

Taking Patents

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Abstract

The America Invents Act (AIA) was widely hailed as a remedy to the excessive number of patents that the Patent & Trademark Office issued, and especially ones that would later turn out to be invalid. In its efforts to eradicate “patent trolls” and fend off other ills, however, the AIA introduced serious constitutional problems that this Article brings to the fore. We argue that the AIA’s new “second-look” mechanisms in the form of Inter Partes Review (IPR) and Covered Business Method Review (CBMR) have greatly altered the scope of vested patent rights by modifying the boundaries of existing patents. The changes in the boundaries of the patent grant made it significantly more likely that the patent owner would see his patent invalidated. This new state of affairs has already reduced the value of some patents that were obtained before the AIA became effective, and further declines will likely follow. We show on the basis of constitutional takings

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jurisprudence that the loss of value that some patent owners have suffered as a result of the new procedures—even if their patents have not been specifically subjected to them—potentially compare with physical takings and definitely fall under the umbrella of regulatory takings. The way to remedy these failings is for the government either to change its procedures or provide just compensation to the patent owners that received patents from the PTO before the enactment of the AIA.

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I. Introduction

This Article demonstrates for the first time that recent changes in patent law have yielded unconstitutional results by forcing a taking of patent owners' property. We show that the new post-issuance proceedings under the America Invents Act (AIA)¹ have occasioned a permanent reduction in the value of patents granted before the enactment of the Act. Patent owners have a colorable claim that this redrawing of the boundaries of their intellectual property resembles a physical taking, and they have an even stronger claim that they have suffered a regulatory taking without just compensation. We argue that the most straightforward solution to this significant problem is either to change the scope of post-issuance review procedures or to make pre-AIA patents ineligible for such review.²

In 2011, after a decades-long debate, Congress enacted a series of patent reforms meant to decrease the cost of patent

1. Pub. L. No. 112-29, 125 Stat. 284 (2011) (codified in scattered sections of 28 and 35 U.S.C.).

2. See *infra* Part VI (arguing that “only legislative or judicial intervention” can solve the takings issues raised by the AIA).

litigation, reduce the number of “dubious” or improperly granted patents, and increase the certainty of patent rights.³ The mechanism that Congress chose to accomplish these goals is an increase of power of the Patent and Trademark Office (PTO)⁴ to adjudicate certain patent disputes in quasi-judicial, yet ultimately administrative proceedings.⁵ Under the new post-issuance review procedures, a number of challenges to patent validity can now be adjudicated in the PTO, rather than in court.⁶ The objectives of the new system are faster and more consistent outcomes.⁷ These twin goals are supposed to be achieved by having an expert body of specialized Administrative Patent Judges adjudicate the disputes⁸ and imposing strict statutory deadlines on resolving the cases.⁹ Reduction in costs and increase

3. See Pub. L. No. 112-29, 125 Stat. 284, 284 (2011) (noting that the bill was “to provide for patent reform”); Gregory Dolin, *Dubious Patent Reform*, 56 B.C. L. REV. 881, 881–82 (2015) [hereinafter Dolin, *Dubious Patent Reform*] (noting Congress’s attempt to reform the patent system and the problems it was trying to address).

4. Prior to 1881, when trademark registration and examination were added to its functions, the PTO was known simply as the “Patent Office.” See Ty Halasz, Comment, *The Game of the Name: Shortcomings in the Dual-Agency Review of Drug Trademarks and a Remedial Cure*, 64 ADMIN. L. REV. 235, 241 (2012) (describing the history of the patent office, beginning with the Patent Act of 1793).

5. See Sarah Tran, *Policy Tailors and the Patent Office*, 46 U.C. DAVIS L. REV. 487, 498–99 (2012) (describing how Congress gave the PTO wide discretion in the AIA to prioritize and adjudicate patent claims).

6. 35 U.S.C. §§ 301–329 (2012); H.R. REP. NO. 112-98, pt. 1, at 46–48 (2011).

7. See *id.* at 38–40 (noting the purpose of the law); Jonathan Tamimi, Note, *Breaking Bad Patents: The Formula for Quick, Inexpensive Resolution of Patent Validity*, 29 BERKELEY TECH. L.J. 587, 587 (2014) (expressing hope that these better outcomes will help stop some of the “innovation-stifling” effects of the previous system).

8. See *PersonalWeb Techs., LLC v. Facebook, Inc.*, No. 5:13-CV-01356-EJD, 2014 WL 116340, at *4 (N.D. Cal. Jan. 13, 2014) (“Indeed, allowing these invalidity arguments to be determined once, employing the specialized expertise of the PTO, produces the exact results—avoiding duplicative costs and efforts and averting the possibility of inconsistent judgments—intended by the AIA and previous procedures.”).

9. See Andrew Byrnes, *Standing Sentinel over Innovation: The Importance of a Balanced and Effective IP System*, 18 CHAP. L. REV. 617, 628 (2015) (noting how the procedures allowed by the AIA are faster than those in the federal court system).

in speed, however, were not the only aims of the 2011 AIA reforms.¹⁰ Instead, much of the debate was focused on the problem of so-called “patent trolls” or entities whose business model is not the in-house production of tangible goods but rather the licensing of their inventions who engage in such production.¹¹ Congress was convinced that “patent trolls” are a significant drain on the economy and that measures must be taken to reduce the ability of the “trolls” to “blackmail” other companies into payments of supposedly unwarranted licensing fees.¹² Congress became convinced that many issued patents should have never seen the light of day¹³ and that the PTO needed a “toolbox of new or fortified proceedings in which it may weed out low quality patents.”¹⁴

To accomplish this goal, Congress created a set of new administrative review procedures housed in the PTO.¹⁵ These procedures, often collectively referred to as “post-issuance proceedings,” ostensibly allow the PTO to correct its own mistakes in issuing a patent in the first place.¹⁶ In creating these

10. See Tracie L. Bryant, Note, *The America Invents Act: Slaying Trolls, Limiting Joinder*, 25 HARV. J.L. & TECH. 687, 688 (2012) (noting that the AIA wanted to stop patent trolls and change some of the rules for joinder).

11. See *id.* (discussing how patent trolls are commonly criticized as reducing American innovation); Jared A. Smith & Nicholas R. Transier, *Trolling for an NPE Solution*, 7 HASTINGS SCI. & TECH. L.J. 215, 222 (2015) (noting that the Executive Branch has worked to stop patent trolls).

12. See Bryant, *supra* note 10, at 694 (describing the elements of the AIA); Aria Soroudi, *Defeating Trolls: The Impact of Octane and Highmark on Patent Trolls*, 35 LOY. L.A. ENT. L. REV. 319, 323 (2015) (describing how these “patent trolls” acquire the patents that they use to “blackmail” other companies). For a discussion on how “patent trolls” can supposedly “blackmail” their targets, see generally Robert P. Merges, *The Trouble with Trolls: Innovation, Rent-Seeking, and Patent Law Reform*, 24 BERKELEY TECH. L.J. 1583, 1588 (2009).

13. See, e.g., 157 CONG. REC. S7413 (daily ed. Nov. 14, 2011) (statement of Sen. Kyl) (arguing that the AIA is needed to get rid of the “worst patents, which probably never should have been issued”).

14. Tran, *supra* note 5, at 498–99.

15. See 35 U.S.C. §§ 301–329 (2012) (outlining the requirements for reviewing patent applications); Dolin, *Dubious Patent Reform*, *supra* note 3, at 913–23 (describing the procedures).

16. See Note, *Recasting the U.S. International Trade Commission’s Role in the Patent System*, 126 HARV. L. REV. 2337, 2342 (2013) (“The AIA overhaul was expressly designed to address the endemic problem of low patent quality outlined in the introduction to this Note by better empowering the PTO as a

new mechanisms, Congress insisted on speed by providing a specific deadline for completion of each post-issuance proceeding¹⁷ but left all other details of design and implementation to the PTO.¹⁸

The procedures adopted by the PTO—in conjunction with the congressional abrogation of the “clear and convincing” standard for declaring a patent invalid in the context of post-issuance proceedings¹⁹—have had a serious effect on the value of patents to their owners, and for good reason.²⁰ The economic value of a patent must take into account the chance that the patent itself will be declared invalid during litigation.²¹ That chance is almost never zero, even with respect to the “strongest,” most innovative

forum for invalidating bad patents.”).

17. See 35 U.S.C. § 316(a)(11) (requiring the director to issue all final determinations within one year, except when the director extends the period by six months for good cause); *id.* § 326(a)(11) (laying out the same timeline requirements for post-grant review); Leahy–Smith America Invents Act, Pub. L. No. 112-29, § 18(a)(1), 125 Stat. 284, 330 (2011) (describing the mechanisms for the various proceedings); Dolin, *Dubious Patent Reform*, *supra* note 3, at 909 (describing the limitations of these proceedings). The America Invents Act required CMBR to be conducted under the same rules as PGR. Thus, all citations to the rules governing the conduct of PGR apply with equal force to CBMR. See Leahy–Smith America Invents Act § 18(a)(1), 125 Stat. at 330 (requiring that CMBR “be regarded as, and shall employ the standards and procedures of, a post-grant review”). To avoid unnecessary prolixity, whenever there are no differences between PGR and CBMR, we cite to the relevant provision governing the conduct of PGR.

18. See 35 U.S.C. § 316(a) (requiring the Director of the PTO to prescribe regulations for the conduct of the IPR); *id.* § 326(a) (requiring the same for the conduct of PGR and CBMR).

19. See *id.* § 316(e) (establishing a “preponderance of the evidence” standard for declaring a patent invalid in IPR); *id.* § 326(e) (requiring the same for PGR and CBMR).

20. See Brief for 3M Co. et al. as Amici Curiae Supporting Cuozzo Speed Technologies LLC’s Petition for Rehearing en banc, *In re Cuozzo Speed Techs., LLC*, 793 F.3d 1297, 1304 (Fed. Cir. Feb. 29, 2015) (noting that the court’s decision goes against “sound patent policy”); Jennifer L. Case, *How the America Invents Act Hurts American Inventors and Weakens Incentives to Innovate*, 82 UMKC L. REV. 29, 67 (2013) (explaining how innovation is stifled when inventors have low confidence in acts like the AIA).

21. See Herbert Hovenkamp, Mark Janis & Mark A. Lemley, *Anticompetitive Settlement of Intellectual Property Disputes*, 87 MINN. L. REV. 1719, 1761 (2003) (discussing how settlement negotiations can be hampered).

and thoroughly examined patents.²² The higher the chance that the patent is invalid, the lower the value of the patent to the patentee,²³ and the lower the price he will obtain in any licensing or sale of that patent.²⁴ Consequently, making a patent easier to invalidate necessarily reduces the value of that patent.²⁵ This would not present a problem if the rule change were prospective only, meaning if the lower standard applied only to patents issued after the effective date of the AIA.²⁶ Though the wisdom of making issued patents easier to invalidate can be debated,²⁷ a prospective rule change would allow the inventors, investors, patent applicants, and patentees to adjust their behavior and investment decisions based on the known projected return on their investment.²⁸ Yet, when the rules are changed retroactively, such as when already issued patents are subject to new legislative and administrative rules that could not have been anticipated at the time the patent was issued, the patentees lose that which makes their patents actually valuable.²⁹ As we

22. See Barry C. Harris et al., *Activating Actavis: A More Complete Story*, 28 ANTITRUST 83, 88 n.25 (2014) (noting how brand name drug companies have an incentive to settle with generic drug companies instead of litigating patents). Cf. Maureen A. O'Rourke & Joseph F. Brodley, *An Incentives Approach to Patent Settlements: A Commentary on Hovenkamp, Janis and Lemley*, 87 MINN. L. REV. 1767, 1779 (2003) (discussing the option of awarding attorney's fees to attorneys who bring successful patent claims).

23. See Hovenkamp, Janis & Lemley, *supra* note 21, at 1761 (remarking that a patent is only the right to "try" to exclude, often with low odds of success).

24. See Harold See & Frank M. Caprio, *The Trouble with Brulotte: The Patent Royalty Term and Patent Monopoly Extension*, 1990 UTAH L. REV. 813, 842–43 (1990) (discussing cases where low valuations of patents were made).

25. See *id.* at 843 ("The monopoly power of a patent, and therefore its value, is not absolute.").

26. See Benjamin K. Guthrie, *Beyond Investment Protection: An Examination of the Potential Influence of Investment Treaties on Domestic Rule of Law*, 45 N.Y.U. J. INT'L L. & POL. 1151, 1185 (2013) (noting that "prospective rules [allow] persons [to] plan their behavior").

27. Cf. *Lab. Corp. of Am. Holdings v. Metabolite Labs., Inc.*, 548 U.S. 124, 127 (2006) (Breyer, J., dissenting) (discussing the pros and cons of patent protection).

28. See Guthrie, *supra* note 26, at 1185 (noting that "prospective rules [allow] persons [to] plan their behavior").

29. See generally Louis Kaplow, *An Economic Analysis of Legal Transitions*, 99 HARV. L. REV. 511, 516 (1986) ("[I]nvestment decisions must be based—at least implicitly—on some assumptions concerning what [legal] rules

demonstrate in this Article, these retroactive changes present a serious constitutional problem.

Part II describes the history of patent reform leading up to and including the AIA. Part III explains how patent claim construction proceeded in the court system before the PTO. In Part IV, we discuss the history of takings jurisprudence from the early days to recent Supreme Court pronouncements on the subject. Part V applies that doctrine to the context of post-issuance review of patents granted before enactment of the AIA and shows that these types of patents have suffered an unconstitutional taking without just compensation. Part VI concludes.

II. The History of Patent Reform

A. The Creation of a “Claim”

The American patent system boasts a long history. The first Patent Act was passed by the very first Congress, a mere year after the Constitution was ratified.³⁰ Though the patent system has undergone many changes over the last two plus centuries, the first Patent Act had a number of provisions that are similar to the current statute.

When it was initially created, the system involved rudimentary examination of an application for a patent.³¹ The first Patent Act also created a progenitor of the modern reexamination process.³² Under the provisions of the 1790 Act,

and policies will be. To the extent that future government action departs from these expectations, the value of investments will be affected.”).

30. Patent Act of 1790, ch. 7, 1 Stat. 109 (1790) (repealed 1793).

31. See Andrew P. Morriss & Craig Allen Nard, *Institutional Choice & Interest Groups in the Development of American Patent Law: 1790–1865*, 19 SUP. CT. ECON. REV. 143, 150–51 (2011) (discussing the early examination system); Edward C. Walterscheid, *Novelty & the Hotchkiss Standard*, 20 FED. CIR. B.J. 219, 228 (2010) (describing the process for receiving a patent under the 1790 Act, including the “substantial and important” standard).

32. See Walterscheid, *supra* note 31, at 230–32 (explaining how the boards established by the 1790 Act led to an early version of the reexamination process as the boards tried to determine whether to grant patents or not).

within one year of a patent's issuance, any person could file a suit in a district court seeking cancellation of a patent.³³ Provided that a sufficient initial showing was made, the burden would shift to the patentee to prove that the patent was properly issued.³⁴ Failure to do so resulted in cancellation of the patent.³⁵ Thus, in some sense, for the first year post-issuance, the patent was provisional.

The 1790 Act was relatively short-lived. Given that it required three out of five Cabinet officials to spend their time examining patents rather than attending to their other, more direct duties, it is unsurprising that pressure was soon brought to bear to switch to a different system.³⁶ Congress readily obliged, but in doing so, it abolished patent examination altogether.³⁷ Instead, under the new system, the applicant simply swore an oath that he was a true inventor of whatever he described in his application and paid a fee to have the patent issued.³⁸ The 1793 Act also expanded the cancellation practice by extending the time to seek such cancellation from one year to three years.³⁹ The Act also did away with the presumption of validity.⁴⁰ Nonetheless, the patentees who obtained their rights under the earlier regime kept them even in the face of that Act's repeal.⁴¹

As could be surmised, patents granted without any substantive examination were quite often of rather dubious

33. Patent Act of 1790, § 5.

34. *Id.*

35. *Id.*

36. See Morriss & Nard, *supra* note 31, at 150–51 (noting that the Secretary of State Thomas Jefferson was particularly opposed to the act).

37. See *id.* (explaining how the 1793 Act shifted the gatekeeper and examination role in patent applications to the courts). See generally Patent Act of 1793, ch. 11, 1 Stat. 318 (1793) (repealed 1836).

38. Patent Act of 1793, §§ 1, 11.

39. *Id.* § 10.

40. Compare Patent Act of 1790, § 6 (making issued patents *prima facie* evidence of the exclusive rights by the patentee), with Patent Act of 1793, § 6 (lacking a similar provision). See also 6 MOY'S WALKER ON PATENTS § 17:11 (4th ed. 2015).

41. See Patent Act of 1794, 1 Stat. 393 (1794) (allowing cases that courts had dismissed when the 1793 Act was repealed to be brought back into court for at least one year).

validity.⁴² Additionally, the system was ripe for abuse by unscrupulous claimants. Things got so bad that in 1809, William Thornton, who then served as Superintendent of Patents, wrote that “many of the patents are useless, except to give work to the lawyers, & others so useless in construction as to be . . . merely intended for sale.”⁴³ A few years later, he went so far as to declare that a patent issued under his own authority was a fraud on the public.⁴⁴ The Legislative and Judicial Branches were of the same view, with a Senate committee concluding that “[a] considerable portion of all the patents granted are worthless and void,”⁴⁵ while a federal judge complained that “[t]he most frivolous and useless alterations in articles in common use are denominated improvements, and made pretexts for increasing their prices, while all complaint and remonstrance are effectually resisted by an exhibition of the great seal.”⁴⁶

Faced with this torrent of criticism,⁴⁷ Congress decided to abandon the registration system of patents and require the applicant to prove an entitlement to a patent before such would issue to him.⁴⁸ To that end, Congress enacted the Patent Act of 1836, which returned the country to the system of pre-issuance patent examination.⁴⁹ The 1836 Act formally established the

42. See Moriss & Nard, *supra* note 31, at 150 (noting that the Act lasted only from 1790 to 1793).

43. Edward C. Walterscheid, *Patents and Manufacturing in the Early Republic*, 80 J. PAT. & TRADEMARK OFF. SOC’Y 855, 888 (1998) (quoting Letter from William Thornton to Amos Eaton (May 5, 1809)).

44. See Edward C. Walterscheid, *The Winged Gudgeon—an Early Patent Controversy*, 79 J. PAT. & TRADEMARK OFF. SOC’Y 533, 533 (1997) (describing how Thornton was sued for libel because he said that a patent he had issued was fraudulent).

45. SENATE REPORT ACCOMPANYING BILL NO. 239, 24TH CONG., 1ST SESS. (Apr. 28, 1836), http://ipmall.info/hosted_resources/lipa/patents/Senate_Report_for_Bill_No_293.pdf.

46. *Thompson v. Haight*, 23 F. Cas. 1040, 1041 (C.C.S.D.N.Y. 1826).

47. See generally John F. Duffy, *The FCC and the Patent System: Progressive Ideals, Jacksonian Realism, and the Technology of Regulation*, 71 U. COLO. L. REV. 1071, 1126–29 (2000) (highlighting general dissatisfaction with the pre-1836 patent system and calls for reform).

48. Walterscheid, *supra* note 43, at 888 (offering the example of a blacksmith who capitalized on this confusion).

49. Patent Act of 1836, ch. 357, § 7, 5 Stat. 117, 119 (repealed 1870).

Patent Office⁵⁰ and required an examination⁵¹ to ensure that what the applicant claimed

had [not] been invented or discovered by any other person in this country prior to the alleged invention or discovery thereof by the applicant, or that it had [not] been patented or described in any printed publication in this or any foreign country, or had [not] been in public use or on sale.⁵²

If these conditions were not met, no patent would issue.⁵³ The applicant, however, could amend his application by “altering his specification to embrace only that part of the invention or discovery which is new.”⁵⁴ Thus, the applicant engaged in a “negotiation” with the Patent Office over the proper scope, if any, of his exclusive rights.

To permit the Patent Office to conduct a rigorous examination of patent applications, Congress needed to give the Office something specific it could examine. Thus, the formal requirement of the patent claim arose. Although it is true that it became more common to add a “statement of claim” to patent applications as the nineteenth century progressed,⁵⁵ the 1836 Act for the first time *required* that the patent applicant “particularly *specify and point out the part, improvement, or combination, which he claims* as his own invention or discovery.”⁵⁶ It is by this claim that the applicant’s entitlement to and the eventual scope of exclusive rights would be measured.⁵⁷ The claiming method,

50. *Id.* § 1.

51. *Id.* § 2.

52. *Id.* § 7.

53. *Id.*

54. *Id.* The applicant was also permitted to persist in his application without any amendments, in which case his claim would be heard by an independent board composed of persons knowledgeable in the relevant art. *Id.* This procedure is very similar to the present-day appeals of examiners’ rejections to the PTAB.

55. See Joshua D. Sarnoff, *The Historic and Modern Doctrines of Equivalents and Claiming the Future, Part 1 (1790–1870)*, 87 J. PAT. OFF. SOC’Y 371, 384 (2005) (describing how applicants began inserting boilerplate language in patents to narrow the patent’s scope and avoid intruding on other patents).

56. Patent Act of 1836, 5 Stat. 117 § 6 (1836).

57. See *Cont’l Paper Bag Co. v. E. Paper Bag Co.*, 210 U.S. 405, 419 (1908) (“The invention, of course, must be described and the mode of putting it to

however, left much to be desired. Though claims were present in every patent application, they were often nothing more than “a catalog of selected elements without explanation of how they interacted, merely followed by words such as ‘constructed and adapted to operate substantially as set forth.’”⁵⁸ Needless to say, this sort of claim did not help the courts fix the boundaries of the exclusive rights claimed by the patentees.⁵⁹

The problem stemmed from the way that inventors wrote their claims. The claims were written in what is now known as “central claiming” form where the applicant “describe[s] or point[s] to representative embodiments of the inventive idea.”⁶⁰ The claim would then encompass a variety of the “satellite” creations of that idea.⁶¹ Under the 1836 Act, patent practice centered on the “drafting of a narrow claim setting forth a typical embodiment coupled with broad interpretation by the courts to include all equivalent constructions.”⁶² While affording some flexibility, this approach presented an obvious problem. The scope of the patent grant was necessarily uncertain because no one really knew how far from the “heart of the invention” one must be to avoid liability for infringement—or, for that matter, what the “heart of the invention” really was.⁶³

practical use, but the claims measure the invention. They may be explained and illustrated by the description. They cannot be enlarged by it.”).

58. Jeanne C. Fromer, *Claiming Intellectual Property*, 76 U. CHI. L. REV. 719, 732–33 (2009) (quoting *Hilton Davis Chem. Co. v. Warner-Jenkinson Co.*, 62 F.3d 1512, 1564 n.14 (Fed. Cir. 1995) (Plager, J., dissenting)).

59. *See id.* at 732–34 (describing how the limits of patents were difficult to discern for anyone because of the lack of examination).

60. John M. Golden, *Construing Patent Claims According to Their “Interpretive Community”: A Call for an Attorney-Plus-Artisan Perspective*, 21 HARV. J.L. & TECH. 321, 348–49 (2008).

61. *See generally* *Winans v. Denmead*, 56 U.S. 330 (1853) (upholding an infringement claim even though the accused product did not fall within the literal scope of the patent); Fromer, *supra* note 58, at 733 (discussing how the courts dealt with central claiming).

62. *Hilton Davis Chem. Co. v. Warner-Jenkinson Co.*, 62 F.3d 1512, 1565 (Fed. Cir. 1995) (en banc) (Nies, J., dissenting), *rev’d in part on other grounds*, 520 U.S. 17 (1997).

63. *See* Emily Michiko Morris, *Res or Rules? Patents and the (Uncertain) Rules of the Game*, 18 MICH. TELECOMM. & TECH. L. REV. 481, 533 (2012) (“Applying rules as if they were optimal manages to be both under- and over-inclusive.”); Fromer, *supra* note 58, at 769 (noting the uncertainty attendant to

These shortcomings ultimately led Congress to enact the Patent Act of 1870.⁶⁴ This law was in many ways similar to the 1836 Act but contained one major change when it came to patent claims. The scope of the change is particularly noteworthy given that the difference in language was quite subtle. Whereas the 1836 Act required the applicant to “*particularly specify and point out the part, improvement, or combination, which he claims as his own invention or discovery,*”⁶⁵ the 1870 Act forced the applicant to “*particularly point out and distinctly claim the part, improvement, or combination which he claims as his invention.*”⁶⁶ This seemingly minor change had a profound impact on the development of patent law.⁶⁷ From that point on, the applicant’s exclusive rights would be delimited by the claim language.⁶⁸ The claims would also serve the notice function by advising the public where the applicant’s rights end and the public rights begin.⁶⁹ This system, in contrast to the one that existed under the 1836 Act, is known as “peripheral claiming.”⁷⁰ Whereas in the central claiming system the patentee claims the “heart of the invention” and then potentially sweeps within the orbit of exclusive rights similar products,⁷¹ in the peripheral claiming system the applicant

central claiming).

64. Patent Act of 1870, ch. 230, 16 Stat. 198 (1871) (repealed 1952).

65. Patent Act of 1836, ch. 357, 5 Stat. 117 § 6 (1836) (emphasis added).

66. Patent Act of 1870, § 26.

67. *Hilton Davis*, 62 F.3d at 1566 (Nies, J., dissenting) (“The amendment of the patent statute by the Act of 1870, while a small language change, was interpreted to effect a major change from central to peripheral claiming.”).

68. See *Merrill v. Yeomans*, 94 U.S. 568, 570 (1876) (“This distinct and formal claim is, therefore, of primary importance, in the effort to ascertain precisely what it is that is patented . . . to the appellant in this case.”). But see Golden, *supra* note 60, at 351–52 (arguing that the evolution of claims’ importance has been a slow, decades-long process, rather than a discrete event occasioned by the 1870 Act).

69. See Craig Allen Nard, *Legal Forms and the Common Law of Patents*, 90 B.U. L. REV. 51, 67 n.67 (2010) (explaining how the term “claim” was brought to prominence in patent challenges).

70. See JANICE M. MUELLER, AN INTRODUCTION TO PATENT LAW 54 (2d ed. 2006) (“Peripheral claiming means that the claim recites a precise boundary or periphery of the patentee’s property right . . .”).

71. See Dan L. Burk & Mark A. Lemley, *Fence Posts or Sign Posts?*

stakes out the boundaries within which the patentee holds his monopoly. The general description of the invention which makes up the bulk of the patent is thus considerably less important in the context of patent infringement. In the peripheral claiming system it is therefore possible for a product to be virtually identical to an invention described in a patent, yet the claimed invention is not infringed.⁷²

In creating this new system, Congress hoped both to equip the Patent Office with tools to separate meritorious applications from the undeserving ones and “to improve the quality of the patents by circumscribing the patentee’s ability to enforce overly vague patents against the unsuspecting public.”⁷³

B. The Evolving (Re)Examination System

Once the PTO became charged with evaluating patent applications prior to granting, it had to create a method to separate applications directed to legitimate inventions from those that were concerned with frivolous or non-novel things.⁷⁴ Given the importance of this step to obtaining patents, much of the reform efforts over the past century and a half have focused on the patent application examination procedures.⁷⁵

On one hand, an inventor must write his claims in such a way as to “particularly [point] out and distinctly [claim] the

Rethinking Patent Claim Construction?, 157 U. PA. L. REV. 1743, 1746 (2009) (explaining how the 1870 Patent Acts encouraged a central claiming approach).

72. Werner Stemer, *The Doctrine of Equivalents After Hilton Davis and Markman, and a Proposal for Further Clarification*, 22 NOVA L. REV. 783, 789 (1998).

73. Dolin, *Dubious Patent Reform*, *supra* note 3, at 889.

74. See Joseph Scott Miller, *Substance, Procedure, and the Divided Patent Power*, 63 ADMIN. L. REV. 31, 42 (2011) (discussing the origination of centralized regulatory patent challenges).

75. See Dolin, *Dubious Patent Reform*, *supra* note 3, at 886–95 (giving an overview of post-grant procedures); Stephen Yelderman, *Improving Patent Quality with Applicant Incentives*, 28 HARV. J.L. & TECH. 77, 78 (2014) (“Whatever the means, these reforms share a common and urgent goal: making the examination process more effective at identifying and rejecting low-quality patent applications.”).

subject matter [that he] regards as his invention.”⁷⁶ On the other hand, as Judge Richard Linn of the Federal Circuit observed,

[A] claim is a linguistic description of a mental concept. Due to the inherent limitations of language, the fit between the description and the concept is almost always inexact. In addition to the inexact fit caused by the inherent limitations of language, the language itself may not be adequately developed at the early stages when patent applications typically are filed, particularly in rapidly evolving research fields.⁷⁷

The efforts to improve the PTO evaluation of the claim language have been mostly of two varieties. One focused on the personnel and another on the process of quality control.⁷⁸ Over the years, the PTO has grown in both the number and the sophistication of people it employs (perhaps little differently from any other government agency).⁷⁹ While the personnel reforms attempted to address problems through the “all hands on deck” approach,⁸⁰ the procedural reforms—and proposed reforms—focused on the ability of the PTO to catch its own mistakes via a “second look” at patents or patent applications.⁸¹

As early as 1918, an observer of a patent system argued that the then-existing patent system resulted in patents being granted for things “not invented,” “not new,” and “not useful,” all causing “unsettled, unsafe and unsound business conditions.”⁸² To

76. 35 U.S.C. § 112(b) (2012).

77. *Festo v. Shoketsu Kinzoku Kogyo Kabushiki Co.*, 234 F.3d 558, 621–22 (Fed. Cir. 2000) (Linn, J., concurring in part, dissenting in part); *see also* *French v. Rogers*, 9 F. Cas. 790, 792 (C.C.E.D. Pa. 1851) (noting that “as inventors are rarely experts either in philology or law, it has long been established as a rule, that their writings are to be scanned with a good degree of charity”).

78. *See* R. Polk Wagner, *Understanding Patent-Quality Mechanisms*, 157 U. PA. L. REV. 2135, 2158–62 (2009) (listing the administrative changes aimed at achieving these goals).

79. *See* John M. Golden, *Proliferating Patents and Patent Law’s “Cost Disease,”* 51 HOUS. L. REV. 455, 486–87 (2013) (explaining how the PTO tries to use an increase in personnel to solve patent problems).

80. *See id.* (detailing the exponential increase in the number of patent employees, growing “nearly one-hundred fold” from 1836 to 2012).

81. *See generally* Dolin, *Dubious Patent Reform*, *supra* note 3, at 886–923; Wagner, *supra* note 78, at 2158–62.

82. James H. Lightfoot, *A Proposed Department of Invention and Discovery*, 1 J. PAT. OFF. SOC’Y 116, 118–19 (1918).

address this problem, he proposed creating a “Bureau of Validity Examinations” that would be staffed with “re-examiners to re-examine claims held allowable by other assistant examiners.”⁸³ In his view, this additional procedure would “afford inventors full protection and be essentially valid, thus constituting a safe and sound basis for the establishment of industries and safe and secure investments for the capitalists who may promote the establishment thereof.”⁸⁴ This early “second look” proposal focused on early stage re-examination (perhaps even pre-formal patent issuance),⁸⁵ so that an issued patent would “provide for the grant of unconditional, *secure* and exclusive rights.”⁸⁶ Though not heeded, the idea did not entirely disappear, either. In 1943, this thought reappeared in a Report of the National Patent Planning Commission, which suggested an administrative claim revocation procedure in lieu of litigation.⁸⁷ The recommendation, however, suggested that these procedures be limited to the first six months of patent life—and was altogether silent on whether to apply the proposed procedure to patents that have already issued.⁸⁸

The drumbeat of complaints about “poor quality” patents that make it through the porous sieve of the PTO continued even after Congress enacted the far-reaching reforms in the 1952 Patent Act.⁸⁹ Although for the first time the Act clearly delineated the separate requirements for patentability⁹⁰ and instituted a number of other improvements to the system,⁹¹

83. *Id.* at 127.

84. *Id.*

85. *Id.* (proposing that the Bureau “[re-]examine the subject-matter of *each application* . . . so that *when granted* patents may afford inventors full protection. . . .” (emphasis added)).

86. *Id.* at 118 (emphasis added).

87. *Report of the Nat’l Patent Planning Comm., 78th Cong. (1943)*, 25 J. PAT. OFF. SOC’Y 455, 460 (1943).

88. *See id.* at 460–61 (noting the difficulty of evaluating all the facts when determining whether to grant a patent).

89. *See Dolin, Dubious Patent Reform*, *supra* note 3, at 891–93 (detailing some of the complaints regarding the 1952 Patent Acts reforms).

90. *See* 35 U.S.C. §§ 101–103, 112 (2012) (listing the statutory requirements for sufficient evidence).

within about a dozen years, complaints of lax PTO procedures and multitudes of erroneously issued patents reared their head again.⁹²

Following the recommendations of the Presidential Commission on the Patent System,⁹³ Congress made several attempts to create procedures that would address the “lax” standards of the Patent Office that supposedly resulted in “low quality” patents,⁹⁴ but the first reexamination procedure was not enacted until 1980.⁹⁵ Under most of these proposals, patents would be subject to reconsideration at the PTO, but just for a limited time, and after the expiration of that period could only be attacked in court.⁹⁶ The proposals were also consistent with the European practice of patent opposition, as was noted by Judge Giles S. Rich, one of the key authors of the Patent Act of 1952 and a preeminent authority on patent law: “Oppositions shortly after patent rights come into being (between five months and one year in the British ‘belated opposition’) are favored.”⁹⁷ Indeed, Edward F. McKie, Jr., a premier patent litigator who went on to argue—and win—the landmark case of *Diamond v. Chakrabarty*,⁹⁸ explicitly cautioned against patent reexaminations unrestricted

91. See L. James Harris, *Some Aspects of the Underlying Legislative Intent of the Patent Act of 1952*, 23 GEO. WASH. L. REV. 658, 659–60 (1955) (“They boldly planned and carried out comprehensive programs of study and discussion of the patent statutes . . .”).

92. See Dolin, *Dubious Patent Reform*, *supra* note 3, at 891–93 (detailing some of the complaints regarding the 1952 Patent Act reforms).

93. REP. OF THE PRES. COMM’N ON THE PATENT SYS., S. DOC. NO. 90-5 (1st Sess. 1967).

94. See generally H.R. 14632, 94th Cong. (1976); S. 473, 94th Cong. (1975); S. 2930, 93d Cong. (1974); S. 1321, 93d Cong. (1974); S. 4259, 93d Cong. (1974); S. 4259, 93d Cong. (1974); S. 2930, 93d Cong. (1974); S. 2504, 93d Cong. (1973); S. 1321, 93d Cong. (1973); S. 643, 92d Cong. (1971); S. 1569, 91st Cong. (1969); S. 1246, 91st Cong. (1969); H.R. 12880, 91st Cong. (1969); S. 1042, 90th Cong. (1967); S. 1691, 90th Cong. (1967); S. 2597, 90th Cong. (1967); H.R. 5924, 90th Cong. (1967).

95. Bayh-Dole Act, Pub. L. No. 96-517, ch. 30, 94 Stat. 3015 (1980).

96. See Dolin, *Dubious Patent Reform*, *supra* note 3, at 893–94 (explaining this process for challenging patents).

97. Giles S. Rich, *Forward—and Comments on Post-Issuance Reexamination*, 4 AM. PAT. L. ASS’N Q.J. 86, 87–88 (1976).

98. 447 U.S. 303 (1980).

by time but endorsed a proposal that would have allowed public opposition and reexamination proceedings within a year of a patent's allowance.⁹⁹

Yet, despite these warnings, the reexamination procedure created as part of the Bayh–Dole Act was significantly more far-reaching than the early proposals. First, it was made to apply to all patents whether issued before or after the effective day of the Act.¹⁰⁰ Second, there were no time limits to requesting the reexamination.¹⁰¹ Nonetheless, the reexamination procedure was limited only to questions of novelty and obviousness.¹⁰² Other questions of invalidity such as lack of enablement, failure of written description, inequitable conduct, etc., were beyond the scope of the procedure.¹⁰³

The reexamination procedure established by the Bayh–Dole Act starts when any party—including the patentee himself—files a petition with the PTO that argues, by citing to prior art, that the patent fails to clear either the novelty bar of § 102 or the obviousness bar of § 103—or both.¹⁰⁴ If the PTO is convinced that there exists a “substantial new question of patentability,” a reexamination shall be ordered.¹⁰⁵ Once ordered, the reexamination proceeds just like the original examination of a patent application would, with only the applicant and the Patent Office involved.¹⁰⁶ The requester—unless it is the patentee

99. Edward F. McKie, Jr., *Proposals for an American Patent Opposition System in the Light of the History of Foreign Systems*, 56 J. PAT. OFF. SOC'Y 94, 101 (1974).

100. See *Patlex Corp. v. Mossinghoff*, 758 F.2d 594, 602 (Fed. Cir. 1985), *amended by*, 771 F.2d 480 (Fed. Cir. 1985) (“Congress, without apparent objection, applied the legislation to all unexpired patents.”).

101. Pub. L. No. 96-517, § 302, 94 Stat. 3015, 3015 (1980) (codified at 35 U.S.C. § 302 (2012)) (“Any person *at any time* may file a request for reexamination by the Office of any claim of a patent on the basis of any prior art cited”) (emphasis added).

102. 35 U.S.C. § 302 (2012).

103. See Gregory Dolin, *Reverse Settlements As Patent Invalidity Signals*, 24 HARV. J.L. & TECH. 281, 327 (2011) (noting that at trial a patent could be attacked on all of these grounds); see also 37 C.F.R. § 1.906(c) (excluding these types of claims from an administrative adjudication).

104. 35 U.S.C. §§ 301–302.

105. *Id.* § 304.

106. *Id.* § 305 (“[R]eexamination will be conducted according to the

himself—is not a party to these further proceedings—hence the name *ex parte* reexamination.¹⁰⁷ In these proceedings, the PTO considers the claims subject to review as if these claims were never granted in the first place.¹⁰⁸ The applicant, in turn, can also take advantage of this posture and seek amendment of his claims to avoid any finding of invalidity.¹⁰⁹ *Ex parte* reexamination was promoted as a means for “efficient resolution of questions about the validity of issued patents without recourse to expensive and lengthy infringement litigation.”¹¹⁰

These confident predictions quickly gave rise to disappointment and complaints that the reexamination system is not living up to its goals of “clearing the field” of invalid patents.¹¹¹ One of the causes of this failure was believed to be the inability of the initial reexamination requesters to argue their case to the PTO.¹¹²

In 1990, then-Secretary of Commerce Robert Mosbacher created an Advisory Commission on Patent Reform that in 1992 produced a comprehensive report recommending a number of changes in the patent system.¹¹³ One of the recommendations was “providing third parties with more opportunities for substantive

procedures established for initial examination.”).

107. 37 C.F.R. § 1.550(g) (2014).

108. 35 U.S.C. § 305; 37 C.F.R. § 1.550.

109. See *In re Yamamoto*, 740 F.2d 1569, 1572 (Fed. Cir. 1984) (discussing how a claimant can make adjustments to claims if necessary in a PTO proceeding, but cannot do so in the district court proceeding); Rules of Practice in Patent Cases, 37 C.F.R. §§ 1.111, 1.550 (2014) (detailing the process for making adjustments to claims in a PTO proceeding).

110. H.R. REP. NO. 96-1307, pt. 1, at 3–4 (1980).

111. See, e.g., Kenneth R. Adamo, *Reexamination—To What Avail? An Overview*, 63 J. PAT. OFF. SOC’Y 616 (1981) (recommending changes in reexamination procedure); Lawrence A. Stahl & Donald H. Heckenberg, Jr., *The Changing Attitudes Toward Inter Partes Reexamination* 1 (June 9, 2010), <http://www.fitzpatrickcella.com/DB6EDC/assets/files/News/attachment622.pdf> (expressing frustration with inter partes patent resolution).

112. See Stahl & Heckenberg, *supra* note 111, at 1 (explaining why parties avoid *ex parte* reexaminations).

113. See generally ADVISORY COMM. ON PATENT LAW REFORM, A REPORT TO THE SECRETARY OF COMMERCE (Aug. 1992), http://ipmall.info/hosted_resources/lipa/patents/patentact/ACPLR-1.pdf.

participation during the reexamination proceedings.”¹¹⁴ It took another few years, but eventually Congress responded to the perceived problems of ex parte reexamination and in 1999 created an additional reexamination process that allowed for the participation of the third party in the process.¹¹⁵ If ordered, the inter partes reexamination, much like ex parte reexamination, was conducted according to the same procedures as the initial examination, except with the opportunity for the requester to file responses to any filings by the patentee.¹¹⁶ Unlike ex parte reexamination, however, the inter partes process was only applicable to patents that were applied for on or after the effective date of the act creating the procedure.¹¹⁷ Thus, any pre-existing patents did not face the prospect of this quasi-litigation at the PTO.¹¹⁸

Inter partes reexamination was met with even less success than its ex parte cousin.¹¹⁹ Indeed, some attorneys have gone so far as to say that “it would be legal malpractice to recommend a client initiate an inter partes reexamination.”¹²⁰ Because of this perceived failure in the process, Congress began to yet again look for ways to improve the quality of patents by giving the Patent Office additional tools to weed out patents that should not have been issued. That led to the eventual passage of the America Invents Act and a host of new “second look” proceedings.

114. *Id.* at 14.

115. American Inventors Protection Act of 1999, Pub. L. No. 106-113, 113 Stat. 1501 (codified in relevant part in 35 U.S.C. §§ 311–318 (2006)) (repealed 2012).

116. 35 U.S.C. § 314 (2012); 37 C.F.R. § 1.937 (2014). We use the past tense because the Leahy–Smith America Invents Act abolished inter partes reexamination. *See* Pub. L. No. 112-29, § 6, 125 Stat. 284, 299–313 (2011).

117. *See* 37 C.F.R. § 1.913 (2014) (implementing Pub. L. No. 106-113, § 4608 (1999)).

118. *Id.*

119. *See* Gaia Bernstein, *The Rise of the End User in Patent Litigation*, 55 B.C. L. REV. 1443, 1472 (2014) (noting how the PTO procedures, while less expensive, are not a good alternative for litigation).

120. Sherry M. Knowles, Thomas E. Vanderbloemen & Charles E. Peeler, *Inter Partes Patent Reexamination in the United States*, 86 J. PAT. & TRADEMARK OFF. SOC’Y 611, 614 (2004) (quoting 147 Cong. Rec. H5360 (Sept. 5, 2001) (remarks of Rep. Berman)).

C. The Post-Issuance Proceedings Under the America Invents Act

The AIA was Congress's latest—though apparently not last¹²¹—attempt to “fix” the patent system by reducing the number of “low-quality” patents in circulation. To do that, Congress created several new mechanisms for post-issuance review. In creating these new mechanisms, Congress attempted to fix the shortcomings of the old reexamination systems.¹²² The procedures that emerged were therefore, unsurprisingly, quite different from what came before. The AIA created three distinct post-issuance review proceedings, each with its own unique applicability.¹²³ The three new mechanisms created by the AIA are (1) Post Grant Review;¹²⁴ (2) Inter Partes Review;¹²⁵ and (3) Covered Business Method Review.¹²⁶ This Article will discuss each of the procedures in turn, though it will focus mostly on the latter two for reasons that will become obvious shortly.

121. See, e.g., Innovation Act, H.R. 9, 114th Cong. (1st Sess. 2015); Protecting American Talent and Entrepreneurship (PATENT) Act, S. 1137, 114th Cong. (1st Sess. 2015); Innovation Protection Act, H.R. 1832, 114th Cong. (1st Sess. 2015); Demand Letter Transparency Act, H.R. 1896, 114th Cong. (1st Sess. 2015); Targeting Rogue and Opaque Letters (TROL) Act, H.R. 2045, 114th Cong. (1st Sess. 2015); Support Technology and Research for Our Nation's Growth (STRONG) Patents Act, S. 632, 114th Cong. (1st Sess. 2015); Innovation Act, H.R. 3309, 113th Cong. (1st Sess. 2013); Patent Transparency and Improvements Act, S. 1720, 113th Cong. (1st Sess. 2013); Patent Litigation Integrity Act, S. 1612, 113th Cong. (1st Sess. 2013); STOP Act, H.R. 2766, 113th Cong. (1st Sess. 2013); Patent Litigation and Innovation Act, H.R. 2639, 113th Cong. (1st Sess. 2013); Patent Abuse Reduction Act, S. 1013, 113th Cong. (1st Sess. 2013); End Anonymous Patents Act, H.R. 2024, 113th Cong. (1st Sess. 2013); Patent Quality Improvement Act, S. 866, 113th Cong. (1st Sess. 2013); SHIELD Act, H.R. 845, 113th Cong. (1st Sess. 2013).

122. See Dolin, *Dubious Patent Reform*, *supra* note 3, at 913 (describing how Congress continues to create ineffective post-issuance review mechanisms).

123. For a detailed discussion of the mechanics of these proceedings see *id.* at 914–23.

124. 35 U.S.C. §§ 321–329 (2012).

125. *Id.* §§ 311–319.

126. Leahy–Smith America Invents Act, Pub. L. No. 112-29, § 18, 125 Stat. 284, 329–31 (2011).

1. Post-Grant Review

The Post-Grant Review (PGR) process actually resembles the original, mid-twentieth century proposals for reexamination.¹²⁷ It is also similar to the opposition practice in the European Patent Office,¹²⁸ and indeed was enacted with an eye towards making the U.S. patent issuance process similar to the European one.¹²⁹ PGR, however, is not of particular relevance to the focus of this Article because Congress was quite careful in crafting this provision. Much like the now-defunct inter partes reexamination, PGR was made applicable only to applications filed after the effective date of the Act.¹³⁰ Although it is not clear that PGRs will actually improve the patent system,¹³¹ this mechanism creates no problem similar to the one presented by the other two AIA-created post-issuance proceedings.¹³² Because PGR is applicable only to patents issued after the effective date of the Act, future inventors could take PGR into account when drafting their applications, but past inventors were not similarly blessed when it comes to the remaining mechanisms.

2. Inter Partes Review and Covered Business Method Review

Inter Partes Review (IPR) supplanted the abolished inter partes reexamination,¹³³ though it kept some of its features. Any

127. See *supra* notes 89–99 and accompanying text (discussing how the reexamination process was created and how it changed over time).

128. See generally *Opposition Procedure in the EPO*, OFFICIAL J. EPO 148 (Mar. 2001), http://archive.epo.org/epo/pubs/oj001/03_01/03_1481.pdf.

129. See Filip De Corte et al., *AIA Post-Grant Review & European Oppositions: Will They Work in Tandem, or Rather Pass Like Ships in the Night?*, 14 N.C. J.L. & TECH. 93, 96 (2012) (describing the third-party options available for cancellation).

130. See Leahy-Smith America Invents Act, § 134(m)(A), 125 Stat. at 330 (explaining that the goal of the act was to harmonize the U.S. patent system with those of entities such as the European Union, Japan, Canada, and Australia).

131. See generally Dolin, *Dubious Patent Reform*, *supra* note 3.

132. See *infra* Parts III.C–D and Part V (noting how post-issuance proceedings can lead to issues with the Takings Clause).

133. See *Abbott Labs. v. Cordis Corp.*, 710 F.3d 1318, 1326 (Fed. Cir. 2013).

person other than a patent owner can file an IPR request challenging an issued patent on the grounds that it is not novel or is obvious in light of prior art.¹³⁴ The challenger must identify the patent claims he believes to be improperly issued and submit documents that would support his allegations.¹³⁵ If the PTO grants the petition and institutes the IPR proceedings,¹³⁶ the matter goes to trial before the Patent Trials and Appeals Board (PTAB), which then renders the final decision on the validity of the claims.¹³⁷

Covered Business Method Review (CBMR) is in many ways similar to IPR but has, on the one hand, additional limitations on which patents are eligible for such review, while on the other hand it gives challengers more potential grounds for invalidation of CBMR-eligible patents.¹³⁸ Under the AIA, patents are subject to CBMR only if they “claim[] a method or corresponding apparatus for performing data processing or other operations used in the practice, administration, or management of a financial product or service, except that the term does not include patents for technological inventions.”¹³⁹

The trial phase of IPR and CBMR is in some ways similar to a traditional trial in the courts of record, though perhaps a bit more abbreviated and streamlined.¹⁴⁰ For example, discovery in the form of expert reports, cross-examination of expert witnesses, productions of documents or things inconsistent with a party’s

(quoting H.R.Rep. No. 112–98, pt. 1, at 46–47 (2011)).

134. 35 U.S.C. § 311(a) (2012).

135. *Id.* § 312(a)(3).

136. *Id.* § 314.

137. *Id.* §§ 316(c), 318.

138. See Leahy–Smith America Invents Act, Pub. L. No. 112–29, § 18(a)(1), 125 Stat. 284, 330 (2011) (requiring that CBMR be conducted under the same rules as PGR); 35 U.S.C. § 321(b) (establishing broad grounds for PGR review). In contrast, IPR is only available for petitions challenging a patent’s novelty or non-obviousness. *Id.* § 311(b).

139. Leahy–Smith America Invents Act § 18(d)(1), 125 Stat. at 331. One final difference between IPR and CBMR is that the latter is a “transitional” program and will expire eight years after first becoming available on September 16, 2020. *Id.* § 18(a)(3), 125 Stat. at 330.

140. See Dolin, *Dubious Patent Reform*, *supra* note 3, at 916 (describing the similarities and differences between federal and PGR trials).

asserted position, and the like is permitted,¹⁴¹ though of course it has to be accomplished rather quickly given the twelve-month deadline for the PTAB to render its final judgment.¹⁴²

The key differences between a trial before the PTAB and before an Article III judge lie in two features unique to the PTO procedures. First, the patent challenger bears a lower burden of proof before the PTAB than he does at the district court.¹⁴³ Whereas in the district courts patents can only be invalidated upon the showing of “clear and convincing evidence,”¹⁴⁴ in the PTO proceedings, the petitioner carries his burden by satisfying the “preponderance of evidence” standard.¹⁴⁵ Second, and particularly salient to the focus of this paper, is the difference in how the Patent Office reviews the challenged claims. Whereas in federal court, claims are construed by reference to what a person having ordinary skill in the relevant art understands them to mean,¹⁴⁶ at the Patent Office the claims are given their “broadest reasonable construction.”¹⁴⁷ It is to the importance of this distinction that we now turn.

III. Claim Construction and Meaning

“It is a ‘bedrock principle’ of patent law that ‘the claims of a patent define the invention to which the patentee is entitled the right to exclude.’”¹⁴⁸ This understanding stems from the

141. 35 U.S.C. §§ 316(a)(5), 326(a)(5) (2012).

142. *Id.* §§ 316(a)(11).

143. *Compare id.* §§ 316(e), 326(e) (“[T]he petitioner shall have the burden of proving a proposition of unpatentability by a preponderance of the evidence.”), *with* *Microsoft Corp. v. i4i Ltd. P’ship*, 131 S. Ct. 2238, 2242 (2011) (holding that under 35 U.S.C. § 282, a patent invalidity defense raised in litigation must be proven by “clear and convincing evidence”). *See also infra* Parts III.B–C.

144. *i4i Ltd. P’ship*, 131 S. Ct. at 2242.

145. 35 U.S.C. §§ 316(e), 326(e).

146. *See* *Multiform Desiccants, Inc. v. Medzam, Ltd.*, 133 F.3d 1473, 1477 (Fed. Cir. 1998) (“It is the person of ordinary skill in the field of the invention through whose eyes the claims are construed. Such person is deemed to read the words used in the patent documents . . . and to have knowledge of any special meaning and usage in the field.”).

147. 37 C.F.R. §§ 42.100(b), 42.200(b) (2014).

148. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312 (Fed. Cir. 2005) (en banc)

requirement that the patentee “particularly point out and distinctly claim” his invention.¹⁴⁹ Thus, it is “the claims that measure the invention,”¹⁵⁰ or as Judge Rich put it, “the name of the game is the claim.”¹⁵¹ At the same time, as the courts have recognized, language is often an imperfect measure of the scope of the invention, and “the fit between the description and the concept is almost always inexact.”¹⁵² As a result, to understand what the inventor has claimed for herself and to delineate the scope of the patentee’s right to exclude, the language of the claim must be construed.¹⁵³ Similarly, to verify that the applicant has actually invented something new and does not seek to exclude the public from that which is already known, the claim must be construed and then compared to the prior art.¹⁵⁴ Because both infringement and validity analyses ride on the meaning of the claim, claim construction is often the “end all and be all” of patent examination and patent litigation.¹⁵⁵ Although one would think

(quoting *Innova/Pure Water, Inc. v. Safari Water Filtration Sys., Inc.*, 381 F.3d 1111, 1115 (Fed. Cir. 2004)).

149. See *Merrill v. Yeomans*, 94 U.S. 568, 570 (1876) (“The act of Congress, therefore, very wisely requires of the applicant a distinct and specific statement of what he claims This distinct and formal claim is, therefore, of primary importance, in the effort to ascertain precisely what it is that is patented . . .”).

150. *SRI Int’l v. Matsushita Elec. Corp. of Am.*, 775 F.2d 1107, 1121 (Fed. Cir. 1985) (en banc); see also *Smith v. Snow*, 294 U.S. 1, 11 (1935) (reiterating that it is the claims of the patent, and not its specifications, that measure the invention).

151. Giles Sutherland Rich, *Extent of Protection and Interpretation of Claims—American Perspectives*, 21 INT’L REV. INDUS. PROP. & COPYRIGHT L. 497, 499 (1990).

152. *Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co.*, 234 F.3d 558, 621 (Fed. Cir. 2000) (Rader, J., concurring in part and dissenting in part), *vacated*, 535 U.S. 722 (2002).

153. See David L. Schwartz, *Pre-Markman Reversal Rates*, 43 LOY. L.A. L. REV. 1073, 1078 (2010) (showing that claim construction is the first step one must take in patent infringement analysis); see also *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 997 n.7 (Fed. Cir. 1995) (en banc) (“[W]e have held that a claim ‘must be construed before determining its validity, just as it is first construed before deciding infringement.’”).

154. See Thomas Chen, *Patent Claim Construction: An Appeal for Chevron Deference*, 94 VA. L. REV. 1165, 1169 (2008) (discussing infringement analysis and validity analysis).

155. *Id.*; see also Christopher A. Cotropia, *Patent Claim Interpretation and Information Costs*, 9 LEWIS & CLARK L. REV. 57, 72 (2005) (“This constructive

that the same words of the claim would be given the same construction at all stages of the process, in reality that is not the case. The PTO construes claims differently from the federal courts.¹⁵⁶ The different treatment might make sense at the examination stage of the patent, but maintaining the difference post-issuance undermines the exclusive right secured by the patent and in so doing, at least in some cases presents a constitutional problem.

A. Claim Construction During Patent Examination

The goal of patent examination is to ascertain the “patentability of the invention as ‘the applicant regards’ it,”¹⁵⁷ and to measure it against the prior art. But as already stated, language is inherently an ambiguous medium through which to define almost anything, much less technical inventions.¹⁵⁸ The examination then exists “to fashion claims that are precise, clear, correct, and unambiguous. Only in this way can uncertainties of claim scope be removed, as much as possible, during the administrative process.”¹⁵⁹

An uninitiated person might think that a broad claim is necessarily better than a narrow claim. After all, to analogize to real property, claims on more land are likely more valuable than claims on less land because one can exclude other individuals from a broader swath of property. But patent law is different. Although a broad claim does grant one an opportunity to exclude

specification embodies the full extent of the specification’s information about the invention and is, accordingly, labeled the ‘disclosed invention.’”).

156. See *supra* notes 143–147 and accompanying text (showing the differences in evidentiary standards when proving unpatentability in trials before the PTAB and before Article III courts); see also *infra* Part III.A–C (discussing claim construction and meaning as bedrock principles in patent law).

157. *In re Zletz*, 893 F.2d 319, 322 (Fed. Cir. 1989) (quoting 35 U.S.C. § 112 ¶ 2 (2012)).

158. See *Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co.*, 535 U.S. 722, 723 (2002) (“[P]atent claim language may not describe with complete precision the range of an invention’s novelty.”).

159. *Zletz*, 3 F.2d at 322.

others from a broader area of any given technology¹⁶⁰—and thus charge higher prices to anyone who wishes to practice in the area¹⁶¹—there is a corollary maxim that makes broader claims potentially highly problematic. Because patents can only be granted for inventing new and non-obvious things,¹⁶² a claim that describes something that pre-dated the claimed invention cannot be granted,¹⁶³ and, if granted in error, is invalid.¹⁶⁴ Thus, a broad claim may well be useful to ensnare more putative infringers,¹⁶⁵ but it is also a trap for the unwary. A broad claim has a higher chance of sweeping within its ambit things that pre-existed the applicant's invention.¹⁶⁶ Thus the rule: “That which infringes, if

160. See Orin S. Kerr, *Computers and the Patent System: The Problem of the Second Step*, 28 RUTGERS COMPUTER & TECH. L.J. 47, 53 (2002) (using the example of computerized algorithms to show how obtaining a patent on a machine that executes a certain function gives the inventor the right to exclude others from running that algorithm on a computer for the duration of the patent, creating broad patent protection); Jacob Mackler, *Intellectual Property Favoritism: Who Wins in the Globalized Economy, the Patent or the Trade Secret?*, 12 WAKE FOREST J. BUS. & INTELL. PROP. L. 263, 268–69 (2012) (“[A] patentee with broad patent rights can exclude from the market a broad range of ‘functionally equivalent’ inventions.”).

161. See Richard S. Toikka, *Patent Licensing Under Competitive and Non-Competitive Conditions*, 82 J. PAT. & TRADEMARK OFF. SOC'Y 279, 287 (2000) (noting that most commentators agree that a broad patent can command a higher per unit royalty, which is confirmed by the inverse relationship of the elasticity of demand and the ability of the patent to exclude substitutes).

162. 35 U.S.C. §§ 102–103 (2012).

163. *Id.*; see also Clark D. Asay, *Enabling Patentless Innovation*, 74 MD. L. REV. 431, 447 (2015) (“[A] patent technically may not issue if each of the claim elements in a patent application is found in a single prior art reference.”).

164. See 35 U.S.C. § 282(b)(2) (noting that a defense to a patent infringement claim is that the patent was invalid in the first place); Weldon E. Havins, *Immunizing the Medical Practitioner “Process” Infringer: Greasing the Squeaky Wheel, Good Public Policy, or What?*, 77 U. DET. MERCY L. REV. 51, 57 (1999) (“If the patent has been issued and challenged, the court is required to hold the patent invalid and inadvertently granted by the PTO.”).

165. See Yelderman, *supra* note 75, at 88–89 (showing that a broader claim makes it more likely that an alleged infringer will be found to infringe the patent, and the greater the number of potential infringers, the more difficult it will be for those potential infringers to avoid or design around the claim).

166. See *id.* at 87–88 (remarking that broad claims make it difficult to prove the validity of a claim due to the fact that it is impossible to conduct a search exhaustive enough to conclusively prove the non-existence of potentially invalidating prior art).

later, would anticipate [and invalidate], if earlier.”¹⁶⁷ The point of the examination, both for the PTO and the applicant, is to narrow the claims to such parameters as not to encompass prior art within its ambit.¹⁶⁸

To achieve those goals, the PTO pushes against the applicant to see how far his claims extend,¹⁶⁹ much like judges push against litigants in oral argument to see how far the logic of a given proposition extends.¹⁷⁰ In response, applicants can disclaim certain meanings or amend claims as they see fit.¹⁷¹ This process can continue through several rounds and last months or years as the applicant and the PTO fine-tune the language of the claims.¹⁷² These disclaimers and amendments indicate what the

167. *Peters v. Active Mfg. Co.*, 129 U.S. 530, 537 (1889).

168. *See* 37 C.F.R. § 1.111(c) (2012) (“[T]he applicant or patent owner must clearly point out the patentable novelty which he or she thinks the claims present”); Kristen Osenga, *Cooperative Patent Prosecution: Viewing Patents Through A Pragmatics Lens*, 85 ST. JOHN’S L. REV. 115, 136 (2011) (explaining that an inventor can overcome a rejection from PTO examiners either by amending the claim to narrow or clarify its scope, or showing how the rejected claim is different from prior art).

169. *See In re Yamamoto*, 740 F.2d 1569, 1571 (Fed. Cir. 1984) (“This approach serves the public interest by reducing the possibility that claims, finally allowed, will be given broader scope than is justified.”); *Application of Prater*, 415 F.2d 1393, 1404 (C.C.P.A. 1969) (“[R]eading the claim in light of the specification”). *Cf.* *Chimie v. PPG Indus., Inc.*, 402 F.3d 1371, 1384 (Fed. Cir. 2005) (“The purpose of consulting the prosecution history in construing a claim is to ‘exclude any interpretation that was disclaimed during prosecution.’” (quoting *ZMI Corp. v. Cardiac Resuscitator Corp.*, 844 F.2d 1576, 1580 (Fed. Cir. 1988))).

170. *See* Daniel M. Friedman, *Winning on Appeal*, 9 LITIG. 15, 18 (1983) (explaining that oral argument is an “occasion that the court can question counsel, test his position to determine its strengths and weaknesses, and determine the implications and consequences of the arguments”).

171. *See supra* note 168 and accompanying text (recounting how an applicant can narrow or amend her claim if rejected by the PTO due to questionable similarities to prior art).

172. *See* Dennis Crouch & Robert P. Merges, *Operating Efficiently Post-Bilski by Ordering Patent Doctrine Decision-Making*, 25 BERKELEY TECH. L.J. 1673, 1689–90 (2010) (recounting the long and arduous patent examination process and the multiple rounds of examination involved, along with a lack of any predictable pattern or linearity); Hana Oh Chen, *Combating Baseless Patent Suits: Rule 11 Sanctions with Technology-Specific Application*, 54 JURIMETRICS J. 135, 178 n.36 (2014) (describing the prevalence of frivolous patent lawsuits and use of Rule 11 sanctions that attempt to combat frivolous suits by encouraging parties to perform sufficient prefiling investigation).

applicant regards as his invention and narrow the reach of the claims to avoid capturing the prior art.¹⁷³ It therefore makes perfect sense to interpret the claims as broadly as reasonable to confine the applicant to that which he actually invented and to make sure that the claims as issued are not invalid for reading on prior art. Once the claims issue, however, all of the amendments, disclaimers, and modifications become part of the patent prosecution history and can be used to hold the patentee to the scope of the claims as he presented them to the PTO.¹⁷⁴ At this point, interpreting the claims as broadly as reasonable no longer makes sense.

B. Claim Construction in Litigation

It is worth remembering that the PTO does not adjudge infringement disputes (which can only arise after the patent issues).¹⁷⁵ The concern of the PTO is to make sure that the applied-for claims do not encompass or “read on” prior art.¹⁷⁶ A practitioner in a relevant field, on the other hand, would want to know whether his product is encompassed by the already issued claims so as to take the necessary steps to avoid infringement.¹⁷⁷

173. See *Yamamoto*, 740 F.2d at 1571 (“The PTO broadly interprets claims during examination of a patent application since the applicant may ‘amend his claims to obtain protection commensurate with his actual contribution to the art.’”); *Chimie*, 402 F.3d at 1384 (relaying that, when patentees unequivocally disavow certain meanings to obtain patents, the doctrine of prosecution disclaimer attaches, which narrows the ordinary meaning of the claim).

174. See *Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co.*, 535 U.S. 722, 733 (2002) (“Prosecution history estoppel requires that the claims of a patent be interpreted in light of the proceedings in the PTO during the application process.”).

175. See Jonathan S. Masur, *Regulating Patents*, 2010 SUP. CT. REV. 275, 317 (2010) (stating that the PTO has never been delegated any authority over issues of infringement).

176. See *Franklin Pierce Law Center’s Eighth Intellectual Property System Major Issues Conference*, 47 IDEA 1, 37 (2006) (statement of Larry Pope) (“It seems the critical function—the really valuable function—that we ask examiners to do is to do the examination, to weigh prior art against the claimed invention.”).

177. See Craig Allen Nard, *Certainty, Fence Building, and the Useful Arts*, 74 IND. L.J. 759, 799 n.153 (1999) (noting that claims must be “particular” and

Thus, issued claims are construed by reference to their “ordinary and customary meaning.”¹⁷⁸ What is “ordinary and customary” is judged not by reference to the understanding of a member of the general public, but by reference to the understanding of a person having ordinary skill in the relevant art.¹⁷⁹ This approach makes sense because patents are highly technical documents, which are meant to satisfy “[c]ompetitors[] need to know not only what is protected by the claims, but also which aspects of the invention have been disclosed, but not claimed, and are thus, considered to have been dedicated to the public domain.”¹⁸⁰ The inquiry into the meaning of the claims post-issuance is fundamentally different from the inquiry during examination.¹⁸¹ Although it is certainly possible and appropriate to attack patent validity in litigation,¹⁸² the fundamental role of an issued claim is to put the public on notice as to what the patentee claims as his own property. Professor Chris Cotropia explained:

The public notice function of patent claims now stands at the ‘forefront of patent law jurisprudence.’ Both the Supreme Court and the Federal Circuit have emphasized the role the patent claim plays in informing the public of the subject matter a patent protects.

“distinct” so that the public has fair notice of the bounds of the claimed invention); *London v. Carson Pirie Scott & Co.*, 946 F.2d 1534, 1538 (Fed. Cir. 1991) (same).

178. *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1582 (Fed. Cir. 1996).

179. *See Phillips v. AWH Corp.*, 415 F.3d 1303, 1313 (Fed. Cir. 2005) (en banc) (“We have made clear, moreover, that the ordinary and customary meaning of a claim term is the meaning that the term would have to a person of ordinary skill in the art in question at the time of the invention.”).

180. Crissa A. Seymour Cook, *Constructive Criticism: Phillips v. AWH Corp. and the Continuing Ambiguity of Patent Claim Construction Principles*, 55 U. KAN. L. REV. 225, 268 n.28 (2006).

181. *Compare In re Yamamoto*, 740 F.2d 1569, 1571 (Fed. Cir. 1984) (“This approach serves the public interest by reducing the possibility that claims, finally allowed, will be given broader scope than is justified.”), *with Chimie v. PPG Indus., Inc.*, 402 F.3d 1371, 1377 (Fed. Cir. 2005) (“Courts construe claim terms in order to assign a *fixed, unambiguous*, legally operative meaning to the claim.” (emphasis added)).

182. *See* 35 U.S.C. § 282(b) (2012) (noting the different defenses that must be pleaded in “any action involving the validity or infringement of a patent”).

...

Patent claims perform another function; they actually establish the scope of exclusivity afforded to an issued patent. That is, patent claims define the invention the patent will protect. This definitional function is tied to the claim's public notice function. The substantive function of a patent claim, however, goes well beyond the claim simply being locatable and open to public inspection. The claim tells the public the patent's particular scope of exclusivity by defining the patent grant's metes and bounds. This is the most fundamental trait of the modern patent claim. Through the claim's words, the patent claim establishes the primary area of exclusivity the patentee will enjoy because of the patent grant. A claim resembles a land description in a deed because it defines the exact area protected by the legal instrument.¹⁸³

Patent applicants know the function of the claims and how the courts construe the claims. They know for whom the claims are being written and therefore "negotiate" the claim language with the Patent Office with an understanding of the scope each claim will be given.¹⁸⁴ They do so because "[t]he patent claim's scope is often dispositive for most patent issues. Once the subject matter the patent claim identifies is defined, infringement and validity questions usually are answered easily."¹⁸⁵

It therefore matters a great deal how claims are construed. The patentee wishes to avoid an overly broad claim construction because that would greatly increase the chances of the claim being found invalid.¹⁸⁶ In fact, if the patentee were led to believe that his claims would be given a broader construction post-issuance, he would likely amend the claims further to reduce the possibility of the claims being found invalid.¹⁸⁷ At the end of the

183. Christopher A. Cotropia, *Patent Claim Interpretation Methodologies and Their Claim Scope Paradigms*, 47 WM. & MARY L. REV. 49, 64–65 (2005) [hereinafter Cotropia, *Claim Interpretation*].

184. See Osenga, *supra* note 168, at 136–37 (setting up the interplay between the inventor and the patent officer in terms of a negotiation, as the "inventor serves up the initial offer, the examiner counters," with the intent to eventually reach a compromise).

185. Cotropia, *Claim Interpretation*, *supra* note 183, at 67.

186. See Yelderman, *supra* note 75, at 88–89 ("[T]he broader the claim, the more likely that an alleged infringer will be found to infringe it . . .").

187. Cf. Palmaz's European Patents, [1999] RPC 47, 59 (Patents Ct.) (UK)

day “[t]he breadth of protection defines the patent's exclusionary power and how it can affect the technological development in the patent's given industry. The scope of protection also . . . establish[es] how different an invention must be from an earlier accomplishment to warrant patent protection.”¹⁸⁸ In other words, the breadth of the patent claim determines both the scope and the very existence of the patentee's exclusive rights.¹⁸⁹

It should also be noted that, while claims may be—and often are—invalidated in litigation,¹⁹⁰ once issued they are presumed valid.¹⁹¹ This presumption is codified in the Patent Act¹⁹² and has been construed for over a century to mean that the claims will not be invalidated except upon clear and convincing evidence of invalidity.¹⁹³ This presumption accords a certain level of security to the patentees and is often the most valuable part of the patent grant.¹⁹⁴ Indeed, cases often rise and fall (once claims are construed) on the presumption of validity. Thus, in *Microsoft v.*

(“The purpose of making an amendment to a patent is to avoid a finding of invalidity.”).

188. Cotropia, *Claim Interpretation*, *supra* note 183, at 68.

189. See Tun-Jen Chiang, *Fixing Patent Boundaries*, 108 MICH. L. REV. 523, 550–51 (2010) [hereinafter Chiang, *Patent Boundaries*] (“A nominally narrowing amendment to avoid prior art thus broadens the legal scope of the claim, and increases its monopoly cost, because the amendment transforms legal scope from zero to something greater.”).

190. See John R. Allison & Mark A. Lemley, *Empirical Evidence on the Validity of Litigated Patents*, 26 AIPLA Q.J. 185, 205–06 (1998) (reporting that about 48% of all litigated claims are found to be invalid); see also Mark A. Lemley, *An Empirical Study of the Twenty-Year Patent Term*, 22 AIPLA Q.J. 369, 420 (1994) (reporting an invalidity rate of about 44%); Robert P. Merges, *Commercial Success and Patent Standards: Economic Perspectives on Innovation*, 76 CAL. L. REV. 803, 822 (1988) (same).

191. 35 U.S.C. § 282(a) (2012); see also *Microsoft Corp. v. i4i Ltd. P'ship*, 131 S. Ct. 2238, 2242 (2011) (reiterating that a patent shall be presumed valid, and the burden of proving invalidity rests on the party asserting that invalidity).

192. 35 U.S.C. § 282(a) (“A patent shall be presumed valid. Each claim of a patent . . . shall be presumed valid independently of the validity of other claims . . .”).

193. See *i4i*, 131 S. Ct. at 2245–46 (stating that the presumption of validity cannot be “overthrown except by clear and cogent evidence”).

194. See Yelderman, *supra* note 75, at 97–102 (using an algorithm to calculate the value of the presumption of validity and finding that the increase in a claim's expected value depends on both the improvement in the likelihood of validity and the expected infringement value of the claim).

i4i,¹⁹⁵ after the claims were construed, the question of validity came down to whether Microsoft, which had made a solid showing that the claims in question may well be invalid, made a “clear and convincing” showing.¹⁹⁶ That requirement was the difference between a \$200 million award as well as a prohibition on future infringing activities,¹⁹⁷ and a finding of no liability for either past or future actions. The presumption of validity can thus be a tremendously valuable asset.

In a one-two punch, however, the AIA created post-issuance proceedings that construe the claims more broadly than do court proceedings¹⁹⁸ and that do not apply the same presumption of validity as courts.¹⁹⁹

C. Claim Construction in Post-Issuance Proceedings

The AIA’s post-issuance proceedings, as the name implies, occur after the patent has issued. In other words, claims have been “negotiated” with the PTO, narrowing amendments and disclaimers have been made, and the patentee has created a record on which a person of ordinary skill in the art can rely to judge both the likelihood that his own activity is infringing and the likelihood that the claims in question are invalid.²⁰⁰

195. 131 S. Ct. 2238 (2011).

196. *i4i Ltd. P’ship v. Microsoft Corp.*, 598 F.3d 831, 846–48 (Fed. Cir. 2010), *aff’d*, 131 S. Ct. 2238 (2011) (recognizing that, while Microsoft put on a strong case, it was not enough to carry the burden under the “clear and convincing” standard of proof).

197. *See id.* at 839 (discussing the lower court’s jury verdict of \$200 million in damages to *i4i* as a result of the jury’s rejection of Microsoft’s argument that the patent was invalid).

198. 37 C.F.R. §§ 42.100(b), 42.300(b) (2012) (giving a claim the broadest reasonable construction in light of the “specification of the patent in which it appears”); *see also infra* Part III.C (discussing claim construction in post-issuance proceedings and how the AIA gave claims the broadest reasonable meaning).

199. *See* 35 U.S.C. §§ 316(e), 326(e) (2012) (giving petitioners the burden of proving a proposition of unpatentability by a preponderance of the evidence).

200. *See supra* Part III.A (expanding on claim construction during the patent examination and the benefits and drawbacks to both broad and narrow claims).

Furthermore, the claims have acquired a presumption of validity that is only rebuttable by clear and convincing evidence.²⁰¹ Or at least all of this was true until the passage of the America Invents Act.

When the AIA was enacted, the PTO had to create rules that would govern the proceedings contemplated by the Act.²⁰² The Act itself left unresolved the question of which standard of claim construction to apply. Instead, the PTO decided the issue via rulemaking.²⁰³ The PTO chose to apply the “broadest reasonable construction” standard mostly on the strength of history.²⁰⁴ In adopting the rule, it provided no analysis of the propriety of this construction in the new trial-type proceedings at the PTO. Instead, it explained that such a practice is consistent with what the PTO had been doing in *ex parte* and *inter partes* reexamination “[f]or nearly thirty years.”²⁰⁵ The PTO noted that the “Federal Circuit has continued to require the Office to give patent claims their broadest reasonable construction consistent with the specification in patentability determination proceedings.”²⁰⁶ It further concluded that adhering to this rule is “consistent” with the legislative history of the AIA,²⁰⁷ and therefore refused to adopt the “perspective of

201. 35 U.S.C. § 282(a) (2012) (restating the presumption of validity of a patent claim, and putting the burden on the party asserting invalidity to overcome the presumption); *Microsoft Corp. v. i4i Ltd. P’ship*, 131 S. Ct. 2238, 2242 (2011) (arguing that an invalidity defense must be proven by a clear and convincing evidence standard).

202. See *In re Cuozzo Speed Techs., LLC*, No. 2014-1301, 2015 WL 4097949, at *5 (Fed. Cir. July 8, 2015) (Newman, J., dissenting) (noting that the AIA conveyed rulemaking authority to the PTO, and that the director shall prescribe regulations setting forth standards for instituting the AIA proceedings).

203. See *id.* (according to the rulemaking authority of the PTO, it promulgated 37 C.F.R. § 42.100(b), which provided that a claim shall be given its broadest reasonable construction).

204. See 37 C.F.R. §§ 42.100(b), 42.200(b) (2012) (stating the rule); 77 Fed. Reg. 48,680, 48,688, 48,690, 48,697 (Aug. 14, 2012) (discussing the historical basis for the rule).

205. 77 Fed. Reg. at 48,697.

206. *Id.*

207. *Id.*

a person having ordinary skill in the art”²⁰⁸ as the governing standard.²⁰⁹

Nonetheless, as Judge Pauline Newman pointed out in her dissent from the Federal Circuit upholding the PTO’s approach, while it is true that the court

approved the use of ‘broadest reasonable interpretation’ as an expedient in examination and reexamination, [the] approval was based on the *unfettered* opportunity to amend in those proceedings. That opportunity is not present in Inter Partes Review; amendment of claims requires permission, and since the inception of Inter Partes Review, motions to amend have been granted in only two cases, although many have been requested.²¹⁰

In other words, unlike in other Patent Office proceedings, where the applicant is engaged in a process of *negotiations* with the Office over the scope of the claims,²¹¹ in IPR, the patentee is engaged in a process of *litigation* where the meaning of the claims is nearly fixed.²¹² Indeed, this was the very purpose Congress had in mind when it created the IPR. As the House report accompanying the bill stated, “[t]he Act converts inter partes reexamination from an examinational to an adjudicative proceeding.”²¹³ The PTAB itself recognized as much, holding in an early IPR proceeding that “[a]n inter partes review is neither a patent examination nor a patent

208. Menell et al., *Patent Case Management Judicial Guide*, § 5.2.3.1.2 at 5–49 (2d ed. 2012), http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2114398 (last visited Apr. 6, 2016).

209. See 77 Fed. Reg. 48,697 (Aug. 14 2012) (noting the historical roots of requiring the PTO to give patent claims their broadest reasonable construction consistent with the specification in patentability determination proceedings).

210. *In re Cuozzo Speed Techs., LLC*, 778 F.3d 1271, 1287 (Fed. Cir. 2015) *opinion withdrawn and superseded on reh’g*, 2015 WL 4097949 (Fed. Cir. July 8, 2015) (Newman, J., dissenting) (emphasis added).

211. See *supra* notes 169–174 and accompanying text (discussing the give and take negotiation style in which the applicant and PTO engage).

212. See *Chimie v. PPG Indus., Inc.*, 402 F.3d 1371, 1377 (Fed. Cir. 2005) (“Courts construe claim terms in order to assign a fixed, unambiguous, legally operative meaning to the claim.”).

213. H.R. REP. NO. 112–98, pt. 1, at 46 (2011).

reexamination.”²¹⁴ Rather, it is a trial, adjudicatory in nature and constitutes litigation.”²¹⁵ The PTAB further noted that there are no “prosecution activities” in an IPR.²¹⁶

Making matters worse still, the AIA required the PTO to dispense with the “clear and convincing” standard for the showing of invalidity.²¹⁷ Instead, a challenger to any issued claim carries her burden by meeting a much laxer “preponderance of the evidence” standard.²¹⁸ The upshot is that the Patent Office adopted IPR rules that nullified the expectations of the patentees about the scope of their patent rights, and it did so without a meaningful opportunity to “renegotiate” those rights with the PTO, while the Act itself undermined, if not altogether abolished, what is perhaps the most meaningful component of a patent right—the robust presumption of validity.²¹⁹ The effect of this “one-two punch” is discussed in the next Part.

D. The Effect of the Post-Issuance Review Process

The distinctions regarding claim construction and quantum of proof required in Article III courts versus those required in PTAB proceedings are not just grist for an academic debate. Instead, these distinctions have dramatic effects in the “real world.” It has always been the case that some of the patents duly issued by the Patent Office are thereafter invalidated by a judicial decision.²²⁰ Some of these invalidations stem from the

214. *Idle Free Sys., Inc. v. Bergstrom, Inc.*, IPR2012-00027, Docket No. 26, at 7 (P.T.A.B. June 11, 2013).

215. *Google, Inc. v. Jongerius Panoramic Techs., LLC*, IPR2013-00191, Docket No. 50, at 4 (P.T.A.B. Feb. 13, 2014) (granting motion for pro hac vice admission).

216. *Id.*

217. *See* 35 U.S.C. §§ 316(e), 326(e) (2012) (establishing a preponderance of the evidence standard when the petitioner has the burden to prove a proposition of unpatentability).

218. *Id.*

219. *See id.* § 282(a) (providing the presumption of validity for patent claims).

220. *See supra* note 190 (reporting percentages of how many litigated claims are found to be invalid); ARGUMENTS BEFORE THE COMM. ON PATENTS, H.R. MIS. DOC. 50, at 135–36 (2d Sess. 1878) (argument of J.J. Storrow) (discussing the

PTO misapprehending the law or applying the law incorrectly,²²¹ while others may originate in the PTO not being aware of some invalidating prior art,²²² and others still due to the patentee committing fraud on the PTO.²²³ That granted patents can be invalidated is not a surprise to anyone—including patentees themselves—and is and has always been part of the legal landscape. Indeed, when markets value a patent, they take into account the possibility that upon judicial scrutiny the patent may be found to be invalid.²²⁴ A study by Professors Mark Lemley and John Allison showed that the rate of invalidation in judicial proceedings is just under 50%.²²⁵ Yet, that includes all causes of invalidation, and not just invalidation for lack of novelty or obviousness. Invalidation for these two causes is limited to about 33% of litigated patents.²²⁶ Another recent study by Shawn Miller that attempted to quantify the proper invalidation rate, suggested that about 28% of all patents are invalid if subjected to correct anticipation or obviousness analysis.²²⁷ According to this

benefits of patents and explaining that they are only granted to inventors who have created a new and useful art or composition of matter).

221. See, e.g., *Mayo Collaborative Servs. v. Prometheus Labs., Inc.*, 132 S. Ct. 1289, 1305 (2012) (invalidating a granted patent because the PTO misapprehended the proper test for patentability under 35 U.S.C. § 101).

222. See Tun-Jen Chiang, *The Upside-Down Inequitable Conduct Defense*, 107 NW. U. L. REV. 1243, 1249 (2013) (noting that the PTO will often erroneously issue a patent on the belief that it is valid, when in fact it is invalid due to the vastness of prior art).

223. See Christopher R. Leslie, *Patents of Damocles*, 83 IND. L.J. 133, 137 (2008) (considering the multiple ways in which patent applicants can commit fraud upon the PTO, for example by failing to disclose material information or by submitting false information).

224. See Hovenkamp, Janis & Lemley, *supra* note 21, at 1761 (acknowledging the fact that a significant number of patents that make it to court are ultimately held invalid).

225. See Allison & Lemley, *supra* note 190, at 205–06 (noting that there is a wide disparity of validity rates across regional circuits, even though the average rate of all the circuits was just under 50%). For other studies confirming the same approximate invalidity rates, see *supra* note 190.

226. Allison & Lemley, *supra* note 190, at 209 (citing obviousness as the most frequently used basis for judicial invalidation of patents).

227. See Shawn P. Miller, *Where's the Innovation: An Analysis of the Quantity and Qualities of Anticipated and Obvious Patents*, 18 VA. J.L. & TECH. 1, 6–7 (2013) (showing that the results of the author's study suggest that the

study, the courts are invalidating roughly as many patents as they should be invalidating based on these criteria if they were getting the law correct all the time. Indeed, the courts are somewhat over-invalidating patents, but the numbers are in line with what the Miller study predicts ought to be happening.²²⁸

The invalidation numbers in the post-issuance proceedings are starkly different. The rate of invalidation in IPR proceedings exceeds 75% of all claims subject to adjudication.²²⁹ The CBMR numbers are more eye-popping still. In the CBMR proceedings the claims are invalidated at a rate of over 90%.²³⁰ The question is what accounts for such disparity between district court invalidation rates and PTAB invalidation rates.

One possible answer is that the patents tested in the PTA crucible are just weaker and, therefore, are more likely to be invalidated. Under this hypothesis, the high percentage of invalidation at the PTAB indicates nothing other than selection bias. This hypothesis suggests that, if the same patents were litigated in court, the invalidation rate would be much the same. The problem with this line of thinking, however, is that a number of patents that have been invalidated in the PTAB proceedings have gone through litigation—including an appeal to the Federal Circuit.²³¹ Although the patent survived the litigation unscathed, the PTO ordered an IPR or CBMR of the patents in question and then invalidated the challenged claims at the same rate as it did for patents that have not been through the crucible of

patent system's efficiency is harmed by the existence of too many non-innovative patents).

228. *Compare id.* (suggesting a proper invalidity rate of 28% based on anticipation and obviousness), *with Allison & Lemley, supra* note 190, at 209 (reporting a 33% district court invalidation rate based on these same criteria).

229. *See Dolin, Dubious Patent Reform, supra* note 3, at 926 (“Looking at the total number of claims in all IPRs that have been considered by the PTAB versus the number of claims that survived, the same general picture emerges—a nearly 75% invalidation rate.”).

230. *See id.* at 930 (“The per-case invalidation rate in CBMR is over 90% and per-claim rate is over 94%.”).

231. *Id.* at 927–29 (“One reason to doubt that the patents in the first wave of IPR are particularly ‘weak’ is the fact that a number of them have been through litigation or reexamination or both.”).

litigation.²³² Other data also undermine the “selection bias” hypothesis. Thus,

only 31% of IPR petitions rely only on “new” (i.e., previously unconsidered) prior art. Three percent rely on old art or art that was already considered by the patent examiner and not found to be invalidating, and 66% rely on a mixture of old and new art. But, all of the petitions are successful at high levels. Of the final written decisions, petitions relying on new art only and old art only result in the identical invalidation rate of 93%, while those relying on mixture of old and new art result in the invalidation rate of 81%.²³³

Additionally, “15% of patents in IPR have been involved in and emerged from a previous reexamination Of these patents that have already received [this] second favorable look, 60% were fully invalidated in the IPR proceedings, and 8% were partially invalidated, for a per claim invalidation rate of 83%.”²³⁴ Thus, the data undermines the hypothesis that the reason for high invalidation rate is selection bias and the weakness of the patents in the IPR. The patents being invalidated in these proceedings are not egregiously weak.²³⁵ Instead, these are patents that have survived litigation and reexamination—and sometimes both.²³⁶ Something else must then be at work.

The financial markets also recognize that it is not the inherent weakness of the patents that drives the high invalidation rate at the PTAB. For example, the stock market reacted very negatively to the news that an IPR was requested on a particular patent, though that patent had been upheld in prior litigation and a federal jury had concluded it was worth \$300 million.²³⁷ The mere fact that an IPR petition was filed caused the patentee’s stock to plummet “by 25%, which translated into a

232. *Id.* at 927–31 (noting that the PTO may still invalidate a patent during an IPR or CBMR even after it was ruled valid through litigation).

233. *Id.* at 928.

234. *Id.* at 927.

235. *See id.* (providing reasons to doubt that the patents in the first wave of IPR are particularly weak).

236. *Id.*

237. *Id.* at 932–33 (“[T]he system can be used to destroy not just the value of a patent, but the value of a patentee’s entire enterprise.”).

250 million dollar loss in market capitalization.”²³⁸ This happened before the PTAB decided whether to institute a trial with respect to the challenged patent, much less adjudicated the merits of the dispute.²³⁹ One would have thought that a patent that has survived litigation after a strong challenge by, of all parties, Apple²⁴⁰—a company with nearly limitless resources—would be in no danger from the “second look” administered by the PTO. Yet, the collective market wisdom concluded otherwise. The reason it concluded otherwise, and the reason for the disparity in invalidation rates between the courts and the PTAB, is the difference in claim construction and the burden of proof on the patent challenger in these fora.²⁴¹

Before moving on to the next Part, we wish to address the question of why reexamination was so much less “deadly” to patents than current post-issuance procedures. After all, in both *ex parte* and *inter partes* reexamination, claims were given their broadest reasonable construction.²⁴² Yet, the “kill” rate in reexamination was much lower than what is seen in IPR and CBMR. For example, in *ex parte* reexamination, 25% of patents emerge completely unscathed, while another “two-thirds of the patents exit reexamination with some changes made to the claims.”²⁴³ Only 12% of all patents that enter reexamination fail to

238. *Id.* at 933.

239. *See id.* (showing that just the ability to request IPR is a powerful tool).

240. *See* *VirnetX, Inc. v. Apple Inc.*, 925 F. Supp. 2d 816, 825 (E.D. Tex. 2013) (demonstrating that not even a powerful company like Apple can escape the second look administered by the PTO), *aff’d in part, vacated in part, rev’d in part sub nom.* *VirnetX, Inc. v. Cisco Sys., Inc.*, 767 F.3d 1308 (Fed. Cir. 2014).

241. *See* Dolin, *Dubious Patent Reform*, *supra* note 3, at 903 (“[I]nstead of becoming an alternative avenue to resolving issues of patent validity, the reexamination process simply bifurcates the dispute resolution in two different fora.”).

242. *See* 37 C.F.R. § 1.552 (2012) (*ex parte* reexamination); 37 C.F.R. § 1.906 (*inter partes* reexamination); *see also* *Scope of Inter Partes Reexamination*, MANUAL OF PAT. EXAMINING PROCEDURE (MPEP), U.S. PAT. & TRADEMARK OFFICE (Nov. 2015), <http://www.uspto.gov/web/offices/pac/mpep/s2658.html> (last visited Apr. 25, 2016) (stating that “[i]nter partes reexamination *does not*, however, differ from *ex parte* reexamination as to the substance to be considered in the proceeding”) (on file with the Washington and Lee Law Review).

243. *See* Dolin, *Dubious Patent Reform*, *supra* note 3, at 923–24 (“[N]early a quarter of all patents exit the reexamination with all claims confirmed.”).

receive the reexamination certificate.”²⁴⁴ The inter partes reexamination was somewhat less favorable to the patentees, but still not as likely to invalidate a patent as IPR or CBMR. In inter partes reexamination, 31% of patents had all of the challenged claims rejected and 8% of all of the claims confirmed.²⁴⁵ The remaining 61% of patents survived only following claim amendments.²⁴⁶ The picture that emerges from these data is that the key to post-issuance proceedings in the PTO under the “broadest reasonable construction” standard is the “unfettered opportunity to amend in those proceedings.”²⁴⁷ This ability is de facto absent in the AIA-created procedures.²⁴⁸ In the first thirty months of AIA procedures, only two—out of more than fifty—motions to amend claims were granted, resulting in twenty-two amended claims being allowed.²⁴⁹ Making matters even more dramatic, out of those three motions, one was in relation to a patent owned by the U.S. government, and the motion encountered no opposition from the patent challenger.²⁵⁰ The PTAB explained that in post-issuance proceedings, the patentee has no *right* to amend the claims and held that the law “places the burden on the patent owner to show a patentable distinction of each proposed substitute claim over the prior art.”²⁵¹ The

244. *Id.*

245. See U.S. PAT. & TRADEMARK OFF., INTER PARTES REEXAMINATION FILING DATA—SEPT. 30, 2013, at 1, http://www.uspto.gov/patents/stats/inter_parte_historical_stats_roll_up_EOY2013.pdf (providing data on the number of IPR requests and filings).

246. See *id.* (providing additional data on IPR requests and filings).

247. *In re Cuozzo Speed Techs., LLC*, 778 F.3d 1271, 1287 (Fed. Cir. 2015) (Newman, J., dissenting) *opinion withdrawn and superseded on reh'g* 2015 WL 4097949 (Fed. Cir. July 8, 2015).

248. See *id.* (“[W]hen claims in reexamination are not eligible for amendment . . . the PTO instructs examiners not to use the broadest reasonable interpretation.”); *In re Cuozzo Speed Techs., LLC*, No. 2014-1301, 2015 WL 4100060, at *4 (Fed. Cir. July 8, 2015) (Prost, C.J., Newman, Moore, O’Malley, Reyna, JJ., dissenting) (“IPRs do not bear the traits that justify the broadest reasonable construction . . . there is no robust right to amend.”).

249. See Dolin, *Dubious Patent Reform*, *supra* note 3, at 929 (noting that the advantage of PTAB’s motion to amend claims is purely ephemeral).

250. See *id.* (“In every other case (forty-eight in total), the motion to amend was denied.”).

251. *Idle Free Sys., Inc. v. Bergstrom, Inc.*, IPR2012-00027, Docket No. 26,

PTAB denied motions to amend when it viewed the patentee's arguments as insufficiently detailed to explain why the proposed amendments would be patentable.²⁵² This posture is in stark contrast with initial patent examination and reexamination. In those procedures, it is the examiner that bears the initial burden of proof to show that the claim as presented by the applicant is unpatentable in view of any of the requirements of the Patent Act.²⁵³

Thus, unlike the reexamination where two-thirds of the claims are amended and then exit the reexamination process confirmed in this new form,²⁵⁴ the opportunity to amend in IPR and CBMR is ephemeral at best. In *In re Cuozzo*,²⁵⁵ five judges of the Federal Circuit noted as much, writing in a rare joint dissent from the court's refusal to take up the issue of proper claim construction in IPR en banc that

[d]uring IPRs, there is no back-and-forth between the patentee and examiner seeking to resolve claim scope ambiguity; there is no robust right to amend. . . . During this process, the patentee is not given the right to amend its claims, but must instead seek the permission of the Board. Even then, the patentee is limited to "one motion to amend," with additional motions allowed only "to materially advance the settlement of

at 7 (P.T.A.B. June 11, 2013).

252. See, e.g., *ScentAir Tech., Inc. v. Prolitec, Inc.*, IPR2013-00179, Docket No. 60, at 27–30 (2015) (showing the increased difficulty for a patentee attempting to amend claims); see also *PTAB Decision Highlights Little Used Claim Amendment Process in America Invents Act Patent Challenges*, FISH & RICHARDSON (June 17, 2015) <http://fishpostgrant.com/alert/ptab-decision-highlights-aia-patent-challenges/> (last visited Apr. 22, 2016) (describing a patentee's difficulty in amending his or her claims) (on file with the Washington and Lee Law Review).

253. See *In re Oetiker*, 977 F.2d 1443, 1445 (Fed. Cir. 1992) ("[I]f the applicant can provide evidence or argument in support of unobviousness, such evidence and argument will be considered, and the question of patentability will be redecided on the entire record.").

254. See *supra* note 244 and accompanying text ("[T]wo-thirds of the patents exit reexamination with some changes to the claim . . .").

255. *In re Cuozzo Speed Techs., Inc.*, No. 2014-1301, 2015 WL 4100060 (Fed. Cir. July 8, 2015)

a proceeding” or “as permitted by regulations prescribed by the Director.”²⁵⁶

In short, unlike the previous “second look” regimes, IPR and CBMR have both drastically changed the scope of the right that the patentees thought they bargained for *and* failed to provide them with a meaningful substitute for the vested rights lost. Nevertheless, before addressing the constitutionality of this action, we need to consider the law of takings generally as it has developed over time.

IV. The History of Eminent Domain

For nearly as long as there has been a concept of “private property,” governments have expressly or inherently retained the right to reclaim that property for uses that they have deemed appropriate.²⁵⁷ In the United States, the Fifth Amendment to the Constitution expressly reserves the right to take personal property from private individuals while providing that no property shall be taken without some form of payment.²⁵⁸ The Takings Clause states that “nor shall private property be taken for public use, without just compensation.”²⁵⁹ Yet, as the case law has developed over time, in particular since the Industrial Revolution, the government has increased its ability to take property from private citizens, both by creating new means of taking, such as through zoning and city planning,²⁶⁰ and by broadening the definition of “public use” to the point where virtually any use could be conceived of as for the public benefit.²⁶¹

256. *Id.* at *4 (Prost, C.J., Newman, Moore, O’Malley, Reyna, JJ., dissenting from denial of rehearing en banc).

257. *See* U.S. CONST. amend. V (elaborating on the “Takings Clause,” which allows the government to take property if just compensation is provided).

258. *Id.*

259. U.S. CONST. amend. V.

260. For a discussion on the adoption of city planning in the United States and the role of eminent domain, see J. S. Young, *City Planning and Restrictions on the Use of Property*, 9 MINN. L. REV. 518, 520 (1924–1925) (stating that the United States has four means of acquiring private property for public use, including “taxation, proprietary, eminent domain, and police [powers]”).

261. *See, e.g.,* *Kelo v. City of New London*, 545 U.S. 469 (2005) (expanding

A. The Fifth Amendment and the Takings Clause

In the years surrounding the adoption of the Constitution, there was a deep-seated and continuing distrust of a large and powerful government. While never denying that there may be instances in which utilitarianism would doubtlessly permit certain property takings, the drafters of the Constitution included a restriction: the requirement that property owners be compensated for any such taking.²⁶² The “just compensation” portion of the clause was entirely new, moving beyond simple due process toward an official recognition that land had value to the owner because he had made the effort to improve the land and make it useful.²⁶³ Just because the land could be more useful to others did not mean that the owner’s right to use the land for his own benefit could be unilaterally usurped. In the bundle of sticks, the property owner had as much right to *not use* the land as he did to use it. Eminent domain would allow the government to take land that could be used for the common good while acknowledging that the property had some value to its previous owner, even if the owner chose not to use it for any particular purpose.²⁶⁴

As the post-Civil War era turned into the Industrial Revolution, and then into the Civil Rights Movement, the questions of procedural and substantive due process would begin to shape the parallel law on takings and eminent domain.

the definition of “public use” to include the concept of economic development).

262. See U.S. CONST. amend. V (“[N]or shall private property be taken for public use, without just compensation.”).

263. *Id.*

264. Some might argue that this is the inherent flaw in Locke’s labor theory. If a man who has acquired land through his hard work chooses then to let the land go fallow, is that not his right? Locke argues that once land is acquired, it would be wasteful not to put it to its use, “for it is labour indeed that puts the value on everything.” John Locke, TWO TREATISES OF GOVERNMENT § 40 (Hollis ed., 1689). Under that theory, the government should not have to pay to take land that is not actively cultivated or put to use.

B. Without Due Process of Law

The Fifth Amendment clearly states that no man shall lose life, liberty, or property without due process of law.²⁶⁵ Due process is both procedural—a question of the process of the government (did a citizen get some kind of hearing)—and substantive, meaning the Court was allowed to review the “substance” of the legislation in question via the Due Process Clause.²⁶⁶ As states tried to rebuild and aggrieved private parties filed Fifth Amendment Takings claims, courts continually reviewed the new legislation to ensure the laws were fair to all parties involved.

In 1922, the U.S. Supreme Court overturned a Pennsylvania regulation that was intended to protect the rights of individual landowners from the dangerous methods employed by mining companies.²⁶⁷ The landmark case of *Pennsylvania Coal v. Mahon*,²⁶⁸ involved regulations prohibiting corporations from mining coal in the ground under streets, houses, and places of public assembly. Pennsylvania Coal held the mineral rights to numerous properties whose surface rights were owned by other—often unsuspecting—individuals to whom Pennsylvania Coal had sold them.²⁶⁹ The legislation had been enacted to protect the residents from unanticipated cave-ins and other dangers associated with living and working on the surface while the coal mine dredged the land literally out from under them.²⁷⁰ Pennsylvania Coal argued successfully that the prohibition of mining amounted to a government taking without just compensation in violation of the Fifth Amendment.²⁷¹ The Supreme Court held that, though property regulation may be

265. U.S. CONST. amend. V.

266. See *Mugler v. Kansas*, 123 U.S. 623, 661 (1887) (“They [the courts] are at liberty, indeed, are under solemn duty, to look at the substance of things, whenever they enter upon the inquiry whether the legislature has transcended the limits of its authority.”).

267. *Pa. Coal v. Mahon*, 260 U.S. 393 (1922).

268. *Id.*

269. *Id.* at 412.

270. *Id.* at 418–19.

271. *Id.* at 416.

permitted, where “the regulation goes too far,”²⁷² as it did here, the overly restrictive law amounts to a compensable taking. Despite the Court’s finding that a taking had occurred, no compensation was ordered.²⁷³ Presumably, resumption of mining was compensation enough to the mining company.

On the heels of its decision in *Pennsylvania Coal*, the Supreme Court heard a series of cases involving new—to the United States²⁷⁴—regulatory techniques called “zoning” and urban planning. Two of these cases were in tension with one another: *Village of Euclid v. Ambler Realty*²⁷⁵ and *Nectow v. City of Cambridge*.²⁷⁶ In *Euclid*, the plaintiff challenged a generalized zoning and city plan on the grounds that the structured assignment of commercial and industrial zones denied the property owners due process of law in that they had no opportunity to challenge the designation.²⁷⁷ The Court, however, upheld the zoning ordinance as a “valid exercise of authority,”²⁷⁸ ruling that zoning laws are not, as a general category, unconstitutional restrictions on the rights of the property owner.²⁷⁹ The Court went so far as to declare:

[W]e are not prepared to say that the end in view was not sufficient to justify the general rule of the ordinance It cannot be said that the ordinance in this respect passes the bounds of reason and assumes the character of a merely arbitrary fiat. Moreover, the restrictive provisions of the ordinance in this particular may be sustained upon the principles applicable to the broader exclusion from residential districts of all business and trade structures.²⁸⁰

The public interest in “increas[ing] the safety and security of home life . . . by reducing the traffic and resulting confusion in

272. *Id.* at 415.

273. *Id.* at 416.

274. For a discussion of the United States’ slow adoption of city planning and zoning, see generally J. S. Young, *supra* note 262.

275. 272 U.S. 365 (1926).

276. 277 U.S. 183 (1928).

277. *Euclid*, 272 U.S. at 379.

278. *Id.*

279. *Id.*

280. *Id.* at 389 (internal citation omitted).

residential sections, decreas[ing] noise and other conditions which produce or intensify nervous disorders, [and] preserv[ing] a more favorable environment in which to rear children,”²⁸¹ clearly surpassed the right of the property owner to use his property as he desired.²⁸²

Conversely, in *Nectow*, the Court found that, while the zoning ordinance in question was constitutionally sound in general, it was unsustainable as applied to the particular plaintiff.²⁸³ In *Nectow*, the zoning ordinance itself seemed to be facially similar to that in *Euclid*, wherein zones for residential, industrial and unrestricted use were created. Though the Court found that the ordinance met the new “substantial relation to the public health, safety, morals, or general welfare”²⁸⁴ standard set forth in *Euclid*, it held that the ordinance as applied to this particular plaintiff was “an invasion of the property of plaintiff [and] was serious and highly injurious.”²⁸⁵ Yet, the only remedy offered in this instance was an injunction preventing enforcement of the ordinance, not compensation for the taking.²⁸⁶ Oddly, the handful of cases evaluated during this time focused on the substantive due process rationale rather than on the terms of the Takings Clause itself, and they generally failed to offer any type of compensation when a taking was found.²⁸⁷

The message of these early cases on takings was that, while the government was allowed to regulate private property to some extent and even when that diminished the value of the property, the Takings Clause would be triggered by the removal of particular elements from the “bundle of sticks.” The fight continued, however, about the kind and degree of protection appropriate in this context.

281. *Id.* at 394.

282. *Id.* at 396–97.

283. *Nectow v. City of Cambridge*, 277 U.S. 183, 188–89 (1928).

284. *Id.* at 188.

285. *Id.*

286. *Id.* at 188–89.

287. *See, e.g., id.* (offering an injunction as a remedy but not just compensation for the taking).

*C. All Aboard Penn Central, with Stops at Agins, Lingle, Lucas,
and Loretto*

1. Penn Central and the World of Regulatory Takings

In 1978, the Supreme Court returned to its long-dormant and largely unchallenged *Pennsylvania Coal* takings analysis to determine whether a local government had gone "too far" in denying an owner's right to develop and largely reshape a New York landmark, Grand Central Terminal.²⁸⁸ The developer challenged an ordinance that prevented any redevelopment of sites labeled as historic landmarks.²⁸⁹ The plaintiff urged that preventing him from utilizing the valuable space on top of Grand Central Terminal amounted to a taking.²⁹⁰ In its takings analysis, the Court enumerated three factors of particular significance: (1) the economic impact of the regulation on the claimant; (2) the extent to which the regulation has interfered with distinct investment-backed expectations;²⁹¹ and (3) the character of the governmental action, including an analysis of whether the taking was a physical taking or merely had the effect of a taking.²⁹² In evaluating the economic impact of the refusal to allow "upward" development of the landmark property, the Court found that, in light of its newly enumerated test, the public benefit far outweighed any potential economic loss to the owner.²⁹³ Though the underlying question of whether "some" compensation qualified as "just" compensation went unanswered by the Court,²⁹⁴ it was ultimately determined that some

288. *Penn Cent. Transp. Co. v. New York City*, 438 U.S. 104 (1978).

289. *Id.* at 118.

290. For a discussion on "air rights" broadly, a theme that seemingly befuddled the Court in *Penn Central*, see generally Frank Schnidman & Cameron Roberts, *Municipal Air Rights: New York City's Proposal to Sell Air Rights over Public Buildings and Public Spaces*, 15 URB. L. 347 (1983).

291. *Penn Central*, 438 U.S. at 124.

292. *Id.*

293. *See id.* at 138 ("The restrictions imposed are substantially related to the promotion of the general welfare and not only permit reasonable beneficial use of the landmark site but also afford appellants opportunities further to enhance . . . the Terminal site . . .").

294. *See id.* at 137 (discussing the issue of transferable development rights

compensation was apparently better than none, and the zoning regulations stood.²⁹⁵

2. *Agins v. City of Tiburon*

Just three short years later, the Court reconfigured its regulation-takings analysis into a two-part “either or” test. In *Agins v. City of Tiburon*,²⁹⁶ the Court asked whether the regulation “substantially advanced a legitimate state interest” or whether the regulation “denied an owner economically viable use of land.”²⁹⁷ The Court suddenly viewed the question of regulatory taking as a question of whether the *Nectow* (substantial state interest) or *Penn Central* (economically viable use of the land) analysis should apply rather than a combination of the two analyses.²⁹⁸ The *Agins* Court enunciated that, because plaintiffs were free to pursue their residential development elsewhere, there could be no taking and that the zoning regulations in question did not deny the “justice and fairness guaranteed by the Fifth and Fourteenth Amendments.”²⁹⁹ *Agins* adopted the economic analysis of *Penn Central* without consideration for the compelling state interest.

3. *Lingle v. Chevron USA, Inc.*

Agins was, however, a short-lived rule, abrogated twenty-five years later in *Lingle v. Chevron USA Inc.*,³⁰⁰ which eliminated

as a partial solution which granted the owners of Grand Central some value to the lost space above the landmark property).

295. The Court took into account the existence of transferable development rights that the plaintiffs in the case received as part of the regulatory scheme and that had the potential to diminish the financial blow to them; this led the Court to conclude that an adjustment rather than deprivation of property rights was taking place. *Id.* at 137–38.

296. 447 U.S. 255 (1980).

297. *Id.* at 260.

298. *Id.*

299. *Id.* at 263.

300. 544 U.S. 528 (2005).

the “substantially advanced a legitimate state interest” prong.³⁰¹ The *Lingle* Court at long last declared that the substantial advancement test was clearly not a constitutional factor enumerated in the Takings Clause and had been an improperly judicially created standard.³⁰² The issue in *Lingle* focused on lease limitations on gas stations.³⁰³ The Hawaii legislature enacted a law limiting gas station leases to no more than 15% of fuel sales gross profits and 15% of profits from non-fuel sales.³⁰⁴ The Chevron Corporation argued that the limitation amounted to a taking and the trial court disagreed.³⁰⁵ It held, in line with *Penn Central*, that Chevron would essentially “win some, lose some” and because there was not a complete loss of value in the property, and the taking substantially advanced a government interest in protecting the gas dealers and the public from high prices, there could be no taking.³⁰⁶ Upon review, the Supreme Court unanimously held that *Agins*’ substantial advancement prong was an evaluation of the Due Process Clause, not the Takings Clause of the Fifth Amendment and was therefore not the appropriate evaluation.³⁰⁷ *Lingle* in effect swung the pendulum back from the substantive due process evaluation the Court had been using since *Pennsylvania Coal* to the literal “just compensation” analysis that is set forth in the language of the Takings Clause.

301. *Id.* at 540.

302. *See id.* at 540–43 (“There is no question that the ‘substantially advances’ formula was derived from due process, not takings, precedent.”).

303. *Id.* at 528.

304. *Id.*

305. *Id.* at 532–34.

306. *See id.* at 533 (“Chevron swiftly moved for summary judgment on its takings claim, arguing that the rent cap does not substantially advance any legitimate government interest.”).

307. *Id.* at 540.

4. *Lucas and Loretto as Tests for Total Regulatory and Physical Takings*

The *Lingle* court relied on the parallel theories of “total regulatory taking,” as set forth in *Lucas v. South Carolina Coastal Council*,³⁰⁸ and of “physical takings” in *Loretto v. Teleprompter*³⁰⁹ to justify the shift away from state interest back toward the injury to the property owner.³¹⁰ *Lucas* established that a total regulatory taking occurs when regulations completely deprive an owner of “all economically beneficial use,”³¹¹ while *Loretto* established that a physical taking occurred when a property owner suffers a permanent physical invasion of her property—at the hands of the government or a private party—even when that taking is relatively minor, such as the installation of a cable wire on the front and roof of one’s apartment building.³¹² When either type of taking occurs, the intruding party must provide just compensation.

When it comes to *Loretto*, the intrusion that the plaintiff in the case suffered was insignificant in regard to the decline in value incurred, given that it was equipment mostly consisting of cables and cable boxes affixed to the outside of a building.³¹³ Nonetheless, the Court stated that a permanent physical occupation “is perhaps the most serious form of invasion of an owner’s property interests. . . . [T]he government does not simply take a single ‘strand’ from the ‘bundle’ of property rights: it chops through the bundle, taking a slice of every strand.”³¹⁴ It added that “property law has long protected an owner’s expectation that he will be relatively undisturbed at least in the possession of his property. To require, as well, that the owner permit another to

308. 505 U.S. 1003 (1992).

309. 458 U.S. 419 (1982).

310. See *id.* at 441 (affirming that a permanent physical occupation of property is a taking, even if the permanent installation is of minimal size).

311. *Lucas*, 505 U.S. at 1019.

312. *Loretto*, 458 U.S. at 435.

313. See *id.* at 422 (describing the intrusion as “a cable slightly less than one-half inch in diameter and of approximately 30 feet in length” along with “two large silver boxes”).

314. *Id.* at 435.

exercise complete dominion literally adds insult to injury.”³¹⁵ Last, the Court emphasized that permanent occupations present few issues of proof.³¹⁶

D. Sour Grapes in Horne v. Department of Agriculture

Recently, the Supreme Court decided a case dealing with an administrative marketing order that required growers to set aside a certain percentage of raisin crops for the government at no charge and with at most the hope of recouping a percentage of the government's profits when selling the raisins, should those profits exist.³¹⁷ The petitioner refused to set aside raisins, arguing that this was an unconstitutional taking, and the government fined the petitioners the fair market value of the raisins plus civil penalties as a result.³¹⁸ The Court held that this constituted a taking under the Fifth Amendment, which was of particular significance because it was the first time that the Court unambiguously applied the Takings Clause to personal property rather than real property.³¹⁹ Notably, the Court did not mince words when it stated: “Nothing in this history suggests

315. *Id.* at 436.

316. *See id.* at 437 (“The placement of a fixed structure on land or real property is an obvious fact that will rarely be subject to dispute.”).

317. *See Horne v. Dep’t of Agric.*, 135 S. Ct. 2419, 2424–25 (2015) (setting forth the facts of the case and noting that “[t]he question is whether the Takings Clause of the Fifth Amendment bars the Government from imposing such a demand on the growers without just compensation”).

318. *See id.* at 2425 (noting that the Hornes were fined an amount “equal to the market value of the missing raisins—some \$480,000—as well as an additional civil penalty of just over \$200,000 for disobeying the order to turn them over”).

319. *See id.* at 2425–28 (answering in the negative the question of “[w]hether the government’s ‘categorical duty’ under the Fifth Amendment to pay just compensation when it ‘physically takes possession of an interest in property’ . . . applies only to real property and not to personal property”); Tom W. Bell, “Property” in the Constitution: *The View From the Third Amendment*, 20 WM. & MARY BILL RTS. J. 1243, 1246 (2012) (discussing “precedents suggesting that the Takings Clause protects personal property less completely than it does real property”).

that personal property was any less protected against physical appropriation than real property.”³²⁰ It went on to explain:

[A patent] confers upon the patentee an exclusive property in the patented invention which cannot be appropriated or used by the government itself, without just compensation, any more than it can appropriate or use without compensation land which has been patented to a private purchaser.³²¹

This reconfirms the Court’s position that patents are the beneficiaries of Fifth Amendment protection just as much as pieces of land.³²²

The Supreme Court further explained that the government’s decision to take possession and control of the raisins results in a taking as much “as if the Government held full title and ownership.”³²³ The Court noted that the growers’ retention of “a contingent interest of indeterminate value does not mean there has been no physical taking, particularly since the value of the interest depends on the discretion of the taker, and may be worthless, as it was for one of the two years at issue here.”³²⁴ The government’s argument that the regulatory scheme resulted in higher prices for the remaining raisins did not sway the Court to hold that no taking had occurred.³²⁵ This entire line of reasoning would presumably apply in the patent context as well, and even contingent interests in patents would not eliminate the possibility that a taking took place. The *Horne* case shows that

320. *Horne*, 135 S. Ct. at 2427.

321. *Id.* (quoting *James v. Campbell*, 104 U.S. 356, 358 (1882)).

322. See Adam Mossoff, *Supreme Court Recognizes That Patents Are Property*, CTR. FOR THE PROTECTION OF INTELL. PROP. BLOG, June 22, 2015, <http://cpip.gmu.edu/2015/06/22/supreme-court-recognizes-that-patents-are-property/> (last visited Apr. 22, 2016) (“I am pleased to see the Supreme Court reiterate what it said over a century ago: A patented invention stands the same as other types of property, and its taking by the government without adequate compensation is unconstitutionally unjust.”) (on file with the Washington and Lee Law Review).

323. *Horne*, 135 S. Ct. at 2428 (quoting *Loretto v. Teleprompter Manhattan CATV Corp.*, 458 U.S. 419, 431 (1982)).

324. *Id.* at 2429.

325. See *id.* at 2432 (rejecting the “notion that general regulatory activity such as enforcement of quality standards can constitute just compensation for a specific physical taking”).

even when some interest remains in personal property, a category in which the Court also situates patents, a taking can occur.³²⁶

V. Post-Issuance Review as a Taking

A. Are Patents Property?

There is a tension between scholars as to the question of whether patents should be protected as property rights.³²⁷ Adam Mossoff and Simone Rose have stated their view unambiguously: “Patents are property.”³²⁸ Mossoff argues that the application of the Takings Clause to patents has a long historical pedigree rather than arising out of modern legal interpretations.³²⁹ John Duffy agrees that patents “should be treated as a species of property.”³³⁰ Judge Frank Easterbrook from the United States Court of Appeals for the Seventh Circuit stated in a scholarly

326. See *id.* at 2433 (ruling that “the Hornes should simply be relieved of the obligation to pay the fine and associated civil penalty they were assessed when they resisted the Government’s effort to take their raisins” even though the Hornes retained an economic interest in the seized raisins).

327. See generally Michael A. Carrier, *Cabining Intellectual Property Through a Property Paradigm*, 54 DUKE L.J. 1 (2004) (discussing the propertization of intellectual property); Stephen L. Carter, *Does It Matter Whether Intellectual Property Is Property?*, 68 CHI.-KENT L. REV. 715 (1993) (considering the implications of the debate over whether intellectual property is property); Irina D. Manta & Robert E. Wagner, *Intellectual Property Infringement as Vandalism*, 18 STAN. TECH. L. REV. 331 (2015) (analyzing the relationship between intellectual property and property law, including as it applies to the sanctions regime of intellectual property).

328. Adam Mossoff, *Patents as Constitutional Private Property: The Historical Protection of Patents Under the Takings Clause*, 87 B.U. L. REV. 689, 690 (2007) [hereinafter Mossoff, *Constitutional Private Property*]; see also Simone A. Rose, *Patent “Monopolyphobia”: A Means of Extinguishing the Fountainhead?*, 49 CASE W. RES. L. REV. 509, 515 (1999) (recommending that the Patent Act be amended to clarify that “patents are property”); Adam Mossoff, *The Trespass Fallacy in Patent Law*, 65 FLA. L. REV. 1687, 1692 (2013) (“Patents have long been identified as property rights in American law.”).

329. See Mossoff, *Constitutional Private Property*, *supra* note 327, at 700–11 (discussing nineteenth-century cases recognizing patents as property and concluding that this “jurisprudence was quite clear: patents were private property rights secured under the Constitution”).

330. John F. Duffy, Comment, *Intellectual Property Isolationism and the Average Cost Thesis*, 83 TEX. L. REV. 1077, 1078 (2005).

symposium: “Except in the rarest case, we should treat intellectual and physical property identically in the law”³³¹ One of the leading textbooks in intellectual property explains: “Patent law is a property-rights regime”³³²

Shubha Ghosh argues that, while “private property has been read to encompass both real and personal property[,] [a]pplication to intellectual property or intangible property would occur only through analogy.”³³³ Davida Isaacs mainly criticizes the application of the Takings Clause to patents on two grounds: first, because patentholders already receive compensation for most government uses of patented technologies; second, because regulatory claims would allow patentholders to intervene when the government limits the circumstances under which they can assert claims or the damages they can receive.³³⁴ Many scholars have emphasized that, rather than focus on the relationship between patents and property law, one should ask both with regard to the delineation of liability and of proper remedies what would advance a utilitarian purpose.³³⁵ Meanwhile, Cynthia Ho

331. Frank H. Easterbrook, *Intellectual Property Is Still Property*, 13 HARV. J.L. & PUB. POL’Y 108, 118 (1990).

332. CRAIG ALLEN NARD ET AL., *THE LAW OF INTELLECTUAL PROPERTY* 27 (4th ed. 2014).

333. Shubha Ghosh, *Toward a Theory of Regulatory Takings for Intellectual Property: The Path Left Open After College Savings v. Florida Prepaid*, 37 SAN DIEGO L. REV. 637, 667 (2000).

334. See Davida H. Isaacs, *Not All Property Is Created Equal: Why Modern Courts Resist Applying the Takings Clause to Patents, and Why They Are Right to Do So*, 15 GEO. MASON L. REV. 1, 2–3 (2007) (arguing that “the Takings Clause’s command to furnish ‘just compensation’ . . . would in most situations simply be superfluous” and “that establishing Takings Clause protection for patents could effectively put the government in a policy stasis”).

335. See, e.g., Abraham Bell & Gideon Parchomovsky, *A Theory of Property*, 90 CORNELL L. REV. 531, 542 (2005) (arguing that most modern-day property scholars base their understandings on utilitarianism rather than natural rights); Chiang, *Patent Boundaries*, *supra* note 189, at 545 (arguing in favor of using a utilitarian basis to decide how to amend claims); David S. Olson, *Taking the Utilitarian Basis for Patent Law Seriously: The Case for Restricting Patentable Subject Matter*, 82 TEMP. L. REV. 181, 183 (2009) (“[A] properly crafted patent law should provide enough property rights to incentivize the socially desirable (efficient) level of innovation, and no more.”); Ted Sichelman, *Purging Patent Law of “Private Law” Remedies*, 92 TEX. L. REV. 517, 530–33 (2014) (arguing against the view that patent infringement remedies should make whole the plaintiff and in favor of a more utilitarian view of each case).

describes the view held by a number of individuals in the public health context including the U.N. Commissioner for Human Rights, that patents are a privilege rather than a property right.³³⁶ As Michael Davis summed up that position, “[c]alling patents property . . . fails to properly analyze the patent bargain. . . . Nothing is inevitably or incurably wrong with calling the temporary privileges property, but the concept is certainly far removed from the general notion of property.”³³⁷

Whoever carries the debate as a theoretical matter, when it comes to the Fifth Amendment, “[j]udicial precedent and statutory analysis quite clearly support the proposition that patents are property. Whether patents share the ‘attributes’ of or are ‘of the same dignity’ as property, they are property. They therefore satisfy the property prong of an eminent domain claim.”³³⁸ The Patent Act itself states that “patents shall have the attributes of personal property.”³³⁹ Even before the recent pronouncements by the Supreme Court in *Horne*,³⁴⁰ the United States Court of Appeals for the Federal Circuit stated in *Patlex Corp. v. Mossinghoff*:³⁴¹ “It is beyond reasonable debate that

One of the authors has argued that one can simultaneously hold a utilitarian view of intellectual property and “not see a sharp dividing line between property and intellectual property.” See Irina D. Manta, *Theory and Empirics: Where Do Locke and Mossoff Leave Us*, LIB. OF L. & LIBERTY (May 8, 2015), <http://www.libertylawsite.org/liberty-forum/theory-and-empirics-where-do-locke-and-mossoff-leave-us> (last visited Apr. 22, 2016) (on file with the Washington and Lee Law Review).

336. Cynthia M. Ho, *Unveiling Competing Patent Perspectives*, 46 HOUS. L. REV. 1047, 1053–57 (2009) (citations omitted); see also James Thuo Gathii, *The Structural Power of Strong Pharmaceutical Patent Protection in U.S. Foreign Policy*, 7 J. GENDER RACE & JUST. 267, 272 (2003) (“In short, referring to patents primarily as private property rights is to overshadow their public essence by overstating their privateness. Such an overstatement of the privateness of patents is exemplified by the enormous limitations placed on the permissibility of overriding patents through compulsory and parallel licensing.”).

337. Michael H. Davis, *Patent Politics*, 56 S.C. L. REV. 337, 376 (2004).

338. Joshua I. Miller, 28 U.S.C. § 1498(A) and the Unconstitutional Taking of Patents, 13 YALE J.L. & TECH. 1, 18 (2010–2011).

339. 35 U.S.C. § 261 (2012).

340. See *supra* Part IV.D (discussing the Court’s recognition of patents as property in the recent case of *Horne v. Department of Agriculture*).

341. 758 F.2d 594 (Fed. Cir. 1985).

patents are property.”³⁴² The Federal Circuit has also referred to a patent as “a bundle of rights which may be divided and assigned, or retained in whole or part.”³⁴³

The case of *Zoltek Corp. v. United States*³⁴⁴ raised some questions at one point in this context when the Federal Circuit suggested that, because a patent holder can still exclude the rest of the world from the use of its carbon fiber technology, the government’s use of it amounted to mere patent infringement rather than a taking.³⁴⁵ The decision by the trial court on this point was later vacated, however, “[s]ince the Government’s potential liability under § 1498(a) is established, [the court did] not and do[es] not reach the issue of the Government’s possible liability under the Constitution for a taking.”³⁴⁶ The Supreme Court left no doubt in *Horne*, however, as mentioned, that patents are subject to the Takings Clause.³⁴⁷

B. Patents Are Subject to the Takings Clause

As most recently demonstrated in *Horne*, one cannot reject the proposition that patents are property in the constitutional sense under controlling Supreme Court doctrine.³⁴⁸ Not only did

342. *Id.* at 599.

343. *Alfred E. Mann Found. for Sci. Research v. Cochlear Corp.*, 604 F.3d 1354, 1360 (Fed. Cir. 2010) (citation omitted); *accord* *Morrow v. Microsoft Corp.*, 499 F.3d 1332, 1341 n.8 (Fed. Cir. 2007) (noting that “parties are free to assign some or all patent rights as they see fit based on their interests and objectives”); *Intellectual Prop. Dev., Inc. v. TCI Cablevision of Cal., Inc.*, 248 F.3d 1333, 1342 (Fed. Cir. 2001) (discussing property rights divided between grantor and grantee in an agreement concerning a patented invention).

344. 442 F.3d 1345 (Fed. Cir. 2006) (*per curiam*).

345. *See id.* at 1353 (“In sum, the trial court erred in finding that Zoltek could allege patent infringement as a Fifth Amendment taking under the Tucker Act . . .”).

346. *Zoltek Corp. v. United States*, 672 F.3d 1309, 1327 (Fed. Cir. 2012).

347. *See supra* Part IV.D (discussing how *Horne* “reconfirm[ed] the Court’s position that patents are the beneficiaries of Fifth Amendment protection just as much as pieces of land”).

348. *See Horne v. Dep’t of Agric.*, 135 S. Ct. 2419, 2427 (2015) (noting that the Takings Clause applies to a “patented invention” as much as it applies to “land” (quoting *James v. Campbell*, 104 U.S. 356, 358 (1882))).

the Court recognize in *Horne* that intangible patents are, in a constitutional sense, identical to tangible raisins, it also emphatically stated that “[n]othing . . . suggests that personal property was any less protected against physical appropriation than real property.”³⁴⁹ It therefore follows that patents, like any other private property, can be appropriated by the government for private use. And if so, such appropriation is forbidden absent “just compensation.”³⁵⁰ Yet, two cases seemingly unambiguously reject this proposition.³⁵¹ On closer examination, though, the cases that are consistently cited for the proposition that there can be no “taking” of patents cannot bear the weight that is too often assigned to them.

In *Schillinger v. United States*,³⁵² the Supreme Court rejected the argument that “the [C]onstitution forbids the taking of private property for public uses without just compensation; that, therefore, every appropriation of private property by any official to the uses of the government, no matter however wrongfully made, creates a claim founded upon the [C]onstitution.”³⁵³ Instead, it held that a claim against the United States for patent infringement is a claim in tort, rather than in property, and therefore is not compensable under the Takings Clause.³⁵⁴ The Federal Circuit held firm to this reasoning in *Zoltek*, concluding that sovereign immunity bars claims against the government for

349. *Id.*

350. *Id.* (quoting *James v. Campbell*, 104 U.S. 356, 358 (1882)).

351. *See Schillinger v. United States*, 155 U.S. 163, 172 (1894) (rejecting the argument that a government contractor’s use of plaintiff’s patents entitled plaintiff to compensation from the government under the Takings Clause); *Zoltek Corp. v. United States*, 442 F.3d 1345, 1353 (Fed. Cir. 2012) (“In sum, the trial court erred in finding that Zoltek could allege patent infringement as a Fifth Amendment taking under the Tucker Act, and we reverse.”).

352. 155 U.S. 163 (1894).

353. *Id.* at 168.

354. *Id.* at 169. In *Schillinger*, the patentee sued the U.S. Government for actions of its contractor, not those of any government officer acting in his original capacity. *Id.* at 166. Because there was no allegation that the Government in any way encouraged the contractor to infringe a patent, the Court concluded that there was no contract, express or implied, between the plaintiff and the Government on which he could pursue his Fifth Amendment claim. *Id.* at 169–72.

patent infringement.³⁵⁵ The Federal Circuit held that § 1498 was a limited waiver of sovereign immunity and that a patentee is not entitled to any other relief or remedy.³⁵⁶ The conclusion that is often drawn from these two cases is that a violation of patent rights does not rise to the level of a constitutional Fifth Amendment issue.³⁵⁷

Leaving aside the question of whether either *Schillinger* or *Zoltek* were correctly decided (and we have our doubts), the rule of law announced in those cases is simply not that broad. All that these cases stand for is that *infringement* of a patent is insufficient to trigger the Takings Clause.³⁵⁸ But infringement is not the only way to interfere with patent rights. One can imagine a hypothetical in which the government would reassign ownership of a patent from person *A* to person *B*. That would be qualitatively different from the situation facing the courts in *Schillinger* and *Zoltek*. As even the defenders of the outcome in *Zoltek* acknowledged

takings claims could occur if the government changed the patent laws so as to decrease the value of the patent when enforced against a private infringer—for instance, by narrowing the circumstances under which a patentholder

355. See *Zoltek Corp.*, 442 F.3d at 1349–52 (concluding that “where, as here, not all steps of a patented process have been performed in the United States, government liability does not exist”). The only exception to this bar according to the panel majority is a lawsuit authorized by 28 U.S.C. § 1498, which permits a patentee to bring an “action against the United States in the United States Court of Federal Claims for the recovery of his reasonable and entire compensation for such use and manufacture” whenever the government infringes a valid patent. *Id.* at 1350.

356. See *id.* at 1352–53 (noting that Congress “adopt[ed] a limited waiver of sovereign immunity” and thus affirming “the trial court’s conclusion that the infringement allegations at bar are precluded by § 1498(a)”).

357. See, e.g., Isaacs, *supra* note 334, at 3 (“Upon considering the modern Supreme Court precedent pertaining to federal benefits, it becomes clear that patentholders are not entitled to a Takings Clause remedy.”); Mossoff, *Constitutional Private Property*, *supra* note 328, at 693 (describing the near-unanimous view among scholars that patents cannot be “taken” under the Fifth Amendment).

358. See *Zoltek Corp. v. United States*, 442 F.3d 1345, 1349 n.2 (Fed. Cir. 2012) (recognizing that “the patentee’s recourse for infringement by the government is limited by the scope of the waiver of sovereign immunity established by the Congressional consent to be sued”).

could assert a claim or by limiting the damages that the patentholder could obtain. This could happen where new legislation reduces or eliminates subject matter from patent protection, narrows patents' scope, or reduces patent remedies.³⁵⁹

Even on its own terms, *Schillinger* would support the proposition that when the government changes or breaches a contract (express or implied) with another party, such a breach gives rise to a Takings Claim.³⁶⁰ A patent, aside from being a property right, is a contract between the patentee and the public.³⁶¹ As Shubha Ghosh notes, “[p]atents are commonly understood as a hypothetical contract between the inventor and the government resulting in a quid pro quo of innovation for exclusivity.”³⁶² Orin Kerr similarly argues that “[t]he cornerstone of Congress's scheme to encourage the discovery, development, and dissemination of practical knowledge is the unilateral contract offer codified by the Patent Act.”³⁶³ An applicant, if he overcomes the hurdles of the Act “become[s] contractually ‘entitled to a patent.’”³⁶⁴ The Supreme Court has endorsed the conceptualization of a patent as a contract between the patentee and the public.³⁶⁵ When the government breaches the terms of the contract, including after the patentee has “performed” by

359. Isaacs, *supra* note 334, at 2.

360. See *Schillinger*, 155 U.S. at 170–71.

There was no point in the whole transaction from its commencement to its close where the minds of the parties met or where there was anything in the semblance of an agreement. . . . It may be well to notice some of the cases in which the jurisdiction of the Court of Claims over implied contracts has been sustained.

(citing *United States v. Russell*, 80 U.S. 623 (1871)).

361. See David W. Opperbeck, *Patent Damages Reform and the Shape of Patent Law*, 89 B.U. L. REV. 127, 173 (2009) (observing that “a patent infringement case is a contract-based claim”).

362. Shubha Ghosh, *Patents and the Regulatory State: Rethinking the Patent Bargain Metaphor After Eldred*, 19 BERKELEY TECH. L.J. 1315, 1316 (2004).

363. Orin S. Kerr, *Rethinking Patent Law in the Administrative State*, 42 WM. & MARY L. REV. 127, 135–36 (2000).

364. *Id.* at 136 (quoting 35 U.S.C. § 102 (1994)).

365. See, e.g., *Bonito Boats, Inc. v. Thunder Craft Boats, Inc.*, 489 U.S. 141, 150–51 (1989) (describing the patent as a “bargain” between the inventor and the public).

disclosing his invention and convincing the Patent Office that he met all other statutory criteria, the government takes the patentee's property even under the restrictive *Schillinger* standard.³⁶⁶

There is an additional reason why infringement may not give rise to a Takings Clause claim, while a more drastic "adjustment" of patent rights would do so. When the government infringes a patent, it leaves all other attributes of ownership with the patentee.³⁶⁷ The patentee continues to enjoy the right to exclude others—just not the government—and to specifically include others—by licensing; he continues to have the same scope of his patent as he had before; and he continues to enjoy the ability to dispose of his property, whether by sale, gift, devise, etc., as he sees fit.³⁶⁸ The patent grant as a whole then remains intact, albeit with the inability to enforce it against one particular actor. This analysis does not extend to situations in Professor Isaacs's hypotheticals,³⁶⁹ or to the regime created by post-issuance review proceedings.³⁷⁰

As we have discussed in Part III, the creation of post-issuance review proceedings changed the scope of patent rights themselves.³⁷¹ Whereas one boundary of the exclusive right was

366. Again, the reason the claimant lost in *Schillinger* can be explained by the fact that there was no allegation that the Government itself in any way breached his contract. *See Schillinger v. United States*, 155 U.S. 163, 170 (1894) ("It is conceded on both sides . . . that whatever the government did was done with the consent of the patentee and under his implied license.").

367. *See* Robert C. Wilmoth, *Toward a Congruent and Proportional Patent Law: Redressing State Patent Infringement After Florida Prepaid v. College Savings Bank*, 55 SMU L. REV. 519, 565 (2002) ("The State can put a patent to public use without eliminating the patentee's ability to use the patent himself.").

368. *See id.* ("In [the event of patent infringement], a patentee can still gather fruits of his labor, prevent nongovernmental competitors from infringing, or license or transfer his right to others.").

369. *See* Isaacs, *supra* note 334, at 2 (inquiring into what "would occur if . . . Congress decided to eliminate protection for genomes . . . if the statutory doctrine of equivalents were narrowed, thus removing some competing technologies from within the patent scope . . . [or] if Congress decided to reduce patent damages for all or some types of technology").

370. *See supra* Part II.C (elaborating on the post-issuance review proceedings established by Congress via the America Invents Act).

371. *See supra* Part III.C (discussing how the new procedures have changed the boundaries of vested patent rights).

bargained for, the America Invents Act imposed an entirely different boundary on patentees. It is true that the boundary was not *constricted* as we would expect in a traditional takings case where the government occupies a strip of land that previously belonged to an individual, but rather the boundary was *expanded*.³⁷² As we have already explained, however, in the world of patents, this is a somewhat meaningless distinction. For patentees, broad boundaries may be as dangerous as narrow ones.³⁷³ Whereas under the latter situation, it would be harder to argue infringement by third parties, in the former case, it is more difficult to maintain the validity of the patent.³⁷⁴ The end result is the same—loss of the previously granted patent right. If anything, a broader claim is *more* problematic to the patentee than a narrow claim. A patentee with a claim narrowed by government fiat can still enforce it against the—admittedly reduced group of—putative infringers.³⁷⁵ A patentee with a claim broadened by the government’s meddling may not be able to enforce it against *anyone* if the broadening of the claim results in its invalidation.³⁷⁶

372. See Lee Petherbridge, *Positive Examination*, 46 IDEA 173, 220 n.34 (2006) (citing MPEP § 2111 for the proposition that “broadest reasonable construction is . . . broader than the interpretation a court construing an issued patent would reach . . .”).

373. See Giles S. Rich, *The Proposed Patent Legislation: Some Comments*, 35 GEO. WASH. L. REV. 641, 644 (1967) (“[T]he stronger a patent the weaker it is and the weaker a patent the stronger it is.”).

374. See *id.* (explaining that “the patent with narrow claims . . . is weak as protection,” but the strong patent that “contains broad claims” is “weak in that it may be easier to invalidate”); Yelderman, *supra* note 75, at 80 (observing that “a claim that is too broad runs the risk of being invalid, and may fare no better in litigation than a claim that is too narrow”).

375. See Yelderman, *supra* note 75, at 123–24 (“If applicants care about enforcement outcomes, this shift in presumptions can be expected to lead to narrower, higher quality claims being filed in the first instance.”).

376. See Chiang, *Patent Boundaries*, *supra* note 189, at 550–51 (“A nominally broad claim that is invalid has no legal scope . . .”).

C. Was Anything Actually Taken?

The argument we have made thus far is that the AIA resulted in significant change to the scope of the rights enjoyed by the patentees through the alteration of the boundaries of those rights.³⁷⁷ We recognize, however, that there are several counterarguments that must be addressed before proceeding further.

1. The Difference Between AIA Mechanisms and Reexamination

The first question is whether anything actually changed for anyone. Prior to the AIA's enactment, there were two distinct proceedings in the Patent Office that allowed for a "second look" of already issued patents under the "broadest reasonable construction" standard.³⁷⁸ The AIA, it could be said, did nothing more than change the procedures under which the patents are reviewed and did not modify the actual scope of the right.³⁷⁹ After all, the argument goes, everyone who applied for a patent in 1999 or later would have received a patent subject to the PTO's ability to conduct inter partes reexamination under the looser claim construction standards.³⁸⁰ That means that a vast majority of unexpired patents would have been granted subject to that proviso³⁸¹ and that the AIA did nothing to undermine patentees'

377. See *supra* Parts III.C–D (discussing the broadening of a patentee's rights under the AIA).

378. See *supra* notes 104–120, 242 and accompanying text (discussing the "reexamination procedure[s] established by the Bayh-Dole Act").

379. See *supra* note 205 and accompanying text (observing that the PTO explained that its claim construction standard under the AIA "is consistent with what the PTO had been doing" for decades).

380. See *supra* notes 115–118 and accompanying text (discussing this "additional reexamination process" created by Congress in 1999).

381. Patents are valid for at most 20 years from the date of filing the application for the patent. 35 U.S.C. § 154 (2012). They may expire earlier for non-payment of maintenance fees. Neel U. Sukhatme, *Regulatory Monopoly and Differential Pricing in the Market for Patents*, 71 WASH. & LEE L. REV. 1855, 1881 (2014). As the AIA was enacted thirteen years after the creation of ex parte reexamination, one can surmise that most patents have been issued in the shadow of the inter partes reexamination process.

expectations as to how their patents would be construed throughout its lifespan. What is more, all patentees since 1980 were subject to the same broad claim- construction-based “second look” in ex parte proceedings.³⁸² So what, if anything, have the patentees lost?

To answer the above question, we first must disentangle ex parte reexamination from inter partes reexamination. As it happens, the Federal Circuit addressed the question of why the creation of the ex parte reexamination process and its application to already issued patents does not present a constitutional problem.³⁸³ In *Patlex Corp. v. Mossinghoff*,³⁸⁴ a patentee had his patent subjected to ex parte reexamination—a procedure that came into being only after the patent issued.³⁸⁵ The patentee brought suit alleging that the (then) new procedure effectuated a taking of his vested property interest.³⁸⁶ The Federal Circuit disagreed. Although the appellate court left no doubt that it viewed patents as property rights,³⁸⁷ it concluded that “Congress had an important public purpose in mind when it enacted the reexamination statute. The statute was part of a larger effort to revive United States industry’s competitive vitality by restoring confidence in the validity of patents issued by the PTO.”³⁸⁸ Given the importance of this purpose, there was no taking of the patentee’s property.³⁸⁹ The focus on public purpose was quite

382. See 4 DONALD S. CHISUM, CHISUM ON PATENTS § 11.07 (2015) (“The 1980 Patent Act added procedures under which the patent owner or any other person may . . . request that the PTO reexamine any claim of that patent on the basis of the cited prior art.”).

383. See, e.g., *MCM Portfolio LLC v. Hewlett-Packard Co.*, 812 F.3d 1284, 1291 (Fed. Cir. 2015) (noting that “the constitutionality . . . of the ex parte reexamination statute” has been upheld).

384. 758 F.2d 594 (Fed. Cir. 1985).

385. See *id.* at 597 (noting that the relevant patents “were granted before passage of the reexamination statute”).

386. *Id.* at 598.

387. See *id.* at 599 (“It is beyond reasonable debate that patents are property.”).

388. *Id.* at 601.

389. See *id.* at 602–03 (“We affirm the district court in upholding the validity of the retroactive statute against Gould’s challenge under the Fifth Amendment [Takings Clause].”).

appropriate in 1985 because “public purpose” was a touchstone of Takings Clause analysis.³⁹⁰ The Supreme Court relied on this theory just a few terms prior to *Patlex* when it held that a regulation amounts to a taking only when it “does not substantially advance legitimate state interests, or denies an owner economically viable use of his” property.³⁹¹ As discussed above, though, the “substantial state interest” test has now been explicitly overruled by the Supreme Court,³⁹² and, therefore, Federal Circuit’s reasoning in *Patlex* cannot be relied upon to uphold the AIA’s regime.

There is an additional reason why *Patlex* does not foreclose the argument presented here. In *Patlex*, the Federal Circuit viewed the ex parte reexamination procedure as resolving a dispute between the government and the patentee, rather than between two private parties.³⁹³ Reexamination was not a substitute for litigation but truly a “second look” or a “quality check” on the PTO’s initial decision to issue the patent.³⁹⁴ That view cannot be squared with inter partes processes—whether now obsolete reexamination or the newly created IPR or CBMR.³⁹⁵ This is why when Congress created the first inter partes procedure—inter partes reexamination—it made it

390. See *supra* notes 296–299 and accompanying text (observing the Court’s emphasis on “justice and fairness” in Takings Clause cases). *Agins* and its “legitimate state interest” was announced in 1980 and not overruled until 2005. See *Lingle v. Chevron USA Inc.*, 544 U.S. 528, 548 (2005) (holding “that the ‘substantially advances’ formula [of *Agins*] is not a valid takings test” and concluding “that it has no proper place in [the Court’s] takings jurisprudence”).

391. *Agins v. Tiburon*, 447 U.S. 255, 260 (1980).

392. See *Lingle*, 544 U.S. at 540 (“We conclude that [the substantially advances] formula prescribes an inquiry in the nature of a due process, not a takings test, and that it has no proper place in our takings jurisprudence.”).

393. See *Patlex Corp. v. Mossinghoff*, 758 F.2d 594, 604 (Fed. Cir. 1985) (noting that “the grant of a valid patent is primarily a public concern”).

394. See *id.* (“The reexamination statute’s purpose is to correct errors made by the government, to remedy defective governmental (not private) action, and if need be to remove patents that should never have been granted.”).

395. See *supra* Part II.C.2 (discussing these post-issuance review procedures established by the AIA). For the sake of readability, in this section we will refer only to IPRs, rather than to both IPRs and CBMRs. However, our arguments about IPRs apply *a fortiori* to CBMRs because, due to the breadth of CBMRs, they have circumscribed patent holders’ property rights even more so than IPRs have.

available only prospectively.³⁹⁶ This is also why five out of eleven Federal Circuit judges recently acknowledged, when writing in dissent, that IPRs are fundamentally different from ex parte reexamination, as they do not bear “examination hallmarks,” instead having “similarities to district court litigation.”³⁹⁷ One of the five judges who joined the dissent, and for good measure wrote her own, was Pauline Newman³⁹⁸—the author of the opinion in *Patlex*.³⁹⁹

But if *Patlex* does not serve to undermine our argument that, at least for patents that had been issued by September 16, 2011, the AIA’s effective date,⁴⁰⁰ the AIA worked a taking, then what about the fact that even prior to that date, patents were subject to a different, but still inter partes, proceeding—inter partes reexamination? Why should it matter what form the inter partes review takes so long as the patentee was on notice that the patent could be subject to an adversarial process involving another private party and applying the “broadest reasonable” claim construction standard? The answer to that question can be found in the dissents in *Cuozzo*.

As the dissenting judges noted, the reason the Federal Circuit has previously endorsed “broadest reasonable” claim construction in “second look” proceedings is attributable to the fact that, whether ex parte or inter partes, the reexamination procedures were in fact “examination,” that is they allowed for continued negotiations between the applicant and the Patent Office.⁴⁰¹ As we have explained, and as the dissent noted, “the broadest reasonable interpretation standard is a useful tool, *prior* to patent issuance, for clarifying the metes and bounds of an

396. See 37 C.F.R. § 1.913 (2001) (providing that a person may only apply for inter partes reexamination if the patent was “issued from an original application filed in the United States on or after November 29, 1999”).

397. *In re Cuozzo Speed Techs., LLC*, 793 F.3d 1297, 1301 (2015) (Prost, C.J., Newman, Moore, O’Malley, & Reyna, JJ., dissenting).

398. See *generally id.* at 1303–06 (Newman, J., dissenting).

399. See *generally* *Patlex Corp. v. Mossinghoff*, 758 F.2d 594 (Fed. Cir. 1985).

400. Leahy–Smith America Invents Act, Pub. L. No. 112-29, § 6(f)(2)(A), 125 Stat. 284, 311 (codified at 35 U.S.C. § 311 (2011)).

401. *Cuozzo*, 793 F.3d at 1300 (Prost, C.J., Newman, Moore, O’Malley, & Reyna, JJ., dissenting).

invention during the back-and-forth between the applicant and examiner when claims are not yet in their final form.”⁴⁰² The signal feature of a proceeding where “claims are not yet in their final form”⁴⁰³ is the ability to amend the claims until they are in their final (and hopefully acceptable to the PTO) form.⁴⁰⁴ It is that unfettered ability to amend that differentiates examination from adjudicatory proceedings.⁴⁰⁵

In creating IPRs, Congress was aware that inter partes reexamination functioned on the examination model, with the patentee being able to amend his claims as necessary to obtain a reexamination certificate.⁴⁰⁶ Congress consciously chose to “convert inter partes reexamination from an examination to an adjudicative proceeding”⁴⁰⁷ where the opportunity to amend would be much more cabined. The PTAB itself recognized this congressional purpose when it held that “[a]n inter partes review is neither a patent examination nor a patent reexamination” but is “a trial, adjudicatory in nature [which] constitutes litigation.”⁴⁰⁸ This different approach significantly affected the patentee’s ability to amend his claims during the course of an IPR.⁴⁰⁹ The ability to amend during IPR is very limited even in theory⁴¹⁰ and, as discussed in Part IV, ephemeral in practice. The

402. *Id.*

403. *Id.*

404. *See In re Prater*, 415 F.2d 1393, 1405 (C.C.P.A. 1969) (“Claims yet unpatented are to be given the broadest reasonable interpretation consistent with the specification during the examination of a patent application since the applicant may then amend his claims . . .”).

405. *See generally In re Cuozzo Speed Techs., LLC*, 778 F.3d 1271, 1287 (Fed. Cir. 2015) (Newman, J., dissenting), *substituted opinion*, 793 F.3d 1268 (Fed. Cir. 2015), *reh’g en banc denied*, 793 F.3d 1297 (Fed. Cir. 2015).

406. *See id.* at 1300 (observing that “Congress decided to start anew and establish new post-grant review procedures, including IPR, in the AIA”).

407. H.R. REP. NO. 112-98, pt. 1, at 46 (2011).

408. *Google Inc. v. Jongerius Panoramic Techs., LLC*, IPR2013-00191, Docket No. 50, at 4 (P.T.A.B. Feb. 13 2014).

409. *See supra* notes 248–256 and accompanying text (discussing the ramifications of the fact that the ability to amend is “absent in the AIA-created procedures”).

410. There is no right to amend the claims in an IPR. A patentee who wishes to amend the claims must seek permission of the Board to do so. 37 C.F.R. § 42.221(a) (2015). The petitioner is limited to only one motion. *Id.*; 35 U.S.C.

practical inability to amend was also noted by the dissenting judges in *Cuozzo* and obliquely recognized even by the Federal Circuit's panel majority.⁴¹¹ This radical shift from an examination to an adjudicatory model, which deprives the patentee of the actual ability to continue its *pas de deux* with the PTO, is what separates inter partes reexamination from IPR.⁴¹² Therefore, the AIA-mandated switch was not a mere technical change to the procedures employed for the "second look" review but a fundamental change to the review itself.

Given the fundamental differences between IPR and both ex parte and inter partes reexamination, it cannot be gainsaid that on September 16, 2011, patent holders lost significant property rights in their existing patents.⁴¹³ This conclusion is bolstered by the fact that a mere IPR *request*, even prior to the PTO's decision on whether to institute a full-blown trial on the matter, has significant effects on the value of the underlying patent and even on the price of the stock of the company that owns that patent.⁴¹⁴ Such a market reaction was not observed when reexamination (of

§ 316(d)(1) (2012). Additional motions to amend are not permitted unless on a joint petition of a patentee and a patent challenger or for other "good cause showing." 37 C.F.R. § 42.221(c); *see also* 35 U.S.C. § 316(a)(11) (providing that "the Director may, for good cause shown, extend the 1-year period by not more than 6 months").

411. *See In re Cuozzo Speed Techs., LLC*, 793 F.3d 1268, 1278 (Fed. Cir. 2015) (recognizing that "the opportunity to amend is cabined in the IPR setting"); *id.* at 1287–88 (Newman, J., dissenting) ("There is no right of amendment in these new post-grant proceedings, and motions to amend are rarely granted.").

412. *See id.* at 1287 ("A critical difference between the standard procedure of examination of pending applications, and these post-grant proceedings, is the ready pre-grant availability of amendment of the claims.").

413. *See supra* Part III.D (discussing the effects of the AIA post-issuance review proceedings).

414. *See, e.g., supra* notes 237–240 and accompanying text (discussing the relationship between AIA post-issuance review proceedings and financial markets); *see also* Joseph Walker & Rob Copeland, *New Hedge Fund Strategy: Dispute the Patent, Short the Stock*, WALL STREET J. (Apr. 7, 2015), <http://www.wsj.com/articles/hedge-fund-manager-kyle-bass-challenges-jazz-pharmaceuticals-patent-1428417408> (last visited Apr. 6, 2016) (discussing the strategy of "filing and publicizing patent challenges against pharmaceutical companies while also betting against their shares") (on file with the Washington and Lee Law Review).

either kind) was requested.⁴¹⁵ This is evidence that the market also considers IPR to be different from inter partes review in kind rather than in mere procedure. For all these reasons, we conclude that AIA-created IPR proceedings changed the boundary of established patent rights and took from the patentees both the settled scope of the patent and the presumption of validity that attached thereto.

2. The Inchoateness Problem

Another objection to the claim that IPRs constitute a taking is the fact that if the patentee is successful in an IPR, he would have in fact lost nothing—and possibly gained something from having his patent re-confirmed before a skeptical tribunal.⁴¹⁶ Thus, the argument goes, at best the AIA created an inchoate taking, and, until a patent is actually invalidated, patentees have little about which to complain. We disagree.

Though the mere creation of post-issuance review procedures did not in and of itself invalidate any patent, it did change the scope of existing patents and greatly diminished their value.⁴¹⁷ As a result of these new procedures coming into being, patentees have had reduced opportunities to license their patents or to obtain fees commensurate with the pre-AIA value of the patents.⁴¹⁸ This has affected all patentees whether or not their

415. See Robert Greene Sterne et al., *Reexamination Practice with Concurrent District Court Litigation or Section 337 USITC Investigations*, 11 SEDONA CONF. J. 1, 20 (2010) (noting that patent owner's stock price was subject to significant fluctuations but only after a "significant decision" such as an "[o]ffice action rejecting some or all of the claims of the patent in reexamination," but making no mention of price fluctuation upon the mere decision to reexamine the patent).

416. See Joshua D. Sarnoff, Bilcare, KSR, *Presumptions of Validity, Preliminary Relief, and Obviousness in Patent Law*, 25 CARDOZO ARTS & ENT. L.J. 995, 1024–25 (2008) ("[O]nce a patent issues from an ex parte or inter partes reexamination, the factual inference from the grant to its validity may be significantly stronger than from the initial grant."). The same logic would apply to IPRs and CBMRs.

417. See *supra* notes 237–240 and accompanying text (noting, for instance, that "the stock market reacted very negatively to the news that an IPR was requested on a particular patent").

418. See Richard Baker, *Guest Post: America Invents Act Cost the US*

own patents have ever been subjected to a full-blown IPR trial.⁴¹⁹ Similarly, all patents, whether or not subject to the PTAB process have had the boundaries of their right affected by the creation of IPR and CBMR. The meaning of the claim has permanently changed for all patents irrespective of whether they have been haled before the PTAB.⁴²⁰ For these reasons, IPRs are not a mere inchoate problem that might only spring into being once a patent is subjected to trial and then invalidated. Rather, the very existence of IPRs has drastically affected the scope of patent rights.⁴²¹

D. A Regulatory or a Physical Taking?

Once it is accepted that patents, like other real or personal property, are subject to the Takings Clause and that the post-issuance proceedings changed the scope of the property right previously enjoyed by the patentee, the next question to ask is whether the regime created by the AIA resulted in a physical or a regulatory taking. If it was a physical taking, then, absent compensation (which did not exist here), the action was unconstitutional *per se*.⁴²² On the other hand, if this was potentially a regulatory taking, then a more complex analysis is required to determine the scope of loss and whether, if uncompensated, the loss rises to a level of unconstitutional

Economy over \$1 Trillion, PATENTLYO.COM (June 8, 2015), <http://patentlyo.com/patent/2015/06/america-invents-trillion.html> (last visited Apr. 6, 2016) (noting that “US Patents have lost 2/3rds of their value since the AIA was passed in 2011,” and a further drop of “10-15% [is expected] in the next year or two”) (on file with the Washington and Lee Law Review).

419. *See id.* (stating that the drop off in value is primarily due to “the impact of the AIA IPR procedure”).

420. *See supra* notes 373–376 and accompanying text (discussing the “broad boundaries” imposed on patents by the AIA, and noting that these boundaries “may be as dangerous as narrow ones”).

421. *See Baker, supra* note 418 (noting “the impact[s] of the AIA IPR procedure”).

422. *See Loretto v. Teleprompter Manhattan CATV Corp.*, 458 U.S. 419, 434 (1982) (noting that, where there “is a permanent physical occupation of property, our cases uniformly have found a taking to the extent of the occupation”).

violation.⁴²³ In some sense, the very question posed by this Part may seem silly. How can a patent—an incorporeal property—be physically taken in the first place? Almost by definition, non-physical property cannot be physically taken. And yet, in our view, the answer is not so simple. Indeed, we conclude that the AIA-created IPR may in fact contain analogies to a physical taking of patents that existed prior to September 16, 2011 and that there is an even stronger claim that a regulatory taking occurred.

1. The Argument for a Physical Taking

As an initial matter, in our view it may be incorrect to conclude that patents can never be physically taken because they themselves are not physical property rights. Returning to our earlier hypothetical, if the government were to simply re-assign patent rights from person *A* to person *B*, it would be hard to argue that such an action is any different from a situation where the government takes land—or for that matter raisins—from one person to give it to another.⁴²⁴ If one is to consider seriously the Supreme Court’s view that a “patent for an invention is as much property as a patent for land [and] [t]he right rests on the same foundation, and is surrounded and protected by the same sanctions,”⁴²⁵ then it may follow that a physical taking can occur with respect to each. But did a physical taking occur when Congress created IPR?

423. See *supra* Part IV.D (discussing the regulatory taking analysis undertaken in *Horne v. Department of Agriculture*).

424. Indeed, Congress has recognized as much. In 1954, Congress passed the Atomic Energy Act, Pub. L. No. 703, 68 Stat. 919 (1954), forbidding issuance of patents “for any invention or discovery which is useful solely in the utilization of special nuclear material or atomic energy in an atomic weapon.” 42 U.S.C. § 2181(a) (2012). Furthermore, Congress mandated cancellation of already issued patents to this technology, essentially transferring the ownership to the public. See *id.* § 2181(b) (“Any rights conferred by any patent heretofore granted for any invention or discovery are hereby revoked . . .”). However, Congress provided for “just compensation” for the patent owners. *Id.*

425. *Consol. Fruit-Jar Co. v. Wright*, 94 U.S. 92, 96 (1876).

To arrive at the conclusion that IPRs work a physical taking of existing patents, we must, admittedly, work by analogy. In our view, boundary changes with respect to a patent issued for an invention are similar to boundary changes with respect to a patent issued for a parcel of land.⁴²⁶ The government has the power to work some changes, but it must compensate the owner. As the Supreme Court held in *Loretto*, the government cannot simply change the boundaries of the property owner's rights without triggering the Just Compensation Clause of the Fifth Amendment.⁴²⁷ And let there be no mistake, the patent boundary changes affected by the AIA are indeed permanent changes to the patent boundaries. Though the IPRs come with estoppel provisions,⁴²⁸ these provisions apply only to a specific petitioner—and even then incompletely.⁴²⁹ Other challengers can continue to seek and obtain IPRs against a patent multiple times over.⁴³⁰ The specter of IPR hovers over all patents no matter how many times they were reexamined, were challenged in district or appellate courts, or benefitted from the PTAB's confirmation of the validity of the patent.⁴³¹ Even if the threat of IPR could not be characterized as a “permanent” invasion of a patentee's property interest—though in our opinion it should be so characterized—repeated, albeit nominally “temporary,” invasions of property rights can be as much of a taking as a permanent occupation can.⁴³² Following this logic, courts may come to view the AIA's

426. For a similar view, see Baker, *supra* note 418 (analogizing reversal of a previously granted patent to a reversal of a deed).

427. See *Loretto*, 458 U.S. at 435 (explaining that depriving the owner of a part of his property such as changing the boundaries of his property rights, works a taking).

428. See 35 U.S.C. § 315(e) (2012) (providing that “petitioner in an inter partes review of a claim . . . that results in a final written decision . . . may not request or maintain a proceeding before the Office with respect to that claim on any ground that the petitioner raised or reasonably could have raised during that inter partes review”).

429. See Dolin, *Dubious Patent Reform*, *supra* note 3, at 935–44 (discussing the ability to evade estoppel provisions).

430. See *id.* at 943 (discussing “stacking” IPR petitions).

431. See *id.* at 944 (“Given the structure of the IPR review process, there is little to nothing that the patentee can do to prevent such abuse.”).

432. See *Ark. Game & Fish Comm'n v. United States*, 133 S. Ct. 511, 519 (2012) (finding that “takings temporary in duration can be compensable”).

changing of patent boundaries as a permanent invasion of the patentee's rights akin to a physical taking of land.

2. *The Argument for a Regulatory Taking*

Even if one is not convinced that the AIA worked the equivalent to a physical taking, which is per se unconstitutional unless compensated, one still needs to consider the possibility that it worked a regulatory taking. The argument for this position, in our view, is quite strong.

It is well established that, even though the government often performs actions that diminish the value of property, not every such action triggers the compensation requirement of the Takings Clause.⁴³³ Except in cases where “regulation . . . deprives land of all economically beneficial use,” there is no per se rule requiring compensation.⁴³⁴ Instead, under *Penn Central*, the courts are required to engage in an “essentially ad hoc and fact intensive” balancing inquiry with particular attention to “the economic impact of the regulation, its interference with reasonable investment backed expectations, and the character of the governmental action.”⁴³⁵

As earlier studies have shown, the economic impact of AIA-created post-issuance proceedings is quite severe.⁴³⁶ Not only does the existence of these processes affect the value of patents for which review has been requested, it affects the value of patents even pre-request. It has been reported that the value of patents has dropped by two-thirds since and because of the AIA,

433. See *Pa. Coal Co. v. Mahon*, 260 U.S. 393, 413 (1922) (“Government hardly could go on if to some extent values incident to property could not be diminished without paying for every such change in the general law.”); *Radiotronics, Inc. v. United States*, 621 F.2d 1113, 1126 (Ct. Cl. 1980) (recognizing that “not every interference with or encroachment upon a private property right by the Government is entitled to compensation under the [F]ifth [A]mendment”).

434. *Lucas v. S.C. Coastal Council*, 505 U.S. 1003, 1027 (1992).

435. *E. Enters. v. Apfel*, 524 U.S. 498, 523–24 (1998) (plurality opinion) (quoting *Kaiser Aetna v. United States*, 444 U.S. 164, 175 (1979)).

436. See *supra* Part III.D (discussing the AIA’s “dramatic effects in the ‘real world’”).

with a further drop of 10%–15% expected in the next few years.⁴³⁷ Additionally, it is now significantly harder for patentees to license their patents,⁴³⁸ and the value of the licenses actually agreed to has been significantly reduced post-AIA.⁴³⁹ The simple reason for this unwillingness to pay for a license is the putative infringer's knowledge that all patents have been significantly weakened through tinkering with their scope and the abolition of the robust presumption of validity.⁴⁴⁰ Alternatively, the putative infringer or licensee knows that he can drive down the price of the license by mere threat to tie up the patentee or his business partners in protracted IPR proceedings during which time no one would be imprudent enough to take a license to the patent in question.⁴⁴¹ Thus, the economic impact of the AIA-created regime on the patentees has been rather dramatic.

For the same reason, the AIA-created procedures significantly interfered with patentees' "investment-backed expectations."⁴⁴² Patents are obtained in expectation of profit.⁴⁴³

437. See Baker, *supra* note 418 (reporting "a dramatic drop in the average price per patent over the three year period, with values dropping 61% from \$422,286 per patent to \$164,232," and predicting "that patent values will drop another 10-15% in the next year or two").

438. See Michael Gulliford, *If Patent Reform Is Meant to Starve Patent Trolls, Why Is It Feeding Them Instead?*, IPWATCHDOG (Sept. 8, 2014), <http://www.ipwatchdog.com/2014/09/08/if-patent-reform-is-meant-to-starve-patent-trolls-why-is-it-feeding-them-instead/id=51067> (last visited Apr. 6, 2016) (criticizing the "unintended consequences" of patent reform under the AIA) (on file with the Washington and Lee Law Review).

439. See Jack Lu, *Patent Market Dynamics and the Impact of Alice and the AIA*, IPWATCHDOG (May 17, 2015), <http://www.ipwatchdog.com/2015/05/17/patent-market-dynamics-aia-and-alice/id=57728> (last visited Apr. 6, 2016) (reporting a "crash" in the patent market post-AIA) (on file with the Washington and Lee Law Review).

440. See Case, *supra* note 20, at 67–68 (arguing that the "AIA shakes investor confidence. . . [It also] shifts the risk–reward balance and will slow the growth of America's innovative economy"); Lu, *supra* note 439 (discussing the AIA's impacts on the patent market).

441. See Dolin, *Dubious Patent Reform*, *supra* note 3, at 944–47 (discussing how "post-issuance review proceedings" can be "used to either settle scores with patent owners or to strong-arm companies into more favorable licensing deals").

442. Baker, *supra* note 418.

443. See F. Andrew Ubel, *Who's on First?—The Trade Secret Prior User or a Subsequent Patentee*, 76 J. PAT. & TRADEMARK OFF. SOC'Y 401, 414 (1994) (observing that "a primary goal of the patent system is to promote the

Patentees invest not just their time, efforts, and money into inventing, but also into more mundane activities like convincing the PTO that their invention is worth exclusive rights that come with the grant of a patent. Patentees pay attorneys' fees, filing fees,⁴⁴⁴ maintenance fees,⁴⁴⁵ etc., all in the hope of reaping some economic reward from their inventive activity. They construct their arguments and draft their claims with an expectation that a person of ordinary skill in the art would understand the claims and either steer clear of their property, allowing patentees to till that field themselves or pay toll for the ability to work the invention.⁴⁴⁶ They also expect that once granted, the patent right would not be easily upset and would only be cancelled upon the showing of clear and convincing evidence.⁴⁴⁷ This assurance of "strong title rights" may well be the most valuable part of a patent grant. The AIA, however, did away with all that. Whereas the patentees carefully crafted their language and addressed it to a reasonable artisan, the Patent Office requires that claims be reviewed under a different standard—one that is contrary to the patentee's "investment backed expectations."⁴⁴⁸

We acknowledge that even post-AIA, the value of patents was not reduced to zero, and therefore (if viewed through the regulatory takings prism), the AIA-created mechanism is not a

advancement of science and useful arts by rewarding the inventor of new things with an exclusive right to profit from the invention").

444. For information on average legal fees to obtain a patent, see generally AM. INTELL. PROP. L. ASS'N, 2015 REPORT OF THE ECONOMIC SURVEY I-85–I-87 (2015).

445. For information on fees associated with patent application, issuance, and maintenance, see generally *USPTO Fee Schedule*, USPTO, <http://www.uspto.gov/learning-and-resources/fees-and-payment/uspto-fee-schedule> (last updated Jan. 1, 2016) (last visited Apr. 6, 2016) (on file with the Washington and Lee Law Review).

446. See, e.g., *Multiform Desiccants, Inc. v. Medzam, Ltd.*, 133 F.3d 1473, 1477 (Fed. Cir. 1998) ("It is the person of ordinary skill in the field of the invention through whose eyes the claims are construed.").

447. See 35 U.S.C. § 282(a) (2012) ("A patent shall be presumed valid. . . . The burden of establishing invalidity of a patent or any claim thereof shall rest on the party asserting such invalidity."); *Microsoft Corp. v. i4i Ltd. P'ship*, 131 S. Ct. 2238, 2242 (2011) (holding that "§ 282 requires an invalidity defense to be proved by clear and convincing evidence").

448. Baker, *supra* note 418.

per se taking like the one in *Lucas*.⁴⁴⁹ Nonetheless, the courts have not insisted on a total loss of value to find a taking under *Penn Central*, instead requiring significant reduction in value as a result of the government's actions.⁴⁵⁰ Certainly, the AIA did greatly diminish the value of all patents.⁴⁵¹ This loss of value is not really matched by any benefits that have accrued to the public as a result of the new law. While the authors of the Act thought it would "provide[] more certainty, and reduce[] the cost associated with filing and litigating patents,"⁴⁵² the exact opposite has happened.⁴⁵³ Thus, the "nature of the government's action" was not to broadly benefit the public but to make it easier for some patent infringers to avoid having to bear the costs of their infringement.⁴⁵⁴ This was accomplished by transferring those costs to the patentee and, in the process, destroying significant amount of value in issued patents.

The upshot is that whether viewed as a physical taking or as a regulatory taking, the AIA worked a great diminution of patent values for all patentees. It did so by changing vested pre-existing rights and upsetting expectations backed by significant investments, all without conferring (even judging by the Act's authors' own metrics) any clear benefit on the public. For these

449. See *supra* Part IV.C.4 (discussing the taking at issue in *Lucas*).

450. See, e.g., *Cienega Gardens v. United States*, 331 F.3d 1319, 1353–55 (Fed. Cir. 2003) (ruling that a statutory amendment that voided the claimant's right to pre-pay a government mortgage was a compensable taking, simply because it was *possible* that a 96% diminution in return on investment would result); *Yancey v. United States*, 915 F.2d 1534, 1542 (Fed. Cir. 1990) (holding that a 77% loss of the value of a flock of turkeys after a quarantine regulation was enacted was a compensable taking).

451. See Baker, *supra* note 418 ("According to Scott Bechtel of AmiCOUR IP Group, an experienced patent broker, 'US Patents have lost 2/3rds of their value since the AIA was passed in 2011.'").

452. H.R. REP. NO. 112-98, pt. 1, at 42 (2011).

453. See generally Dolin, *Dubious Patent Reform*, *supra* note 3 (discussing how the AIA increased costs and reduced certainty).

454. See Terry Ludlow, *Technology Patent Licensing Trends in 2015 and Beyond*, CORP. COUNS. (Apr. 17, 2015), <http://www.law.com/sites/articles/2015/04/17/technology-patent-licensing-trends-in-2015-and-beyond/#ixzz3js6qPOfP> (last visited Apr. 6, 2016) ("Look for more holdout behavior from defendants as there is little incentive to settle early. Before making any settlement offers, patents will be thoroughly tested through IPR filings . . .") (on file with the Washington and Lee Law Review).

reasons, the application of the Act's post-issuance review provisions to patents granted prior to the effective date of the Act constitutes a taking within the meaning of the Fifth Amendment.

VI. Conclusion

At this point, only legislative or judicial intervention can ensure that pre-existing property rights in patents are not trampled by the AIA's new procedures. There is no doubt that, in the context of the AIA, procedural transformations have effected a substantive change in the rights of patent owners.⁴⁵⁵ The government is free to modify its procedures for future patent applicants, but owners whose rights vested before the AIA became effective should not be subject to this kind of drastic restriction of their investment-backed expectations. Allowing this to occur, and thus creating a legal regime that permits retroactive tectonic shifts, also sets a dangerous precedent for other areas of intellectual property and property law such as to disincentivize innovation and reliance on the law.

The government has only a limited number of solutions to the identified constitutional violation. One of them, and the easiest, is not to make pre-AIA patents subject to the post-AIA procedures. Another is to roll back those procedures for everyone, by requiring the PTO to use the same claim construction standards as have always been used by the district courts. This approach has the support of nearly half the Federal Circuit judges, and of a number of legislators, albeit for reasons unrelated to the issue of takings. Last, the government can provide just compensation to patent owners whose rights vested before the AIA became effective. This last option could, however, quickly become prohibitively expensive if enough owners come forward, and the calculation of the proper levels of compensation will present its share of headaches. Hence, we have cause to believe that adopting one of the first two options will be the most plausible solution to the problem we present in this Article.

455. See generally Irina D. Manta & Cassandra Burke Robertson, *Secret Jurisdiction*, 65 EMORY L.J. (forthcoming 2016) (discussing the relationship between procedural and substantive rights in the national security context).

Additionally, Congress should take care to avoid such constitutional conundrums in future legislation that has the potential to affect retroactively the rights of intellectual property and property owners.