but creating the problem of uncertainty in the doctrine.

Another problem with the all elements rule is that the doctrine of equivalents has its roots in the statutory obviousness test, and as the Patent Act makes clear, obviousness requires comparisons on the *499 whole, not element by element. [FN119] Indeed, as just explained, the "all elements" rule itself consists of comparing limitations on the whole. For this reason, the all elements rule can only be justified as an additional limitation on the doctrine of equivalents: first a court must find equivalence overall, and then it must find equivalence element by element. Given that "equivalence element by element" might justify a finding of literal infringement in the first place, the all elements rule could collapse the test for infringement under the doctrine of equivalents into the test for literal infringement. Again, courts remain free to interpret the rule as they wish, bounded only by two extremes, solving the tension with the test for obviousness but furthering the problem of uncertainty in the doctrine.

As a result of these two problems, the all elements rule, at least as applied to the doctrine of equivalents, is not a terribly clear rule. Instead, the rule is a compromise between strict literalism and loose comparisons on the whole. In practice, the rule works more as a reminder than a requirement: judges should stick to the text of the claims. The rule is another way of saying that the doctrine of equivalents is the exception, not the norm. [FN120] Viewed in this light, the all elements rule -- or, more appropriately, the "all limitations reminder" -- serves as a useful check on the doctrine of equivalents.

The third and easiest way to check the doctrine of equivalents is to limit the doctrine itself. Totally eliminating the doctrine of equivalents would kill two birds with one stone: all the judge-made law erecting the doctrine of equivalents would go out the window, and all the judge-made law tearing down the doctrine of equivalents, notably prosecution history estoppel, would

go out the window as well. However, a double-shot of doctrine defenestration is unlikely after Warner-Jenkinson: not only did the Supreme Court reject the petitioner's frontal attack on the doctrine of equivalents, the Court actually expanded the doctrine by making it available in every case, as opposed to only cases involving *500 Holmesian "bad men" [FN121] intentionally treading too close to the boundaries of the law. Short of destroying the doctrine of equivalents, courts could limit the doctrine's effects. Indeed, as a doctrine of equity, the doctrine of equivalents should provide relief only to the extent that justice requires. For example, if a court finds infringement only under the doctrine of equivalents, the court might provide only prospective relief, or might limit damages to a reasonable royalty. [FN122] Automatically providing the same relief under the doctrine of equivalents as under literal infringement is as inequitable as treating the prosecution history as an automatic bar to application of the doctrine of equivalents: both actions replace judicial discretion with an inflexible rule.

Prosecution history estoppel is not alone in its war against the doctrine of equivalents. The prior art rule is the most objective, surefire way to halt expanding claims. The all elements rule lacks the firm footing of the prior art rule, but its propaganda effectively reminds wishy-washy judges of their higher duty to a system of rules. Equity provides judges with the discretion to tailor the remedy for infringement under the doctrine of equivalents as justice requires. Prosecution history estoppel allies itself against the doctrine of equivalents, but it shifts the battle to a forgotten island of extrinsic evidence. Litigants would be no worse off containing themselves to rules and documents more directly related to the question of infringement.

B. Reasons for Prosecution History Estoppel

The primary reason for prosecution history estoppel is notice: the doctrine of equivalents destroys notice, so prosecution history estoppel tries to destroy the doctrine of equivalents. Assuming that Part III.A.1 above successfully exposes the irony behind the traditional justification for prosecution history estoppel, the question becomes whether *501 prosecution history estoppel has any role in the legal landscape besides punishing those guilty of terminological inexactitude.

Prosecution history estoppel involves three parties: the accused infringer, the inventor, and the Patent Office. The possible relationships between these three parties suggest various rationales in support of prosecution history estoppel. [FN123] For example, if there is a relationship between the accused infringer and the inventor, then equitable estoppel could explain the doctrine. On the other hand, if the inventor has no relationship with the accused infringer, then waiver could explain the doctrine. Finally, if the inventor has a relationship with the Patent Office, then the primacy of the Patent Office could explain the doctrine.

1. Equitable Estoppel

The plain meaning of "prosecution history estoppel" suggests that estoppel [FN124] is the policy justification behind the doctrine. Estoppel comes in many flavors, but the most common is an equitable doctrine that can provide an affirmative defense in litigation. In patent law, the equitable defense [FN125] goes something like this: "You told the Patent Office that your invention does not include such-and-such, and I believed you, so now you cannot claim otherwise in your action against me for infringement." Despite the appeal of this rationale, neither legal *502 authority nor logic supports this equitable justification for prosecution history estoppel.

Estoppel can be divided into various categories. At the root there is the distinction between (1) legal estoppel and (2) equitable estoppel. [FN126] Legal estoppel can be acquired by judicial record [FN127] or by deed. [FN128] Estoppel by judicial record prohibits disappointed litigants from seeking "two bites at the apple." Estoppel by deed prohibits a party from making claims in derogation of the written words of his deed; in patent law, the doctrine of equivalents supersedes estoppel by deed. Equitable estoppel refers to both (a) reasonable reliance on statements about past or present facts and (b) reasonable reliance on promises. [FN129] The former is better known as misrepresentation, a matter of tort law; [FN130] the latter is better known as promissory estoppel, a matter of contract law. [FN131] Tort law has a deterrent purpose; contract law merely protects expectation and reliance interests. In patent law, for example, the doctrine of inequitable conduct deters applicants from making material *503 misrepresentations to the Patent Office during prosecution. [FN132] Upon a finding of inequitable conduct, the patent is completely unenforceable. [FN133] Prosecution history estoppel does not purport to have a deterrent function. Thus, prosecution history estoppel might be a form of estoppel by judicial record or a form of promissory estoppel. Estoppel by judicial record will be considered below in Part III.B.3; this section will consider promissory estoppel.
TABULAR OR GRAPHIC MATERIAL SET FORTH AT THIS POINT IS NOT DISPLAYABLE

If patents are like contracts, [FN134] then the doctrine of promissory estoppel should apply. A contract is an enforceable promise; courts enforce promises primarily for two reasons. The first reason is to protect bargains, which are characterized by mutual assent and consideration. (A gratuity is not a bargain because nothing is received in return.) The second reason, exemplified by promissory estoppel, is to protect those who reasonably rely on a promise to their detriment. The doctrine of promissory estoppel can be summarized in a single, four-part sentence: (1) A promise (2) that the promisor should reasonably expect to cause detrimental reliance, (3) and in fact does cause detrimental reliance, (4) will be enforced to the extent that justice requires. [FN135] The measure of damages for breach of a contract should reflect the theory upon which the court enforced the promise: in the case of a bargain, courts will award expectation damages, which make the plaintiff whole by giving the plaintiff what he expected to receive from the contract; in the case of reliance, courts might award *504 expectation damages, or they might award reliance damages, which make the plaintiff no worse off by returning the plaintiff to where he was before relying on the promise. [FN136]

A venerable case known to generations of law students provides a useful fact pattern for explaining the contract law relevant to prosecution history estoppel. In Kirksey v. Kirksey, [FN137] a man invited his poor, widowed sister-in-law to move onto his land; after two years, the man told the widow to get off his land. [FN138] The widow has two arguments for enforcing the man's promise: (1) there was a bargain whereby the man owed her land in exchange for the inconvenience to her from moving, and (2) promissory estoppel. The first argument likely fails because there was no bargain; the man simply gave the widow a gift. [FN139] The second argument turns on four sub- questions: (a) Did the man make a promise? (b) Should the man have expected the promise to cause detrimental reliance? (c) Did the widow lose anything by accepting the promise? (d) Does justice require the man to pay damages to the widow for breaching the promise? First, the man did promise the widow that she could stay on his land if she wanted. [FN140] Second, the man did expect his promise to cause detrimental reliance because he specifically told the widow to sell her old land. [FN141] Third, the widow probably did not lose anything by accepting the promise: on the one hand the

widow kept her old land, on the other hand the widow suffered the loss and inconvenience of moving. Fourth, justice might not require the man to pay damages to the widow because she is no *505 worse off than before: she still has her old land, and even if she did suffer a loss by moving, two years of comfortable living more than compensate that loss. Because the answer to either the third or fourth sub-question is "no," the widow fails to enforce the promise on the grounds of promissory estoppel.

It is doubtful that prosecution history estoppel meets the four requirements of promissory estoppel: First, the statements recorded in the prosecution history often are too ambiguous to be a promise. The reasonable meaning of a person's words and acts determines whether the person has made a promise. An applicant never says, "I promise not to sue an accused infringer for an accused device that includes such-and-such," but merely makes changes to his application and arguments about the meaning of his claims. It is possible that changes and arguments have an objective meaning beyond the changes to the plain meaning of the claims, but it is not likely. Although some changes and arguments are made in direct response to a statement by the Patent Office and thus might reveal an objective intent, others are made without prompting or go beyond what the Patent Office seemed to require. [FN142] In the same vein, the proposed system of recording virtually every communication during the prosecution period [FN143] would invite litigants to find promises retroactively where none originally existed -- perhaps in the applicant's nervous glances or trembling hands, as recorded on video tape. At what point does this search for promises where none exists end? What about statements made about other claims in the patent? [FN144] Statements made about related patents? [FN145] Statements made in other countries to other patent offices? [FN146] Public *506 statements made by the inventor? [FN147] Even if these statements form a promise, is the accused infringer an intended beneficiary of the promise, or merely an incidental beneficiary without any rights? [FN148] Another reason to question whether statements during prosecution can form a promise is that the temporal disjunction makes it impossible for the applicant to form anything but a general, indefinite intention not to sue at some distant point in time, which is not an enforceable promise. [FN149] In short, many statements found in the prosecution history reveal neither an intention to be bound nor definiteness. Second, an applicant should not reasonably expect the prosecution history to cause detrimental reliance. It is reasonable to expect parties to rely on a final, integrated document; it is not reasonable to expect parties to rely on drafts of the document. Of course, the doctrine of prosecution history estoppel altered primary behavior, possibly creating the expectation that accused infringers would rely on the prosecution history. However, to the extent the doctrine implies that it is reasonable for an accused *507 infringer to rely at the time of infringement on statements made at the time of prosecution, the implication contradicts the temporal disjunction. The temporal disjunction makes it unreasonable to rely on anything but the state of affairs at the time of infringement. Third, it is doubtful that accused infringers actually relied on the prosecution history before going ahead with the accused device. The Patent Office maintains a file for each patent which contains both the prosecution history and the patent's history subsequent to issuance (e.g., notices of interference applications, [FN150] extensions of patent terms, [FN151] notices of reissue applications, [FN152] disclaimers, [FN153] typographical corrections, [FN154] assignments, [FN155] notices of litigation, [FN156] additional citations to prior art, [FN157] and notices of reexamination orders [FN158]), but the prosecution history is much more difficult to obtain than the subsequent history. [FN159] In this respect, a patent is like a statute or court decision: the prior history is difficult to obtain and of questionable legal importance while the subsequent history is

easy to obtain and of great legal importance. Just *508 as the public pays little attention to legislative histories and briefs submitted to the courts, accused infringers likely pay little attention to the prosecution histories of patents -- until litigation begins. Furthermore, even if an accused infringer did, in fact, rely on the prosecution history, the temporal disjunction would make such reliance unreasonable, as stated before. Fourth, if promissory estoppel is to protect reliance interests, as opposed to expectations, then accused infringers may still be liable for infringement to some extent. Just as two years of comfortable living might have compensated for the cost of moving suffered by the widow in Kirksey v. Kirksey, a finite amount of infringement might compensate an accused infringer for any detrimental reliance attributable to the prosecution history. For example, suppose the prosecution history caused an accused infringer to spend $100,000 on a factory that manufactures infringing widgets at the variable cost of $1 per widget, and the accused infringer manufactured and sold one million widgets for $3 each. Normally a patent owner can recover the profits he lost due to infringement. Assuming the patent owner could have made a profit of $2.50 on each of the one million widgets sold by the accused infringer, the accused infringer would be liable for $2.5 million. However, assuming promissory estoppel, the accused infringer should be made no worse off, meaning he should recover both his fixed and variable costs. Thus, justice requires that the accused infringer be liable for no more than $1.9 million, [FN160] but justice does not require completely estopping the patent owner from seeking damages. [FN161]

In short, equitable estoppel provides an unsatisfactory justification for prosecution history estoppel. [FN162] Equitable estoppel, however, does have a proper place in patent law, and that place is found within the text of the Patent Act itself: "[W]hoever without authority makes, uses, offers to sell, or sells any patented invention ... infringes the patent." [FN163] If an accused infringer reasonably believed that he acted "with authority" when using the patent, or reasonably relied to his detriment, then a court may imply a license based on the patent owner's *509 conduct. [FN164] The doctrine of implied license differs from prosecution history estoppel in two notable respects: first, the doctrine looks to the relationship between the patent owner and the accused infringer, not the relationship between the patent owner and the Patent Office, and second, the doctrine merely implies "a promise by the licensor not to sue the licensee," [FN165] not a promise not to sue all future accused infringers. If an accused infringer seeks equitable estoppel, he must look to the Patent Act, not prosecution history estoppel.

2. Waiver, or a Penalty Default Presuming Waiver

Equitable estoppel fails to explain prosecution history estoppel because of the weak relationship between the accused infringer and the applicant. Might the unilateral actions of the applicant explain prosecution history estoppel? If so, prosecution history estoppel would be a long-winded synonym for "abandonment," [FN166] "dedication," [FN167] *510 "disclaimer," [FN168] or "waiver." [FN169] The definitions for these words all hover *511 around concepts of voluntariness, intention, knowledge, and relinquishment; for simplicity, this section will use the word "waiver" as a shorthand for the entire concept. The word "forfeiture," [FN170] in contrast to the word "waiver," lacks the notion of voluntariness or intention, and courts are quick to point out that "equity abhors a forfeiture." Thus, the essential inquiry for purposes of waiver is similar to the first inquiry in any case of promissory estoppel: does the applicant ever say, "My invention does not include such-and-such (and thus I will not sue an accused infringer for an

accused device that includes such-and-such, even if it is equivalent to what I rightfully have claimed)"?

The Supreme Court in Exhibit Supply Co. v. Ace Patents Corp. [FN171] implied that prosecution history estoppel turns on a theory of waiver, [FN172] but later decisions by the Supreme Court [FN173] and Federal Circuit [FN174] have implicitly rejected such a theory to the extent it requires inquiry into the applicant's subjective intent. The question, then, is whether applicants ever display a clear, objective intent to relinquish equivalents to their *512 claims. As discussed with reference to promissory estoppel, the prosecution history does a poor job of recording objective intentions. [FN175] On the one hand, amending a claim to avoid treading on prior art displays a clear, objective intention; on the other hand, amending a claim beyond what is required by the Patent Office or prior art is ambiguous. The former could fit the definition of waiver; the latter clearly does not.

The Supreme Court in Warner-Jenkinson [FN176] fashioned a rebuttable presumption [FN177] for prosecution history estoppel exactly opposite the usual presumption in cases of waiver. The rebuttable presumption is that all changes display a clear, objective intent to relinquish equivalents to the changed claim, unless the applicant can prove otherwise. Prosecution history estoppel now is like a penalty default that promotes forfeiture every time the applicant makes a statement. Ideally, a penalty default encourages a party to reach the socially desirable result (e.g., perfect patents), but in the case of patent prosecution, a penalty default seems inappropriate. First, patent prosecution is extraordinarily difficult; what prevents perfect patents is not a lack of incentive. Second, a penalty default operates by encouraging disclosure of private information, which leads to an optimal result based on perfect information, but in the case of patent prosecution, the temporal disjunction makes it impossible to know during prosecution what will be deemed equivalent at the time of infringement. Since there is no information that can be disclosed, the rebuttable presumption is more like a lottery for accused infringers than a traditional penalty default. Finally, the rebuttable presumption does not cure the basic problem with prosecution history estoppel: two hypothetical patents identical in every respect except for their prosecution history might vary in the scope of their protection. In short, neither waiver nor a penalty default presuming waiver justifies prosecution history estoppel.

*513 3. The Primacy of the Patent Office

Both the Supreme Court [FN178] and the leading commentator on patent law [FN179] believe that the primacy of the Patent Office justifies prosecution history estoppel. The argument goes something like this: "The Patent Office already determined the precise scope of your claims, so now you are stuck with the Patent Office's judgment." The argument has intuitive appeal: patent owners should not be able to sneak into federal court the very claims that the Patent Office rejected. [FN180] However, this argument only makes sense as applied to the doctrine for which it was created, which was not prosecution history estoppel.

The primacy of the Patent Office depends on legal estoppel by judicial record, [FN181] or res judicata. Res judicata can be divided into claim preclusion and issue preclusion. [FN182] Claim preclusion prevents the same parties from relitigating claims arising out of the same transaction. [FN183] For example, suppose Driver hits Pedestrian. If Pedestrian brings Driver to court and loses, claim preclusion bars Pedestrian from suing Driver again for the same accident. If Pedestrian brings Driver to court and wins, the claim is extinguished and merged in the judgment, preventing Pedestrian from suing Driver again for the same accident, but allowing Pedestrian to sue for

enforcement of the judgment. Issue *514 preclusion, better known as collateral estoppel, prevents reconsideration of an issue actually litigated and determined by a valid and final judgment if the determination was essential to the judgment. [FN184] Issue preclusion, unlike claim preclusion, need not be mutual and thus can apply to parties who did not originally litigate the issue: [FN185] third parties can use issue preclusion defensively against a plaintiff, or offensively against a defendant, who earlier had an issue decided against him. In Blonder-Tongue Laboratories, Inc. v. University of Illinois Foundation, [FN186] the Supreme Court allowed defensive nonmutual issue preclusion: after one defendant successfully defeated a claim of patent infringement by showing that the patent was obvious, the patent owner was bound by this adverse determination in a later suit against an unrelated defendant. In Parklane Hosiery Co. v. Shore, [FN187] the Supreme Court allowed offensive nonmutual issue preclusion: after the Securities and Exchange Commission received a declaratory judgment that the defendant's proxy statement was materially false and misleading, the stockholders of the defendant brought their own civil action and were able to prevent the defendant from relitigating the issue of the material falsity and misleading nature of the proxy statement. However, issue preclusion cannot be used against a party who never had a "full and fair" opportunity to litigate the issue in a prior proceeding. [FN188] The most notable distinction between claim and issue preclusion is that the former forecloses litigation of claims that could have been, but might not have been, raised in an earlier action, while the latter only forecloses issues actually determined in an earlier action.

Res judicata explains the doctrine of recapture, but not prosecution history estoppel. The doctrine of recapture bars a patent owner from acquiring, through reissue of the patent, claims that are of the same or of broader scope than those claims that were canceled from the original *515 application. [FN189] At first glance, recapture and prosecution history estoppel appear quite similar: [FN190] recapture is to the literal words of a patent what prosecution history estoppel is to equivalents. Both doctrines seem to be a form of either (1) claim preclusion [FN191] or (2) defensive nonmutual issue preclusion. [FN192] However, the limited competence of the Patent Office and the temporal disjunction prevent res judicata from explaining prosecution history estoppel. The Patent Office only has the power to issue patents, [FN193] it does not have the power to provide relief for patent infringement or determine the meaning of the Patent Act. [FN194] Thus, the Patent Office is competent to issue and reissue patents but not competent to determine infringement under the doctrine of equivalents. Even if the Patent Office were competent to determine infringement under the doctrine of equivalents, it would violate the temporal disjunction for the Patent Office to determine equivalence at the time of prosecution. The Patent Office, an executive agency of limited jurisdiction, legitimately binds later courts when it reissues a patent because Congress specifically delegated this power to the Patent Office and nothing prevents the Patent Office from competently exercising such power; the same cannot be said with respect to prosecution history estoppel.

Prosecution history estoppel resembles the doctrine of recapture because the Supreme Court looked to the doctrine of recapture when *516 it developed prosecution history estoppel. [FN195] The doctrine of recapture *517 began in 1879 with Leggett v. Avery. [FN196] At the time, the Supreme Court directly reviewed patent cases on a regular basis, much like the Federal Circuit today. [FN197] In Leggett, Justice Bradley expressed, in no uncertain terms, his disgust with patent owners abusing the reissue process:

> The allowance of claims once formally abandoned by the applicant, in order to get his letters-patent through, is the occasion of immense frauds

against the public. It not unfrequently [sic] happens that, after an application has been carefully examined and compared with previous inventions, and after the claims which such an examination renders admissible have been settled with the acquiescence of the applicant, he, or his assignee, when the investigation is forgotten and perhaps new officers have been appointed, comes back to the Patent Office, and, under the pretence of inadvertence and mistake in the first specification, gets inserted into reissued letters all that had been previously rejected. In this manner, without an appeal, he gets the first decision of the office reversed, steals a march on the public, and on those who before opposed his pretensions (if, indeed, the latter have not been silenced by purchase), and procures a valuable monopoly to which he has not the slightest title. We have more than once expressed our disapprobation of this practice. As before remarked, we consider it extremely doubtful whether reissued letters can be sustained in any case where they contain *518 claims that have once been formally disclaimed by the patentee, or rejected with his acquiescence, and he has consented to such rejection in order to obtain his letters-patent. Under such circumstances, the rejection of the claim can in no just sense be regarded as a matter of inadvertence or mistake. Even though it was such, the applicant should seem to be estopped from setting it up on an application for a reissue. [FN198]

Seven years later, in Shepard v. Carrigan, [FN199] the Supreme Court relied on the importance of the claim language [FN200] and the doctrine of recapture to create prosecution history estoppel; [FN201]

> If an applicant, in order to get his patent, accepts one with a narrower claim than that contained in his original application, he is bound by it. If dissatisfied with the decision rejecting his application, he should pursue his remedy by appeal. Under the *519 circumstances of this case the inventor could not even get a reissue based on the broader claim which she had abandoned. Leggett V. Avery, ubi supra. Much less can she, in a suit brought to restrain its infringement, enlarge her patent by argument so as to cover elements not falling within its terms, and which she had explicitly abandoned. [FN202]

Since 1886, every major Supreme Court decision considering prosecution history estoppel has cited Shepard, either directly or in turn. [FN203]

All the justifications for prosecution history estoppel -- notice, equitable estoppel, waiver, and res judicata -- apply with great force to the doctrine of recapture. However, none of the justifications truly applies to prosecution history estoppel. The difference between the doctrine of recapture and prosecution history estoppel is the doctrine of equivalents, which prevents an accused infringer from making obvious substitutions to the literal claims of the patent. Despite the primacy of the Patent Office with respect to defining the literal claim language, the Patent Office is powerless when it comes to the determination of equivalence.

IV. CONCLUSION

My only goal in writing this Note is to make people think like children who have not yet been taught to suspend disbelief.

> It is revolting to have no better reason for a rule of law than that so it was laid down in the time of Henry IV. It is still more revolting if the grounds upon which it was laid down have vanished long since, and the rule simply persists from blind imitation of the past. [FN204]

*520 During a suit for infringement, the prosecution history should be regarded as just another piece of extrinsic evidence. Extrinsic evidence may be used to educate a trial judge before he construes the language of the claims, but extrinsic evidence may not rise to the status of the claims

themselves. The prosecution history, like the legislative history of a statute, might alert a judge to the questions to be decided, but it provides no answers. In particular, the prosecution history is totally irrelevant to the determination of equivalence, which must be determined as of the time of infringement, not the time of prosecution. The doctrine of equivalents may very well be a cancer on the patent system, but prosecution history estoppel is not the cure. The best remedy is to view the doctrine of equivalents as an objective inquiry analogous to the test for obviousness and then limit the scope of equivalence with the prior art and all elements rules. When providing relief under the doctrine of equivalents, courts should exercise their discretion as justice requires. Once the doctrine of equivalents is placed under control, prosecution history estoppel loses all purpose. Any arguments to the contrary confuse the Patent Office's domain over the text of patents with the judiciary's domain over the meaning of patents.

Regardless of the merit of my radical proposal, I have no delusions about the vitality of prosecution history estoppel in the hearts of federal judges. I predict that the Federal Circuit will allow prosecution history estoppel for reasons other than amendments in response to prior art rejections and also will allow prosecution history estoppel to bar completely the application of the doctrine of equivalents; whatever the outcome in Festo, I do not see why it would arouse the interest of four justices on the Supreme Court. However, gazing further into my lifetime, I cannot imagine how prosecution history estoppel will survive the inevitable international march toward the ideal patent system.

[FNa1]. J.D. 2000, Harvard Law School; B.S.E. 1997, Princeton University. This paper was presented in fulfillment of the Written Work Requirement at Harvard Law School. Please direct all comments and criticisms to the author at <twc@abanet.org>.

[FN1]. The phrase "prosecution history estoppel" first appeared in a federal reporter in 1983. See Hughes Aircraft Co. v. United States, 717 F.2d 1351, 1362 (Fed. Cir. 1983). The phrase "file wrapper estoppel" first appeared in a federal reporter in 1933. See Kellogg Switchboard & Supply Co. v. Michigan Bell Tel. Co., 5 F. Supp. 118, 119 (E.D. Mich. 1933). The doctrine itself first appeared in the late nineteenth century. See infra notes 195-203 and accompanying text.

[FN2]. See, e.g., Ted Apple, Enablement Estoppel: Should Prosecution History Estoppel Arise When Claims Are Amended to Overcome Enablement Rejections?, 13 SANTA CLARA COMPUTER & HIGH TECH. L.J. 107 (1997); Glenn K. Beaton, File Wrapper Estoppel and the Federal Circuit, 68 DENV. U. L. REV. 283 (1991); Joseph J. Dvorak, That Perplexing Problem -- The Doctrine of File Wrapper Estoppel, 50 J. PAT. OFF. SOC'Y 143 (1968); Ronald D. Hantman, Prosecution History Estoppel: Part I, 73 J. PAT. & TRADEMARK OFF. SOC'Y 121 (1991); Ronald D. Hantman, Prosecution History Estoppel: Part II, 73 J. PAT. & TRADEMARK OFF. SOC'Y 235 (1991); Janice M. Mueller, Crafting Patents for the Twenty-First Century: Maximize Patent Strength and Avoid Prosecution History Estoppel in a Post-Markman/Hilton Davis World, 79 J. PAT. & TRADEMARK OFF. SOC'Y 499 (1997); Vern L. Oldham, File Wrapper Estoppel, 20 J. PAT. OFF. SOC'Y 115 (1938); F.O. Richey, File Wrapper Estoppel, 23 J. PAT. OFF. SOC'Y 559 (1941); Kevin R. Casey, Note, Judge Learned Hand Guides the Federal Circuit: A Model for a Uniform Doctrine of Prosecution History Estoppel, 1985 U. ILL. L. REV. 363; Kurt F. James, Comment, Patent Claims and Prosecution History Estoppel in the Federal Circuit, 53 MO. L. REV. 497 (1988); Charles Robert Lewis, Note, Close Only Counts in Horseshoes, Hand Grenades, and ... Patents?: The Supreme Court Upholds the Each-Element Test of the Doctrine of

Equivalents and "Clarifies" the Role of Prosecution History Estoppel in Warner-Jenkinson Co. v. Hilton Davis Chemical Co., 73 CHI.-KENT L. REV. 1393 (1998); Paul J. Otterstedt, Note, Unwrapping File Wrapper Estoppel in the Federal Circuit: A New Economic Policy Approach, 67 ST. JOHN'S L. REV. 405 (1993); Note, To Bar or Not to Bar: Prosecution History Estoppel After Warner-Jenkinson, 111 HARV. L. REV. 2330 (1998). See generally SA DONALD S. CHISUM, CHISUM ON PATENTS ¤ 18.05 (1978 & Supp. 1999) [hereinafter CHISUM ON PATENTS].

[FN3]. See infra Part II.C.

[FN4]. U.S. Const. art. I, ¤ 8, cl. 8.

[FN5]. See Act of Apr. 10, 1790, ch. 7, 1 Stat. 109.

[FN6]. See Act of Feb. 21, 1793, ch. 11, 1 Stat. 318.

[FN7]. See Act of July 4, 1836, ch. 357, 5 Stat. 117.

[FN8]. See Act of July 8, 1870, ch. 230, 16 Stat. 198.

[FN9]. See Act of July 19, 1952, Pub. L. No. 82-593, 66 Stat. 792.

[FN10]. ¤ 1, 1 Stat. at 109-10.

[FN11]. See ¤ 1, 1 Stat. at 319-21.

[FN12]. ¤ 6, 5 Stat. at 119 (emphasis added).

[FN13]. See ¤ 1, 5 Stat. at 117-18.

[FN14]. See 35 U.S.C.A. ¤ 1(c) (West 2000).

[FN15]. See DONALD S. CHISUM ET AL., PRINCIPLES OF PATENT LAW 22-23, 530-35 (1998).

[FN16]. See infra note 89 and infra notes 91-97 and accompanying text (discussing 35 U.S.C. ¤ 103(a) (1994)).

[FN17]. See 2 CHISUM ON PATENTS, supra note 2, ¤ 5.02[3].

[FN18]. See Act of Mar. 3, 1891, ch. 517, ¤¤ 2, 6, 26 Stat. 826, 826, 828.

[FN19]. See Federal Courts Improvement Act of 1982, Pub. L. No. 97-164, 96 Stat. 25.

[FN20]. See Diamond v. Chakrabarty, 447 U.S. 303, 309 (1980) ("anything under the sun that is made by man" can be patented (internal quotation marks omitted)); State St. Bank & Trust Co. v. Signature Fin. Group, Inc., 149 F.3d 1368 (Fed. Cir. 1998) (Rich, J.) (upholding patentability of business method with "useful, concrete, and tangible result").

[FN21]. See 35 U.S.C.A. ¤ 111(a)(2) (West 2000).

[FN22]. See 35 U.S.C. ¤ 112, ¦ 1 (1994).

[FN23]. Id. ¤ 112, ¦ 2.

[FN24]. See 35 U.S.C.A. ¤ 122. For a brief history of the secrecy of patent applications, see Sears v. Gottschalk, 502 F.2d 122, 129 & n.18 (4th Cir. 1974). Recently, Congress amended ¤ 122 to provide for the publication, after 18 months, of pending applications having a corresponding foreign counterpart. See Intellectual Property and Communications Omnibus Reform Act of 1999, Pub. L. No. 106-113, ¤ 4502, 113 Stat. 1501A-521, -561 to -563.

[FN25]. See 35 U.S.C.A. ¤ 132.

[FN26]. See id. ¤ 102(a), (g).

[FN27]. See 35 U.S.C. ¤ 112, ¦ 1.
The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same, and shall set forth the best mode contemplated by the inventor of carrying out his invention.
Id.

[FN28]. See 35 U.S.C.A. ¤ 134.

[FN29]. See id. ¤ 141.

[FN30]. See id. ¤ 131.

[FN31]. See id. ¤ 154.

[FN32]. See 37 C.F.R. ¤ 1.11(a) (1999).

[FN33]. See 35 U.S.C.A. ¤ 251.

[FN34]. See id.

[FN35]. See id. ¤ 252.
A reissued patent shall not abridge or affect the right of any person ... who, prior to the grant of a reissue, ... used within the United States ... anything patented by the reissued patent ... unless the ... using ... of such thing infringes a valid claim of the reissued patent which was in the original patent. The court before which such matter is in question may provide for the continued ... use ... of the thing ... used ... of which substantial preparation was made before the grant of the reissue ... to the extent and under such terms as the court deems equitable for the protection of investments made or business commenced before the grant of the reissue.
Id.

[FN36]. See id. ¤¤ 302, 311.

[FN37]. See id. ¤¤ 304, 313.

[FN38]. See id. ¤ 305.

[FN39]. See id. ¤ 314. Inter partes reexamination proceedings were added to the Patent Act in 1999. See Intellectual Property and Communications Omnibus Reform Act of 1999, Pub. L. No. 106-113, ¤ 4604, 113 Stat. 1501A-521, -567 to -570.

[FN40]. See 35 U.S.C.A. ¤ 315; see also ¤ 4607, 113 Stat. at 1501A-571 (allowing estoppel provision to be severed, if needed).

[FN41]. See, e.g., Zelinski v. Brunswick Corp., 185 F.3d 1311, 1315 (Fed. Cir. 1999) (citing Markman v. Westview Instruments, Inc., 52 F.3d 967 (Fed. Cir. 1995) (en banc), aff'd, 517 U.S. 370 (1996), and Cybor Corp. v. FAS Techs., Inc., 138 F.3d 1448 (Fed. Cir. 1998) (en banc)).

[FN42]. See id.

[FN43]. See Graver Tank & Mfg. Co. v. Linde Air Prods. Co., 339 U.S. 605, 608 (1950); see also Sanitary Refrigerator Co. v. Winters, 280 U.S. 30 (1929); Union Paper-Bag Mach. Co. v. Murphy, 97 U.S. 120 (1877); Winans v. Denmead, 56 U.S. (15 How.) 330 (1853).

[FN44]. See, e.g., Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1582-83 (Fed. Cir. 1996) (citing Autogiro Co. of Am. v. United States, 384 F.2d 391, 399 (Ct. Cl. 1967)).

[FN45]. See Exhibit Supply Co. v. Ace Patents Corp., 315 U.S. 126 (1942); Keystone Driller Co. v. Northwest Eng'g Corp., 294 U.S. 42 (1935); Hubbell v. United States, 179 U.S. 77 (1900); Shepard v. Carrigan, 116 U.S. 593 (1886); Goodyear Dental Vulcanite Co. v. Davis, 102 U.S. 222 (1880); Leggett v. Avery, 101 U.S. 256 (1879).

[FN46]. See, e.g., Smith v. Magic City Kennel Club, 282 U.S. 784, 790 (1931).

[FN47]. 520 U.S. 17 (1997).

[FN48]. See id. at 22-23.

[FN49]. The petitioner argued that (1) the doctrine of equivalents conflicts with the claiming requirements of ¤ 112, ¦ 2, (2) the doctrine circumvents the reissue process, (3) the doctrine is inconsistent with the primacy of the PTO in setting the scope of the patent, and (4) Congress implicitly rejected the doctrine by adding ¤ 112, ¦ 6, which allows "means plus function" claims. See id. at 25-26. The Court summarily rejected all four arguments. See id. at 26 ("The 1952 Patent Act is not materially different from the 1870 Act with regard to claiming, reissue, and the role of the PTO." (comparing 35 U.S.C. ¤ 112, ¦ 2 (1994), with Act of July 8, 1870, ch. 230, ¤ 26, 16 Stat. 198, 201)); id. at 28 ("Because ¤ 112, ¦ 6, was enacted as a targeted cure to a specific problem, ... such limited congressional action should not be overread for negative implications.").

[FN50]. See id. at 29.

[FN51]. See id. at 36.

[FN52]. See id. at 37.

[FN53]. See id. at 40. In particular, the Court declined to specify whether the Federal Circuit should use the traditional "function-way-result" test or the newer "insubstantial difference" test. See id.

[FN54]. Id. at 32-34 (citation and footnote omitted).

[FN55]. 172 F.3d 1361 (Fed. Cir.), vacated and reh'g en banc granted, 187 F.3d 1381 (Fed. Cir. 1999).

[FN56]. 187 F.3d at 1381-82. The court also asked for briefs on a fifth question, related to the "all elements" limitation on the doctrine of equivalents, see infra notes 112-20 and accompanying text:

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

187 F.3d at 1382. The court heard oral arguments on March 29, 2000.

[FN57]. See supra Part II.A.1.

[FN58]. Hughes Aircraft Co. v. United States, 717 F.2d 1351, 1363 (Fed. Cir. 1983).

[FN59]. See Notice of Amendment of Privacy Act System of Records, 64 Fed. Reg. 72,640, 72,640 (1999).

> The PTO has become aware of problems associated with improper use, removal, loss, or theft of application files and other PTO property and, therefore, plans to modernize its user pass system to better preserve its resources ....
>
> ...
>
> Application files are critically important to understanding the metes and bounds of the intellectual property grants that the Commissioner of Patents and Trademarks issues.

Id. (citing Warner-Jenkinson); see also Notice of Public Hearing and Request for Comments on Procedures for Recording Patent Prosecution File Histories, 62 Fed. Reg. 49,471, 49,471 (1997) ("Recent decisions ... highlight the crucial role a prosecution history plays in determining the validity and scope of a patent. In response, the [PTO] requests public comments on issues associated with procedures for recording complete and accurate patent prosecution history records." (citations omitted) (citing, inter alia, Warner-Jenkinson)).

[FN60]. See, e.g., Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1582 (Fed. Cir. 1996) ("First, we look to the words of the claims themselves, both asserted and nonasserted, to define the scope of the patented invention.").

[FN61]. See U.S. PATENT & TRADEMARK OFFICE, IDEAS THAT BECOME VALUABLE INNOVATIONS: FISCAL YEAR 1998, A PATENT AND TRADEMARK OFFICE REVIEW tbl.4 (1998) available at <http://www.uspto.gov/web/offices/com/annual/1998/>.

[FN62]. Giles S. Rich, Extent of Protection and Interpretation of Claims -- American Perspectives, 21 INT'L REV. INDUS. PROP. & COPYRIGHT L. 497, 499 (1990), quoted in CHISUM ET AL., supra note 15, at 75. Emphasis on the claims is not universal. In Europe, the United Kingdom traditionally emphasized the importance of the claims while Germany did not. See, e.g., Allan M. Soobert, Analyzing Infringement by Equivalents: A Proposal to Focus the Scope of International Patent Protection, 22 RUTGERS COMPUTER & TECH. L.J. 189 (1998); Ray D. Weston, Jr., A Comparative Analysis of the Doctrine of Equivalents: Can European Approaches Solve an American Dilemma?, 39 IDEA 35 (1998). When Europe created a unified patent system in the 1970s, it compromised between the extremes found in the United Kingdom and Germany. See Convention on the

Grant of European Patents (European Patent Convention), Oct. 5, 1973, art. 69(1), 13 I.L.M. 271, 288 ("The extent of the protection conferred by a European patent or a European patent application shall be determined by the terms of the claims. Nevertheless, the description and drawings shall be used to interpret the claims."); Protocol on the Interpretation of Article 69 of the Convention, Oct. 5, 1973, 13 I.L.M. 348, 348.

Article 69 should not be interpreted in the sense that the extent of the protection conferred by a European patent is to be understood as that defined by the strict, literal meaning of the wording used in the claims, the description and drawings being employed only for the purpose of resolving an ambiguity found in the claims. Neither should it be interpreted in the sense that the claims serve only as a guideline and that the actual protection conferred may extend to what, from a consideration of the description and drawings by a person skilled in the art, the patentee has contemplated. On the contrary, it is to be interpreted as defining a position between these extremes which combines a fair protection for the patentee with a reasonable degree of certainty for third parties.

Id. Japan traditionally followed the German approach to patent interpretation but now follows the American approach. See Toshiko Takenaka, Harmonizing the Japanese Patent System with Its U.S. Counterpart Through Judge-Made Law: Interaction Between Japanese and U.S. Case Law Developments, 7 PAC. RIM L. & POL'Y J. 249 (1998).

[FN63]. Compare Act of July 19, 1952, Pub. L. No. 82-593, ¤ 112, ¦ 2, 66 Stat. 792, 798 (codified at 35 U.S.C. ¤ 112, ¦ 2 (1994)) ("The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention."), with Act of July 8, 1870, ch. 230, ¤ 26, 16 Stat. 198, 201 ("[The applicant] shall particularly point out and distinctly claim the part, improvement, or combination which he claims as his invention or discovery ...."), and Act of July 4, 1836, ch. 357, ¤ 6, 5 Stat. 117, 119 ("[The applicant] shall particularly specify and point out the part, improvement, or combination, which he claims as his own invention or discovery."), and Act of Feb. 21, 1793, ch. 11, ¤ 3, 1 Stat. 318, 321 ("[The applicant] shall deliver a written description of his invention ... in such full, clear and exact terms, as to distinguish the same from all other things before known ...."), and Act of Apr. 10, 1790, ch. 7, ¤ 2, 1 Stat. 109, 110 ("[The applicant shall provide a written specification that] shall be so particular ... as ... to distinguish the invention or discovery from other things before known and used ....").

[FN64]. See CHISUM ET AL., supra note 15, at 22; 3 CHISUM ON PATENTS, supra note 2, ¤ 8.02. The Supreme Court delivered opinions in the 1870s that stressed, as prior opinions had not, the importance of the claims. See, e.g., Water-Meter Co. v. Desper, 101 U.S. 332, 337 (1879) (Bradley, J.) ("[T]he courts of this country cannot always indulge the same latitude which is exercised by English judges in determining what parts of a machine are or are not material. Our law requires the patentee to specify particularly what he claims to be new ...."); Burns v. Meyer, 100 U.S. 671, 672 (1879) (Bradley, J.).

It is well known that the terms of the claim in letters-patent are carefully scrutinized in the Patent Office. Over this part of the specification the chief contest generally arises. It defines what the office, after a full examination of previous inventions and the state of the art, determines the applicant is entitled to. The courts, therefore, should be careful not to enlarge, by construction, the claim which the Patent Office

has admitted, and which the patentee has acquiesced in, beyond the fair interpretation of its terms.
Id.; Keystone Bridge Co. v. Phoenix Iron Co., 95 U.S. 274, 278 (1877) (Bradley, J.).

When a claim is so explicit, the courts cannot alter or enlarge it. If the patentees have not claimed the whole of their invention, and the omission has been the result of inadvertence, they should have sought to correct the error by a surrender of their patent and an application for a reissue. They cannot expect the courts to wade through the history of the art, and spell out what they might have claimed, but have not claimed.
Id.; Merrill v. Yeomans, 94 U.S. 568, 573-74 (1876) (Miller, J.).

The growth of the patent system in the last quarter of a century in this country has reached a stage in its progress where the variety and magnitude of the interests involved require accuracy, precision, and care in the preparation of all the papers on which the patent is founded .... It seems to us that nothing can be more just and fair, both to the patentee and to the public, than that the former should understand, and correctly describe, just what he has invented, and for what he claims a patent.
Id. The Supreme Court waivered on its claim-centric thesis during the early twentieth century, see 3 CHISUM ON PATENTS, supra note 2, ¤ 8.02, but resumed focusing on the claims by the 1930s, see id.

[FN65]. See 5A CHISUM ON PATENTS, supra note 2, ¤ 18.02; compare supra note 43 (historical development of doctrine of equivalents), and supra note 45 (historical development of prosecution history estoppel), with supra note 64 (historical development of claim-centric thesis).

[FN66]. See Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1582-85 (Fed. Cir. 1996).

[FN67]. See, e.g., Pitney Bowes, Inc. v. Hewlett-Packard Co., 182 F.3d 1298, 1308-09 (Fed. Cir. 1999); Vitronics, 90 F.3d at 1581-82; Markman v. Westview Instruments, Inc., 52 F.3d 967, 979-81 (Fed. Cir. 1995) (en banc), aff'd, 517 U.S. 370 (1996).

[FN68]. 90 F.3d 1576 (Fed. Cir. 1996).

[FN69]. See id. at 1584-85; see also Pitney Bowes, 182 F.3d at 1308- 09 (allowing reference to, particularly for educational purposes, but not reliance upon, extrinsic evidence).

[FN70]. See, e.g., Vitronics, 90 F.3d at 1582 ("It is well-settled that, in interpreting an asserted claim, the court should look first to the intrinsic evidence of record, i.e., the patent itself, including the claims, the specification and, if in evidence, the prosecution history.").

[FN71]. 383 U.S. 1 (1966).

[FN72]. Id. at 33 (citing Crawford v. Heysinger, 123 U.S. 589 (1887), and Hogg v. Emerson, 52 U.S. (11 How.) 587 (1850)).

[FN73]. See Crawford, 123 U.S. at 602 ("The file-wrapper and contents in the matter of the reissue are part of the evidence in the case, and throw light upon what should be the proper construction of claims 1 and 2."); id. at 606 ("The patentee having imposed words of limitation upon himself in his claims, especially when so required by the patent-office in taking out his reissue,

is bound by such limitations, in subsequent suits on the reissued patent."); Hogg, 52 U.S. (11 How.) at 605.

The specification being, therefore, in this case, voluntarily annexed, and made, in express terms, a part of the patent, though before the law required it to be done, it still became a portion of the patent by general principles, as clearly as it does since by the words of the law.

Id.; id. at 606 ("The court did right, too, in holding to the propriety of looking to the whole specification, and also to the drawings, for explanation of [anything] obscure."). The discussion of claim interpretation in Hogg is of limited importance today, and was of limited importance even in 1850, because the Court was construing a patent issued under the 1793 Patent Act, see id. at 604, which did not require claims and did not provide for a Patent Office to examine applications, see supra notes 11-13 and accompanying text. A case decided between Hogg and Crawford, but not cited by Graham, addressed the issue more precisely:

We do not mean to be understood as asserting that any correspondence between the applicant for a patent and the Commissioner of Patents can be allowed to enlarge, diminish, or vary the language of a patent afterwards issued. Undoubtedly a patent, like any other written instrument, is to be interpreted by its own terms. But when a patent bears on its face a particular construction, inasmuch as the specification and claim are in the words of the patentee, it is reasonable to hold that such a construction may be confirmed by what the patentee said when he was making his application. The understanding of a party to a contract has always been regarded as of some importance in its interpretation.

Goodyear Dental Vulcanite Co. v. Davis, 102 U.S. 222, 227 (1880).

[FN74]. Markman v. Westview Instruments, Inc., 52 F.3d 967, 980 (Fed. Cir. 1995) (en banc) (internal quotation marks omitted) (citing Autogiro Co. of Am. v. United States, 384 F.2d 391, 397 (Ct. Cl. 1967)), aff'd, 517 U.S. 370 (1996).

[FN75]. See Brown v. Piper, 91 U.S. 37, 41-44 (1875) (taking judicial notice of encyclopedia explaining artificial freezing), cited with approval in Markman, 52 F.3d at 980.

[FN76]. 52 F.3d 967 (Fed. Cir. 1995) (en banc), aff'd, 517 U.S. 370 (1996).

[FN77]. Compare Markman, 52 F.3d at 980 ("To construe claim language, the court should also consider the patent's prosecution history, if it is in evidence."), with Vitronics, 90 F.3d at 1582 ("Third, the court may also consider the prosecution history of the patent, if in evidence.").

[FN78]. See Fed. R. Evid. 201.

[FN79]. Vitronics, 90 F.3d at 1582 (emphasis added); accord Markman, 52 F.3d at 980.

[FN80]. Patents: CAFC Issues Substitute Version of Inadvertently Released Opinion, 51 PAT. TRADEMARK & COPYRIGHT J. (BNA) 483, 483 (Feb. 15, 1996) (internal quotation marks omitted) (quoting Sofamor Danek Group, Inc. v. DePuy-Motech, Inc., No. 95-1209 (Fed. Cir. Jan. 24, 1996)), cited in John R. Thomas, On Preparatory Texts and Proprietary Technologies: The Place of Prosecution Histories in Patent Claim Interpretation, 47 UCLA L. REV. 183, 196 n. 74 (1999).

[FN81]. See id.

[FN82]. Some early Federal Circuit decisions described the prosecution history as extrinsic evidence. See, e.g., Tandon Corp. v. United States Int'l Trade Comm'n, 831 F.2d 1017, 1021 (Fed. Cir. 1987) ("When the meaning of key terms of claims is disputed, as in this case, extrinsic evidence may be adduced including testimony of witnesses, and reference may be had to the specification, the prosecution history, prior art, and other claims."); Howes v. Medical Components, Inc., 814 F.2d 638, 643 (Fed. Cir. 1987) ("When a claim is in dispute, however, it is always necessary to look at certain extrinsic evidence, namely, the specification, the prosecution history, and the other claims."); Moeller v. Ionetics, Inc., 794 F.2d 653, 656 (Fed. Cir. 1986) ("[R]esort to certain extrinsic evidence (i.e., the specification, prosecution history, and other claims) is always necessary to interpret disputed claims."); cf. Autogiro Co. of Am. v. United States, 384 F.2d 391, 399 n.12 (Ct. Cl. 1967) ("The use of the file wrapper as 'legislative history' has been condoned by most courts." (citing, inter alia, Goodyear Dental Vulcanite Co. v. Davis, 102 U.S. 222 (1880))). Before Graham was decided, the Second Circuit argued that prosecution history is extrinsic evidence of little value:

> We have often said that we would not look at the arguments used by solicitors to the examiners; specifications are intended to be the measure of the monopoly and of the contribution to the art. In each aspect they should be self-contained; that is the very purpose of their embodiment in a formal grant, which is all that is accessible to the public without much trouble and vastly more uncertainty. If the doctrine of the "integration" of a written instrument has any basis at all, surely it should apply to such a document, for if a patent can be construed only by threading one's way through all the verbal ingenuities which casuistical solicitors develop to circumvent the objections of examiners, a labyrinth results, from which there is no escape. Catalin Corp. of Am. v. Catalazuli Mfg. Co., 79 F.2d 593, 594 (2d Cir. 1935) (L. Hand, J.).

[FN83]. BLACK'S LAW DICTIONARY 588-89 (6th ed. 1990) [hereinafter BLACK'S].

[FN84]. All current patents are available for free from the Patent Office's website, see <www.uspto.gov>, but prosecution histories, which are not available for free, must be ordered by mail. The Patent Office charges $150.00 for a prosecution history, see 37 C.F.R. ¤ 1.19(b)(2) (1999); IBM's Intellectual Property Network charges a minimum of $45.00 for a prosecution history, see <www.patents.ibm.com>.

[FN85]. Indeed, the prosecution history shares many of the characteristics of testimony, which sits at the bottom of the hierarchy of evidence. For this and other reasons, at least one commentator recommends that courts should disregard the prosecution history altogether. See Thomas, supra note 80; cf. Toshiko Takenaka, Doctrine of Equivalents After Hilton Davis: A Comparative Law Analysis, 22 RUTGERS COMPUTER & TECH. L.J. 479, 510 (1998) ("The elimination of prosecution history estoppel will increase legal certainty.").

[FN86]. See Markman, 52 F.3d at 987.

> The more appropriate analogy for interpreting patent claims is the statutory interpretation analogy. Statutory interpretation is a matter of law strictly for the court. There can be only one correct interpretation of a statute that applies to all persons. Statutes are written instruments that all persons are presumed to be aware of and are bound to follow. Statutes, like patents, are enforceable against the public, unlike private agreements between contracting parties. When interpreting statutes, a court looks to the

language of the statute and construes it according to the traditional tools of statutory construction, including certain well known canons of construction.
Id.

[FN87]. See Warner-Jenkinson Co. v. Hilton Davis Chem. Co., 520 U.S. 17, 37 (1997) ("Insofar as the question under the doctrine of equivalents is whether an accused element is equivalent to a claimed element, the proper time for evaluating equivalency -- and thus knowledge of interchangeability between elements -- is at the time of infringement, not at the time the patent was issued.").

[FN88]. Unfortunately, most courts do not appreciate the relationship between time and claim construction. See 5A CHISUM ON PATENTS, supra note 2, ¤ 18.03[2][g] ("The time framework for construing patent claims is the subject of surprisingly sparse judicial authority." (footnote omitted) (comparing lack of authority on analogous problem of interpreting terms defined years before)).

[FN89]. See 35 U.S.C. ¤ 103(a) (1994).
A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.
Id.

[FN90]. See Graver Tank & Mfg. Co. v. Linde Air Prods. Co., 339 U.S. 605, 609 (1950) ("An important factor [in determining equivalence] is whether persons reasonably skilled in the art would have known of the interchangeability of an ingredient not contained in the patent with one that was."); see also TOSHIKO TAKENAKA, INTERPRETING PATENT CLAIMS: THE UNITED STATES, GERMANY AND JAPAN 298-99 (1995) (noting Japan and Germany use obviousness test for equivalence and urging United States to follow suit); Mary S. Consalvi, Objective Indicia of Equivalence and Nonequivalence, in PLI'S FOURTH ANNUAL INSTITUTE FOR INTELLECTUAL PROPERTY LAW 265 (PLI Patents, Copyrights, Trademarks & Literary Property Course Handbook Series No. 532, 1998); Paul R. Michel, The Role and Responsibility of Patent Attorneys in Improving the Doctrine of Equivalents, 40 IDEA 123, 129 (2000) ("I confess that when Judge Nies initially suggested obviousness as the test for equivalence, I resisted. Now I am more enthused." (citing Roton Barrier, Inc. v. Stanley Works, 79 F.3d 1112, 1128 (Fed. Cir. 1996) (Nies, J., additional views) ("A substitution in a patented invention cannot be both nonobvious and insubstantial. I would apply nonobviousness as the test for the [doctrine of equivalents]."))); cf., e.g., In re Berg, 140 F.3d 1428, 1431-32 (Fed. Cir. 1998).
Obviousness-type double patenting is a judge-made doctrine that prevents an extension of the patent right beyond the statutory time limit. It requires rejection of an application claim when the claimed subject matter is not patentably distinct from the subject matter claimed in a commonly owned patent. Its purpose is to prevent an unjustified extension of the term of the right to exclude granted by a patent by allowing a second patent claiming an obvious variant of the same invention to issue to the same owner later ....
Generally, a "one-way" test has been applied to determine obviousness-type double patenting. Under that test, the examiner asks whether the application claims are obvious over the patent claims.

Id. (citations omitted).

[FN91]. 383 U.S. 1 (1966).

[FN92]. See id. at 17-18.
While the ultimate question of patent validity is one of law ... [the nonobviousness requirement] lends itself to several basic factual inquiries. Under ¤ 103, the scope and content of the prior art are to be determined; differences between the prior art and the claims at issue are to be ascertained; and the level of ordinary skill in the pertinent art resolved. Against this background, the obviousness or nonobviousness of the subject matter is determined. Such secondary considerations as commercial success, long felt but unsolved needs, failure of others, etc., might be utilized to give light to the circumstances surrounding the origin of the subject matter sought to be patented. As indicia of obviousness or nonobviousness, these inquiries may have relevancy.
Id., cited with approval in WMS Gaming, Inc. v. International Game Tech., 184 F.3d 1339, 1355 (Fed. Cir. 1999).

[FN93]. See id.; In re Rouffet, 149 F.3d 1350, 1355 (Fed. Cir. 1998).

[FN94]. See In re Clay, 966 F.2d 656, 658-59 (Fed. Cir. 1992).
Two criteria have evolved for determining whether prior art is analogous: (1) whether the art is from the same field of endeavor, regardless of the problem addressed, and (2) if the reference is not within the field of the inventor's endeavor, whether the reference still is reasonably pertinent to the particular problem with which the inventor is involved.
Id. Nonobviousness is related to novelty, see 35 U.S.C.A. ¤ 102 (West 2000): both tests ask whether each and every element of the invention can be found in the prior art. However, the nonobviousness requirement is both broader and narrower than the novelty requirement: whereas nonobviousness allows combining prior art references, novelty does not, see Minnesota Mining & Mfg. Co. v. Johnson & Johnson, 976 F.2d 1559, 1565 (Fed. Cir. 1992); whereas novelty considers all prior art references, see id., nonobviousness considers only analogous prior art references.

[FN95]. See In re Dow Chem. Co., 837 F.2d 469, 473 (Fed. Cir. 1988) ("The consistent criterion for determination of obviousness is whether the prior art would have suggested to one of ordinary skill in the art that this process should be carried out and would have a reasonable likelihood of success, viewed in the light of the prior art."), cited with approval in Smiths Indus. Med. Sys., Inc. v. Vital Signs, Inc., 183 F.3d 1347, 1356 (Fed. Cir. 1999).

[FN96]. See In re Rouffet, 149 F.3d at 1355.

[FN97]. See id. at 1355-56.

[FN98]. See Kimberly-Clark Corp. v. Johnson & Johnson, 745 F.2d 1437, 1449-54 (1984).

[FN99]. The accused infringer will have more prior art at his disposal than the inventor had, given the development in the art since the time the patent was filed.

[FN100]. See supra note 95 and accompanying text.

[FN101]. See Graver Tank & Mfg. Co. v. Linde Air Prods. Co., 339 U.S. 605, 608-09 (1950).

The wholesome realism of [the doctrine of equivalents] is not always applied in favor of a patentee but is sometimes used against him. Thus, where a device is so far changed in principle from a patented article that it performs the same or a similar function in a substantially different way, but nevertheless falls within the literal words of the claim, the doctrine of equivalents may be used to restrict the claim and defeat the patentee's action for infringement.

Id. (citing Westinghouse v. Boyden Power Brake Co., 170 U.S. 537, 568 (1898)); see also SRI Int'l v. Matsushita Elec. Corp. of Am., 775 F.2d 1107 (Fed. Cir. 1985) (en banc). In practice, the reverse doctrine of equivalents resembles Aloysius Snuffleupagus: both exist but rarely garner adult recognition. A Westlaw search for the phrase "reverse doctrine of equivalents" reveals that the Federal Circuit has mentioned the doctrine in some three dozen cases, but never has used the doctrine to exclude a finding of literal infringement and only once has discussed the doctrine at length, see SRI Int'l (debating whether reverse doctrine of equivalents is question of law or fact).

[FN102]. Warner-Jenkinson v. Hilton Davis Chem. Co., 520 U.S. 17 (1997).

[FN103]. Graver Tank & Mfg. Co. v. Linde Air Prods. Co., 339 U.S. 605 (1950).

[FN104]. See Warner-Jenkinson, 520 U.S. at 36.

Although Graver Tank certainly leaves room for petitioner's suggested inclusion of intent-based elements in the doctrine of equivalents, we do not read it as requiring them. The better view, and the one consistent with Graver Tank's predecessors and the objective approach to infringement, is that intent plays no role in the application of the doctrine of equivalents.

Id.

[FN105]. See Graver Tank, 339 U.S. at 607.

[T]o permit imitation of a patented invention which does not copy every literal detail would be to convert the protection of the patent grant into a hollow and useless thing. Such a limitation would leave room for -- indeed encourage -- the unscrupulous copyist to make unimportant and insubstantial changes and substitutions in the patent which, though adding nothing, would be enough to take the copied matter outside the claim, and hence outside the reach of law. One who seeks to pirate an invention, like one who seeks to pirate a copyrighted book or play, may be expected to introduce minor variations to conceal and shelter the piracy. Outright and forthright duplication is a dull and very rare type of infringement. To prohibit no other would place the inventor at the mercy of verbalism and would be subordinating substance to form. It would deprive him of the benefit of his invention and would foster concealment rather than disclosure of inventions, which is one of the primary purposes of the patent system.

Id.

[FN106]. See Warner-Jenkinson, 520 U.S. at 36 ("Independent experimentation by the alleged infringer would not always reflect upon the objective question whether a person skilled in the art would have known of the interchangeability between two elements, but in many cases it would likely be probative of such knowledge.").

[FN107]. See supra note 93 and accompanying text; Consalvi, supra note 90, at 279.

A review and balancing of ... objective indicia may be used in future cases to determine infringement under the doctrine of equivalents in a manner similar to the way objective indicia of non-obviousness are used by the courts and the Patent Office in rendering patentability determinations under 35 U.S.C. ¤ 103. A list of these indicia follows:

. Patentee's Contribution to the Art Continuum From Pioneering Invention to Narrow Improvement in Crowded Art

. Alleged Infringer's Contribution to the Art Grant of Patent To Alleged Infringer

. Success of Patented Invention and Alleged Equivalent

. Long-Felt Need of Patented Invention and Alleged Equivalent

. Failure of Others

. Independent Development

. Efforts to Design Around

. Copying or Piracy

. Good/Bad Faith by Patentee or Alleged Infringer

. Interchangeability

. Interoperability

. Teaching Away

. Exhaustion of Administrative Remedies

. Abandonment of Disclosed Subject Matter for Failure to Claim

. Admissions to USPTO or Foreign Offices

Id.

[FN108]. The following hypothetical example shows the disjunction between what is equivalent and what takes place during prosecution: (1) the original claim includes "all precious metals," (2) the Patent Office rejects, pursuant to the enablement requirement of ¤ 112, an amended claim including "palladium" because the specification only mentions "platinum," (3) the issued claim only includes "platinum," and (4) the accused device uses "palladium":

Rejection of the original claim (all precious metals) did not necessarily mean that a functional equivalent (palladium) of the disclosed embodiment (platinum) was not enabled even at the time the application was filed, much less at the time of infringement. One skilled in the art may have known that palladium was interchangeable with platinum in its microelectronic properties and that both were distinctly different from other precious metals such as silver.

5A CHISUM ON PATENTS, supra note 2, ¤ 18.05[2][b][ii][D] (footnote omitted); cf. infra note 201 (noting original application of prosecution history estoppel apparently was based on rejection for reason other than prior art).

[FN109]. See 35 U.S.C.A. ¤ 102(a) (West 2000) ("A person shall be entitled to a patent unless ... the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for patent ....").

[FN110]. See Wilson Sporting Goods Co. v. David Geoffrey & Assocs., 904 F.2d 677, 684 (Fed. Cir. 1990).

[A] patentee should not be able to obtain, under the doctrine of equivalents, coverage which he could not lawfully have obtained from the PTO by literal claims. The doctrine of equivalents exists to prevent a fraud on a patent, not to give a patentee something which he could not lawfully have obtained from the PTO had he tried. Thus, since prior art always limits what

an inventor could have claimed, it limits the range of permissible equivalents of a claim.
Id. (citation omitted), cited with approval in Steamfeeder, LLC v. Sure- Feed Sys., Inc., 175 F.3d 974 (Fed. Cir. 1999). Of course, the doctrine of equivalents could be applied to the prior art to further limit application of the doctrine of equivalents to the patent, see infra note 111, but the rationale of Wilson -- a patentee cannot have today what the Patent Office would not have given to him during prosecution -- does not suggest this additional limitation.

Currently, accused infringers enjoy the luxury of picking and choosing among the various ways to limit the doctrine of equivalents. If, for example, the prior art rule would allow for a broad range of equivalence -- which would benefit the patent owner -- then the accused infringer can rely on prosecution history estoppel instead. See, e.g., Southwall Techs., Inc. v. Cardinal IG Co., 54 F.3d 1570, 1584 (Fed. Cir. 1995) ("[T]he issue before us is not the range of equivalents which, if analyzed as hypothetical claims, would be patentable in light of the prior art, but what otherwise equivalent subject matter [the patent owner] surrendered in the arguments made to the examiner.").

[FN111]. But see Key Mfg. Group, Inc. v. Microdot, Inc., 925 F.2d 1444, 1449 (Fed. Cir. 1991) ("Because the [accused device] and, thus the hypothetical claim, are obvious in light of these three prior art references, the doctrine of equivalents does not reach the accused [device]." (citing Wilson Sporting Goods Co. v. David Geoffrey & Assocs., 904 F.2d 677, 684 (Fed. Cir. 1990))).

[FN112]. See Pennwalt Corp. v. Durand-Wayland, Inc., 833 F.2d 931, 949- 54 (Fed. Cir. 1987) (en banc) (Nies, J., additional views) (collecting cases).

[FN113]. The all elements rule is an "if," but not an "if and only if," test: if the patent covers elements A, B, and C, an accused device including just elements A and C would not infringe, but an accused device including elements A, B, C, and D would infringe.

[FN114]. See Warner-Jenkinson Co. v. Hilton Davis Chem. Co., 520 U.S. 17, 29 (1997) ("Each element contained in a patent claim is deemed material to defining the scope of the patented invention, and thus the doctrine of equivalents must be applied to individual elements of the claim, not to the invention as a whole." (adopting dissenting opinion from court below, 62 F.3d 1512, 1573-74 (Nies, J., dissenting))); Pennwalt; see also Corning Glass Works v. Sumitomo Elec. U.S.A., Inc., 868 F.2d 1251 (Fed. Cir. 1989) (Nies, J.); Lemelson v. United States, 752 F.2d 1538, 1551 (Fed. Cir. 1985) ("It is also well settled that each element of a claim is material and essential, and that in order for a court to find infringement, the plaintiff must show the presence of every element or its substantial equivalent in the accused device." (citing, inter alia, Autogrio Co. of Am. v. United States, 384 F.2d 391, 403 (Ct. Cl. 1967))).

[FN115]. See Ethicon Endo-Surgery, Inc. v. United States Surgical Corp., 149 F.3d 1309, 1317 n.* (Fed. Cir. 1998).

[FN116]. See Corning Glass Works, 868 F.2d at 1259.

"Element" may be used to mean a single limitation, but it has also been used to mean a series of limitations which, taken together, make up a component of the claimed invention. In the All Elements rule, "element" is used in the sense of a limitation of a claim .... An equivalent must be found for every limitation of the claim somewhere in an accused device, but not

necessarily in a corresponding component, although that is generally the case.
Id. (footnote omitted).

[FN117]. See Ethicon Endo-Surgery, 149 F.3d at 1320 ("[O]ne-to-one correspondence of components is not required, and elements or steps may be combined without ipso facto loss of equivalency." (internal quotation marks omitted)); Pennwalt, 833 F.2d at 967-69 (Newman, J., commentary).

[FN118]. See Warner-Jenkinson, 520 U.S. at 29 ("It is important to ensure that the application of the doctrine [of equivalents], even as to an individual element, is not allowed such broad play as to effectively eliminate that element in its entirety."); see also id. at 39 n.8 ("Thus, under the particular facts of a case, if ... a theory of equivalence would entirely vitiate a particular claim element, partial or complete judgment should be rendered by the court, as there would be no further material issue for the jury to resolve.").

[FN119]. See supra note 89.

[FN120]. See London v. Carson Pirie Scott & Co., 946 F.2d 1534, 1538 (Fed. Cir. 1991).
Application of the doctrine of equivalents is the exception, however, not the rule, for if the public comes to believe (or fear) that the language of patent claims can never be relied on, and that the doctrine of equivalents is simply the second prong of every infringement charge, regularly available to extend protection beyond the scope of the claims, then claims will cease to serve their intended purpose. Competitors will never know whether their actions infringe a granted patent.
Id.

[FN121]. See Oliver Wendell Holmes, The Path of the Law, 10 HARV. L. REV. 457, 459 (1897), reprinted in 110 HARV. L. REV. 991, 993 (1997).
If you want to know the law and nothing else, you must look at it as a bad man, who cares only for the material consequences which such knowledge enables him to predict, not as a good one, who finds his reasons for conduct, whether inside the law or outside of it, in the vaguer sanctions of conscience.
Id.

[FN122]. Cf. supra note 35 and accompanying text (noting doctrine of intervening rights only excuses infringement to extent equity requires); infra note 160 and accompanying text (noting equitable estoppel may afford only reliance damages).

[FN123]. Cf. 5A CHISUM ON PATENTS, supra note 2, ¤ 18.05[1] (identifying three possible rationales for prosecution history estoppel: conventional estoppel theory, abandonment and disclaimer, and exhaustion of administrative remedies).

[FN124]. See generally MELVILLE M. BIGELOW, A TREATISE ON THE LAW OF ESTOPPEL (6th ed. 1913); 31 C.J.S. Estoppel and Waiver (1996).
[T]hough the conception of rights by estoppel is a very old one, and though it has been steadily expanding, especially in recent times, it has not always been regarded with favor. The courts used to call estoppels odious; indeed, they have not yet ceased altogether to apply the term to them. The definition given by [Sir Edward] Coke has often been referred to as giving

ground for the application of the term. He said that the name 'estoppel,' or 'conclusion,' was given 'because a man's own act or acceptance stoppeth or closeth up his mouth to allege or plead the truth.'
BIGELOW, supra, at 5 (footnote omitted).

[FN125]. Courts use the prosecution history not just for estoppel, but also for claim interpretation. See supra note 44 and accompanying text. If prosecution history estoppel is integral to claim interpretation, then prosecution history estoppel always is available in an infringement suit regardless of whether the defendant raised prosecution history estoppel as an affirmative defense. See 5A CHISUM ON PATENTS, supra note 2, ¤ 18.05[1][a][iii].

[FN126]. See BIGELOW, supra note 124, at 4; BLACK'S supra note 83, at 551; 31 C.J.S. Estoppel and Waiver ¤ 62. Equitable estoppel also is called estoppel in pais.

[FN127]. Estoppel by judicial record is similar to res judicata. See 31 C.J.S. Estoppel and Waiver ¤ 6.

[FN128]. See BIGELOW, supra note 124, at 4; 31 C.J.S. Estoppel and Waiver ¤ 65.

[FN129]. See BIGELOW, supra note 124, at 4; id. at 21 ("We have divided [estoppel in pais] into Estoppel by Contract and Estoppel by Conduct."); id. at 28 ("In all ordinary cases the representation [for Estoppel by Conduct] must have reference to a present or past state of facts only; it should not look to future events or to pure matters of law."); 31 C.J.S. Estoppel and Waiver ¤ 92.

[FN130]. See W. PAGE KEETON ET AL., PROSSER AND KEETON ON THE LAW OF TORTS 733-34 (5th ed. 1984); Restatement (Second) of Torts ¤ 872 (1977).
    If one person makes to another person a definite misrepresentation of fact concerning the ownership of property or its disposition, knowing that the other intends to act in reliance on it, and subsequently does an act or makes a refusal that would be tortious if the statement were true, the first person is subject to liability to the other as if the statement were true, provided that the other in reasonable reliance upon the statement has so changed his position that it would be inequitable to deny an action for the act or refusal.
Id.

[FN131]. See Restatement (Second) of Contracts ¤ 90(1) (1979).
    A promise which the promisor should reasonably expect to induce action or forbearance on the part of the promisee or a third person and which does induce such action or forbearance is binding if injustice can be avoided only by enforcement of the promise. The remedy granted for breach may be limited as justice requires.
Id.

[FN132]. See Baxter Int'l, Inc. v. McGaw, Inc., 149 F.3d 1321, 1327-28 (Fed. Cir. 1998); see also 37 C.F.R. ¤ 1.56 (1999) (defining duty to disclose information material to patentability).

[FN133]. See J.P. Stevens & Co. v. Lex Tex Ltd., 747 F.2d 1553, 1559-62 (Fed. Cir. 1984).

[FN134]. But see supra note 86 and accompanying text (noting Federal Circuit has rejected contract analogy in favor of statute analogy).

[FN135]. See supra note 131.

[FN136]. See JOHN P. DAWSON ET AL., CASES AND COMMENT ON CONTRACTS 285-86 (6th ed. 1993) (discussing arguments for and against reliance damages in cases of promissory estoppel).

[FN137]. 8 Ala. 131 (1845), reprinted in DAWSON ET AL., supra note 136, at 249.

[FN138]. See id. at 132.

> Within a month or two after the receipt of [the invitation], the [widow] abandoned her possession, without disposing of it, and removed with her family, to the residence of the [brother-in-law], who put her in comfortable houses, and gave her land to cultivate for two years, at the end of which time he notified her to remove, and put her in a house, not comfortable, in the woods, which he afterwards required her to leave.

Id.

[FN139]. See id. at 133. The majority held that the promise was a mere gratuity and thus not enforceable; the dissent argued that the loss and inconvenience of moving sixty miles was sufficient consideration to support the promise.

[FN140]. See id. at 132 ("'If you will come down and see me, I will let you have a place to raise your family ...."').

[FN141]. See id. ("'I would advise you to ... sell [your] land and quit the country, as I understand it is very unhealthy, and I know society is very bad."').

[FN142]. Indeed, the overall ambiguity surrounding most changes prompted the Supreme Court to fashion a new rebuttable presumption. See supra note 54 and accompanying text.

[FN143]. See supra note 59.

[FN144]. See American Permahedge, Inc. v. Barcana, Inc. 105 F.3d 1441, 1446 (Fed. Cir. 1997) ("Prosecution history estoppel ... is not limited to the claims with respect to which the applicant's statements were made." (citing Southwall Techs., Inc. v. Cardinal IG Co., 54 F.3d 1570, 1584 (Fed. Cir. 1995))).

[FN145]. See Abtox, Inc. v. Exitron Corp., 122 F.3d 1019, 1027 (Fed. Cir. 1997) (considering prosecution history from parent application); Mark I Mktg. Corp. v. R.R. Donnelley & Sons, 66 F.3d 285, 291 (Fed. Cir. 1995) (parent and grandparent); Jonsson v. Stanley Works, 903 F.2d 812, 818 (Fed. Cir. 1990) (sibling).

[FN146]. See Tanabe Seiyaku Co. v. United States Int'l Trade Comm'n, 109 F.3d 726, 733 (Fed. Cir. 1997) (construing claims, but not estopping, based on representations to foreign patent office); Caterpillar Tractor Co. v. Berco, S.p.A., 714 F.2d 1110, 1116 (Fed. Cir. 1983).

> Though no authority is cited for the proposition that instructions to foreign counsel and a representation to foreign patent offices should be

considered, and the varying legal and procedural requirements for obtaining patent protection in foreign countries might render consideration of certain types of representations inappropriate, there is ample such authority in decisions of other courts[,] and when such matters comprise relevant evidence they must be considered.
Id.

[FN147]. Compare Jonsson, 903 F.2d at 820-21 (limiting scope of claim based on inventor's deposition testimony because "patentee may be his own lexicographer"), with Markman v. Westview Instruments, Inc., 52 F.3d 967, 985 (Fed. Cir. 1995) (en banc) ("The subjective intent of the inventor when he used a particular term is of little or no probative weight in determining the scope of a claim (except as documented in the prosecution history)."), aff'd, 517 U.S. 370 (1996), and North Am. Vaccine, Inc. v. American Cyanamid Co., 7 F.3d 1571, 1578 (Fed. Cir. 1993) ("A patent is to be interpreted by what it states rather than by what the inventor wrote in a scientific publication."), and discussion supra Part III.A.1.

[FN148]. "B contracts with A to erect an expensive building on A's land. C's adjoining land would be enhanced in value by the performance of the contract. C is an incidental beneficiary." Restatement (Second) of Contracts ¤ 302 cmt. e, illus. 16 (1979). "An incidental beneficiary acquires by virtue of the promise no right against the promisor or the promisee." Id. ¤ 315.

[FN149]. See Restatement (Second) of Contracts ¤ 33(1) ("Even though a manifestation of intention is intended to be understood as an offer, it cannot be accepted so as to form a contract unless the terms of the contract are reasonably certain."); but cf. U.C.C. ¤ 2-204(3) (1977) ("Even though one or more terms are left open a contract for sale does not fail for indefiniteness if the parties have intended to make a contract and there is a reasonably certain basis for giving an appropriate remedy.").

[FN150]. See 35 U.S.C.A. ¤ 135 (West 2000); 37 C.F.R. ¤ 1.607(d) (1999).

[FN151]. See 35 U.S.C.A. ¤ 155; 37 C.F.R. ¤ 1.780.

[FN152]. See 35 U.S.C.A. ¤ 251; 37 C.F.R. ¤ 1.179.

[FN153]. See 35 U.S.C. ¤ 253 (1994); 37 C.F.R. ¤ 1.321(a).

[FN154]. See 35 U.S.C.A. ¤¤ 254-256; 37 C.F.R. ¤¤ 1.322-.324.

[FN155]. See 35 U.S.C. ¤ 261; 37 C.F.R. ¤ 1.12.

[FN156]. See 35 U.S.C.A. ¤ 290.

[FN157]. See 35 U.S.C. ¤ 301; 37 C.F.R. ¤ 1.501.

[FN158]. See 35 U.S.C.A. ¤¤ 303(b), 312(b); 37 C.F.R. ¤ 1.515.

[FN159]. For example, the LEXPAT Library on LEXIS provides electronic access to all recent patents and their assignments, certificates of correction, term extensions, adverse decisions, reexamination certificates, reissues, disclaimers, dedications, and litigation notices -- but not their prosecution histories. Prosecution histories are only available by mail for a not insubstantial fee. See supra note 84. Perhaps for these reasons, commentators express doubts whether accused infringers act in reliance on prosecution

histories. See Dvorak, supra note 2, at 144 ("It is particularly difficult to picture the large number of alleged infringers sifting through the patent office files and being misled by applicant's statements contained in those records."); cf. Camp Bros. & Co. v. Portable Wagon Dump & Elevator Co., 251 F. 603, 608 (7th Cir. 1918).

> The resultant inconvenience of holding [information deleted from a patent application during prosecution] to be publication [for purposes of prior art] -- indeed, the practical impossibility of making in each case the search necessary to learn whether or not there lies buried in some one file wrapper of the infinite number in the Patent Office, some paper disclosure of an invention, of itself, apart from its inherent want of the elements of a public disclosure -- induces the conclusion that it may not be regarded as such a publication.

Id.

[FN160]. $3 million revenue - $100,000 fixed cost - $1 million variable cost = $1.9 million liability.

[FN161]. Cf. supra note 35 and accompanying text (noting doctrine of intervening rights only excuses infringement to extent equity requires).

[FN162]. See 5A CHISUM ON PATENTS, supra note 2, ¤ 18.05[1][a] ("File wrapper estoppel does not conform to the concept of 'estoppel' as that term is used in other legal contexts.").

[FN163]. 35 U.S.C. ¤ 271(a) (1994) (emphasis added).

[FN164]. See Wang Labs., Inc. v. Mitsubishi Elecs. Am., Inc., 103 F.3d 1571, 1578-82 (Fed. Cir. 1997) (finding implied license in nature of equitable estoppel (citing De Forest Radio Tel. & Tel. Co. v. United States, 273 U.S. 236, 241 (1927)). The court noted that implied licenses also can arise by acquiescence, conduct, or legal estoppel. See id. at 1580.

[FN165]. Spindelfabrik Suessen-Schurr, Stahlecker & Grill GmbH v. Schubert & Salzer Maschinenfabrik Aktiengesellschaft, 829 F.2d 1075, 1081 (Fed. Cir. 1987), cited with approval in Carborundum Co. v. Molten Metal Equip. Innovations, Inc., 72 F.3d 872, 878 (Fed. Cir. 1995).

[FN166]. "The surrender, relinquishment, disclaimer, or cession of property or of rights. Voluntary relinquishment of all right, title, claim and possession, with the intention of not reclaiming it." BLACK'S, supra note 83, at 2; cf. 35 U.S.C.A. ¤ 102(c) (West 2000) ("A person shall be entitled to a patent unless ... he has abandoned the invention ...."); id. ¤ 102(g); id. ¤ 133 ("Upon failure of the applicant to prosecute the application within six months after any action therein ... the application shall be regarded as abandoned ...."). Few cases have considered the meaning of "abandonment" in ¤¤ 102(c) and 133, in part because of the one-year, see id. ¤ 102(b); In re Gibbs, 437 F.2d 486 (C.C.P.A. 1971) (Rich, J.) (claimed subject matter not abandoned despite disclosure of claimed subject matter in applicant's patent that was issued less than one year before application), and six-month, see 35 U.S.C.A. ¤ 133, grace periods, respectively, provided by the Patent Act. Chisum believes the proper question to ask is, "[H]as there been a deliberate or unexcused delay in seeking patent rights that unjustifiably extends the statutory period of monopoly?" 2 CHISUM ON PATENTS, supra note 2, ¤ 6.03[2]. Because the doctrine of equivalents does not extend the period of monopoly, the term "abandonment" found within ¤¤ 102(c) and 133 cannot justify prosecution history estoppel. Similarly, the term "abandonment" found within

¤ 102(g) provides no justification for prosecution history estoppel. Section 102(g), which determines priority on a "first-to- invent" standard, rather than the "first-to-file" standard used by most countries, does not use the term "abandonment" in any traditional sense: the phrase "abandoned, suppressed, or concealed" is used simply to distinguish the continuous "diligence" required of someone who was "first-to-invent" who wants to gain priority over someone who was "first-to-file." If an inventor "abandons" his invention under ¤ 102(g) but later resumes work on the invention, he can rely on the date of resumption as his date of invention. See Fujikawa v. Wattanasin, 93 F.3d 1559, 1569 (Fed. Cir. 1996).

[FN167]. "The appropriation of land, or an easement therein, by the owner, for the use of the public, and accepted for such use by or on behalf of the public." BLACK'S, supra note 83, at 412. Compare Maxwell v. J. Baker, Inc., 86 F.3d 1098, 1106-07 (Fed. Cir. 1996) ("subject matter disclosed but not claimed in a patent application is dedicated to the public" (internal quotation marks omitted) (quoting Unique Concepts, Inc. v. Brown, 939 F.2d 1558, 1562- 63 (Fed. Cir. 1991) (citing Miller v. Brass Co., 104 U.S. 350, 352 (1881) (Bradley, J.)))), with YBM Magnex, Inc. v. International Trade Comm'n, 145 F.3d 1317, 1320 (Fed. Cir. 1998).

The Supreme Court's guidance in [Warner-Jenkinson] and [Graver Tank] does not permit the blanket rule that everything disclosed but not claimed is barred from access to the doctrine of equivalents, whatever the facts, circumstances, and evidence. Maxwell accords with the Court's precedent only when its decision is understood and applied in light of its particular facts. Id.

[FN168]. "The repudiation or renunciation of a claim or power vested in a person or which he had formerly alleged to be his." BLACK'S, supra note 83, at 464; cf. 35 U.S.C. ¤ 253 (1994).

Whenever, without any deceptive intention, a claim of a patent is invalid the remaining claims shall not thereby be rendered invalid. A patentee, whether of the whole or any sectional interest therein, may, on payment of the fee required by law, make disclaimer of any complete claim, stating therein the extent of his interest in such patent. Such disclaimer shall be in writing, and recorded in the Patent and Trademark Office; and it shall thereafter be considered as part of the original patent to the extent of the interest possessed by the disclaimant and by those claiming under him.

In like manner any patentee or applicant may disclaim or dedicate to the public the entire term, or any terminal part of the term, of the patent granted or to be granted.

Id. Prosecution history estoppel applies to statements that do not meet the strict requirements for disclaimer found in ¤ 253.

[FN169]. "The intentional or voluntary relinquishment of a known right ...." BLACK'S, supra note 83, at 1580; see also Johnson v. Zerbst, 304 U.S. 458, 464 (1938) ("A waiver is ordinarily an intentional relinquishment or abandonment of a known right or privilege."), overruled on other grounds, Edwards v. Arizona, 451 U.S. 477 (1981), examined in Schneckloth v. Bustamonte, 412 U.S. 218, 235-46 (1973), cited with approval in Massie v. United States, 166 F.3d 1184, 1190 n.** (Fed. Cir. 1999). Waiver is closely related to estoppel but differs in two respects: waiver must be intentional, while estoppel need not be, and waiver only considers the conduct of one party, while estoppel considers the conduct of both parties. See 31 C.J.S. Estoppel and Waiver ¤ 70 (1996).

[FN170]. "A comprehensive term which means a divestiture of specific property without compensation; it imposes a loss by the taking away of some preexisting valid right without compensation." BLACK'S, supra note 83, at 650.

[FN171]. 315 U.S. 126 (1942).

[FN172]. See id. at 136-37.
By the amendment, [the applicant] recognized and emphasized the difference between the two phrases and proclaimed his abandonment of all that is embraced in that difference. The difference which he thus disclaimed must be regarded as material, and since the amendment operates as a disclaimer of that difference it must be strictly construed against him.
Id. (citations omitted) (citing, inter alia, Hubbell v. United States, 179 U.S. 77, 83 (1900); Shepard v. Carrigan, 116 U.S. 593, 598 (1886); Goodyear Dental Vulcanite Co. v. Davis, 102 U.S. 222, 228 (1880)).

[FN173]. When the Supreme Court fashioned its new rebuttable presumption for prosecution history estoppel, see supra note 54 and accompanying text, the Court noted only two rationales: public notice and the primacy of the Patent Office. See Warner-Jenkinson Co. v. Hilton Davis Chem. Co., 520 U.S. 17, 33-34 (1997).

[FN174]. See Insituform Techs., Inc. v. Cat Contracting, Inc., 99 F.3d 1098, 1107-08 (Fed. Cir. 1996) ("In examining the prosecution history in an estoppel analysis, we do not look to the subjective intent of the applicant and what the applicant subjectively believed or intended that he or she was giving up to the public." (citing, inter alia, Haynes Int'l, Inc. v. Jessop Steel Co., 8 F.3d 1573, 1578 (Fed. Cir. 1993) ("The legal standard for determining what subject matter was relinquished is 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."))).

[FN175]. See supra notes 142-49 and accompanying text.

[FN176]. Warner-Jenkinson Co. v. Hilton Davis Chem. Co., 520 U.S. 17 (1997).

[FN177]. See supra note 54 and accompanying text.

[FN178]. See Warner-Jenkinson, 520 U.S. at 33-34 ("The [rebuttable] presumption we have described ... 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.").

[FN179]. See 5A CHISUM ON PATENTS, supra note 2, ¤ 18.05[1][c] ("Perhaps the most satisfactory rationale for file wrapper (prosecution history) estoppel is that of exhaustion of administrative remedies."); see also id. ("[T]he appropriate inquiry is whether the file wrapper reveals a construction of the claim in question held mutually by the patent examiner and the applicant which is at variance with the construction currently relied upon by the patent owner." (footnote omitted)).

[FN180]. See id. ("If an inventor adopts a narrower definition in the Patent and Trademark Office in order to obtain a patent and then relies upon a

broader definition in an infringement suit, he pro tanto circumvents the administrative procedures and expertise of the Office." (footnote omitted)).

[FN181]. See supra note 127 and accompanying text; Restatement (Second) of Judgments ¤ 83 (1980) (administrative adjudications).

[FN182]. See 18 CHARLES ALAN WRIGHT, ARTHUR R. MILLER & EDWARD H. COOPER, FEDERAL PRACTICE AND PROCEDURE ¤ 4402 (1981) (citing Kaspar Wire Works, Inc. v. Leco Eng'g & Mach., Inc., 575 F.2d 530, 535-36 (5th Cir. 1978)); Restatement (Second) of Judgments ¤ 17.

[FN183]. See Restatement (Second) of Judgments ¤ 18 (merger); id. ¤ 19 (bar); see also id. ¤ 24 (defining "transaction").

[FN184]. See id. ¤ 27.

[FN185]. See id. ¤ 29.

[FN186]. 402 U.S. 313 (1971) (overruling in part Triplett v. Lowell, 297 U.S. 638 (1936)); see also TM Patents, L.P. v. International Bus. Machs. Corp., 72 F. Supp. 2d 370 (S.D.N.Y. 1999) (allowing defensive nonmutual issue preclusion for claim construction).

[FN187]. 439 U.S. 322 (1979).

[FN188]. Before allowing nonmutual issue preclusion, the Federal Circuit requires the precluding party to show: (1) that in a prior action, the party against whom estoppel is sought had a full and fair opportunity to litigate the issue, (2) the issue was actually litigated, (3) the controlling facts and applicable legal rules were the same in both actions, (4) resolution of the particular issue was essential to the final judgment in the first action, and (5) the identical issue was decided in the first action. See Comair Rotron, Inc. v. Nippon Densan Corp., 49 F.3d 1535, 1537 (Fed. Cir. 1995).

[FN189]. See, e.g., Mentor Corp. v. Coloplast, Inc., 998 F.2d 992, 995 (Fed. Cir. 1993).

[FN190]. See Hester Indus., Inc. v. Stein, Inc., 142 F.3d 1472, 1481 (Fed. Cir. 1998) ("[T]he recapture rule is quite similar to prosecution history estoppel ....").

[FN191]. Cf. supra note 40 and accompanying text (noting third-party participants in reexamination proceedings are estopped from later raising claims that were or could have been raised during reexamination).

[FN192]. Cf. BIGELOW, supra note 124, at 73 ("The decisions of the United States commissioner of patents for invention are also binding in collateral actions." (citing, inter alia, Providence Rubber Co. v. Goodyear, 76 U.S. (9 Wall.) 788 (1869))); Restatement (Second) of Judgments ¤ 30 (1980) (judgments in rem); cases cited supra note 186.

[FN193]. See 35 U.S.C.A. ¤ 2(a) (West 2000) ("The United States Patent and Trademark Office ... shall be responsible for the granting and issuing of patents and the registration of trademarks ....").

[FN194]. See, e.g., Merck & Co. v. Kessler, 80 F.3d 1543, 1549-50 (Fed. Cir. 1996) ("As we have previously held, the broadest of the PTO's rulemaking

powers -- [35 U.S.C.A. ¤ 2(b)(2)(A)] -- authorizes the Commissioner to promulgate regulations directed only to 'the conduct of proceedings in the [PTO]'; it does NOT grant the Commissioner the authority to issue substantive rules .... Thus, the rule of controlling deference set forth in Chevron does not apply."); Glaxo Operations UK Ltd. v. Quigg, 894 F.2d 392, 398-99 (Fed. Cir. 1990).

[FN195]. For the history of reissue and recapture, see generally 4 CHISUM ON PATENTS, supra note 2, ¤¤ 15.02 15.03[2][e]. For a contemporary account of the Supreme Court's changing attitude toward reissue, see Rowland Cox, Reissued Patents -- The Position of the Supreme Court, 15 AM. L. REV. 731, 731 (1881) (criticizing Supreme Court decisions retreating from "the accepted rule [of Seymour v. Osborne, 78 U.S. (11 Wall.) 516 (1870)] that the statutory provisions concerning reissues [are] to be liberally construed, so as to insure to the inventor the full enjoyment of his discovery"); Lewis M. Hosea, Correspondence, Position of the Supreme Court in Relation to the Doctrine of Reissues, 16 AM. L. REV. 169, 177 (1882).

> [I]t would seem that [Mr. Cox] has taken somewhat too hasty a survey of the situation, and perhaps sees dangers where none exist; for it can hardly be conceived that in a country so blessed as ours has been by its inventors, the court of last resort would seek to deprive them of the fruits of their labor by an arbitrary and manifestly unfair construction of a statute passed for their protection.

Id.; Henry Baldwin, Jr., Correspondence, "Reissued Patents -- The Position of the Supreme Court": A View Reviewed, 16 AM. L. REV. 57, 76 (1882) ("An accurate estimate of what has been decided will allay the fears excited by Mr. Cox's article. Honest patentees and owners of honest patents may contemplate with equanimity their meritorious reissues riding at anchor, under the lee of the Supreme Court, in the unruffled roadstead of [Seymour v. Osborne]."); Rowland Cox, Correspondence, The Reissue Question -- A Reply to Mr. Baldwin, 16 AM. L. REV. 163, 163 (1882) ("Mr. Baldwin's article ... has perhaps ceased to be valuable, except as a scholarly review of a number of important cases." (citing Miller v. Brass Co., 104 U.S. 350 (1881) (Bradley, J.))); Lewis M. Hosea, Reissued Patents -- The Dictum of Justice Bradley Examined, 16 AM. L. REV. 296, 301 (1882).

> To demand of the inventor that he shall possess and exercise the prescience of the ultimate consequences of his discovery, and describe his invention in the light cast upon it by the after results of its use, is to demand of infancy the mature wisdom of age and experience .... To bind him to his first crude and imperfect conceptions of his invention would be as rational as to require the miner who should find a lucky deposit of diamonds to part with them for the price of glass beads, because he at first supposed them to be such.

Id.; Louis N. Dembitz, Correspondence, The Reissue of Patents, 16 AM. L. REV. 618, 618-19 (1882).

> I have read with much interest the papers of Mr. Rowland Cox, Mr. Baldwin, and Mr. Hosea on the question of reissued patents; but being ... inclined to the extreme position which the Supreme Court has finally taken [in Miller v. Brass Co.], I disagree with all of them, in fully approving this position ....
>
> ...
>
> I am well aware that ninety-nine out of every one hundred reissues are taken for no other purpose than to broaden the claim, and that thus [Miller v. Brass Co.] will at one fell swoop throw ninety-nine out of every one hundred reissued patents into the waste-basket or grate-fire.

Id.; Rowland Cox, The Reissue Question -- The Decisions of the Last Term of the Supreme Court, 16 AM. L. REV. 661, 662 (1882).

The question now nearest to the bar, as well as the patentee, is whether the judicial pendulum will go further. There is little difficulty in locating the point it has touched; but it is not impossible that the limit of its are has not been reached.

If the principle upon which the decisions rest is to be recognized wherever it obtains, the new doctrine will go beyond the necessities of the situation it so exactly controls, and will defeat the suitor in cases which are based upon original patents, as well as those where the right rests on an amended grant.

Id.

[FN196]. 101 U.S. 256 (1879) (Bradley, J.).

[FN197]. See supra notes 18-19 and accompanying text.

[FN198]. 101 U.S. at 259-60.

[FN199]. 116 U.S. 593 (1886) (Woods, J.).

[FN200]. See supra note 64 and accompanying text.

[FN201]. Shepard relied on six cases. Three of the cases, see Sargent v. Hall Safe & Lock Co., 114 U.S. 63, 86 (1885) (Blatchford, J.); Fay v. Cordesman, 109 U.S. 408, 420-21 (1883) (Blatchford, J.); Goodyear Dental Vulcanite Co. v. Davis, 102 U.S. 222, 228 (1880) (Strong, J.) (citing Leggett and applying prosecution history estoppel in dictum), emphasize the importance of the claim language. Two of the cases, see Mahn v. Harwood, 112 U.S. 354, 357-58 (1884) (Bradley, J.) (citing Miller v. Brass Co., 104 U.S. 350, 355-56 (1881) (Bradley, J.)); Leggett, 101 U.S. at 259-60, consider the doctrine of recapture. The other case, Union Metallic Cartridge Co. v. United States Cartridge Co., 112 U.S. 624 (1884) (Blatchford, J.), rev'g 7 F. 344 (C.C.D. Mass. 1881) (Lowell, C.J.), is the most interesting of the six cases. The patent in question described a movable die and a stationary bunter. The inventor tried to reissue the patent to mention a stationary die and a movable bunter, but the Patent Office required the inventor to disclaim this part of the description to receive the reissued patent. The accused device used a stationary die and a movable bunter. In the circuit court, Chief Judge Lowell affirmed a master's finding of infringement under the doctrine of equivalents, despite Leggett, because "if the patentee's invention and his patent rightly included [a stationary die and a movable bunter], as an equivalent, it was a mere nullity, like an admission of law, to confess [to the Patent office during reissue] that it did not include it." 7 F. at 346-47. The Supreme Court reversed, stating "[t]he question of fact is not open now as to whether ... [the stationary die and movable bunter] was, or is, or could be, a mechanical equivalent for the [movable die and stationary bunter] because those questions are concluded by the disclaimer." 112 U.S. at 645. Although this holding could be seen as creating prosecution history estoppel, later cases credit Shepard with originating the doctrine.

[FN202]. Shepard, 116 U.S. at 598.

[FN203]. See Warner-Jenkinson v. Hilton Davis Chem. Co., 520 U.S. 17, 31 (1997) (citing, inter alia, Exhibit Supply Co. v. Ace Patents Corp., 315 U.S. 126 (1942)); Exhibit Supply, 315 U.S. at 137 (citing, inter alia, Shepard); Keystone Driller Co. v. Northwest Eng'g Corp., 294 U.S. 42, 48 n.7 (1935) (same); Hubbell v. United States, 179 U.S. 77, 80 (1900) (same); Knapp v. Morss, 150 U.S. 221, 224-25 (1893) (same); Roemer v. Peddie, 132 U.S. 313,

317 (1889) (same); Sutter v. Robinson, 119 U.S. 530, 541 (1886) (citing Shepard).

[FN204]. Holmes, supra note 121, at 469, reprinted in 110 HARV. L. REV. at 1001; see also Giles S. Rich, Foreword to CHISUM ET AL., supra note 15, at iii, vi ("I believe that progress in legal thinking is not only possible but essential and that this generation should have a clearer understanding of patent law than previous generations, notwithstanding stare decisis. So THINK!").
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