



**Regulatory
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Project**
Unlocking Innovation & Opportunity

Crippling the Innovation Economy: Regulatory Overreach at the Patent Office

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Executive Summary

Patents are property rights secured to inventors of new products or services, such as the software and other high-tech innovations in our laptops and smart phones, the life-saving medicines prescribed by our doctors, and the new mechanical designs that make batteries more efficient and airplane engines more powerful. Many Americans first learn in school about the great inventors who revolutionized our lives with their patented innovations, such as Thomas Edison (the light bulb and record player), Alexander Graham Bell (the telephone), Nikola Tesla (electrical systems), the Wright brothers (airplanes), Charles Goodyear (cured rubber), Enrico Fermi (nuclear power), and Samuel Morse (the telegraph). These inventors and tens of thousands of others had the fruits of their inventive labors secured to them by patents, and these vital property rights have driven America's innovation economy for over 225 years. For this reason, the United States has long been viewed as having the "gold standard" patent system throughout the world.¹

In 2011, Congress passed a new law, called the America Invents Act (AIA), that made significant changes to the U.S. patent system. Among its many changes, the AIA created a new administrative tribunal for invalidating "bad patents" (patents mistakenly issued because the claimed inventions were not actually new or because they suffer from other defects that create problems for companies in the innovation economy). This administrative tribunal is called the Patent Trial & Appeal Board (PTAB). The PTAB is composed of "administrative patent judges" appointed by the Director of the United States Patent & Trademark Office (USPTO). The PTAB administrative judges are supposed to be experts in both technology and patent law. They hold administrative hearings in response to petitions that challenge patents as defective. If they agree with the challenger, they cancel the patent by declaring it "invalid." Anyone in the world willing to pay a filing fee can file a petition to invalidate any patent.

As many people are aware, administrative agencies can become a source of costs and harms that far outweigh the harms they were created to address. This is exactly what has happened with the PTAB. This administrative tribunal has become a prime example of regulatory overreach.

Congress created the PTAB in 2011 in response to concerns about the quality of patents being granted to inventors by the USPTO. Legitimate patents promote both inventive activity and the commercial development of inventions into real-world innovation used by regular people the world over. But "bad patents" clog the intricate gears of the innovation economy, deterring real innovators and creating unnecessary costs for companies by enabling needless and wasteful litigation. The creation of the PTAB was well intended: it was supposed to remove bad patents from the innovation economy. But the PTAB has ended up imposing tremendous and unnecessary costs and creating destructive uncertainty for the innovation economy.²

¹ See Adam Mossoff & Kevin Madigan, *Turning Gold to Lead: How Patent Eligibility Doctrine Threatens U.S. Innovation Leadership*, GEO. MASON L. REV. (forthcoming), <https://ssrn.com/abstract=2943431>.

² See generally Gregory Dolin, *Dubious Patent Reform*, 56 B.C. L. REV. 881 (2015), <http://bit.ly/2pRdPGk>.

In its procedures and its decisions, the PTAB has become an example of an administrative tribunal run amok. It does not provide basic legal procedures to patent owners that all other property owners receive in court. When called upon to redress these concerns, the courts have instead granted the PTAB the same broad deference they have given to other administrative agencies. Thus, these problems have gone uncorrected and unchecked. Without providing basic procedural protections to all patent owners, the PTAB has gone too far with its charge of eliminating bad patents. It is now invalidating patents in a willy-nilly fashion. One example among many is that, in early 2017, the PTAB invalidated a patent on a new MRI machine because it believed this new medical device was an “abstract idea” (and thus unpatentable).³

The problems in the PTAB’s operations have become so serious that a former federal appellate chief judge has referred to PTAB administrative judges as “patent death squads.”⁴ This metaphor has proven apt, even if rhetorically exaggerated. Created to remove only bad patents clogging the innovation economy, the PTAB has itself begun to clog innovation — killing large numbers of patents and casting a pall of uncertainty over every patent that might become valuable and thus a target of a PTAB petition to invalidate it.

The U.S. innovation economy has thrived because inventors know they can devote years of productive labor and resources into developing their inventions for the marketplace, secure in the knowledge that their patents provide a solid foundation for commercialization. Pharmaceutical companies depend on their patents to recoup billions of dollars in research and development of new drugs. Venture capitalists invest in startups on the basis of these vital property rights in new products and services, as viewers of *Shark Tank* see every week.⁵

The PTAB now looms over all of these inventive and commercial activities, threatening to cancel a valuable patent at any moment and without rhyme or reason. In addition to the lost investments in the invalidated patents themselves, this creates uncertainty for inventors and investors, undermining the foundations of the U.S. innovation economy.

This paper explains how the PTAB has become a prime example of regulatory overreach. The PTAB administrative tribunal is creating unnecessary costs for inventors and companies, and thus it is harming the innovation economy far beyond the harm of the bad patents it was created to remedy. First, we describe the U.S. patent system and how it secures property rights in technological innovation. Second, we describe Congress’s creation of the PTAB in 2011 and the six different administrative proceedings the PTAB uses for reviewing and canceling patents. Third, we detail the

³ See Gene Quinn, *PTAB Declares MRI Machine an Abstract Idea, Patent Ineligible Under Alice*, IP WATCHDOG, Jan. 3, 2017, <http://bit.ly/2qmNqOK>.

⁴ Peter Pitts, *Patent Death Squads vs. Innovation*, WALL ST. J., June 10, 2015, <http://on.wsj.com/2qy6tE6>; Ryan Davis, *PTAB’s ‘Death Squad’ Label Not Totally Off-Base*, LAW360, Aug. 14, 2014, <http://bit.ly/2p2JPDo>.

⁵ The link between patent ownership and the ability to secure venture capital finds strong support in economic research. See Joan Farre-Mensa, Deepak Hegde & Alexander Ljungqvist, *The Bright Side of Patents*, USPTO Economic Working Paper No. 2015-5 (Dec. 2015), <http://bit.ly/2p4RnIG>; Stuart J.H. Graham & Ted Sichelman, *Patenting by Entrepreneurs: An Empirical Study*, 17 MICH. TELECOMM. & TECH. L. REV. 111 (2010), <http://bit.ly/2ppQZ04>; Stuart J.H. Graham, et al., *High Technology Entrepreneurs and the Patent System: Results of the 2008 Berkeley Patent Survey*, 24 BERKELEY TECH. L.J. 1255 (2009), <http://bit.ly/2p2LvwS>.

various ways that the PTAB is now causing real harm, through both its procedures and its substantive decisions, and thus threatening innovation.

The PTAB has created fundamental uncertainty about the status of all patent rights in inventions. The result is that the PTAB undermines the market value of patents and frustrates the role that these property rights serve in the investment in and commercial development of the new technological products and services that make many aspects of our modern lives seem like miracles.

I. The U.S. Patent System

Patents are property rights in new inventions, and they are secured under laws enacted by Congress. The Constitution specifically empowers Congress to protect patented innovation and copyrighted creativity. The importance of these rights was clear in the early American Republic: some of the very first laws passed by the First Congress in 1790 were the patent and copyright laws.

In this Part, we describe what a patent is and explain the legal rules that define how these fundamental property rights are secured to inventors. It is important to understand the nature and function of these property rights. One cannot understand how the PTAB has created what lawyers call a “cloud on the title” for patent owners unless one first knows what patents are and how they function in creating new commercial products and services, driving the U.S. innovation economy for over 200 years.

A. An Overview of Patent Rights

Since Congress enacted the first patent laws in 1790, individuals have enjoyed protection in the exclusive use of new products and processes they invent. In this respect, a patent is a property right, just like any other property right in other goods, providing the freedom to decide how to use (or even not use) an asset in any way its owner chooses.⁶ The patent statute defines the property right in a patent as a “right to exclude,”⁷ but this is a technical and rarefied legal definition that fails to fully capture what this property right achieves for inventors, consumers, and society more generally.

The U.S. economy grows based on the creation of new innovation. Tens of thousands of innovations make modern life possible, including Thomas Edison’s light bulb, Nikola Tesla’s electrical motor, Leo Baekeland’s plastic, Henry Ford’s transmission, Bell Labs’s transistor, Charles Townes and Arthur Schawlow’s laser, Irwin Jacobs’s digital transmission technology for cell phones, and so on. But these inventions can make everyone better off only if their inventors can sell them as consumer products and services in a flourishing free market.

How can we ensure that inventions are created and that companies buy and sell these inventions through commercial transactions in complex supply chains and distribution chains in the marketplace? The problem for both inventors and commercial companies is the same. Inventors will

⁶ See 35 U.S.C. § 261.

⁷ See 35 U.S.C. §§ 154, 271.

not be willing to invest many years of time, labor, and money if they know beforehand that anyone can swoop in and take the fruits of their intellectual labors, copying and selling competing goods. The same is true for companies, which will not invest millions in commercial development if any competitor can copy and sell the product without the risk and sunk costs of these initial investments.

This is why the most common question viewers of *Shark Tank* hear the venture capitalists ask the inventors pitching their products is, “Do you have a patent?” For the biotech and high-tech sectors, this problem is very real. The average cost of R&D for a new drug is approximately \$2.6 billion — this is the time, labor, and money spent *before* a company sees a single dollar from purchasers in the marketplace.⁸ In the high-tech sector, companies like Microsoft, Intel, and Qualcomm spend billions in R&D each year.⁹ To offer one small example: It took tens of thousands of person-hours of work and an estimated \$150 million for the engineers at Apple Computer to go from Steve Jobs’ conception in 2003 of a mobile computer in a telephone to the commercial release in 2007 of the iPhone.¹⁰ What individual or company could afford to do this — or would do this — if it was not ensured the exclusive use of the valuable fruits of its creative labors?

As a practical matter, once an inventor releases an invention to the world — or a company becomes successful in selling the innovative product it invested in producing and distributing in the market — anyone can and will copy it to sell or use themselves. This is a general problem with the creation of valuable assets; for instance, no farmer will till the soil and labor to grow crops and husband cattle if anyone could come in after the fact and simply take the fruits of these valuable labors.

The solution to this problem is to protect *property rights* in the products of people’s productive labors. This is both the moral and economic justification for patents; as the Founding Father James Madison recognized in 1789 in discussing the constitutional grant to Congress to secure patents and copyrights, “the utility of this power will scarcely be questioned.” For patents and copyrights, Madison continued, the “public good fully coincides in both cases with the claims of individuals.”¹¹ As a Supreme Court Justice wrote in 1845, “we protect intellectual property, the labors of the mind, . . . as much a man’s own, and as much the fruit of his honest industry, as the wheat he cultivates, or the flocks he rears.”¹² Like protecting property rights in farms and in animals, securing exclusive

⁸ Joseph DiMasi et al., *Innovation in the pharmaceutical industry: New estimates of R&D costs*, 47 J. HEALTH ECON. 20 (2016).

⁹ See Dean Takahashi, *Why Vista Might be the Last of Its Kind*, SEATTLE TIMES, Dec. 4, 2006, http://seattletimes.com/html/business/technology/2003460386_btview04.html (reporting a back-of-the-envelope calculation that Microsoft spent approximately \$10 billion in R&D in its Vista operating system before it sold a single copy); David Manners, *Intel Out-Spends Everyone on R&D*, ELECTRONICSWEEKLY.COM, Feb. 16, 2017, <https://www.electronicweekly.com/blogs/mannerisms/markets/intel-spends-everyone-rd-2017-02/> (reporting annual 2016 R&D budgets at Intel of \$12.7 billion and at Qualcomm of \$5.1 billion).

¹⁰ Fred Vogelstein, *The Untold Story: How the iPhone Blew Up the Wireless Industry*, WIRED, Jan. 9, 2008, <https://www.wired.com/2008/01/ff-iphone/>. Apple was investing in, creating, and addressing problems in manufacturing, as well as in the supply and distribution chains, all the way up until the June 29, 2007 release of the iPhone to consumers. See Fred Vogelstein, *Inside Apple’s 6-Month Race to Make the First iPhone a Reality*, WIRED, June 28, 2017, <https://www.wired.com/story/iphone-history-dogfight/>.

¹¹ THE FEDERALIST NO. 43 (James Madison).

¹² *Davoll v. Brown*, 7 F. Cas. 197, 199 (C.C.D. Mass. 1845) (Woodbury, Cir. J.).

rights in the fruits of productive labors is both a just and efficient mechanism for ensuring that people will create and exchange the goods necessary for flourishing human lives in society.

Of course, one of the significant differences between property rights in patents and property rights in other goods — like land, cars, and laptop computers — is that the law limits the duration of a patent. The earliest patents in U.S. history lasted 14 years from the date when they issued, and today a patent lasts for 20 years from the date when the patent application was filed. At the end of the patent term, the invention falls into the public domain, free for society to use. There are different theoretical justifications for why patents are limited in duration, but all agree that this limitation helps advance the constitutional objective of progress in new innovation. Over time, old inventions become the raw material on which new inventions can be built. As Isaac Newton famously said, “If I have seen further, it is by standing on the shoulders of giants.”¹³

The limited duration of patents does not change the basic moral and economic point that people will choose to invest labor when they know they can enjoy the fruits of that labor. Nor does it change the basic point that protecting their right to enjoy the fruits of that labor should take the form of a property right, because property rights make contractual exchanges possible and can drive a vibrant and growing innovation economy.

B. Strict Legal Standards for Patenting

Many new products and processes can be protected with a patent — but not everything can be.¹⁴ To receive patent protection, an invention must be something that humans created, and it must be a real-world object or process. It cannot be an abstract idea like converting decimal numbers to binary numbers, or a scientific principle like Albert Einstein’s special relativity equation $E = mc^2$, or a product of nature like a precious metal mined from the earth. The law does not regard these as true *inventions*, even if they took time and effort to discover. Inventors need these basic ideas, facts, and natural materials when researching and creating inventions like nuclear power plants, gasoline-powered engines, and the circuitry in digital devices. In addition to requiring that inventions be made by humans and to be real-world things, the patent laws also require that the invention be new and useful. Also, it cannot be obvious — meaning it cannot be something that people with reasonable skill in the field could easily have figured out.

In order to receive a patent, an inventor must also describe the invention in detail in a document that is released to the public and other researchers — the patent itself. The grant of property rights to an inventor in a patent has long been understood to be a *bargain* between innovators and society.¹⁵ Society benefits from the inventions themselves — thus, the public receives new medicines, industrial technologies, consumer products, and the like. But the inventions are only part of the

¹³ Letter from Sir Isaac Newton to Robert Hooke (Feb. 5, 1675).

¹⁴ See 35 U.S.C. § 101 (providing broadly that any process, machine, article of manufacture, or composition of matter is patentable subject matter).

¹⁵ See Adam Mossoff, *Rethinking the Development of Patents: An Intellectual History, 1600-1850*, 52 HASTINGS L.J. 1255, 1289-1302 (2001) (discussing social contract theory in the evolution of the modern doctrinal requirement of disclosure of an invention in a published patent).

bargain and not the only benefit. A patent is a public document that discloses and teaches people in the field how to make or use the invention; this expands society's store of knowledge and allows continuing innovation in the field. The USPTO reviews applications submitted by inventors to ensure that patents issue only for new, useful, and non-obvious inventions that are adequately described in the patent itself.

To make these assessments, USPTO examiners compare the inventions with the current state of relevant scientific and technical knowledge. The USPTO requires every examiner to have education and training in a scientific or engineering discipline, and it assigns examiners only the patent applications that pertain to their respective fields of expertise. Patent examiners thus stand in for people in their field of expertise. They can determine what people in the field would already have known, what those people could easily have developed even without the incentive of a patent, and what those people will understand from the patent's description of the invention. The USPTO issues a patent only if it concludes that all of these standards are satisfied. The patent itself is a public document specifying the legal rights that it represents, much like the deed to a house or parcel of land, and it is freely available for anyone to examine.

Many do just that. Venture capitalists and other investors analyze patents when deciding whether to commit their funds to develop inventions commercially.¹⁶ Engineers and scientists read patents to learn how specific problems have been solved and to develop alternative solutions, which may be embodied in their own inventions. Competitors read each other's patents to determine what infringing activities to avoid — and what non-infringing activities may still be permitted. This process of “designing around” other people's patents fuels an ongoing cycle of research and development from which new inventions are continually generated and tested to see whether they merit further investment. Of course, once a patent expires and the invention falls into the public domain, the invention itself can be used freely as well.

C. The Thorough Patent Application Process

The strict legal standards for patenting and the rigor of the patent examination process mean that an inventor is not guaranteed a patent. The patent examination process itself — which is described in more detail later in Part IV.A — is governed by a highly detailed system of rules. During this process, it is very common for the examiner and the applicant to have a back-and-forth exchange, in which the application is revised and updated in order to satisfy the patent laws.

For example, the examiner might initially reject an application because an academic journal or even a previously issued patent describes an earlier example of the same invention. In response, the applicant can clarify that the two inventions are actually not the same; for example, the applicant may clarify that her invention is an improvement on the earlier technology. Or she may correct a mistakenly broad definition of her invention in her patent so that it no longer encompasses the earlier technology. Whatever the case, the dialogue between the applicant and the examiner may

¹⁶ See *supra* note 5 (citing sources on link between patents and venture capital financing).

eventually converge on a description of the invention, and how to make or use it, that meets all of the patentability requirements. If that happens, the application is allowed and issues as a patent.

Sometimes, however, the dialogue between the applicant and the examiner breaks down. The examiner may decide that the applicant cannot meet the legal requirements for receiving a patent — or the inventor may decide that the law does not require her to accept a narrower view of the invention. In these situations, the examiner issues a final rejection, and the applicant can either accept the denial or appeal this decision for review by authorities at the USPTO and eventually by courts. Sometimes, applicants appeal the denials of their patent applications all the way to the United States Supreme Court, such as in a famous 1980 decision involving a patent application for a genetically modified bacterium (the Court said it was a patentable invention).¹⁷

The examination process may also end in a whole host of other outcomes, some of which can be legally complicated. For example, the examiner may partially grant and partially deny an application. The examiner may conclude that the application actually claims many different inventions and therefore it must be divided accordingly into separate applications. The examiner may conclude that multiple applications claim the same invention and would impermissibly confer multiple overlapping rights. And there are other possibilities still.

The important point is that, for all patents issued by the USPTO, there is an examination process that has existed for over 180 years. (The patent examination process as it now exists was first created in the Patent Act of 1836.) Although all institutions have some flaws and no process is entirely free of mistakes — people are neither omniscient nor omnipotent in designing institutions or engaging in decision-making processes — the patent examination process is thorough and reflects the experiences of examinations of millions of patent applications.

D. Opportunities to Enforce and Challenge the Patent in Federal Court

To enforce its property right, a patent owner can sue anyone who makes, uses, or sells the invention without permission, just as a land owner can sue for trespass on land. In fact, starting in the early American Republic, judges often referred to infringement of a patent as a *trespass*, and they often referred to infringers as *pirates*.¹⁸ Like all property owners, a patent owner can obtain both compensation for past infringement, such as the profits lost due to the piracy, and an injunction to guard against future piracy.

Patent owners file their lawsuits in federal court. These lawsuits generally involve the same process as other federal civil litigation. The plaintiff files a complaint alleging patent infringement. The defendant almost always responds by arguing that it is not infringing the patent. The defendant in a patent infringement lawsuit can also argue that the patent is invalid — that the USPTO made a mistake when it issued the patent, because the invention fails one or more of the legal requirements

¹⁷ See *Diamond v. Chakrabarty*, 447 U.S. 303, 316 (1980).

¹⁸ Adam Mossoff, *Who Cares What Thomas Jefferson Thought About Patents? Reevaluating the Patent “Privilege” in Historical Context*, 92 CORNELL L. REV. 953, 994-95 (2007).

for patent protection. Most defendants in patent lawsuits challenge the validity of patents. This is not surprising; if the defendant can invalidate the patent, then its activities no longer infringe anyone's property rights. A defendant loses little by arguing that the patent is invalid, and it stands to gain a great deal; success would allow it to continue what it was doing without fear of any damages or injunction in the future.

Patent infringement disputes, particularly when validity defenses have been raised, entail complicated arguments about the nature of the technology as well as the nature of the infringing activities. There are usually complex interpretive questions about the patent itself as well as difficult issues about the state of knowledge (and "prior art") in the field. As a result, like complex commercial litigation, patent lawsuits can be expensive for both the plaintiff and defendant, and they can take many years to reach a final resolution before a judge or jury. And, like most civil lawsuits involving private rights, the parties often settle the litigation before a final judgment is reached by the court.

If either the plaintiff or defendant appeals the trial court's decision, the appeal goes to a specialized court of appeals — the United States Court of Appeals for the Federal Circuit. Congress created this court in 1981 to hear all appeals in patent infringement cases, no matter where in the country the trial took place. The judges of this court typically have expertise in patent law and often have technical backgrounds, which assists them in reviewing the complex legal and technical issues in patent infringement lawsuits.

II. An Administrative Tribunal: The Patent Trial and Appeals Board (PTAB)

In 2011, Congress enacted a new patent law, called the America Invents Act (AIA). The AIA made sweeping changes to the U.S. patent system. Among its many changes, the AIA created the Patent Trial and Appeal Board (PTAB) at the USPTO to review and invalidate patents that had been mistakenly issued by the USPTO in the first place.

Congress created the PTAB to respond to three concerns voiced by companies and other stakeholders in the innovation economy. First, patent litigation in federal court can be expensive and time consuming, costing millions of dollars and taking years to complete. Second, the USPTO makes mistakes, sometimes issuing "bad" patents — patents that it simply should not have issued. These patents are typically invalidated by a defendant in a patent infringement lawsuit, following a considerable investment of money and labor. Third, because invalidating "bad" patents is expensive and time consuming, some patent owners *use* the "bad" patents to extract nuisance settlements from companies. Many people still voice concern about this practice today, after passage of the AIA in 2011. These patent owners are sometimes called "patent assertion entities" (PAEs) or "non-practicing entities" (NPEs), but most people have heard of them by the more popular rhetorical term "patent troll."¹⁹ One example often discussed in newspapers is MPHJ Technology

¹⁹ One problem with these terms is that there is no settled definition and they are over-inclusive, encompassing individual inventors, universities, and other innocent creators and commercializers of patented innovation. *See, e.g.,* Adam Mossoff, *Repeating Junk Science & Epithets Does Not Make Them True*, IP WATCHDOG, Nov. 19, 2015, <http://www.ipwatchdog.com/2015/11/19/repetition-of-make-them-true/id=63302/>; Adam Mossoff, *Thomas*

Investments, which the Federal Trade Commission sanctioned in 2014 for engaging in deceptive threats of patent infringement lawsuits.²⁰

Given these concerns, there was an outcry for a cheaper, more efficient, and faster system for invalidating bad patents. A better system, it was said, would not only remove bad patents from the innovation economy but also reduce the incentives for “patent trolls” to engage in their bad behavior. Congress’s solution was to create an administrative tribunal at the USPTO to reevaluate the validity of already-issued patents.²¹ This tribunal would hear challenges to patents, and its process would be cheaper, faster, and more technically expert than federal courts — which have generalist judges at the trial court level and have lay juries. It would also be more broadly accessible than federal courts, which are constitutionally authorized only to hear concrete disputes between people who have an actual stake in those disputes. In the administrative tribunal that Congress set up, essentially any member of the public could challenge patent validity for any reason. This decision has led to considerable mischief.

A. An Overview of PTAB Proceedings

As set forth in the AIA, the PTAB conducts three types of administrative hearings to review patents: Inter Partes Review (IPR), Covered Business Method (CBM) Review, and Post Grant Review (PGR). Although these procedures vary in important ways, they all share some basic structural features.

- Petitions are filed seeking to invalidate a patent that is still in its 20-year term.

The requirements and timing for each proceeding are different. For example, a PGR petition can be filed to challenge only patents issued under the new AIA rules, and it must be filed within the first nine months after patent issuance. In contrast, an IPR petition can challenge any patent. If the patent issued under the new AIA rules, the IPR petition cannot be filed until nine months after patent issuance. If the patent issued under the old rules, the IPR petition can be filed at any time.

- The patent owner may file a preliminary response arguing why the petition should not be granted.

Edison Was a “Patent Troll,” SLATE, May 19, 2014, http://www.slate.com/articles/technology/history_of_innovation/2014/05/thomas_edison_charles_goodyear_and_elias_howe_jr_were_patent_trolls.html. Scholars have also raised serious objections concerning methodological and substantive flaws in the statistical claims about the number of so-called “patent trolls” and the costs of their activities. See, e.g., David L. Schwartz & Jay Kesan, *Analyzing the Role of Non-Practicing Entities in the Patent System*, 99 CORNELL L. REV. 425 (2014), <http://ssrn.com/abstract=2117421>; Christopher Cotropia et al., *Unpacking Patent Assertion Entities (PAEs)*, 99 MINN. L. REV. 649, 655-60 (2014), <https://ssrn.com/abstract=2346381>.

²⁰ See Press Release, Federal Trade Commission, *FTC Settlement Bars Patent Assertion Entity From Using Deceptive Tactics* (Nov. 6, 2014), available at <https://www.ftc.gov/news-events/press-releases/2014/11/ftc-settlement-bars-patent-assertion-entity-using-deceptive>.

²¹ See, e.g., Cheryl Milone, *A Powerful New Weapon Against Patent Trolls*, FORBES, Nov. 15, 2012, <https://www.forbes.com/sites/forbesleadershipforum/2012/11/15/a-powerful-new-weapon-against-patent-trolls/#2c97eba01d28> (detailing the AIA’s creation of the PTAB among other features of the new law).

- A group of administrative judges at the PTAB decide whether to grant the petition to begin formal proceedings in reviewing the validity of the patent.

The response to a petition is only a preliminary decision about whether to conduct a review of the patent. The PTAB does not grant every petition for review. The person who filed the petition must establish a sufficient probability of success in arguing that the patent is invalid before the PTAB will undertake the review. The PTAB will initiate an IPR hearing only if there is a “reasonable likelihood” that the petitioner will prevail with respect to at least one of its arguments that a portion of a patent is invalid. It will initiate a CBM or PGR hearing only if it is “more likely than not” that a portion of the patent is invalid.

- Once the PTAB grants the petition, the panel of PTAB judges will hear evidence and arguments why the patent is invalid as well as counterarguments by the patent owner.
- The PTAB panel of judges issues a written decision. The AIA requires that a decision be reached within 12 months.

Because the PTAB was created out of a desire to make it easier to invalidate poor-quality patents and because poor-quality patents are not always readily distinguishable from valid, properly-issued patents, the PTAB is structurally more likely to invalidate *all patents* before it. Since it began operations, the PTAB has invalidated between 64% to 98% of the patents it reviewed, depending on which review program the patent was challenged in (IPR, PGR, or CBM).²² This quickly earned the PTAB a reputation as a “death squad” out to “kill” patents.²³ Indeed, the PTAB views this as its mission. In 2014, (then) chief administrative judge of the PTAB stated that “If we weren’t, in part, doing some ‘death squadding,’ we would not be doing what the [AIA] statute calls on us to do.”²⁴

As explained in the sections that follow, the PTAB has sought to engage in “death squadding” of patents by adopting procedures and standards that make it easier to kill any patents challenged before it. These rules are fundamentally different from the rules that would be used by a federal court if a defendant made similar arguments that the patent right was invalid. As a result of these differences, there is a meaningful risk that an administrative tribunal is unfairly stripping inventors of their property rights, which are protected under the Constitution, without the proper safeguards provided in courts to all owners of property rights.

B. A Deliberate Lack of Gatekeeping

Filing a PTAB petition to challenge a patent’s validity is significantly easier than asserting the same challenge in court. Anyone can file a petition with the PTAB to challenge the validity of a patent: a defendant in court, someone merely threatened with infringement litigation, or even an organization

²² See Samson Vermont, *IPR Statistics Revisited: Yep, It’s a Patent Killing Field*, PATENTATTORNEY.COM, Feb. 8, 2017, <https://www.patentattorney.com/ipr-statistics-revisited-yep-its-a-patent-killing-field/> (concluding that for IPR reviews “in about 64% of petitions, one or more of the claims will not survive”); Robert R. Sachs, *AliceStorm Update for Q1 2017*, BILSKI BLOG, April 6, 2017, <http://www.bilskiblog.com/blog/2017/04/alicestorm-update-for-q1-2017.html> (reporting an invalidation rate in CBM review at the PTAB of 97.8%).

²³ Davis, *PTAB’s ‘Death Squad’ Label*, *supra* note 4.

²⁴ *Id.*

dedicated to eliminating all patents on a technology altogether. For example, the Electronic Frontier Foundation (EFF) has a “Chair to Eliminate Stupid Patents,” which is an attorney advocate position endowed by Mark Cuban. Cuban has declared there should be no patents on high-tech software inventions,²⁵ and he endowed this position at EFF to pursue this goal. The EFF files PTAB petitions.²⁶ PTAB petitions have also been filed by hedge fund managers solely seeking to profit from short selling a company’s stock when its price drops in response to the filing, by trade associations dedicated to advancing solely the interests of their own members, by activists and policy advocacy organizations, and even by someone with a personal vendetta against a patent owner.²⁷

By contrast, someone who wishes to challenge a patent in court must follow long-established procedures and rules intended to protect people’s rights to life, liberty, and property. Foremost, there must be an actual dispute between the parties in the litigation. For example, a person cannot challenge a title deed as invalid without being accused of violating the property right (for example, trespass) in the first instance. In constitutional terms, there must be an actual “case or controversy” for the court to resolve between two actual adversaries, and the parties before the court must have a real stake in the legal arguments they make to the court. No such rules apply at the PTAB. The rules governing access to the PTAB for reviewing a patent for invalidity relate mainly to timing and transparency; the tribunal does not concern itself with whether a petitioner is faced with a lawsuit by an owner of a questionable patent or is otherwise coming to the PTAB for inappropriate reasons unrelated to the innovation industries.

C. A Lower Burden of Proof

Since a patent is a property right secured to its owner after a rigorous examination process, anyone challenging a patent as invalid in court must meet a high standard of proof. This high standard of proof was adopted by early American judges precisely because they understood patents to be titles securing property rights in inventions in the same way that title deeds secure property rights in land.²⁸ Thus, to prevail in court it is not enough that the defendant’s views are supported by some evidence, or even that the defendant’s position is more likely than not correct. Instead, there must be “clear and convincing” evidence that the USPTO made a mistake in granting the patent, which is the highest standard of proof imposed on litigants in civil (non-criminal) lawsuits. Several years ago, the Supreme Court affirmed this high burden of proof to invalidate a patent in court as legitimate and rightly based in longstanding law and policy.²⁹

By contrast, the PTAB applies a much, much lower burden of proof to invalidate a patent that it reviews. A challenger may invalidate an issued patent merely by establishing that invalidity is “more likely” than not correct. As a result, it is much easier to invalidate patents in a PTAB administrative

²⁵ See Mark Cuban, *My Suggestion on Patent Law*, BLOG MAVERICK, Aug. 7, 2011, <http://bit.ly/2qygzVi> (proposing to eliminate all software patents).

²⁶ See Michael Lipkin, *EFF Wins PTAB Attack Against Podcasting Patent*, LAW360, Apr. 10, 2015, <https://www.law360.com/articles/642071/eff-wins-ptab-attack-against-podcasting-patent>.

²⁷ See Dolin, *supra* note 2.

²⁸ See Mossoff, *Who Cares*, *supra* note 18.

²⁹ See *Microsoft Corp. v. i4i Ltd. Partnership*, 564 U.S. 91 (2011).

hearing than in a federal court proceeding. This has invited a proliferation of PTAB petitions and has even begun to generate conflicts between the PTAB and the courts over the validity of the same patents.

In a recent decision, the Federal Circuit — which hears all appeals in patent cases — concluded that the PTAB could invalidate even a patent right that was previously upheld by a federal district court and by the Federal Circuit itself. Citing the lower burden of proof that the PTAB accepts, the court simply conceded that inconsistent results are a *fait accompli* under the new this new state of affairs.³⁰

D. A Playing Field Tilted Against Patent Owners

PTAB proceedings are designed to be much faster than lawsuits filed in court. Once a petition has been filed, the PTAB has six months to decide whether to hold an administrative hearing to assess the invalidity of the patent. Once the PTAB decides to institute review of a patent, the administrative patent judges must hear the arguments and issue a final decision within 12 months. This compressed timeline has a significant impact on how patent owners are able to develop their arguments and gather and present evidence.

First, because the timeframe for the proceeding is so short, the PTAB severely curtails how much evidence may be gathered and presented. By contrast, courts generally apply a permissive standard with respect to collection of evidence in lawsuits, allowing document requests, depositions of witnesses and other interested parties, and submission of expert testimony, among other things. The PTAB, however, significantly constrains these “discovery” activities, limiting the parties to filing a limited set of specific documents. If the patent owner wants to gather and present additional evidence, it must ask the PTAB for permission, which is rarely granted. By one count, as of September 2014, the PTAB has denied about 70% of all such requests.³¹ Additional time (to gather that evidence and respond to the petition) must also be specifically authorized by the PTAB, and those requests too are denied more than they are granted.³²

Second, the parties generally cannot present live witnesses to testify before the panel of administrative judges at the PTAB. In court, a judge or jury has the opportunity to observe and consider exchanges between witnesses and lawyers. Watching and listening to these live exchanges creates an opportunity to assess the expertise, credibility, and bias of each witness. By contrast, the PTAB requires that witness testimony be submitted only as a written document. A party technically has the right to compel testimony, but this counts as “additional” evidence gathering and must be

³⁰ Novartis AG v. Noven Pharm. Inc., Nos. 16-1678, -1679 (Fed. Cir. Apr. 4, 2017), <http://bit.ly/2qoW7Ke>.

³¹ Alison J. Baldwin and Lisa M. Schoedel, *PTAB Holds A Firm Line On Additional Discovery*, LAW360, Feb. 20, 2015, <http://bit.ly/2uyct2I>. This study also showed the board denied or partially denied almost 80 percent of these motions.

³² *Garmin Int'l v. Cuozzo Speed Techs LLC*, No. IPR2012-00001, Paper 26 (Patent Trial & Appeal Bd., Mar. 5, 2013) (designated as precedential) (discussing the standards for “routine” and “additional” discovery in *inter partes* review, explaining the factors for evaluating motions for additional discovery, and noting that “in *inter partes* review, discovery is limited as compared to that available in district court litigation”); USPTO, *Message From Administrative Patent Judges Jacqueline Bonilla and Sheridan Snedden: Routine and Additional Discovery in AIA Trial Proceedings: What Is the Difference?*, AIA BLOG, Sept. 30, 2014, <http://bit.ly/2qn3ulg>.

specifically authorized by the administrative judges. Moreover, this testimony is generally submitted only in a written transcript. Thus the administrative judges read the dialogue in an arid form on the written page; the witness is not presented live at the hearing. Only in rare and limited cases do PTAB administrative judges watch a deposition video or permit cross-examination of a witness in its presence — typically where one party has directly challenged with some basis the credibility of a witness. The routine practice at the PTAB is to assess all witnesses based solely on the written page.

Third, challenges to evidence submitted by the parties — the classic, “Objection, your Honor!” — are handled differently by the PTAB than by a court. In theory, the rules that govern how evidence is submitted and heard in court apply with equal force to the PTAB. As is often the case, though, theory does not match reality. Given the severe time constraints on PTAB administrative judges in deciding a case, the parties are much more limited in how they can submit evidence and when evidence is properly excluded. In fact, PTAB administrative judges regularly deny almost every motion to exclude evidence.³³

These rules may make a PTAB proceeding faster and cheaper than a federal court lawsuit,³⁴ but they also make it much harder for a patent owner to fully defend its property rights. In other words, the benefit of reduced costs comes with a heavy cost. After almost six years of operation, it is not clear that the PTAB’s severe procedural shortcuts lead, on balance, to more efficient, more accurate, or more just outcomes.

E. A Different Interpretation of the Same Patent

The PTAB applies a different standard than the courts apply when interpreting patents. This is a highly technical legal issue, but in sum the PTAB standard makes it much easier to invalidate patents. This one rule by itself is likely the single most important rule at the PTAB — it explains the high invalidation rate and it calls into question whether this agency respects the basic protections of the rule of law provided under the Constitution for all property owners.

The key issue is that in any dispute involving a legal document — whether a contract, the title deed to a house, or a patent — the judge must first interpret the document itself. The parties usually interpret the words in the document differently, and these interpretations usually lead to different outcomes. Thus, for centuries, courts have developed and applied legal rules governing how documents are to be interpreted. All parties, on either side of a dispute, must know beforehand how a legal authority will interpret documents and allocate rights. The rules governing “how the legal

³³ Brian P. McCall, Merchant & Gould, *Expect Denial: The PTAB Denies Almost All Motions to Exclude Evidence*, July 21, 2014, <http://bit.ly/2uWF8kf> (reporting as of July 2014 that the PTAB had granted motions to exclude in only 5 of 72 decisions Final Written Decisions raising motions to exclude). The PTAB denied 89% of motions to exclude in 2014. Brinks, Gilson & Lione, *Post-Grant Review Webinar*, Dec. 2, 2015, <http://bit.ly/2tHtydu>, at 27.

³⁴ The American Intellectual Property Association 2015 Report of the Economic Survey concluded that the median cost of traditional patent litigation for medium sized (\$10 - \$25 million at risk) patent litigation was \$3.1 million to trial, and the median cost for completing a PTAB proceeding (through appeal) is \$350,000. Philip Swain, *The Cost-Effectiveness of PTAB Proceedings*, PTAB BLOG, Nov. 13, 2015, <http://bit.ly/2p3hKM9>.

authority will interpret” documents must be fixed and clear. The ability to hold legal decision-makers accountable to stable principles is a basic feature of the rule of law.

For patents, there are two different points in the life cycle when official interpretation must occur. The first is during the patent application process. At this point, the examiner interprets the boundaries of a patent as broadly as is reasonably possible. In other words, the language in the patent application is given the broadest interpretation that can be reasonably supported by the evidence. The result is assessed in light of prior patents, scientific publications, and other prior art. This provides a “stress test” of the application. The broader the language of an application, the more broadly the patent will sweep if the examiner allows the patent — and the more likely it will be that the invention as described in the patent application will run up against something already known to people in the field and thus fail the novelty requirement or one of the other legal requirements for obtaining a patent.

Thus, by assuming the broadest potential patent scope, within reason, and evaluating that against the requirements for patentability, patent examiners systematically protect the public from overbroad patents being issued to inventors. As a result, applicants rarely expect that their initially proposed patent language will actually survive examination. They continually narrow and revise that language in response to examiner actions, until both the examiner and the applicant converge on patent language that acceptably describes a patentable invention.

The second point when official interpretation of a patent occurs is during enforcement in the courts. At this stage, when a patent owner accuses someone of infringement, the purpose of interpreting the patent is not to invalidate it. Rather, the purpose of interpretation is to confirm if the allegedly infringing product or service in fact is covered by the patent. For nearly two centuries, courts have respected the rigor of the application process by presuming that an issued patent is valid.³⁵ As a result, courts apply a standard of basic reasonableness in construing the terms in a patent: the words in the patent are given the plain and ordinary meaning that they would have to anyone with ordinarily skill in that field of technology or science.³⁶ Courts apply this standard even when the accused infringer challenges the validity of the patent, if only because the patent was already examined and the function of the court proceeding itself is not to invalidate the patent but to ensure that it is reasonably interpreted in both its enforcement and validation. This standard, which is similar to legal standards for interpreting other legal documents, such as contracts and statutes,³⁷ ensures justice to the patent owner and respects the nature of the patent as a private property right.

When Congress created the PTAB in the AIA in 2011, it did *not* specify the legal standard that the PTAB should use when interpreting the patents challenged by the petitioners before this administrative tribunal. It is telling that the PTAB chose to adopt not the standard that courts have

³⁵ See *Microsoft Corp.*, 564 U.S. at 107. The presumption of validity was adopted by courts long before adoption of the examination system for patent applications in 1836. Courts applied the same rules for interpreting patents as they had applied to title deeds defining other property rights, which meant they interpreted patents liberally in favor of their owners given that they are property rights. See Mossoff, *Who Cares*, *supra* note 18 at 958–959.

³⁶ See *Phillips v. AWH Corp.*, 415 F.3d 1303, 1316 (Fed. Cir. 2005).

³⁷ See *Teva Pharmaceuticals USA, Inc. v. Sandoz, Inc.*, 135 S. Ct. 831 (2015).

long used for patents issued by the USPTO, but instead the standard that examiners use when evaluating a patent application. This is consistent with the view that their mission is to engage in patent “death squadding.” It is, however, inconsistent with the deference that federal courts give to the USPTO examination process from which issued patents emerge. By reverting to the broadest reasonable interpretation for already-issued patents, the PTAB completely discounts the examination process administered by its own colleagues within the same agency.

This disregard poses serious concerns about lack of due process and equal protection of basic property rights. There is a concern that the same patent presented with the same invalidity challenge with the same evidence is subjected to different legal rules depending on whether it is a court or the PTAB. Predictably, as a result of these different legal standards, there have already been conflicts between court judgments and PTAB decisions concerning the validity or invalidity of the exact same patent (as discussed in the next section). But aside from these more fundamental concerns, there are still concerns even within the domain of patent law itself.

The PTAB’s use of the broadest reasonable interpretation treats the petitioner’s challenge no better than an original patent application, full of uncertainty and contingency, even though the patent has already issued and is now private property in much the same way that a home is rightly the private property of the person who built it. If the PTAB is essentially repeating the original examination process, however, then patent owners should at least receive the same rights that patent applicants have in the examination process (as described in the previous section). But these basic rights are denied. A patent applicant may amend its application in response to the stress testing of the broadest reasonable interpretation, which allows the applicant and examiner to reach mutually acceptable language in the patent claiming the invention. For patent owners subjected to a PTAB review process, however, the right to amend is heavily restricted. Notably, the AIA expressly provides that patent owners have the right to amend their patents during the PTAB process, but only once and it leaves subsequent requests for amendment to the discretion of the PTAB.

Despite the limited right of a right to amend provided in the AIA statute, the PTAB has been quite hostile toward all requests to amend patents by patent owners. It grants only a paltry 5% of the total requests to amend patent, denying 95% of the requests.³⁸ The PTAB ostensibly justifies the 95% denial rate on the strict one-year deadline imposed on it in the AIA to reach its decisions, but even the quality of the PTAB’s reasoning has drawn sharp rebuke from the courts. For example, in a late 2016 case, the Federal Circuit held that the PTAB’s denial of a request to amend had failed even the most deferential, pro-agency standard in U.S. administrative law.³⁹ Under this standard, even

³⁸ USPTO, *Patent Trial and Appeal Board Motion to Amend Study* (Apr. 30, 2016), <http://bit.ly/1Vxhtho>. As of April 30, 2016, the Board had instituted and completed 1539 trials (either through post-institution termination due to settlement, request for adverse judgment, dismissal, or in a final written decision). In 192 completed trials, the patent owner had filed a motion to amend. The panel decided the motion to amend in 118 of the 192 completed trials. (In the others, the motion to amend: (a) was requested to cancel claims, (b) was rendered moot because the panel found the claims patentable, or (c) was not decided because the case terminated prior to a final written decision.) Of the 118 motions to amend that were decided, a panel granted or partially granted 6 motions (5%) and denied 112 motions (95%).

³⁹ *Veritas Tech v. Veeam Software*, 835 F.3d 1406 (Fed. Cir. 2016).

incorrect or flawed agency actions can survive so long as the agency did not behave in an “arbitrary and capricious” manner, but the Federal Circuit concluded that the PTAB was arbitrary and capricious in enforcing its own rule prohibiting amendments.⁴⁰ Still, the Federal Circuit continues to send mixed signals on this matter, such as reversing the PTAB in one of the rare times that the PTAB permitted a patent owner to amend during an IPR.⁴¹

In sum, PTAB administrative judges broadly construe issued patents in the same way that an examiner would interpret a patent application, making it much easier to invalidate the patent in light of pre-existing technology. When patent examiners broadly construe patent application language during the examination process, this is merely a first step in forcing the applicant to rewrite the patent application, so that the scope is narrowed to elements that are in fact patentable. In contrast, the PTAB routinely prohibits amendments, which means it routinely invalidates patent rights that could be revised and preserved by accommodating new information. This explains the inordinately high invalidation rates at the PTAB in comparison with federal courts — which have long interpreted patents under the same rules that apply to all legal documents securing secure private rights of contract or property.

In June 2016, the Supreme Court allowed the PTAB’s use of broadest reasonable interpretations of patents reviewed for invalidity, but not because the Court believed that this standard was correct.⁴² Rather, the Court held that the AIA is ambiguous about the proper legal standard for interpreting issued patents and thus under existing administrative law, it merely deferred to the PTAB’s decision as an administrative agency in adopting a different standard from that used by courts. Notably, in reaching its decision that the PTAB’s use of a different legal standard for interpreting patents was a colorable exercise of its authority as an administrative agency, the Supreme Court assumed that patent owners have a meaningful ability to amend their claims, as expressly provided in the AIA. As discussed above, this assumption is highly questionable, and the PTAB’s denial of 95% of requests to amend suggests that it is false. The Court expressly declined to decide whether the “broadest reasonable interpretation” standard is the best approach as a matter of policy. In fact, it is not, as the next Part discusses.

III. Regulatory Overreach: How and Why the PTAB is Crippling Innovation

Like most developments in the administrative state, the creation and implementation of the PTAB has gone unnoticed by most members of the public. Although the PTAB has become a flashpoint of heated policy debate among lawyers, representatives from the innovation industries, and scholars, most people living and working outside the patent system remain unaware of the legal battles over the PTAB and its impact on American innovation. Ignoring the threat that the PTAB poses will only

⁴⁰ *Id.* at 1413-14.

⁴¹ See Matthew Bultman, *Fed. Circ. Tosses Rare Patent Amendment Win At PTAB*, LAW360, July 3, 2017, <http://bit.ly/2tWEQWo>.

⁴² See *Cuozzo Speed Techs., LLC v. Lee*, 136 S. Ct. 2131 (2016).

ensure that it continues to sink more and more patented innovation, killing economic growth and jobs, and undermining quality of life through reduced incentives to create more innovation.⁴³

The PTAB will have this devastating impact for three reasons. First, rather than solving problems within the existing agency, the creation of the PTAB inserted an additional and inefficient layer of bureaucracy into the USPTO. Second, the post-issuance review proceedings provide multiple ways for competitors and others to harass patent owners. Third, the PTAB creates extensive uncertainty surrounding patent rights.

A. A New, Inefficient Bureaucracy Overreacts to Existing Problems

Congress passed the AIA to address the fact that the patent office sometimes issues “bad” patents. Rather than attempting to address the underlying problem — for example, by providing better training to patent examiners, by providing more tools to allow for more rigorous screening of patent applications, or by ensuring that the USPTO has sufficient funding — Congress created a new bureaucracy (the PTAB) to undo the work of a bureaucracy deemed problematic (the patent examiners). This is an example of waste and inefficiency in government. The government’s solution simply placed additional burdens on inventors and patent owners without reducing the number of low-quality patents issued by the USPTO in the first instance.

The USPTO is one of the oldest federal bureaucracies. The authority to grant patents is one of the basic governmental functions enumerated in the Constitution.⁴⁴ The USPTO as it exists today was created by the 1836 Patent Act, but traces its lineage to the 1790 Patent Act, which “created an administrative Patent Board consisting of the Secretary of State, the Attorney General, and the Secretary of War, any two of whom were given discretion to issue a patent ‘if they shall deem the invention or discovery sufficiently useful and important.’”⁴⁵

Today the USPTO is a massive agency. It employs nearly 12,000 employees, including 10,000 patent examiners. Patent examiners have backgrounds in science and engineering and are well

⁴³ See Steven Haber, *Patents and the Wealth of Nations*, 23 GEO. MASON L. REV. 811 (2016), <http://bit.ly/29MihY9> (summarizing massively overwhelming statistical and historical evidence that patents are a key factor in promoting innovation in a flourishing economy); Joan Farre-Mensa, Deepak Hegde & Alexander Ljungqvist, *What Is a Patent Worth? Evidence from the U.S. Patent ‘Lottery’*, USPTO Economic Working Paper No. 2015-5 (Dec. 17, 2015), <https://ssrn.com/abstract=2704028> (finding a direct causal link between a startup owning a patent and its ability to obtain venture capital funding, and then a direct causal connection between a startup owning a patent and its hiring of employees and its ultimate economic success in the marketplace).

⁴⁴ U.S. CONST. art. I, § 8, cl. 8 (“The Congress shall have the Power . . . To promote the Progress of Science and useful Arts, by securing for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries.”).

⁴⁵ John Duffy, *The FCC and the Patent System: Progressive Ideals, Jacksonian Realism, and the Technology of Regulation*, Symposium, 71 U. COLO. L. REV. 1071, 1125 (2000).

compensated.⁴⁶ They undergo extensive training, including nearly six months of instruction and several years of close supervision by more senior patent examiners.⁴⁷

With this training and experience, patent examiners review patent applications to ensure that the applications comply with the patent laws and USPTO regulations before any patent issues for the invention. The examiner first reads the patent application to ensure that it discloses the actual invention claimed by the inventor and teaches someone with relevant skills how to make and use the invention. The patent examiner next compares the claimed invention to prior art — like earlier patents or magazine and journal articles — to determine whether the invention is new and more than simply an obvious improvement over what had already been done. The USPTO imposes many other technical requirements on patent applications, which are set forth in the Manual of Patent Examining Procedure, a massive publication containing over 29 sections, each with hundreds of subsections, spanning thousands of pages. The patent examiner must complete a search to locate all of the relevant art *and* determine the application’s compliance with these additional requirements — all within a limited number of hours.

After reviewing the patent application, the patent examiner may grant the patent or, as is most often the case, require more information from the inventor. The examiner issues a communication called an “office action,” which asks the inventor to explain why the invention is new and non-obvious and otherwise meets the various requirements. The inventor responds to the office action. There may be several rounds back and forth between the inventor and the patent examiner over several years. In the end, the process of obtaining a patent is expensive and time-consuming. Inventors commonly spend \$30,000 to \$60,000 in filing costs and attorney’s fees, and the process from application to issuance can take years.

Over the years, there have been many criticisms of the USPTO. Some have pointed out the massive backlog of patent applications waiting for examination, which can mean that an inventor hears nothing for as many as 18 months after filing its application.⁴⁸ There have been concerns about patent examiners abusing generous telework policies.⁴⁹ And the concern about issuance of “bad” patents is longstanding. Indeed, as Professor Duffy notes, early patent office critics included President Thomas Jefferson, as well as leading scientists of the early nineteenth century: “[a]s early as 1812, John Redman Coxe, a patent holder and a professor of chemistry at the University of Pennsylvania, argued that many of the ‘great number of patents annually granted by the United

⁴⁶ The average patent examiner makes \$83,233 per year, with certain senior and supervisory examiners having the potential to make upwards of \$125,000 annually. See Glassdoor Job Search, <http://bit.ly/2oU5Ng1> (last visited May 2, 2017).

⁴⁷ For discussion of patent examiner training from the perspective of a patent examiner, see generally Stephen Key, *A Former Patent Examiner Pulls Back the Curtain at the USPTO*, INC.COM, Dec. 11, 2015, <http://on.inc.com/2pEwfJB>.

⁴⁸ See Gene Quinn, *USPTO Backlog: Patent Pendency Out of Control*, IPWATCHDOG.COM, Apr. 22, 2009, <http://bit.ly/2eLy1VS>.

⁴⁹ See, e.g., Lisa Rein, *Patent Office Filters Out Worst Telework Abuses in Report to Its Watchdog*, WASH. POST, Aug. 10, 2014, <http://wapo.st/2qoFSN8> (reporting that “[s]ome of the 8,300 patent examiners, about half of whom work from home full time, repeatedly lied about the hours they were putting in, and many were receiving bonuses for work they didn’t do”).

States . . . would not be capable of sustaining a just claim for the exclusive privileges acquired; and that the public is really injured under such circumstances.”⁵⁰

Any organization the size of the USPTO by necessity will have its inherent set of problems and inefficiencies. No institution, public or private, is devoid of any mistakes, flaws, or inefficiencies. Some co-authors of this paper believe that many criticisms of the USPTO are meritorious and that the USPTO could undertake simple internal reforms to operate more efficiently. We all agree, however, that creating a second bureaucracy to undo the allegedly flawed work of the first bureaucracy is fraught with the same risks of waste and inefficiency — because it does little to fix the underlying root cause of the problem and because it may create its own set of problems.⁵¹

This new bureaucracy, the PTAB, employs another 300 people in addition to the existing USPTO staff. These administrative patent judges typically receive annual salaries of at least \$135,000, and they are tasked with undoing the work of patent examiners. Rather than fixing problems with the patent examining corps, Congress created a second group of people within the same agency to undo their work. Now there is a large patent examination staff to issue patents and a separate PTAB staff to destroy those patents. What an odd, and inefficient, system.

The PTAB creates another layer of inefficiency. Although Congress envisioned the PTAB as an alternative to litigation for elimination of “bad” patents, in fact when a patent is valuable enough to enforce in court the patent owner will often face a validity challenge before the PTAB *as well*.⁵² This is because a patent may be challenged in both places. Moreover, nothing prevents someone — or multiple parties many acting in a coordinated attack — from subjecting a patent owner to the time, expense, and cost of multiple, serial petitions and proceedings at the PTAB.⁵³

Patents that are economically valuable and will be enforced must go through multiple redundant layers of review. As Professor Greg Dolin explains, “[t]he perverse result is that the ‘best’ rather than the ‘worst’ patents . . . are subject to post-issuance review.” This is not surprising, he explains, because “it makes little sense for anyone to expend any time, money, and effort to invalidate [an economically invaluable patent] either through administrative or judicial proceedings.”⁵⁴ In short, rather than providing a place where bad patents can be quickly eliminated, the PTAB has become an

⁵⁰ Duffy, *supra* note 45 at 1125. See also Greg Dolin, *supra* note 2 at 886-90 (describing extensive and recurring complaints about low-quality patents from early nineteenth century through mid-twentieth century).

⁵¹ Congress created the new PTAB bureaucracy even though the USPTO faces annual funding challenges. The USPTO is “a 100%-user fee funded agency,” but any excess fees collected beyond expenses are returned to the federal government writ large rather than reinvested in hiring more patent examiners, providing examiners with additional training, and/or improving prior art searching capabilities. See INTELL. PROP. OWNERS ASS’N, *USPTO Funding*, <http://bit.ly/2qAkCRf> (last visited May 2, 2017).

⁵² See Saurabh Vishnubhakat, Arti K. Rai, & Jay P. Kesan, *Strategic Decision Making in Dual PTAB and District Court Proceedings* 31 BERKELEY TECH. L. J. (2016), at <https://ssrn.com/abstract=2731002> (finding 70% overlap in defendants being sued for patent infringement and petitioners filing at the PTAB).

⁵³ Petitioners are, however, prohibited from raising the same arguments again in later petitions or district court litigation once a final judgment is reached. See 35 U.S.C. § 315(e).

⁵⁴ Dolin, *supra* note 2 at 912 (concluding that “[t]he perverse result is that the ‘best’ rather than the ‘worst’ patents . . . are subject to post-issuance review.”).

additional hurdle that inventors must clear before being able to stop another party from unlawfully using their inventions.⁵⁵

Finally, there are reasons to be concerned that bias has been built into the decision whether to institute review. The PTAB exists to review reviewing previously granted patents, and the positions and salaries of the administrative patent judges are justified only to the extent they grant petitions for these reviews. A predisposition to grant petitions creates the impression the legislation was warranted, and consistently denying the petitions would surely result in calls for abolishment of the Board. It is hard to avoid the conclusion that all other things equal a panel of judges would incline to grant review, and the high grant rate of petitions — the PTAB grants 2.5 petitions for IPR review for each one that it denies⁵⁶ — suggests this is a concern.

Moreover, the fee structure has the potential to distort decisions because the amount paid to the USPTO depends on the outcome of the decision. A petitioner for inter partes review (IPR) pays \$9,000 up front — but an additional \$14,000 *if* the PTAB institutes review.⁵⁷ We have no reason to think this has affected any particular individual administrative patent judge’s decision whether to institute a proceeding, and of course institution of the proceeding significantly increases the agency’s costs. Nevertheless, in almost any other area of the law, an indirect financial interest in the outcome of a decision of this sort would be viewed as a conflict of interest. It should come as no surprise then that nearly 80% of reviewed petitions are granted.⁵⁸

B. Harassment of Patent Owners in the PTAB

The PTAB review system provides third parties with several ways to harass patent owners, creating a hostile environment for innovation. These mechanisms, as described below, are made possible in part by the fact that *any* individual or company can ask the PTAB to invalidate a patent at any time and for any reason, even if that party has no actual interest in the patent or the underlying invention. Some research shows that nearly a third of IPR petitions challenging a patent as invalid come from parties who have *not* been sued for infringing it.⁵⁹ Some petitioners are not even competitors of the patent owner. We will describe three types of harassment, but these are not the only means of doing so.

⁵⁵ The availability of the PTAB may achieve efficiency in one respect. As noted in section **Error! Reference source not found.I**, some patent owners (“patent assertion entities,” commonly called “trolls”) use the threat of district court litigation costs to extract “cost of defense” settlements. The PTAB allows accused infringers to turn the table and invalidate their patents at a lower cost than full blown district court litigation. The problem is that when the payment demanded is low, the accused infringer may not be willing to spend the money on a petition for post-issuance review. And if low payment demands actually correspond to weaker patents, this means that in fact the *worst* patents are not going through PTAB review.

⁵⁶ See Patrick Anderson, *Inter Partes Review Statistics Are In: How Does Unified Patents Stack Up*, IPWIRE, June 21, 2017, <http://bit.ly/2v54k96>.

⁵⁷ See USPTO, *Fee Schedule*, <http://bit.ly/2b5cAaZ> (last visited May 2, 2017).

⁵⁸ See Dolin, *supra* note 2 at 926.

⁵⁹ Vishnubhakat, Rai & Kesan, *supra* note 52 at 73–74.

1. Multiple, Serial Challenges Against the Same Patent

The PTAB system allows for repetitive challenges of the same patent — whether within the PTAB or in combination with lawsuits in the court system. These duplicative challenges are prevalent and include either multiple parties attacking the same patent or multiple challenges brought by the same party. These duplicative challenges impose immense burdens on patent owners and on the PTAB itself.

Recent research reveals both types of duplicative challenges within the PTAB: (1) multiple parties attacking the same patent and (2) multiple challenges brought by the same party. For inventions in the chemical, electrical, and computers and communication fields, for instance, most of the patents subject to petitions for review at the PTAB are in fact challenged multiple times again and again in filing after filing.⁶⁰ In extreme cases, some patents are subjected to dozens of PTAB attacks in these serial petitions. One recent study illustrated this by comparing the share of *petitioners* who were previously sued (for patent infringement) with the share of *petitions* with at least one petitioner who had been sued on the patent. For patents related to drugs and medical technology, for instance, 48.5% of the petitioners had been previously sued on the patents they challenged, but 70.8% of the petitions had at least one already-sued petitioner.⁶¹ As a practical matter, this means petitioners who are *not* defendants (in court) are joining petitions that have been filed by prior defendants.⁶² At the very least, there are multiple petitioners challenging the same patent, and many were serial filings of petitions. Multiple challenges have real costs. When a company must spend financial resources to repeatedly defend the same patent again and again, it cannot invest those resources in additional innovation, recruitment of talent, or operational expansion, among other things.

One example of these duplicative PTAB filings on a single patent occurred when Microsoft filed three separate IPR petitions against U.S. Patent No. 8,144,182 (the '182 Patent), which is owned by Biscotti, a small business in Texas.⁶³ As early as 2010, Microsoft had been in commercial and legal discussions with Biscotti regarding use of its products and patented technology. Microsoft and Biscotti were in negotiations from 2011 through 2013. When Microsoft chose not take a license to use Biscotti's patented technology, the small start-up company had no other choice but to sue Microsoft in federal court in November 2013.⁶⁴ In addition to its vigorous defense of itself in court, Microsoft filed three petitions at the PTAB in April 2014 to invalidate Biscotti's patent. Despite these efforts, Microsoft lost all three IPR challenges in March 2016.⁶⁵ Although Microsoft is now precluded from making the same invalidity arguments in court, defending the PTAB actions imposed a significant financial and time burden on Biscotti *and* delayed the patent infringement trial

⁶⁰ *Id.* at 45, 70, 90.

⁶¹ *Id.* at 77, 107–108.

⁶² *Id.*

⁶³ See *Microsoft Corp. v. Biscotti Inc.*, Nos. IPR2014-01457, -01458, -01459 (filed Sept. 2014). Microsoft filed three more IPR petitions in April 2015, but these were subsequently terminated.

⁶⁴ *Biscotti Inc. v. Microsoft Corp.*, No. 2:13-cv-01015 (E.D. Tex., filed Nov. 26, 2013), <http://bit.ly/2qoC8LW>.

⁶⁵ See John Council, *Texas Company Beats Microsoft at the 'Death Squad,'* LAW.COM, Mar. 27, 2016, <http://bit.ly/2pEDRvy>.

for almost two years.⁶⁶ The Microsoft story is just one example of many that illustrates how patent owners are subjected to serial filings at the PTAB (three at the same time in the Microsoft case).

The Microsoft story also illustrates how PTAB filings can duplicate ongoing federal court litigation as well. Accused infringers who are already sued for patent infringement in federal court can escape into PTAB review, with its more lenient standards (as detailed in the prior section). In so doing, they delay these court proceedings and impose additional legal and commercial costs on the patent owners, including ongoing costs from infringement. These PTAB petitions are generally filed quite late in the judicial process, after significant investment of judicial resources. Although Congress attempted to discourage this behavior by imposing time limits for filing and forbidding relitigation of issues already decided by the courts, the PTAB has interpreted these legal constraints quite loosely, making these legal rules a very weak protection against harassment.

The dispute between Wi-Fi One and Broadcom illustrates this problem of weakened legal protections against strategic abuse of the PTAB by defendants sued for patent infringement. This case has a long and complicated history, but it has its roots in ongoing litigation between Ericsson and several computer device manufacturers, such as Dell, Toshiba, Intel, and D-Link Systems, among others.⁶⁷ In September 2010, Ericsson sued these companies for patent infringement. While this litigation was proceeding in the courts, Broadcom — which was not a defendant in Ericsson’s lawsuit — filed several petitions for PTAB review of the same patents Ericsson asserted in its lawsuit against Dell and the other computer device manufacturers.⁶⁸ In 2014, Wi-Fi One acquired the patents from Ericsson and was responsible for the litigation going forward. Wi-Fi One also took over for Ericsson in the PTAB proceedings.

After Wi-Fi One took over the patents, it argued to the PTAB that Broadcom was time-barred because of Broadcom’s commercial or legal relationships with some of the original defendants in the district court litigation. The basis for this claim was that Congress imposed in the AIA a “time bar” on IPR petitions: if a petitioner (or its “real party in interest”) was sued in federal court for patent infringement, it has one year to ask for PTAB review. After that, the petition is time barred.⁶⁹ In this case, Wi-Fi One argued that Broadcom failed to disclose all of the real “parties in interest” with respect to its petition. Wi-Fi One wanted to be able to conduct discovery of Broadcom to determine its relationship with the litigation defendants.

The PTAB rejected Wi-Fi One’s argument that Broadcom should be barred under the AIA from filing an IPR petition, or that it should be permitted at least to engage in discovery to determine if Broadcom counted as a “party in interest.” Wi-Fi One appealed to the Court of Appeals for the Federal Circuit, but it lost, but not on the merits. Rather, it lost solely on the basis of a procedural technicality: a prior ruling by the Federal Circuit concluded that a court will not review questions

⁶⁶ The district court litigation is ongoing, and Microsoft has also filed for appellate review of the PTAB decisions.

⁶⁷ There have been many court opinions issued in several years from Ericsson’s lawsuit for patent infringement, but the most prominent is *Ericsson, Inc. v. D-Link, Systems, Inc.*, 773 F.3d 1201 (Fed. Cir. 2014).

⁶⁸ *Broadcom v. Wi-Fi One LLC*, Nos. IPR2013-00601, -00602, -00636.

⁶⁹ See 35 U.S.C. § 315(b).

about whether the PTAB properly instituted an inter partes review.⁷⁰ In other words, the Federal Circuit said it did not have the judicial authority to review the PTAB's decision, regardless of its potentially harassing effect on Wi-Fi One. In January 2017, the Court of Appeals for the Federal Circuit granted *en banc* review of the PTAB post-issuance proceeding decisions in the case,⁷¹ which reveals that some judges recognize the unintended harmful effects of this type of automatic judicial deference to administrative tribunals like the PTAB that are capable of being abused for the purpose of harassing patent owners.

The problem of harassment of patent owners in the PTAB by defendants sued for patent infringement is particularly hard-felt by individual inventors — the innovators working in their garages, like Steve Jobs and Steve Wozniak in the 1970s when they started Apple Computer. One example is father-of-eight Josh Malone and his “Bunch O Balloons” invention: a device that attaches to a water hose and can fill one-hundred, sealed and ready-to-use water balloons within 60 seconds. Josh applied for and received a patent in 2015. With his patent, he ran a successful crowd-funding campaign on Kickstarter to start his business. With his startup funding, he went national, and he ultimately licensed a manufacturing company, ZURU, to make and sell his invention. It has been a smash success, and his invention has been featured on the *Today Show* and *Good Morning America*. As with all success stories, copycats immediately began selling knock-off versions, such as the “Balloon Bonanza” made and sold by TeleBrands.⁷²

Like all innovators, Malone did not take lightly the infringement of his property rights, and he sued TeleBrands in court. The judge issued a preliminary injunction against TeleBrands, prohibiting it from selling its knock-off product. TeleBrands responded in typical fashion by appealing the injunction to the Federal Circuit and it also reissued its infringing product with slight variations and under a different name, “Easy Einstein Balloons.” But TeleBrands also did something that companies sued in court for patent infringement could not do before 2011: it filed a PTAB petition challenging the validity of Malone's patents.

While TeleBrands's court appeal was still pending, the PTAB granted TeleBrands's petition, held a hearing, and canceled one of Malone's patents.⁷³ Later, the Federal Circuit issued its own opinion and it upheld the district court's injunction against TeleBrands, and it rejected the PTAB's ruling as not binding on it.⁷⁴ Unfortunately for Malone, this did not bring an end to the infringement or to the ongoing costs imposed on him in defending his patent. In response to the multiple challenges filed by TeleBrands, the PTAB has continued to review Malone's other patents on his invention. TeleBrands also went back to the trial court and is now arguing that, since the PTAB is invalidating Malone's patents, it should rescind its injunction.

⁷⁰ *Achates Reference Publ'g, Inc. v. Apple, Inc.* 803 F.3d 652 (Fed. Cir. 2015).

⁷¹ *Wi-Fi One LLC v. Broadcom Corp.*, No. 2015-1944 (Fed. Cir., Jan. 4, 2017).

⁷² Lauren Fox, *Plano inventor's \$200M idea sets off 2-year fight with “As Seen on TV” Giant*, DALLAS NEWS, June 20, 2017, <http://bit.ly/2vJdcOd>.

⁷³ See Paul Morinville, *Water Balloons, Weapons of Mass Destruction and the PTAB*, IPWATCHDOG, Jan. 27, 2017, <http://bit.ly/2uv1QPv>.

⁷⁴ *Tinnus Enterprises, LLC v. TeleBrands Corporation*, 846 F.3d 1190 (Fed. Cir. 2017), <http://bit.ly/2uUuz1x>.

In a recent article, Malone reported that he has been forced to spend \$17 million just to defend his patent rights against infringers like TeleBrands.⁷⁵ He writes that “the PTAB simply encourages infringers like TeleBrands to double down on the expense of litigation,” and that this kills individual inventors and small innovator companies who do not have the resources to fight for their patent rights. He asks rhetorically: “What can I tell someone who has an invention and is preparing to scrape together \$5,000 to \$10,000 to file a patent application? . . . If a patent’s costs are in excess of \$17 million, and it still is not secure, how can we innovate?”⁷⁶

As a result of multiple PTAB filings challenging an individual inventor’s patents, a classic American success story has become a legal nightmare. Malone’s tale is all too typical, as accused infringers and commercial competitors now exploit the PTAB as a way to harass inventors, small businesses, and other innovators. Paul Michel, the former Chief Judge of the Federal Circuit, recently testified to Congress that changes to the patent laws like the PTAB have made patents the “sport of kings,” and that the “impacts on start-ups, research universities, university spin-offs, small and medium sized businesses and nearly all but giant multi-national corporations has been devastating.”⁷⁷

2. Settlement Extraction

Another tactic used by some companies in abusing the PTAB to harass patent owners is in filing of a PTAB petition by a defendant in a previously filed patent infringement lawsuit solely for the purpose to extract a quick settlement in the lawsuit, regardless of the merits of the actual PTAB challenge. This strategy works because there are no legal risks for a company filing a petition, but the risks for the patent owner are very high. The petitioner faces no legal consequences whatsoever — if it loses, it only loses the relatively low cost of filing the petition and (potentially) of the hearing before the tribunal itself. By way of contrast, the risk to the patent owner is enormous: its patents can be invalidated and thereby destroying the property rights it is using in licensing or manufacturing in the marketplace. Given the very high “kill rates” at the PTAB, this risk is very real. Thus, as recently confirmed by an empirical study, the PTAB has quickly become a tool used defendants in seeking leverage against patent owners who sue them for infringement.⁷⁸ In these cases, defendants are essentially asking for a premium from patent owners in settling lawsuits in exchange for the defendants not to seek to invalidate the patents at the PTAB.

Settlements at the PTAB and elsewhere are typically not public records, and so we must often infer the existence and terms of a settlement. Professor Dolin has detailed examples in which this has occurred for patent owners working throughout the innovation economy.⁷⁹ In addition to Professor Dolin’s examples from the pharmaceutical sector, Professors Erik Hovenkamp and Jorge Lemus have also theorized that pharmaceutical companies are settling lawsuits to avoid the specter of being

⁷⁵ Josh Malone, *\$17 Million: The real and staggering cost to patent in the US in the PTAB age*, IPWATCHDOG, July 16, 2017, <http://bit.ly/2v5oGis>.

⁷⁶ *Id.*

⁷⁷ Paul R. Michel, Testimony Before Committee on the Judiciary, U.S. House of Representatives, *The Impact of Bad Patents on American Business*, July 13, 2017, <http://bit.ly/2tGQhGN>.

⁷⁸ See Vishnubhakat, Rai & Kesan, *supra* note 52.

⁷⁹ See Dolin, *supra* note 2 at 944-947.

forced before the PTAB tribunal in review the validity of their patents.⁸⁰ For example, they infer that this occurred in a patent dispute between Metrics Inc. and Senju Pharmaceutical Company.⁸¹ After Senju sued Metrics for patent infringement of Prolensa, a drug used to treat side effects from cataract surgery, Metrics filed a PTAB petition challenging the validity of Senju's patent. After the PTAB granted the petition and instituted an official proceeding to review the patent's validity, the parties settled the patent infringement lawsuit.⁸² Although the settlement order does not mention any payment from Senju to Metrics, its terms lead Hovenkamp and Lemus to conclude that a settlement payment was very likely.⁸³ If so, any lawyer or economist can reasonably conclude that Metric's successful filing of the PTAB petition against Senju's patent played a role in this additional payment by Senju to Metric.

Another example in which the PTAB was used to try to extort a payment from a patent owner arose from VirnetX's successful patent infringement lawsuit against Apple. This case is notable, if only because it involved an entirely separate company, New Bay Capital LLC.⁸⁴ After VirnetX won a \$368 million verdict against Apple for infringing four of its patents, New Bay Capital contacted VirnetX and demanded that it pay 10% of its verdict from the Apple lawsuit (approximately \$37 million dollars) in exchange for New Bay Capital *not* filing a PTAB petition against VirnetX's four patents.⁸⁵ When VirnetX refused to pay, New Bay Capital followed through on its threat. It filed petitions at the PTAB challenging the four VirnetX patents.⁸⁶ Ultimately, New Bay Capital withdrew its PTAB petitions after VirnetX filed a "deluge of subpoenas . . . aimed at determining [New Bay Capital's] motives."⁸⁷ Although unsuccessful in extracting a pre-filing settlement payment, New Bay Capital's strategy may have happened in other unreported cases or it may be further copied by other companies seeking to harass patent owners who successfully enforce their patents in court.

3. PTAB Petitions Filed to Manipulate Stock Prices of Patent Owners

Finally, companies and organizations may use the PTAB in order to manipulate the market and reap huge financial rewards — imposing unjustified costs on patent owners, who are simply collateral damage in their profit schemes.

Using PTAB petitions to profit in the financial markets works because investors pay close attention to patent disputes. A court decision about patent validity or infringement can shift the stock price of

⁸⁰ Erik Hovenkamp and Jorge Lemus, *Reverse Settlement and Holdup at the Patent Office*, Working Paper, *23–*25 (Nov. 2016), <http://bit.ly/2psqghI>.

⁸¹ *Id.* at 24.

⁸² No. IPR2014-01041, Paper 2028 (P.T.A.B. July 1, 2015).

⁸³ Hovenkamp & Lemus, *supra* note 80 at *24–*25.

⁸⁴ Greg Dolin, *The Cost of Patent "Reform": The Abuse of the USPTO's Administrative Review Programs*, CPIP Policy Brief (Dec. 2014), <http://bit.ly/2psrLFg>; Michelle Carniaux and Michael E. Sander, *The Curious Case of New Bay Capital LLC and VirnetX Inc.*, IPR BLOG, Nov. 22, 2013, <http://bit.ly/2pU0Sfb>.

⁸⁵ Dolin, *The Cost of Patent "Reform," supra* note 84 at 8; Ryan Davis, *Co. Accused of AIA Shakedown Asks to Drop USPTO Review*, LAW360, Oct. 30, 2013, <http://bit.ly/2qoZMaP>.

⁸⁶ Nos. IPR2013-00375, -00376, -00377, -00378.

⁸⁷ Dan Prochilo, *USPTO Tosses 'Shakedown AIA Reviews of VirnetX Patents'*, LAW360, Nov. 13, 2013, <http://bit.ly/2oU4M7r>; Davis, *AIA Shakedown, supra* note 85.

a winning or losing firm even more than the initial grant of a patent can.⁸⁸ Investors also know that the PTAB applies looser standards than the courts, which means that filing a petition at the PTAB creates a significant risk of patent invalidation. As a result, challenging a patent before the PTAB can cause significant harm to a patent-owning company's stock price. To exploit this, a challenger can short-sell the patent owner's stock just before filing its petition at the PTAB, knowing that the stock price will tumble and it will yield a profit on the short sale — even if the challenger knows its claims have no merit.

The most notorious example of a hedge funder manager exploiting the PTAB in this fashion is Kyle Bass, head of Hayman Capital Management LP.⁸⁹ By December 31, 2016, Bass had filed over 30 petitions at the PTAB, seeking to invalidate patents held by many pharmaceutical companies. Bass teamed up with another controversial lawyer, Erich Spangenberg, and together they have filed their petitions under the name “Coalition for Affordable Drugs.” They claim that they seek to reduce pharmaceutical prices by invalidating patents and allowing generic competitors to enter the market.⁹⁰ They are not, however, motivated by an altruistic desire to protect Americans from high drug prices. Bass, on behalf of his partners and investors, also often short sells the stocks of the company he is targeting at the PTAB.⁹¹ By short selling the stock, Bass makes money if the company's stock price decreases. In several instances, the mere filing of a petition with the PTAB caused significant negative effects on a company's share prices.⁹²

For example, after Bass filed two PTAB petitions against Acorda Therapeutics and Shire, respectively, each of the companies' share prices dropped.⁹³ Acorda Therapeutics's share price fell 9.7% and 4.8% after Bass filed two PTAB petitions in February 2015, and Shire's share price fell 2.7% after Bass filed a petition in April 2015.⁹⁴ For an institutional investor in charge of investing hundreds of millions of dollars, even small price fluctuations can produce millions, if not hundreds of millions, in profits.⁹⁵ For the affected companies, however, it means significant losses: Acorda lost approximately \$4 million and \$2 million respectively, and Shire lost a stunning \$14.9 million. These types of losses have real consequences for companies and ultimately for the public; in the

⁸⁸ Alan C. Marco & Saurabh Vishnubhakat, *Certain Patents*, 16 YALE J. L. & TECH. 103, 104 (2013), <http://bit.ly/2oU4UDX>.

⁸⁹ See Joseph Walker & Rob Copeland, *New Hedge Fund Strategy: Dispute the Patent, Short the Stock*, WALL ST. J., Apr. 7, 2015, <http://on.wsj.com/2usPWqq>.

⁹⁰ Gretchen Morgenson, *Working to Lower Drug Costs by Challenging Questionable Patents*, N.Y. TIMES, Nov. 27, 2015, <http://nyti.ms/1YceM7k>.

⁹¹ *Id.*

⁹² See J. Gregory Sidak & Jeremy O. Skog, *Attack of the Shorting Bass: Does the Inter Partes Review Process Enable Petitioners to Earn Abnormal Returns?*, 63 UCLA L. REV. DISC. 120, 135–39 (2015), <http://bit.ly/2psy38b> (conducting an analysis of the performance of a company targeted by Bass in comparison with the S&P 500); see also Stephen Foley & David Crow, *Kyle Bass Returns Funds Amid Retreat on Pharma Shorting Campaign*, FIN. TIMES, Feb. 23, 2016, <http://on.ft.com/2quo2pb>.

⁹³ Sidak & Skog, *supra* note 92 at 138.

⁹⁴ *Id.* at 131.

⁹⁵ Kyle Bass reportedly raised \$700 million from investors seeking to profit from this short-sale PTAB petition strategy. See Foley & Crow, *supra* note 92.

pharmaceutical sector, it means lost jobs and reduced spending on the research and development necessary to create new drugs.

The PTAB has definitively ruled that petitions filed by Bass and others seeking to profit from this manipulation of a company's stock price is legitimate. Celgene Corporation, one of the victims of Bass's short-sale strategy at the PTAB, filed a motion with the PTAB requesting that it prohibit non-innovation-motivated petitions by Bass and others. In response, the PTAB ruled in favor of Bass, concluding that "an economic motive for challenging a patent claim does not itself raise abuse of process issues. We take no position on the merits of short-selling as an investment strategy other than it is legal, and regulated."⁹⁶

Although Bass may have since renounced his strategy,⁹⁷ other companies have taken up his practice of profiting from filing PTAB petitions to manipulate a company's stock price. For example, New Bay Capital, which tried and failed to extract a settlement from VirnetX (as described above), probably benefited from filing its petition at the PTAB. New Bay Capital is a hedge fund, not a company working in the innovation industry. After New Bay Capital filed its petition against VirnetX, its stock fell by 25%, and New Bay Capital is suspected of having shorted VirnetX's stock.⁹⁸ Moreover, New Bay Capital was not alone in filing potentially lucrative petitions against VirnetX. Another hedge fund, Mangrove Partners Master Fund Ltd., also filed PTAB petitions challenging VirnetX's patents. The PTAB granted these petitions and instituted proceedings to review the patents despite pleas by VirnetX that Mangrove Partners Master Fund sought only to profit in the stock market from the impact of the petition.⁹⁹ VirnetX claimed that "Mangrove held a short position of 270,000 shares of VirnetX stock. A month after the petitions were filed, when any movement in the stock price caused by the challenge would have subsided, Mangrove no longer held a short position. . . ."¹⁰⁰

Unfortunately, this explicit harassment of companies working in the innovation industries — the manipulation of a company's stock price — is tacitly endorsed by the PTAB, which maintains that motives of a petitioner are immaterial to its decisions. When patent owners send demand letters that misrepresent their motives in asserting that someone is infringing a patent, they have been rightly sanctioned by the Federal Trade Commission.¹⁰¹ In court cases, judges regularly sanction patent owners for improper motives and bad behavior in suing companies for patent infringement.¹⁰² Yet,

⁹⁶ Gene Quinn, *Kyle Bass IPR challenge moves forward, what does it mean for patent reform?*, IPWATCHDOG, Oct. 12, 2015, <http://bit.ly/1jltJ4U> (quoting *Coalition for Affordable Drugs VI, LLC v. Celgene Corporation*, Nos. IPR2015-01092, -01096, -01102, -01103, -01169 Paper No. 18 (filed Sept. 25, 2015)).

⁹⁷ See Foley & Crow, *supra* note 92.

⁹⁸ Dolin, *The Cost of Patent "Reform," supra* note 84 at 8.

⁹⁹ Ryan Davis, *Hedge Fund Gets PTAB to Eye VirnetX Patents in Apple Case*, LAW360, Oct. 7, 2015, <http://bit.ly/1GBJmK3>.

¹⁰⁰ *Id.*

¹⁰¹ See Press Release, Federal Trade Commission, *FTC Settlement Bars Patent Assertion Entity From Using Deceptive Tactics* (Nov. 6, 2014), <http://bit.ly/2tHm22m>.

¹⁰² See, e.g., Kevin Penton, *Comcast, Other Cable Cos. Get \$51M Fees In Rembrandt MDL*, LAW360, Mar. 3, 2017, <http://bit.ly/2u2MVfu> (judge sanctions patent owner for having "violated ethical rules of conduct by paying its fact witnesses . . . while also engaging in 'widespread' document spoliation over a number of years"); Kelly

the PTAB knowingly permits the abuse of its legal process by individuals or companies who merely seek to profit by depressing a patent owner's stock prices, and the PTAB is not going to stop it.

C. Extensive Uncertainty for Patent Rights with Harmful Implications

Even more detrimental than the specific harmful practices and decisions at the PTAB described above, the total effect of these problems is harming innovation by creating substantial uncertainty about patent rights. Oddly enough, this conflicts directly with the rationale for creating the PTAB in the first place. Congress intended to improve the patent system when it enacted the AIA. In theory, the creation of post-issuance review proceedings could have fostered a higher level of certainty and confidence in the patent system. This in turn could have had a net positive effect on innovation.¹⁰³ The reality, however, has been the exact opposite. The uncertainty in patent rights generated by the PTAB diminishes incentives for the individuals and companies working in the innovation economy, as it creates an additional layer of bureaucracy to navigate when these patent owners seek to commercialize or protect their inventions.

Innovation is itself built on layers of technological and commercial uncertainty. The research and development process is typically a winding path, filled with many false starts, dead ends, and failures, before the inventor finally reaches a workable invention. This is why average pharmaceutical R&D expenditures underlying each drug approved by the Federal Drug Administration is \$2.6 billion.¹⁰⁴ Even if an inventor comes up with a workable invention, and continues to innovate through the development of a commercial product, there is still no guarantee that the market will embrace the product, as Microsoft discovered with its estimated \$10 billion R&D in the Windows Vista operating system.¹⁰⁵ Even if the inventor, venture capitalist, or company invests in this development work and the necessary market research, many other companies are vying for the public's attention and dollars. And if the inventor manages to launch something desirable in the market, others immediately try to copy it and quickly; this is a time-honored practice, most recently and dramatically exemplified in the smartphone litigation between Apple and Samsung after Steve Jobs declared "I'm willing to go thermonuclear war on this."¹⁰⁶ Without a patent, anyone can freely copy a new invention, and yet obtaining a patent on a new invention is not guaranteed, and even after an inventor survives the patent application process, it is never a guarantee of market success.

The entire process, from invention to securing property rights in the invention with a patent to development and launch of a product, requires extensive resources — both human capital and money. It also can take a long time. For example, human resources must be spent during the initial conceptualization of the invention. Resources must be spent sorting through ideas and deciding

Knaub, *Tech Co. Scores \$1.3M Attorneys' Fee Win In Patent Case*, LAW360, Oct. 4, 2016, <http://bit.ly/2usVX6D> (judge sanctions patent owner for having "played semantic games regarding what its machines did").

¹⁰³ Dolin, *supra* note 2 at 881–82.

¹⁰⁴ See DiMasi et al., *supra* note 8 (citing 2016 economic study that average cost of pharmaceutical R&D represented in each drug approved for use by the FDA in the healthcare market is approximately \$2.6 billion).

¹⁰⁵ See Takahashi, *supra* note 9; Manners, *supra* note 9.

¹⁰⁶ See Tim Bajarin, *Why Steve Jobs Went "Thermonuclear" Over Android*, PC MAGAZINE, Dec. 1, 2014, <http://www.pcmag.com/article2/0,2817,2472642,00.asp>.

which concepts warrant additional consideration. In research and development, an inventor may invest significant resources creating prototypes, designing market tests, and identifying viable go-to-market strategies. And yet, despite all of this investment, the result may still be — perhaps early on, perhaps much later in the process — that the invention is a flop. For every invention that is successful, there are hundreds, if not thousands, of ideas that will not be developed or that end in failure.

Layering extensive *legal uncertainty* about patents on top of the uncertainties inherent in invention, R&D, and commercialization creates a perfect storm in which the incentives that drive innovators and inventors to feed the U.S. innovation economy no longer function. Despite Congress’s intent in the AIA law that the PTAB would improve patent quality and enhance confidence in the patent system, the reality has been the opposite. Uncertainty has increased, for at least three reasons.

First, the basic approach of the PTAB adds uncertainty. Rather than fixing the problem of “bad” patents issued by the USPTO, such as ensuring full funding for the USPTO or establishing better training processes for patent examiners, Congress created an additional layer of bureaucracy within the same agency to do the same task a second time. Basically, Congress created a new administrative tribunal to review the errors committed by another administrative agency. Moreover, as explained earlier, the PTAB often invalidates the patent because its primary mission is to correct mistakes and to cancel bad patents. As a result, an examiner at the USPTO reviews an inventor’s application and reaches one conclusion, and then the PTAB reviews the same patent again after the patent is issued and is commercialized successfully or asserted against an alleged infringer, and the PTAB reaches the opposite conclusion. It is not surprising that a system designed in this matter would sow uncertainty with inventors and the innovation community.

Second, the fact that patents are subject to multiple challenges serially filed one after the other leads to even greater uncertainty. The PTAB has been touted for its low cost and ease of use compared to federal courts. This is a double-edged sword. On the one hand, it attracts petitioners and thus has made the PTAB very popular — it is now one of the busiest institutions at which to litigate over patent rights.¹⁰⁷ Thousands of petitions have been filed.¹⁰⁸ On the other hand, “[t]he easier it is to invoke ... procedures, the higher the chance that they will be invoked abusively.”¹⁰⁹ Today, someone who wishes to challenge an issued patent (or harass a patent owner) has many options — multiple review programs at the PTAB and one can always challenge a patent in federal court (at the same time). As described earlier, the statistics confirm that innovators are now subject to PTAB challenges from multiple parties at the same time or in rapid-fire sequence. Moreover, the more successful the patented innovation is in the marketplace, the more likely the patent will be the subject of PTAB challenges.

¹⁰⁷ J. Steven Baughman, et al., *Coordinating PTAB and District Court Litigation*, PRACTICAL LAW THE JOURNAL (Dec. 2014), <http://bit.ly/2qugZNI>.

¹⁰⁸ USPTO, *Patent Trial and Appeal Board Statistics* (April 30, 2016), <http://bit.ly/25sk3b8>.

¹⁰⁹ Dolin, *supra* note 2 at 883 (citing Judith Resnik, *Precluding Appeals*, 70 CORNELL L. REV. 603, 613 (1985), <http://bit.ly/2p1RBfZ>).

Third, the surprising results of the PTAB's proceedings — the incredibly high kill rate for patents brought before this administrative tribunal — have created uncertainty. As of spring 2016, almost ten thousand patent claims had been invalidated,¹¹⁰ and the numbers have only increased since then. While Congress intended the PTAB to weed out bad patents, thereby raising confidence in the patents that remain, the invalidation of so many patents by the PTAB has had the opposite effect. It could almost lead one to believe that no issued patent is of high quality.

A closely related concern is the inconsistency in results when the same patent is reviewed for its validity by both the PTAB and the federal courts. The Federal Circuit recently upheld a PTAB decision to invalidate a patent, despite a federal court and the Federal Circuit itself both having had reviewed and upheld previously the validity of that same patent.¹¹¹ Indeed, the Supreme Court has stated that “the possibility of inconsistent results is inherent” to the PTAB's design.¹¹² The high invalidation rate, and the fact that the PTAB reaches results that a federal court would not reach, affects not only patent owners — who lose some or all of their expensive, and hard-earned, patent rights — but also the consuming public, whose distrust of patents can only grow in light of these facts.

From all of this, it is easy to understand why patent owners working in the innovation economy, such as individual inventors, universities, startups, and others, report that they have little certainty in their property rights. Venture capitalists and other commercial entities also now widely report that patents no longer provide stable and effective property rights on which to base their investment decisions. A representative from the National Venture Capital Association made this point about the destructive nature of legal uncertainty in patents in testimony before Congress in 2015: “[M]aking it more costly to enforce patents . . . will have the unintended consequence of diminishing — if not extinguishing — the only true incentive that thousands of innovators presently have to invest the necessary time, money and other resources needed to create a new company from scratch. . . . [and] will have a chilling effect on investment in patent intensive companies, which in turn will have a depressing effect on innovation in general.”¹¹³

Extensive legal uncertainty is never a good thing. Adding extensive legal uncertainty to the patent system is disastrous, and the market has borne this out: The value of patents has plummeted since the enactment of the AIA. Some estimate the losses simply from the threat of invalidation — the price of uncertainty — as equaling or exceeding a trillion dollars.¹¹⁴

¹¹⁰ USPTO, *supra* note 108, <http://bit.ly/25sk3b8>.

¹¹¹ *See Novartis AG*, Nos. 16-1678, -1679.

¹¹² *Cuozzo Speed*, 136 S. Ct. at 2146.

¹¹³ *See* National Venture Capital Association, Press Release, *Patent Attorney Robert Taylor Represents NVCA at Congressional Hearing on Patent Litigation Reform* (Feb. 12, 2015), <http://bit.ly/2uGQ6L8>.

¹¹⁴ Richard Baker, *America Invents Act Cost the US Economy over \$1 Trillion*, PATENTLYO, June 8, 2015, <http://bit.ly/1Udw5wV>.

IV. Possible Reforms to Consider That Address the PTAB's Regulatory Overreach

Given the problems identified earlier, the following is a list of possible reforms that could be adopted either by new legislation enacted by Congress or by regulation at the PTO. This list is not intended to be complete or exclusive of other potential solutions. Rather, it is intended simply as a suggestion for how to move forward in addressing the overall problem of regulatory overreach detailed in this white paper.

- **Require the PTAB to Obey the Decisions of Courts**
 - As an administrative tribunal, the PTAB has repeatedly canceled patents that federal courts have previously held to be valid. This violates the separation of powers in the Constitution, as an administrative tribunal created by Congress and operating in the Executive Branch is overruling a court in the Judicial Branch authorized under the Constitution to judge the validity of a federal property right.
- **Require the PTAB to Adopt the Same Legal Standard for Interpreting Patents as Used by Federal Courts**
 - One reason for the PTAB's contradictory decisions relative to federal courts is that the PTAB is using a different legal standard for interpreting patents than that used by federal courts. The PTAB uses a standard that has a much, much lower evidentiary and legal hurdle to overcome in invalidating a patent, which a former chief patent judge at the PTAB justified in part on the ground that the PTAB is supposed to engage in "death squadding of patents." In addition to making it easier for the PTAB to cancel patents as compared to the review of patents by courts, this creates unnecessary legal uncertainty for owners of these property rights.
- **Require Due Process Protections for Inventors in Instituting PTAB Proceedings**
 - Prohibit the current practice by the PTAB in having the same administrative patent judges rule on a petition to institute a proceeding as who then sit in judgment of the patent during the PTAB hearing. This is a basic violation of due process rights under the Constitution.
- **Require Due Process Protections for Inventors During PTAB Proceedings**
 - Mandate that patent owners should have the same procedural right to present evidence about the patent's validity as they have in federal court.
- **Protect the Right of Patent Owners to Amend their Patents in PTAB Proceedings**
 - The PTAB has failed to deliver on its promise that it would improve patents, invalidating many patents and creating innovation-killing uncertainty. Although the AIA specifically provided that patent owners have the right to amend their patents to make the patents valid if the PTAB found them initial patent to be invalid, the PTAB has effectively never granted requests by patent owners to amend their patent. In addition to denying a legal right expressly provided to patent owners in the AIA statute creating the PTAB, the right to amend is important as a matter of policy. It is a key feature of successful post-issuance review programs, such as the one used in Germany, which was a model for the creation of PTAB in the legislative discussions leading up to the enactment of the AIA of 2011.

- **Enact Rigorous Requirements for Filing PTAB Petitions to Stop Abuse of PTAB Processes for Manipulation of Stocks, Extortion of Patent Owners, and Harassment of Inventors**
 - The current lack of any standing requirements has permitted abusive PTAB petitions filed, among others, by lawyers seeking leverage in unrelated cases involving patent owners, by hedge fund managers seeking to profit from shorting stocks of patent owners (e.g., Kyle Bass), by individuals seeking to extort payments from patent owners for abandoning the petition, and by activist organizations merely seeking to undermine as many patents as they can. This places a cloud on the title of all patents, as any patent can be petitioned at the PTAB over and over and over again, making it impossible for inventors, venture capitalists and companies working in the innovation industries to work from stable and effective property rights in inventions.
- **Authorize the PTAB to Impose Sanctions on People or Companies Filing Petitions for Harassment or Other Improper Motives, or for Improper Behavior During a PTAB Proceeding**
 - In addition to requiring standing to file a PTAB petition to restrain parties filing petitions for the improper motives, the PTAB and reviewing courts must have the authority to enforce these requirements. Courts historically have had the longstanding inherent authority to sanction parties who engage in improper behavior in either filing a lawsuit or during a lawsuit. The PTAB and reviewing courts on appeal must be given the express statutory authority to reign in the regulatory overreach via abusive filings of petitions themselves.
- **Eliminate Judicial Deference for the PTAB**
 - Courts should no longer defer to the PTAB in its decisions as to how it is structured and how it operates (this is known in the administrative law as Chevron deference). The Court of Appeals for the Federal Circuit has granted the PTAB Chevron deference, and this has severely exacerbated the rule of law, due process, and other constitutional and other legal problems arising from the regulatory overreach of this administrative tribunal.

V. Conclusion

Property rights provide the foundation for a flourishing free market and successful innovation economy because they provide a stable and effective platform from which individuals can create, use and trade the fruits of their productive labors. Today, patents are anything but stable. The creation of the PTAB in the USPTO to review and cancel the patents that the USPTO just issued to innovators undermines the patent system that has been the engine of the U.S. economy for more than two hundred years. The uncertainty created by the PTAB will change investment decisions in this country going forward. And because the R&D and investment decisions of today will affect innovation for years in the future, the full damage wrought by the PTAB may not be appreciated for decades.

Americans are an inventive people, not because of any unique DNA but because of a culture of innovation supported by a robust patent regime. Reduce the incentives for innovation, and plainly

there will be less of it. Because our competitive edge in the world economy emanates not from low labor rates but from U.S. innovation, we are “eating our seed corn” if we dangerously devalue the incentives to innovate by making it excessively easy to invalidate patents. Abraham Lincoln, the only President who received a patent for his invention in 1848 of a method of raising ships over shoals, said that the U.S. patent system “added the fuel of interest to the fire of genius.” We should not risk extinguishing the fire of innovation by reducing the fueling incentive a patent can create.