
INSTITUTIONAL DESIGN IN PATENT LAW: PRIVATE PROPERTY RIGHTS OR REGULATORY ENTITLEMENTS

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INTRODUCTION

Judges often observe that the U.S. patent system arose from the English practice of the Crown conferring commercial monopoly privileges under its prerogative power.¹ This is undeniably true—just as it is undeniably true that the American republic arose from the English constitutional monarchy and parliamentary system of government. After the American Revolution, the U.S. retained aspects of the English political and legal systems, such as the common law,² but it also implemented innovative structural and substantive changes in its new political and legal institutions. Its patent system represented the same fundamental break from the English patent system as

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1. See *Graham v. John Deere Co.*, 383 U.S. 1, 5 (1966) (“[The Copyright and Patent Clause] was written against the backdrop of the practices—eventually curtailed by the Statute of Monopolies—of the Crown in granting monopolies to court favorites in goods or businesses which had long before been enjoyed by the public.”); see also *Oil States Energy Servs., LLC v. Greene’s Energy Grp., LLC* 138 S. Ct. 1365, 1377 (2018) (“The Patent Clause in our Constitution ‘was written against the backdrop’ of the English system.” (quoting *Graham v. John Deere Co.*, 383 U.S. 1, 5 (1966))); *Bilski v. Kappos*, 561 U.S. 593, 626–27 (2010) (Stevens, J., concurring) (“The Constitution’s Patent Clause was written against the ‘backdrop’ of English patent practices, and early American patent law was ‘largely based on and incorporated’ features of the English patent system.” (citations omitted)).

2. See Ford W. Hall, *The Common Law: An Account of Its Reception in the United States*, 4 VAND. L. REV. 791, 798–800 (1951) (identifying the fact that all of the original thirteen states except Connecticut enacted either reception statutes or provided expressly in their new state constitutions for the authoritative force of the common law).

other U.S. political and legal institutions.³

The early U.S. patent system was a legal system in transition, but with the first Patent Act of 1790, there were fundamental differences between the U.S. and English patent systems. This divergence reflected a fundamental choice in institutional design. It is the core difference between defining a patent, on the one hand, as a private property right or, on the other hand, as a regulatory entitlement—between securing rights through private law doctrines and legal institutions constrained by the rule of law versus granting rights as matters of public policy and through discretionary decision-making processes in the political organs of the government.⁴

This key distinction is often obscured by the oft-repeated judicial gloss about the provenance of the U.S. patent system. A single article cannot address all historical and institutional details, but, as historians and economists have recognized, the U.S. patent system generally diverged from the English patent system as a matter of institutional design by defining patent rights largely within the domain of private law.⁵ By the late nineteenth century, there was some convergence among jurisdictions, as other countries adopted aspects of the U.S. private law model for their patent systems, such as providing enforceable property rights that are alienable in the marketplace for commercial development. The U.S. patent system has been the legal “gold standard” in applying to patents basic precepts of the rule of law, securing them in stable legal institutions such as a Patent Office that followed definitive procedures in first examining and then publishing the patents it

3. See B. Zorina Khan, *Trolls and Other Patent Inventions: Economic History and the Patent Controversy in the Twenty-First Century*, 21 GEO. MASON L. REV. 825, 830 (2014) (“The American patent system was deliberately designed to be different [from the British patent system].”); see also Adam Mossoff, *Who Cares What Thomas Jefferson Thought About Patents? Reevaluating the Patent “Privilege” in Historical Context*, 92 CORNELL L. REV. 953, 967 (2007) (“The provenance of the American patent system, as the American property system generally, is found in the English feudal system. . . . But an American patent in the late eighteenth century was radically different from the royal monopoly privilege dispensed by Queen Elizabeth or King James in the early seventeenth century.”).

4. See B. ZORINA KHAN, *THE DEMOCRATIZATION OF INVENTION: PATENTS AND COPYRIGHTS IN AMERICAN ECONOMIC DEVELOPMENT, 1790–1920*, at 51 (Claudia Goldin ed., 2005). In contrast to British patent law, “U.S. doctrines emphatically repudiated the notion that the rights of patentees were subject to the arbitrary dictates of government.” *Id.*

5. See generally *id.* (examining the unique institutional and legal approach in the United States in securing patents as private property rights as compared to England and France, and identifying the positive impact this had on the U.S. innovation economy in the nineteenth century). For further discussion on the shift in defining and securing patents as private property rights in the United States, see Oren Bracha, *The Commodification of Patents 1600–1836: How Patents Became Rights and Why We Should Care*, 38 LOY. L.A. L. REV. 177, 181 (2004) (“Patents changed from case-specific discretionary policy or political grants of special privileges designed to achieve individually defined public purposes, to general standardized legal rights conferring a uniform set of entitlements whenever predefined criteria are fulfilled.”).

issued to inventors, and using an independent judiciary to resolve infringement and validity disputes over issued patents.⁶

These comparative choices in institutional design are significant because, in the early twenty-first century, patent systems are diverging again. This time, however, the United States is shifting to a conception of patents as regulatory entitlements—defining patents as public rights within the administrative state, denying judicial remedies for private property rights to patent owners, and denying patent protections to new technologies, among other changes. Meanwhile, other jurisdictions are creating or reforming their patent systems as private law systems in order to promote their own innovation economies. This includes (surprisingly) China, which has moved aggressively in recent years to create a patent system and a supporting legal infrastructure as a key foundational pillar in its efforts to create its own growing innovation economy.

This Article will address the legal and economic implications of the institutional design choice in defining patents as private property rights versus public regulatory entitlements. First, it will identify the historical divergence of the U.S. patent system from the English patent system in two key respects: (1) in securing patents as private property rights by providing effective judicial remedies against infringers, both private citizens and public officials, and (2) in securing the alienation of patents in the marketplace on legal and commercial par with other property rights. It will detail these two fundamental pillars of a private property right in historical court decisions and in other primary sources in the historical record. Second, it summarizes the economic and historical evidence that has consistently found a causal relationship between a private law model for patent systems and growing innovation economies and flourishing societies. Third, it identifies the convergence in the nineteenth century around elements of the U.S. patent system, how this convergence was driven in part by the economic success of the U.S. patent system, and that the United States is now diverging from its historical private law model while other jurisdictions are retaining theirs or are adopting the private law model in their own reforms of their respective patent systems.

6. See Kevin Madigan & Adam Mossoff, *Turning Gold Into Lead: How Patent Eligibility Doctrine is Undermining U.S. Leadership in Innovation*, 24 GEO. MASON L. REV. 939, 940 (2017) (identifying the “gold standard” label for the U.S. patent system as compared to the rest of the world).

I. THE U.S. PATENT SYSTEM: A PRIVATE PROPERTY RIGHTS MODEL

From the beginning of the U.S. patent system, there has been a vibrant debate about the nature of patent rights. Some courts and commentators classified patents as monopoly privileges.⁷ Others classified patents as private property rights.⁸ As with all legal doctrines, one can identify judges or commentators who support one side or the other of the debate. Sometimes, the private property or monopoly privilege perspectives are expressed by the same person in a single legal document, such as in Chief Justice William Taft's 1923 decision in *Crown Die & Tool Co. v. Nye Tool & Machine Works*.⁹ There, Chief Justice Taft first explained that the "title" in a patent secures the classic "common-law right . . . of exclusive enjoyment," but then he later shifted in framing a patent as a statutory "monopoly" and concluded that "[i]t is not safe . . . to follow implicitly the rules governing a transfer of rights in a chose in action at common law."¹⁰

Yet Chief Justice Taft was wrong in his second claim that U.S. patent law did not incorporate the legal rules from the common law of property or contract. In creating the foundational doctrines that comprised U.S. patent law in the nineteenth century, courts explicitly applied to patent owners the same common law rules governing transfers of other property rights, as well as imported into patent law other private law doctrines in property, contract, and tort more generally. This is not an *ex post* observation by historians tantamount to the accounts by law and economists of how the common law implicitly achieved efficiency via private law doctrines.¹¹ Nineteenth-

7. See, e.g., *United States v. Am. Bell Tel. Co.*, 167 U.S. 224, 239 (1897).

[T]he purpose of the patent is to protect him in this monopoly, not to give him a use which, save for the patent, he did not have before The patentee, so far as a personal use is concerned, received nothing which he did not have without the patent, and the monopoly which he did receive was only for a few years.

Id.

8. See, e.g., *Seymour v. Osborne*, 78 U.S. 516, 533 (1870) ("Inventions secured by letters patent are property in the holder of the patent, and as such are as much entitled to protection as any other property, consisting of a franchise, during the term for which the franchise or the exclusive right is granted."); *Rubber Co. v. Goodyear*, 76 U.S. 788, 798 (1869) ("[T]here is no distinction between . . . a patent [for land] and one for an invention or discovery.").

9. *Crown Die & Tool Co. v. Nye Tool & Mach. Works*, 261 U.S. 24, 33-44 (1923).

10. *Id.* at 36-41.

11. See RICHARD A. POSNER, *ECONOMIC ANALYSIS OF LAW* 6 (1973).

[M]any areas of the law, especially the great common law fields of property, torts, and contracts, bear the stamp of economic reasoning. Few legal opinions, to be sure, contain explicit references to economic concepts and few judges have a substantial background in economics. But the true grounds of decision are often concealed rather than illuminated by the characteristic rhetoric of judicial opinions.

Id.

century courts and commentators explicitly recognized that the private law character of the U.S. patent system was one of its distinctive characteristics, especially in comparison to the English patent system whence the U.S. patent system arose.¹² By the nineteenth century, the English patent law system had progressed toward a private law model,¹³ but it still bore significant vestiges of its provenance in a royal grant of privilege issued by either political favoritism or for purely economic policy goals.

Notably, the early U.S. patent statutes did not refer to patents as “property,” but they defined patents as securing the exclusive rights to make, use, and dispose of an invention.¹⁴ Congress thus used in the patent statutes the longstanding definition of property reaching back to the Roman law, which legal elites in the United States recognized as a classification of patents as property rights.¹⁵ This is confirmed by federal courts consistently recognizing patents as a “species of property.”¹⁶ In 1813, for example, Chief

12. See, e.g., *McKeever v. United States*, 14 Ct. Cl. 396, 420–21 (1878) (observing that “a patent in England was nothing more than a grant dependent in contemplation of law upon royal favor,” in contrast to the U.S. patent system which “recognizes an invention as property”); *Belding v. Turner*, 3 F. Cas. 84, 85 (C.C.D. Conn. 1871) (No. 1,243) (discussing the history of patents as a “privilege” granted by the “crown” as distinguished from the “personal estate” now secured in U.S. law); *Motte v. Bennett*, 17 F. Cas. 909, 913–14 (C.C.D.S.C. 1849) (No. 9,884).

13. See Sean Bottomley, *Did the British Patent System Retard the Industrial Revolution?*, 1 CRITERION J. ON INNOVATION 65, 73–81 (2016) (detailing licensing activities by English patent owners and English courts applying property and contract doctrines to patent owners).

14. See Patent Act of 1870, ch. 230, § 22, 16 Stat. 198, 201 (repealed 1952) (“[E]very patent shall . . . grant to the patentee, his heirs or assigns, for the term of seventeen years, of the exclusive right to make, use, and vend the said invention or discovery throughout the United States and the Territories thereof . . .”); Patent Act of 1836, ch. 357, § 11, 5 Stat. 117, 121 (repealed 1870) (“[E]very patent shall be assignable in law . . . [and every] conveyance of the exclusive right under any patent, to make and use, and to grant to others to make and use, the thing patented [must be recorded in the Patent Office] . . .”); Patent Act of 1793, ch. 11, § 1, 1 Stat. 318, 321 (repealed 1836) (“[A patent secures] the full and exclusive right and liberty of making, constructing, using, and vending to others to be used, the said invention or discovery . . .”); Patent Act of 1790, ch. 7, § 1, 1 Stat. 109, 110 (repealed 1793) (“[A patent secures] the sole and exclusive right and liberty of making, constructing, using and vending to others to be used, the said invention or discovery . . .”).

15. See generally Adam Mossoff, *What is Property? Putting the Pieces Back Together*, 45 ARIZ. L. REV. 371 (2003) (explaining how the exclusive rights of acquisition, possession, use, and disposal are the core rights of property from the Roman Law up through the Anglo-American common law).

16. *Ball v. Withington*, 2 F. Cas. 556, 557 (C.C.S.D. Ohio 1874) (No. 815); see also *Carew v. Boston Elastic Fabric Co.*, 5 F. Cas. 56, 57 (C.C.D. Mass. 1871) (No. 2,398) (“[T]he rights conferred by the patent law, being property, have the incidents of property . . .”); *Chambers v. Smith*, 5 F. Cas. 426, 427 (C.C.E.D. Pa. 1870) (No. 2,582) (analogizing to land sales as the basis for framing scope of patent rights); *Ayling v. Hull*, 2 F. Cas. 271, 273 (C.C.D. Mass. 1865) (No. 686) (discussing the “right to enjoy the property of the invention”); *Hayden v. Suffolk Mfg. Co.*, 11 F. Cas. 900, 901 (C.C.D. Mass. 1862) (No. 6,261) (instructing the jury that a “patent right, gentlemen, is a right given to a man by law where he has a valid patent, and, as a legal right, is just as sacred as any right of property”); *Gay v. Cornell*, 10 F. Cas. 110, 112 (C.C.S.D.N.Y. 1849) (No. 5,280) (“[A]n invention is, within the contemplation of the patent laws, a species of property . . .”); *Hovey v. Henry*, 12 F. Cas. 603, 604 (C.C.D. Mass. 1846) (No.

Justice John Marshall, riding circuit, explained that the “constitution and law, taken together, give to the inventor, from the moment of invention, an inchoate property therein, . . . [and] that this inchoate and indefeasible property in the thing discovered commences with the discovery itself, and is only perfected by the patent.”¹⁷ Later, in 1824, a unanimous Supreme Court held that a patent secures to an “inventor . . . a property in his inventions; a property which is often of very great value, and of which the law intended to give him the absolute enjoyment and possession.”¹⁸

This dominant line of nineteenth-century patent cases represents a fundamental institutional design choice by Congress and courts. In its concepts, doctrines, and even in judicial rhetoric, U.S. patent rights were secured to their owners, not through political institutions defined by discretionary policy-making and modes of regulatory analysis, but largely through the private law doctrines of property, contract, and tort.¹⁹ The evidence for this is widespread throughout early U.S. patent law, but in the constraints of a single article, I will illustrate this in two primary areas of private law theory: (1) the enforcement of the property right against infringers via lawsuits in courts, including against the government, and (2) the free alienation of the property right in the marketplace.

In terms of the remedies available to patent owners for violations of their property rights, there was a period of transitional development in the first few decades of the U.S. patent system. Given general concerns arising from federalism and related constitutional constraints on the federal government in the Federalist Period, Congress did not expressly provide in the patent statutes for an injunction as a remedy for patent infringement until 1819.²⁰ Yet, there is evidence that courts awarded injunctions to patent

6,742) (“An inventor holds a property in his invention by as good a title as the farmer holds his farm and flock.”).

17. *Evans v. Jordan*, 8 F. Cas. 872, 873 (C.C.D. Va. 1813) (No. 4,564) (Marshall, Circuit Justice), *aff’d*, 13 U.S. 199 (1815); *see also Pennock v. Dialogue*, 27 U.S. (2 Pet.) 1, 18 (1829) (stating that a patent is a “title” and thus an act of invention before applying for a patent is “like an inchoate right to land, or an inceptive right to land, well known in some of the states, and every where accompanied with the condition, that to be made available, it must be prosecuted with due diligence, to the consummation or completion of the title”).

18. *Ex parte Wood*, 22 U.S. (9 Wheat.) 603, 608 (1824).

19. *See* Orin S. Kerr, *Rethinking Patent Law in the Administrative State*, 42 WM. & MARY L. REV. 127, 129 (2000) (“The [U.S.] patent system operates not through regulation, but rather through the private law mechanisms of contract, property, and tort.”).

20. *See* Patent Act of 1819, ch.19, 3 Stat. 481, 481–82. Federal courts could hear all cases under the patent laws between residents of the same state, and thus this law was declaratory in settling that courts could also hear all cases between citizens of different states. *See Binns v. Woodruff*, 3 F. Cas. 421, 421 (C.C.D. Pa. 1821) (No. 1,424). The Federal Cases reporter provided the following synopsis for the *Binns* decision:

owners (and copyright owners) who met the requirements for this equitable remedy before the 1819 amendment to the patent statutes.²¹

This made sense. Since early courts recognized that infringement of a patent is a violation of a property right,²² they conceptualized patent infringement as a species of trespass.²³ This of course provides a remedy for damages, which patent owners could obtain, just as all other property owners. Some courts recognized that the ongoing or willful trespasses inherent in a defendant's commercial infringement of a patent are properly the subject of an equitable remedy, as evidenced in Antebellum case law.²⁴

This case was before the court at April term, 1819, and then was dismissed; it having been decided, that, although in patent causes the courts of the United States have jurisdiction when both parties reside in the same state, the same did not exist in cases of copyright. On the 15th of February, 1819, [3 Stat. 481, c. 19,] congress passed a declaratory law, giving original any bill in equity; filed by any party aggrieved in any such cases, giving authority to grant injunctions according to the course and principles of courts of equity, . . .

Id.; see also James Ryan, *A Short History of Patent Remedies*, 6 CYBARIS INTELL. PROP. L. REV. 150, 158–61 (2015) (discussing the federalism concerns animating why Congress did not authorize injunctions in early federal statutes).

21. See *Motte v. Bennett*, 17 F. Cas. 909, 914–17 (C.C.D.S.C. 1849) (No. 9,884) (reviewing “the course pursued in the courts of the United States in granting injunctions in patent cases” reaching back to the early nineteenth century); see also *Whitney v. Carter*, 29 F. Cas. 1070, 1071 (C.C.D. Ga. 1810) (No. 17,583) (“[T]he plaintiff’s counsel cited . . . the opinion of the court, delivered by Judge Johnson, in December term, 1807, in the case of *Whitney and others v. Fort*, upon a bill of injunction.” (footnote omitted)); *Morse v. Reed*, 17 F. Cas. 873, 873 (C.C.D.N.Y. 1796) (No. 9,860) (issuing a permanent injunction for infringement of a patent). The *Morse* case is apparently mistakenly classified as a patent case when it was actually a copyright case. See Ryan, *supra* note 20, at 160.

22. See *Lightner v. Kimball*, 15 F. Cas. 518, 519 (C.C.D. Mass. 1868) (No. 8,345) (“[E]very person who intermeddles with a patentee’s property . . . is liable to an action at law for damages”); *Gray v. James*, 10 F. Cas. 1019, 1021 (C.C.D. Pa. 1817) (No. 5,719) (stating that patent infringement is “an unlawful invasion of property”); see also *supra* note 16 (citing cases referring to patents as property rights).

23. See, e.g., *Goodyear Dental Vulcanite Co. v. Van Antwerp*, 10 F. Cas. 749, 750 (C.C.D.N.J. 1876) (No. 5,600) (stating that patent infringement is equivalent to a “trespass” of horse stables); *Burleigh Rock-Drill Co. v. Lobdell*, 4 F. Cas. 750, 751 (C.C.D. Mass. 1875) (No. 2,166) (noting that the defendants “honestly believ[ed] that they were not trespassing upon any rights of the complainant”); *Livingston v. Jones*, 15 F. Cas. 669, 674 (C.C.W.D. Pa. 1861) (No. 8,414) (accusing defendants of having “made large gains by trespassing on the rights of the complainants”); *Eastman v. Bodfish*, 8 F. Cas. 269, 270 (C.C.D. Me. 1841) (No. 4,255) (comparing evidentiary rules in a patent infringement case to evidentiary rules in a trespass action); *Reutgen v. Kanows*, 20 F. Cas. 555, 557 n. (C.C.D. Pa. 1804) (No. 11,710) (“In all cases of trespass, the jury may find one defendant guilty, and the other not guilty.”).

24. See *Poppenhusen v. N.Y. Gutta Percha Comb Co.*, 19 F. Cas. 1056, 1057 (C.C.S.D.N.Y. 1858) (No. 11,281) (“[I]n [the] future, there will be an infringement, unless such infringement is restrained by injunction. It is, under such circumstances, almost a matter of course, that the injunction should be allowed.” (citation omitted)); *Blanchard v. Reeves*, 3 F. Cas. 638, 640 (C.C.E.D. Pa. 1850) (No. 1,515) (“We can not shut our eyes to the fact that the defendants have pirated the invention The complainant is therefore entitled to his injunction”); *Ogle v. Ege*, 18 F. Cas. 619, 620 (C.C.D. Pa. 1826) (No. 10,462) (“I take the rule to be, in cases of injunctions in patent cases, that where the bill states a clear right to the thing patented, which, together with the alleged infringement, is verified by affidavit; if he has been in possession of it by having used or sold it in part, or in the whole, the court will grant an

The 1819 amendment was in effect a declaratory act.

This is further confirmed by other private law doctrines and rhetoric that courts invoked as legal reference points for patent infringement. For example, Chief Justice Marshall, riding circuit, characterized as “fraud” a defendant’s efforts at avoiding liability by making minor changes in copying a patented invention.²⁵ Moreover, judges and commentators alike repeatedly embraced the rhetoric of “piracy” in characterizing the act of patent infringement.²⁶

The unique U.S. approach in securing patents as private property rights, especially in comparison to the more general public law model in the English patent system, is exemplified in securing patents under the Takings Clause of the U.S. Constitution.²⁷ Again, the cases are not all uniform, as no legal doctrine is entirely “pure” in this way, but the dominant jurisprudence weighed in favor of constitutional security for the private property rights in

injunction, and continue it till the hearing or further order, without sending the plaintiff to law to try his right.”); *Buck v. Cobb*, 4 F. Cas. 546, 547 (C.C.N.D.N.Y. 1847) (No. 2,079) (“[T]o secure inventors the rewards of their genius against the incursions of pirates And so the injunction was granted.”); *Sullivan v. Redfield*, 23 F. Cas. 357, 360–61 (C.C.D.N.Y. 1825) (No. 13,597) (denying a motion for an injunction for the alleged infringement of a patent that issued in 1819 given plaintiff’s failure to meet the legal and equitable preconditions).

25. See *Davis v. Palmer*, 7 F. Cas. 154, 159 (C.C.D. Va. 1827) (No. 3,645) (Marshall, Circuit Justice) (instructing the jury that if “the imitator attempted to copy the [patented] model” and made an “almost imperceptible variation, for the purpose of evading the right of the patentee,” then “this may be considered as a fraud on the law”); see also *Dixon v. Moyer*, 7 F. Cas. 758, 759 (C.C.D. Pa. 1821) (No. 3,931) (Washington, Circuit Justice) (explaining that an attempt to make a “mere formal difference” between a patented device and an infringing copy is “a fraudulent evasion of the plaintiff’s right”).

26. See, e.g., *Pennock v. Dialogue*, 27 U.S. (2 Pet.) 1, 12 (1829) (recognizing that “if the invention should be pirated, [this] use or knowledge, obtained by piracy,” would not prevent the inventor from obtaining a patent); *Batten v. Silliman*, 2 F. Cas. 1028, 1029 (C.C.E.D. Pa. 1855) (No. 1,106) (decrying defendant’s “pirating an invention”); *Motte*, 17 F. Cas. at 917 (referring to the defendant’s actions as “piracy of [the patentholder]’s combination” in his patented lathe); *Buck*, 4 F. Cas. at 547 (recognizing goal of patent laws in “secur[ing] to inventors the rewards of their genius against the incursions of pirates”); *Dobson v. Campbell*, 7 F. Cas. 783, 785 (C.C.D. Me. 1833) (No. 3,945) (concluding that patent-assignee has been injured by “the piracy of the defendant”); *Grant v. Raymond*, 10 F. Cas. 985, 985 (C.C.S.D.N.Y. 1829) (No. 5,701) (noting that the patented machine had “been pirated” often); *Earle v. Sawyer*, 8 F. Cas. 254, 258 (C.C.D. Mass. 1825) (No. 4,247) (instructing the jury that an injunction is justified by defendant’s “piracy by making and using the machine”).

27. See, e.g., *Cammeyer v. Newton*, 94 U.S. 225, 234 (1876) (holding that a patent owner can seek compensation for the unauthorized use of his patented invention by federal officials because “[p]rivate property, the Constitution provides, shall not be taken for public use without just compensation”); *United States v. Burns*, 79 U.S. (12 Wall.) 246, 252 (1870) (“[T]he government cannot, after the patent is issued, make use of the improvement any more than a private individual, without license of the inventor or making compensation to him.”); *McKeever v. United States*, 14 Ct. Cl. 396, 420–24 (1878) (rejecting the argument that a patent is a “grant” of special privilege, because the text and structure of the Constitution, as well as court decisions, clearly establish that patents are private property rights that are secured under the Takings Clause).

patents.²⁸ For example, in 1878 in *McKeever v. United States*, which arose from a lawsuit against the federal government for compensation for an unauthorized use of a patented cartridge box by the federal government, the Court of Claims engaged in a wide-ranging, historical analysis of how U.S. patents are “private property,” as opposed to the English definition of a patent as a “grant” that issues by “royal favor” and thus do “not exclude a user by the Crown.”²⁹

The *McKeever* court first analyzed the text of the Patent and Copyright Clause as evidence of this fundamental difference between the English Crown’s personal privilege and the U.S. private property right. The court explained that the language in the U.S. Constitution—the use of the terms “right” and “exclusive,” the absence of the well-established English legal term “patent,” and the absence of any express reservation in favor of the government—established that the private property rights in a U.S. patent were not on the same legal footing as the personal privileges in a patent granted by the English Crown.³⁰ The *McKeever* court further observed that this conclusion was buttressed by the fact that the Framers empowered the Legislature, not the Executive, to secure an inventor’s rights—placing this constitutional provision in Article I, not in Article II. This indicated that they viewed patents as private property rights secured by the people’s representatives, not as a special grant rooted in the discretionary prerogative powers of the Executive (the U.S. analog to the English Crown).³¹ The *McKeever* court concluded that the Framers “had a clear apprehension of the English law, on the one hand, and a just conception, on the other, of what one of the commentators on the Constitution has termed ‘a natural right to the fruits of mental labor.’”³²

As a segue to the second key private law feature of U.S. patent law—alienability of patents in the marketplace—the *McKeever* court further explained that the U.S. approach in securing patents as private property rights was confirmed by the federal government’s well-established practice since the Founding Era in using patented inventions by “express contracts”

28. See Adam Mossoff, *Patents as Constitutional Private Property: The Historical Protection of Patents Under the Takings Clause*, 87 B.U. L. REV. 689, 701–11 (2007).

29. *McKeever*, 14 Ct. Cl. at 417–20.

30. *Id.* at 421.

31. *Id.* at 420.

32. *Id.* The *McKeever* court did not cite a source for this quote, but it may have been paraphrasing a recently published treatise. See THEODORE D. WOOLSEY ET AL., *THE FIRST CENTURY OF THE AMERICAN REPUBLIC* 443 (1876) (discussing how inventors are given “some control over the reproductions of the fruits of mental labor . . . in addition to the natural right to property”).

with patent owners.³³ This was in contrast to the power claimed by the English government to the free use of any patent issued by the Crown.³⁴

U.S. courts secured to patent owners their rights to dispose of their property by importing into patent law longstanding common law doctrines securing the free alienation of real property. This was not achieved through a public lawmaking mode of top-down regulatory directive; rather, early U.S. patent owners alienated their property interests in the marketplace by drafting conveyances to successors and assigns (using property concepts and terms),³⁵ using patents as collateral in obtaining financing from investors,³⁶ selling security interests in their patents to obtain third-party financing for lawsuits against infringers,³⁷ and otherwise slicing and dicing their property into myriad sets of exclusive rights in follow-on owners, successors, and assigns in making, using, and selling the patented property throughout the United States.³⁸

33. *McKeever*, 14 Ct. Cl. at 421.

34. See *United States v. Palmer*, 128 U.S. 262, 271 (1888) (“The United States has no such prerogative as that which is claimed by the sovereigns of England, by which it can reserve to itself, either expressly or by implication, a superior dominion and use in that which it grants by letters-patent to those who entitle themselves to such grants.”).

35. One example from a prominent nineteenth-century telecommunications technology is Samuel Morse’s multiple conveyances of rights in his patent issued for his invention of the electro-magnetic telegraph. See Bill of Complaint at 6, *Morse v. O’Reilly*, 56 U.S. 62 (1848) (No. 224) (quoting 1844 agreement between Samuel Morse and Alfred Vail in which Morse agreed to “sell, assign, set over, and convey to . . . Vail, his heirs and assigns, one undivided eighth part of his said invention”); *Id.* at 5 (quoting 1838 agreement between Morse and Francis O.J. Smith in which Morse promised to “execute sufficient deeds of transfer” in his patent); *Id.* at 6 (quoting an 1848 agreement between Leonard Gale and Morse in which Leonard D. Gale agreed to “sell, assign, set over, and reconvey [back] to . . . Morse, the said one-sixteenth part of the right, title, and interest in the said invention of an electro-magnetic telegraph”).

36. See Adam Mossoff, *O’Reilly v. Morse* 33 (George Mason Law & Econ. Research Paper No. 14-22, 2014), <https://ssrn.com/abstract=244836>.

Even before Morse’s first patent would issue in 1840, he had entered into several agreements in which he conveyed multiple ownership interests in his imminent patent rights. When Vail began assisting Morse in 1837, for instance, it was not out of altruistic motives by Vail. Morse and Vail executed an agreement that year providing that Vail would construct ‘at his own proper costs and expense’ Morse’s telegraph and would pay the costs of applying for foreign patents in exchange for a 25% interest in the U.S. patent and a 50% interest in any foreign patents.

Id.

37. See Adam Mossoff, *The Rise and Fall of the First American Patent Thicket: The Sewing Machine War of the 1850s*, 53 ARIZ. L. REV. 165, 182–83 (2011) (detailing how Elias Howe sold a one-half interest in his patent on the lockstitch to George W. Bliss to fund his first patent infringement lawsuit against Isaac Singer).

38. See generally Adam Mossoff, *Patent Licensing and Secondary Markets in the Nineteenth Century*, 22 GEO. MASON L. REV. 959 (2015) (detailing extensive licensing and assigning practices of patent rights by inventors and follow-on patent owners).

In adjudicating disputes over licenses and assignments of patent rights, Justice Joseph Story explicitly relied on real property case law as binding precedent in his many patent opinions that he issued while riding circuit.³⁹ In fact, the willingness of early federal courts to import into patent law the common law property concepts of *assignment* and *license* for defining the quantum of estate conveyed to a successor in interest in a patent is one more data point indicating that the United States implemented a private law model in creating its patent system.⁴⁰ Notably, President George Washington chose to acquire a license in 1791 from Oliver Evans, the recipient of the third U.S. patent issued under the 1790 Patent Act, for use of Evans' invention in Washington's mill at Mount Vernon.⁴¹ Of course, Congress already made this fundamental institutional design choice itself in 1790 by providing in the first patent statute that a patent may issue to an inventor or to "his, her or their heirs, administrators or assigns" (and retaining the codification of this right to transfer to "assigns" in subsequent patent statutes).⁴²

Similar to the earlier contrast of a U.S. patent as a private property right against an English patent as a personal privilege, courts and commentators further contrasted U.S. and English patents in terms of their permissive alienation to third parties. This is reflected in an anonymous note in the Federal Cases Reporter, which explains that an English patent is a "privilege" conferred by a "grant by the crown," and thus the patent owner's "right has been regarded [as] a personal privilege, inalienable unless power to that effect is given by the crown."⁴³ Although the legal rule was that an

39. See, e.g., *Brooks v. Byam*, 4 F. Cas. 261, 268–70 (C.C.D. Mass. 1843) (No. 1,948) (Story, Circuit Justice) (analogizing a patent license to "a right of way granted to a man for him and his domestic servants to pass over the grantor's lands," citing a litany of real property cases and commentators at common law, such as *Lord Coke's Institutes*, *Coke's Littleton*, *Viner's Abridgment*, and *Bacon's Abridgement*); *Dobson v. Campbell*, 7 F. Cas. 783, 785 (C.C.D. Me. 1833) (No. 3,945) (Story, Circuit Justice) (relying on real property equity cases in which "feoffment is stated without any averment of livery of seisin" in assessing validity of patent license).

40. See *Potter v. Holland*, 19 F. Cas. 1154, 1156–57 (C.C.D. Conn. 1858) (No. 11,329) (surveying in extensive detail how the common law real property doctrines of "assignment" and "license" had been incorporated into U.S. patent law to define the legal interest that a patent owner conveys to a third party); see also *Moore v. Marsh*, 74 U.S. 515, 520 (1868) ("An assignee is one who holds, by a valid assignment in writing, the whole interest of a patent, or any undivided part of such whole interest, throughout the United States." (footnote omitted)); *Suydam v. Day*, 23 F. Cas. 473, 474 (C.C.S.D.N.Y. 1846) (No. 13,654) (distinguishing between "an assignee of a patent [who] must be regarded as acquiring his title to it, with a right of action in his own name," and "an interest in only a part of each patent, to wit, a license to use").

41. See EDWARD G. LENGEL, *FIRST ENTREPRENEUR: HOW GEORGE WASHINGTON BUILT HIS—AND THE NATION'S—PROSPERITY* 159–60 (2016).

42. See Patent Act of 1790, ch. 7, § 1, 1 Stat. 109, 110 (repealed 1793); see also *supra* note 14 (quoting same language from the Patent Acts of 1793, 1836, and 1870).

43. *Belding v. Turner*, 3 F. Cas. 84, 85 n. (C.C.D. Conn. 1871) (No. 1,243).

English patent was “a mere naked right, inseparable from the person of the grantee,” legal and commercial practice evolved such that this power was typically conferred in patent grants.⁴⁴ In the U.S., however, the patent statutes and courts provided as a matter of law and right that patents could be conveyed by their owners, which meant that the patent is “defined as an incorporeal chattel, which the patent impresses with all the characteristics of personal estate”⁴⁵ As one federal court later put the point: “the rights conferred by the patent law, being property, have the incidents of property, and are capable of being transmitted by descent or devise, or assigned by grant.”⁴⁶

In conclusion, the U.S. patent system was initially crafted by Congress and courts along a private law model, which diverged in key respects from the mostly public law model that prevailed in England in the eighteenth and nineteenth centuries. There are many aspects of the U.S. patent system that reflect this basic institutional design choice, including the creation of a Patent Office that operated along set rules of procedure in issuing patents (and then after 1836, examining patent applications).⁴⁷ Here, I identify two key private law features of U.S. patents: (1) providing remedies in court against both private citizens and public officials for violations of patent rights, and (2) securing the free alienation of patent rights in the marketplace. These are exemplars of the unique U.S. approach in securing patent rights as private property rights—as an intellectual property right similar to the nonpossessory “incorporeal rights” like easements and other property rights long secured at common law.⁴⁸ Justice Levi Woodbury, riding circuit, captured the essence of this institutional design choice in the U.S. patent

44. *Id.*; see also H.I. DUTTON, *THE PATENT SYSTEM AND INVENTIVE ACTIVITY DURING THE INDUSTRIAL REVOLUTION 1750–1852*, at 122–69 (1984) (detailing commercial practices by English patent owners and investments in English patents); Bottomley, *supra* note 13, at 73–81 (discussing licensing and assignments of English patent rights).

45. *Belding*, 3 F. Cas. at 85 n.

46. *Carew v. Boston Elastic Fabric Co.*, 5 F. Cas. 56, 57 (C.C.D. Mass. 1871) (No. 2,398).

47. See KHAN, *supra* note 4, at 182.

48. See LEONARD A. JONES, *A TREATISE ON THE LAW OF EASEMENTS* § 20 (1898) (“Only incorporeal rights pass as appurtenant to land or under the description of ‘appurtenances.’ Land cannot pass as appurtenant, nor can the actual and exclusive possession of land pass as appurtenant, for such possession does not differ in effect from title in fee.”); see also *id.* § 13 (“An easement is not a right to the soil of the land or to any corporeal interest in it.”); *Tinicum Fishing Co. v. Carter*, 61 Pa. 21, 29, 37–38 (1869) (referring to “an incorporeal easement on the land of the riparian owner” as one type of “incorporeal hereditaments”); EDWARD COKE, 1 *THE FIRST PART OF THE INSTITUTES OF THE LAWS OF ENGLAND* § 184, 121b–122a (London, W. Clarke & Sons 19th ed. 1832) (1628) (explaining that “incorporeal” interests are necessarily “appurtenant” to corporeal interests); EMORY WASHBURN, *A TREATISE ON THE AMERICAN LAW OF EASEMENTS AND SERVITUDES* 37 (2d ed. 1867) (identifying an easement appurtenant as “an incorporeal hereditament”).

system in an 1845 case, writing that “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.”⁴⁹

II. THE SIGNIFICANCE OF THE U.S. PATENT SYSTEM AS A PRIVATE LAW SYSTEM

As economists and historians have recognized, the U.S. approach to defining its patent system as a system of property rights within a private law framework has contributed to the United States’ thriving innovation economy. This is unsurprising. When defined by clear legal requirements and secured within stable political and legal institutions governed by the rule of law, private property rights are a key ingredient for growing economies and flourishing societies.⁵⁰

This general insight by economists and political scientists applies as much to property rights in inventions as it does to property rights in land and in other assets, whether tangible or intangible. For example, Hernando de Soto’s research shows the importance of title recordation and clear rules for transferring property to economic growth.⁵¹ He recognized that this fundamental insight applies to patents just as much as it does to real estate, although many miss this point in de Soto’s analysis.⁵² The prior Part described some of these key legal characteristics of the early U.S. patent system, including the security of patents as private property rights that are recorded in a legal institution functioning under the rule of law (the Patent Office), and the alienability of patents in the marketplace under the same rules as other long-standing property rights.

Economists, such as Professor Zorina Khan, have identified that this

49. *Davoll v. Brown*, 7 F. Cas. 197, 199 (C.C.D. Mass. 1845) (No. 3,662) (citation omitted); *see also Hovey v. Henry*, 12 F. Cas. 603, 604 (C.C.D. Mass. 1846) (No. 6,742) (“An inventor holds a property in his invention by as good a title as the farmer holds his farm and flock.”).

50. *See* Stephen Haber, *Patents and the Wealth of Nations*, 23 *GEO. MASON L. REV.* 811, 811 (2016) (“There is abundant evidence from economics and history that the world’s wealthy countries grew rich because they had well-developed systems of private property. Clearly defined and impartially enforced property rights were crucial to economic development . . .”).

51. *See* HERNANDO DE SOTO, *THE MYSTERY OF CAPITAL: WHY CAPITALISM TRIUMPHS IN THE WEST AND FAILS EVERYWHERE ELSE* 83 (2000).

52. *See id.* at 74.

Perhaps the most significant cost was caused by the absence of institutions that create incentives for people to seize economic and social opportunities to specialize within the marketplace. We found that people who could not operate within the law also could not hold property efficiently or enforce contracts through the courts Being unable to raise money for investment, they could not achieve economies of scale or protect their innovations through royalties and *patents*.

Id.

choice in institutional design by Congress and courts was a key factor in promoting thriving innovation markets in the United States in the nineteenth century.⁵³ Other economists have also identified features of these robust nineteenth-century innovation markets—such as an increase in “venture capital” investment in patent owners, the rise of a secondary market in the sale of patents as assets, and the embrace of specialization via licensing business models—as indicators of value-maximizing economic activity made possible by securing patents as private property rights.⁵⁴ This remains true today: a twenty-first-century startup with a patent more than doubles its chances of securing venture capital financing when compared to a startup without a patent.⁵⁵

Historically, U.S. patent owners also innovated the franchise business model via licensing of their patent rights to businesspersons. This included Samuel Morse, the inventor of the electro-magnetic telegraph,⁵⁶ and Alexander Graham Bell, the inventor of the telephone,⁵⁷ among others. Other innovations in new corporate forms and cross-licensing agreements, such as the invention of the patent pool in 1856, made it possible for patent owners to use their property rights to overcome transaction-cost barriers in the commercialization of their property; in the case of patent pools, this was the private-ordering solution to widespread litigation by multiple owners of patents on multiple components of a single product or service sold in the marketplace.⁵⁸ All of these developments and activities confirm de Soto’s insight that a “good legal property system is a medium that allows us to understand each other, make connections, and synthesize knowledge about our assets to enhance our productivity.”⁵⁹

53. See KHAN, *supra* note 4, at 9–10 (“[P]atents and . . . intellectual property rights facilitated market exchange, a process that assigned value, helped to mobilize capital, and improved the allocation of resources. . . . Extensive markets in patent rights allowed inventors to extract returns from their activities through licensing and assigning or selling their rights.”).

54. See, e.g., Naomi R. Lamoreaux, et al., *Patent Alchemy: The Market for Technology in US History*, 87 BUS. HIST. REV. 3, 4–5 (2013).

55. See Joan Farre-Mensa, et al., *What Is a Patent Worth? Evidence from the U.S. Patent “Lottery”* 26–27 (USPTO Econ. Working Paper No. 2015-5, 2018), <https://ssrn.com/abstract=2704028>.

56. See KENNETH SILVERMAN, *LIGHTNING MAN: THE ACCURSED LIFE OF SAMUEL F.B. MORSE* 261–67 (2003) (discussing Amos Kendall’s franchise business model based on licenses of rights in Morse’s patent).

57. See CHRISTOPHER BEAUCHAMP, *INVENTED BY LAW: ALEXANDER GRAHAM BELL AND THE PATENT THAT CHANGED AMERICA* 49–51 (2015) (detailing Bell’s use of licensing and the franchise business model after failing to sell his patents to Western Union or obtain venture capital to support his own full-service company).

58. See Mossoff, *supra* note 37, at 194–97.

59. See DE SOTO, *supra* note 51, at 168; see also KHAN, *supra* note 4, at 96 (“The development of trade is predicated on recognized rights of property Patent Office assignment records and law reports both reveal that an extensive and deep market in patent assignments and licenses functioned during the

Even when patent owners engaged in strategic, rent-seeking behavior in the nineteenth century, this problem arose in the context of legal disputes over patents and thus it was addressed by courts who responded appropriately within the procedural and substantive legal rules governing the scope of property rights in patents. For instance, starting in the early nineteenth century, the Patent Office began permitting patent owners to surrender patents that had inadvertent formal defects in their patents that had unintended substantive, negative effects on the scope of the property rights secured to them.⁶⁰ The Patent Office would “reissue” a corrected patent. Consistent with the private law model in the U.S. patent system, this practice was not left solely to administrative discretion. First, the Supreme Court upheld the validity of reissue patents in 1832 in *Grant v. Raymond*,⁶¹ and then Congress codified the reissue practice in the 1836 Patent Act.⁶²

Some patent owners began to exploit their right to obtain reissue patents to expand ex post the scope of their property rights solely to capture newly invented technologies, which was not the initial function of the reissue right (and it was explicitly prohibited).⁶³ Courts reined in this strategic behavior by patent owners in extending a property right beyond the metes and bounds in one’s title deed.⁶⁴ This was done for the same reasons that all property owners are delimited in the use of their property by other property owners’ equal rights.⁶⁵ In the case of property rights in inventions, courts sought to secure as clear title as possible in the context of new innovation to facilitate licensing and to provide proper notice to other innovators and commercial actors of the legal boundaries in which they could operate without incurring

antebellum period.”).

60. See Mossoff, *supra* note 3, at 1001–02.

61. *Grant v. Raymond*, 31 U.S. (6 Pet.) 218, 242 (1832).

62. See Patent Act of 1836, ch. 357, § 13, 5 Stat. 117, 122 (repealed 1870).

63. See *Mfg. Co. v. Ladd*, 102 U.S. 408, 411 (1880) (“The real object and design of a reissue of a patent have been abused and subverted.”); see also Christopher Beauchamp, *The First Patent Litigation Explosion*, 125 *YALE L.J.* 848, 885–92 (2016) (detailing this abusive practice).

64. See Beauchamp, *supra* note 63, at 891 (“A string of decisions in the 1870s began to rein in reissue practice and to cast doubt on broadened grants. By 1880, the Supreme Court’s disfavor was clear.” (footnote omitted)).

65. See *Campbell v. Seaman*, 63 N.Y. 568, 576–77 (1876) (“[E]very person may exercise exclusive dominion over his own property, and subject it to such uses as will best subserve his private interests. . . . But every person is bound to make a reasonable use of his property so as to occasion no unnecessary damage or annoyance to his neighbor.”); *Keeble v. Hickeringill* (1707) 103 Eng. Rep. 1127, 1128 (Holte, C.J.) (holding that a malicious use of one’s property solely to deprive a neighbor of the productive use of his property is sufficient to justify liability under a writ for trespass on the case); see also DIG. 47.10.44 (Javoleneus, *Posthumous Works of Labeo* 9) (Alan Watson trans., 1985) (stating that there ought to be a right of legal action against a property owner who interferes with someone else’s property with intention to injure).

liability.⁶⁶

Ultimately, the private law model embraced by the U.S. for its patent system, which differentiated it from its predecessor in the English patent system, has been identified by Professor Khan as serving a key role in the “democratization of invention.”⁶⁷ As she explains:

The tendency to democratization was manifested in unique features of the U.S. patent system such as the examination of patent applications by technically qualified Patent Office employees, the award of property rights only to the first and true inventor, low fees, and few restrictions on the ability of patentees to exploit their inventions in the marketplace.⁶⁸

Professor Stephen Haber also surveys the economic and historical evidence and finds the weight of evidence supporting a finding of a “causal relationship between strong patents and innovation.”⁶⁹ Here, a “strong patent” means a property right enforceable in courts and freely alienable to third parties such that it facilitates specialization and the division of labor in innovation markets. Professor Haber concludes that “there are no wealthy countries with weak patent rights, and there are no poor countries with strong patent rights.”⁷⁰ This establishes the same presumptive burden on behalf of patents that is established by the same overwhelmingly positive correlations between other private property rights and economic growth—those who claim otherwise bear the burden of proof.⁷¹

III. HISTORICAL CONVERGENCE AND MODERN DIVERGENCE IN PATENT LAW SYSTEMS

Key elements of modern patent systems around the world today were copied from the U.S. patent system, including the most widely adopted institutional feature: examining patent applications at a Patent Office

66. See *McClain v. Ortmyer*, 141 U.S. 419, 424 (1891) (“The object of the patent law . . . is not only to secure to [the inventor] all to which [the inventor] is entitled, but to apprise the public of what is still open to them.”).

67. KHAN, *supra* note 4, at 51.

68. *Id.* at 182.

69. Haber, *supra* note 50, at 834.

70. *Id.* at 815.

71. See *id.* at 834 (“Evidence and reason therefore suggest that the burden of proof falls on those who claim that patents frustrate innovation.”); Letter from Jonathan Barnett, Professor, USC Gould School of Law, et al., to Assistant Attorney Gen. Makan Delrahim (Feb. 13, 2018), <https://cpip.gmu.edu/wp-content/uploads/sites/31/2018/02/Letter-to-DOJ-Supporting-Evidence-Based-Approach-to-Anti-trust-Enforcement-of-IP.pdf> (“It bears emphasizing that no empirical study has demonstrated that a patent-owner’s request for injunctive relief after a finding of a defendant’s infringement of its property rights has ever resulted either in consumer harm or in slowing down the pace of technological innovation.”).

according to predetermined legal standards in both process and substance.⁷² This convergence is notable, especially among the world's leading economies. The United States became a leading world economy only in the latter half of the nineteenth century after having a per capita gross domestic product on par with Brazil at the start of the eighteenth century.⁷³

Yet jurisdictions throughout the world did not adopt all aspects of the U.S. private law model for their patent systems. While adopting examination processes and rules regarding title recordation, among others, they balked when it came to securing patents as private property rights that were freely alienable in the marketplace and enforceable against all infringers in court. For example, in addition to the "Crown right" that permitted free use of patents by the English government, England adopted a compulsory licensing scheme in the late nineteenth century.⁷⁴ As noted, this was in stark contrast to the property and contract doctrines generally relied on in the United States to define the freedom of patent owners to convey their rights in the marketplace.⁷⁵ In fact, the United States repeatedly has considered and rejected compulsory licensing requirements in its patent system.⁷⁶

The U.S. patent system thus has been identified as the "gold standard" for world patent systems given its comparative advantages in securing private property rights in technological innovations,⁷⁷ but this has begun to change in the twenty-first century. In recent years, the United States has slowly shifted through court decisions, legislation, and the creation of a new administrative tribunal for reviewing and canceling patents. It has moved

72. See B. Zorina Khan, *An Economic History of Patent Institutions*, ECON. HIST. ASS'N (2008), <http://eh.net/encyclopedia/an-economic-history-of-patent-institutions> ("The German patent system was influenced by developments in the United States, and itself influenced legislation in Argentina, Austria, Brazil, Denmark, Finland, Holland, Norway, Poland, Russia and Sweden. . . . The first national patent statute in Japan was passed in 1888, and copied many features of the U.S. system, including the examination procedures.").

73. See Haber, *supra* note 50, at 822.

74. See KHAN, *supra* note 4, at 38 ("Compulsory licenses were introduced [in England] in 1883 (and strengthened in 1919 as 'licenses of right') . . .").

75. A few special patent doctrines were used to define the outer boundaries of this general reliance on private law doctrines, such as *scire facias* actions for fraud in obtaining a patent. See BEAUCHAMP, *supra* note 57, at 86–108 (discussing "a thoroughly *ad hoc* mobilization of government power" by interest groups who lobbied the federal government to bring a (unsuccessful) case against Alexander Bell in their efforts to invalidate Bell's patent on the telephone).

76. See, e.g., BRUCE W. BUGBEE, *GENESIS OF AMERICAN PATENT AND COPYRIGHT LAW* 143–44 (1967) (discussing the rejection of a Senate proposal for a compulsory licensing requirement in the bill that eventually became the Patent Act of 1790); Kali Murray, *Constitutional Patent Law: Principles and Institutions*, 93 NEB. L. REV. 901, 935–37 (2015) (discussing the introduction of legislation in 1912 requiring compulsory licensing for patent owners not manufacturing a patented invention, which received twenty-seven days of hearings, but was not enacted into law).

77. See Madigan & Mossoff, *supra* note 6, at 939–40.

from a predominantly private law model to one that has significant institutional features of a public law model.

In terms of reliable and enforceable patent rights, courts have muddied the doctrinal waters in awarding either equitable or legal remedies for violations of these private property rights. In 2006 in *eBay v. MercExchange*, the U.S. Supreme Court reframed the test for awarding injunctions to patent owners on a finding of infringement by a defendant in terms of an allegedly historical four-factor test (which was not in fact a historical test).⁷⁸ Justice Anthony Kennedy concurred in the decision, arguing that there now exists a new business model of “obtaining licensing fees” and that patent licensing companies should not be permitted to “charge exorbitant fees” by threatening manufacturers with an injunction if they do not take a license.⁷⁹ Within a few years, many district courts conflated Justice Kennedy’s concurrence with the holding in *eBay* itself, citing not the majority opinion, but Justice Kennedy’s concurrence.⁸⁰ As a result, patent owners, including both manufacturers and licensors, are now less likely to obtain an injunction against infringers.⁸¹ In effect, patent owners are forced into compulsory licensing schemes via judicial decisions that deny them injunctions, requiring them to accept court-ordered “reasonable royalties” for ongoing infringement. In terms of determining these “reasonable royalties,” courts have further lowered the baseline for assessing damages to the “smallest saleable patent practicing unit,”⁸² and are using this standard for damages even when it does not match the market-based rate for licensing patented innovation.⁸³

78. *eBay Inc. v. MercExchange L.L.C.*, 547 U.S. 388, 390–91f (2006); *see, e.g.*, Doug Rendleman, *The Trial Judge’s Equitable Discretion Following eBay v. MercExchange*, 27 REV. LITIG. 63, 76 n. 71 (2007) (“Remedies specialists had never heard of the four-point test.”).

79. *eBay*, 547 U.S. at 396–97 (Kennedy, J., concurring).

80. *See* Ryan T. Holte, *The Misinterpretation of eBay v. MercExchange and Why: An Analysis of the Case History, Precedent, and Parties*, 18 CHAP. L. REV. 677, 721–22 (2015).

81. *See* Kirti Gupta & Jay P. Kesan, *Studying the Impact of eBay on Injunctive Relief in Patent Cases 38* (Univ. of Ill. Coll. of Law, Legal Studies Research Paper No. 17-03, 2016), <https://ssrn.com/abstract=2816701>.

We find that both for preliminary and permanent injunctions, [patent licensing companies] are less likely to obtain an injunction, after controlling for patent characteristics and the length of the case (from filing to termination) throughout the 2000-2012 time period. We also find that the *eBay* ruling reduced the likelihood of all firms [including manufacturers] receiving either preliminary or permanent injunctions.

Id.

82. *Cornell Univ. v. Hewlett-Packard Co.*, 609 F. Supp. 2d 279, 283–86 (N.D.N.Y. 2009).

83. *See* Jonathan D. Putnam & Tim A. Williams, *The Smallest Salable Patent-Practicing Unit (SSPPU): Theory and Evidence 12* (Sep. 8, 2016) (unpublished manuscript), <https://ssrn.com/abstract=2835617>.

The result of the weakening of the ability to obtain an injunction—the backstop for all market-based negotiations of conveyances of property rights—and the further limiting of damages awarded to patent owners below market-set rates has led to an increasingly common commercial practice referred to as “efficient infringement.”⁸⁴ This occurs when a company decides that it “economically gains from deliberately infringing [on a] patent[.]” because it knows the patent owner will not receive an injunction and thus it will pay less in legal fees and in court-ordered damages than it would have paid in a license obtained from the patent owner.⁸⁵

For instance, in its patent infringement lawsuits against Apple—a multi-year, worldwide legal dispute that spanned numerous court cases—Qualcomm claimed in late 2018 that Apple was in arrears for as much as \$7 billion (and counting) for refusing to make royalty payments under its previous licensing agreements for use of the 4G digital transmission technologies invented at Qualcomm.⁸⁶ In April 2019, the two companies settled all worldwide litigation with Apple paying an undisclosed sum and entering into a new license to use Qualcomm’s next-generation 5G technologies in future iPhones.⁸⁷ By itself, the refusal to pay royalties might not fall within the scope of strategic behavior labeled as “efficient infringement,” but internal documents disclosed in one of the legal cases shortly before the settlement revealed that Apple engaged in a deliberate legal campaign to devalue Qualcomm’s patents for the sole purpose of reducing its royalty payments in previously agreed-upon licenses.⁸⁸ This is consistent with economic and theoretical analyses of what happens when injunctions are not an available remedy for infringement of property rights,

84. See Adam Mossoff & Bhamati Viswanathan, *Explaining Efficient Infringement*, ANTONIN SCALIA L. SCH.: CPIP BLOG (May 11, 2017), <https://cpip.gmu.edu/2017/05/11/explaining-efficient-infringement>.

85. *Id.*

86. See Reuters, *Apple Reported to Be \$7 Billion Behind in Patent Royalty Payments by Qualcomm*, TECH2 (Oct. 27, 2018, 10:05 AM), <https://www.firstpost.com/tech/news-analysis/apple-reported-to-be-7-billion-behind-in-patent-royalty-payments-by-qualcomm-5456151.html>. One analyst estimated that Apple paid \$5 to \$6 billion in its settlement with Qualcomm, which indirectly confirms the amount claimed in arrears. See Kif Leswing, *Apple Paid Up to \$6 billion to Settle with Qualcomm, UBS Estimates*, CNBC (Apr. 18, 2019, 11:49 AM), <https://www.cnbc.com/2019/04/18/apple-paid-5-billion-to-6-billion-to-settle-with-qualcomm-ubs.html>.

87. See Don Clark & Daisuke Wakabayashi, *Apple and Qualcomm Settle All Disputes Worldwide*, N.Y. TIMES (Apr. 16, 2019), <https://www.nytimes.com/2019/04/16/technology/apple-qualcomm-settle.html>.

88. See Reed Albergotti, *Apple Said Qualcomm’s Tech Was No Good. But in Private Communications, It Was ‘the best.’* WASH. POST (Apr. 19, 2019), <https://www.washingtonpost.com/technology/2019/04/19/apple-said-qualcomms-tech-was-no-good-private-communications-it-was-best>.

which incentivizes “hold out” by licensees or infringers.⁸⁹ The only jurisdiction in which Apple was not enjoined in the patent infringement lawsuits brought by Qualcomm was the United States, although injunctions were issued against Apple in Germany and in China.⁹⁰

Given the increasingly high costs of patent litigation as a result of both efficient infringement practices and diminished chances of success for many patent owners in seeking protection of their rights in court, patent litigation is now referred to as the “sport of kings.”⁹¹ This directly undermines the “democratization” effects that accessible, reliable, and effective property rights have historically achieved via the private law model of the U.S. patent system. This is important given that the “great inventors” in the nineteenth century were individuals who mostly relied on patent licensing and other features of market specialization facilitated by enforceable and tradeable property rights.⁹²

In addition to the shift in U.S. courts in treating patents less like private property rights, Congress has similarly adopted changes to the patent system that comprise a public law model, such as discretionary, administrative adjudication of patent rights by regulatory officials. In 2011, Congress enacted the largest revision to the U.S. patent system since 1836, called the America Invents Act (“AIA”).⁹³ Among many transformations in the U.S. patent system, including shifting to a first-to-file system from a first-to-invent system, Congress created a new administrative tribunal to review and cancel previously issued patents.⁹⁴ This tribunal, called the Patent Trial and Appeal Board (“PTAB”), began its administrative hearings in 2012. Unfortunately, Congress imposed very few substantive or procedural limits

89. See Richard A. Epstein & Kayvan B. Noroozi, *Why Incentives for “Patent Holdout” Threaten to Dismantle FRAND, and Why It Matters*, 32 BERKELEY TECH. L. J. 1381, 1414–15 (2017).

90. See Adam Mossoff, *Apple Pays for Its Patent Infringement, But Important Legal Cases Continue*, IPWATCHDOG (Mar. 19, 2019), <https://www.ipwatchdog.com/2019/03/19/apple-pays-patent-infringement-important-legal-cases-continue/id=107425>.

91. See *The Impact of Bad Patents on American Businesses: Hearing Before the Subcomm. on Courts, Intellectual Prop., and the Internet of the H. Comm. on the Judiciary*, 115th Cong. (2017) (statement of J. Paul R. Michel, former C.J. of the U.S. Court of Appeals for the Federal Circuit) (“Indeed, most owners of patents can no longer afford to enforce them. . . . Experts opine that to enforce a small portfolio an owner needs \$15 million in cash and \$3 billion in market cap. So, wages now say that the ‘sport of kings’, horse racing, has been replaced by patent litigation.”).

92. See Khan, *supra* note 3, at 833–35.

93. See David Kappos, Under Sec’y of Commerce for IP and Dir. of the USPTO, Keynote Address at the Center for American Progress: An Examination of Software Patents (Nov. 20, 2012), <https://www.uspto.gov/about-us/news-updates/examination-software-patents> (“[T]he AIA is the most significant reform to the U.S. patent system since 1836.”).

94. See 35 U.S.C. § 6 (2018) (patent trial and review board); *id.* § 101 (patentable subject matter; utility); *id.* § 102 (novelty); *id.* § 103 (nonobviousness); *id.* § 112 (written description and enablement).

on this tribunal in the AIA, and thus the PTAB quickly became an example of an administrative agency run amok.

There are innumerable due process and related concerns at the PTAB. One prominent issue has been the practice of “panel stacking” administrative judges at the PTAB to obtain preordained results.⁹⁵ Moreover, anyone in the world can file a petition at any time during a patent’s twenty-year term to challenge it regardless of the personal financial gain that may motivate the petition, leading to strategic behavior by hedge-fund managers who would short stocks of companies in which they then file PTAB petitions seeking to invalidate the respective companies’ patents.⁹⁶ In fact, anyone can file as many petitions as they wish; numerous patents have been subject to “serial filings” of multiple petitions,⁹⁷ and serial petitions are sometimes filed concurrently in order to keep the patent under an administrative, legal, and commercial cloud. The PTAB also initially adopted a lower legal standard for construing patent claims in its administrative hearings than what is used in a lawsuit in an Article III court; this has resulted in inordinately high “kill rates” that range almost as high as 100% for some types of patents.⁹⁸ This difference in legal rules in interpreting patents has resulted in cases in which the PTAB cancels a patent after an Article III court construes a patent as valid and enforceable. The Court of Appeals for the Federal Circuit has held that this is an acceptable contradiction in legal decisions concerning the validity of the same property right reached between two state institutions governing the patent system.⁹⁹

95. See Adam Mossoff & David Lund, *The Problems with the PTAB*, IAM, Nov.–Dec. 2017, at 29, 32–33 (discussing *Target Corp. v. Destination Maternity Corp.*, in which the PTAB panel was increased from 3 to 5, and ultimately to 7, judges before the panel finally reached the “right” result of invalidating the patent).

96. See *id.* at 30.

The most notorious example has been hedge fund manager Kyle Bass, who has repeatedly filed PTAB petitions targeting patents in the biopharmaceutical industry. Neither his hedge fund nor his PTAB-filing organisation makes generic drugs or commercialises any products or services in the pharmaceutical industry. Instead, Bass simply shorts the stock of companies that own the patents he challenges at the PTAB, because the market is aware of the PTAB death squad statistics.

Id.

97. See Anne S. Layne-Farrar, *The Cost of Doubling Up: An Economic Assessment of Duplication in PTAB Proceedings and Patent Infringement Litigation*, LANDSLIDE, May–June 2018, at 52, 55 (“On a per-patent basis, out of 3,460 patents with an IPR challenge filed, 842 (24 percent) were ‘serially petitioned patents.’ Among the patents with three or more IPR challenges, the serial petitions involved an overlap in claims, an overlap in the prior art asserted, or both.” (footnotes omitted)).

98. See Mossoff & Lund, *supra* note 95 at 29 (reporting that 97.8% of the business method patents reviewed in the Covered Business Method (CBM) hearings at the PTAB were canceled).

99. See *Novartis AG v. Noven Pharms., Inc.*, 853 F.3d 1289, 1293–94 (Fed. Cir. 2017); see also Matthew Bultman, *PTAB Nixes Part of Garage Door Opener Patent Upheld By ITC*, LAW360 (Oct. 25,

These are just a few examples of the new regulatory mode of legal governance in a patent system that was once defined by relatively clear legal requirements, the rule of law, and stable legal institutions. The newly appointed Director of the U.S. Patent & Trademark Office has issued new regulations to reverse course on some of these practices.¹⁰⁰ But these new rules are not legally mandated; thus, there is nothing that can prevent a new Director from reversing course and reinstating as a matter of regulatory fiat all of these problematic practices at the PTAB, whose administrative panels one former federal judge has characterized as “death squads . . . killing property rights.”¹⁰¹

Significantly, many patent owners raised constitutional challenges to the PTAB on the basis of due process and takings concerns, but the Supreme Court agreed to hear a challenge to the PTAB in *Oil States Energy v. Greene’s Energy Group*¹⁰² on whether the PTAB violated the Seventh Amendment rights of patent owners to receive a jury trial. In its opinion in May 2018, the *Oil States* Court did not reach the Seventh Amendment question, because it held that the legal determination of the validity of an issued patent was entirely a matter of “public right,” and thus a patent is not a private right secured by the separation of powers and other structural protections afforded to citizens by the Constitution.¹⁰³ This is the first time that the Supreme Court held that a patent that had vested in an owner after an examination and grant by the Patent Office is a public right, as opposed to construing patents as private rights.¹⁰⁴ *Oil States* represents a radical shift from the private law model in which the U.S. patent system has secured

2018), <https://www.law360.com/ip/articles/1095772/ptab-nixes-part-of-garage-door-opener-patent-upheld-by-its-reporting-a-patent-canceled-by-ptab-after-it-was-construed-as-valid-by-the-its-which-applies-the-same-legal-standard-in-construing-patents-as-article-iii-courts>).

100. See Changes to the Claim Construction Standard for Interpreting Claims in Trial Proceedings Before the Patent Trial and Appeal Board, 83 Fed. Reg. 51340, 51340 (Oct. 11, 2018) (to be codified at 37 C.F.R. pt. 42) (changing the legal rule for construing patents at the PTAB to be the same as the rule used in Article III courts).

101. Ryan Davis, *PTAB’s “Death Squad” Label Not Totally Off-Base, Chief Says*, LAW360 (Aug. 14, 2014) (quoting Former Chief Judge of the PTAB, Randall Rader), <https://www.law360.com/articles/567550/ptab-s-death-squad-label-not-totally-off-base-chief-says>.

102. *Oil States Energy v. Greene’s Energy Grp.*, 138 S. Ct. 1365 (2018).

103. *Id.* at 1373–74.

104. See Adam Mossoff, *Statutes, Common-Law Rights, and the Mistaken Classification of Patents as Public Rights*, 104 IOWA L. REV. (forthcoming 2019) (manuscript at 2) (available at <https://ssrn.com/abstract=3289338>). Professor Richard Epstein has meticulously reviewed the cases quoted or cited by the *Oil States* Court in support of its decision, and he found that the Court quoted or cited the cases out of context, or, in some cases, the quotes elided language that contradicted the propositions for which the Court claimed they supported; See Richard A. Epstein, *Inter Partes Review Under the AIA Undermines the Structural Protections Offered by Article III Courts*, in *The Supreme Court Tackles Patent Reform*, 19 FEDERALIST SOC’Y REV. 132, 133–39 (2018).

patents as private property rights and provided them the relevant constitutional protections as other private rights.

The PTAB is widely recognized as contributing to a legal and policy environment in which patents owned by individuals or other under-capitalized entities, such as startups or universities, are now significantly devalued as commercial assets. This patent owner must first navigate the increasingly difficult process to obtain a patent, especially in the biopharmaceutical and high-tech industries that have been hit the hardest by recent court decisions that have severely restricted the patent eligibility of innovations in these sectors of the innovation economy.¹⁰⁵ If a patent issues, the patent owner is then faced with the prospect of efficient infringement, as companies do not pursue a license and instead infringe a patent given their economic calculation that a denial of an injunction and a below-market-rate “reasonable royalty” awarded by a court will result in a smaller compulsory license fee than if they negotiated a license directly with the patent owner. Companies, or the special companies hired anonymously to file petitions in the PTAB,¹⁰⁶ then file multiple petitions in the PTAB, which is an expensive process and time consuming.¹⁰⁷ Through its administrative processes, which are nothing like the legal processes in court, the PTAB can cancel a patent. The odds favor the petitioner. This regulatory cancelation is valid regardless of panel stacking or other concerns. It is also valid even if the patent owner was lucky enough to survive a validity challenge in court, prove infringement, and then receive an injunction or damages high enough to justify its legal fees. The U.S. patent system is now characterized by inordinately high costs, high legal hurdles, and discretionary and even contradictory legal processes and decisions. In sum, patents are now more like public rights awarded and adjudicated according to the discretionary, regulatory decisionmaking processes of the political branches, as opposed to stable private rights in property secured in courts.

The judicial, legislative, and administrative developments in the U.S.

105. See Madigan & Mossoff, *supra* note 6. at 946–60 (identifying how four Supreme Court decisions between 2010 and 2014 have destabilized and diminished U.S. innovation, particularly in the biopharmaceutical and advanced technology industries).

106. See Rob Sterne, *PTAB Challenges Are a Costly, Uphill Battle for Patent Owners*, IPWATCHDOG (Apr. 22, 2018), <https://www.ipwatchdog.com/2018/04/22/ptab-challenges-costly-uphill-battle-patent-owners/id=96158> (“[C]ompanies like Unified Patents were formed to aggregate the PTAB opportunity These PTAB aggregators offer several benefits to accused infringers, including reduced PTAB cost, no estoppels, and the ability to circumvent the one-year challenge requirement. They act as a surrogate for the accused infringer, who never files a PTAB challenge.”).

107. *Id.* (“PTAB challenges are very expensive, often topping [over \$1 million] through Federal Circuit appeal. They add 2–4 years to most district court suits.”).

patent system in the last ten years represent a demonstrable shift away from the private law model that was the hallmark of the early U.S. patent system. In the early twenty-first century, the U.S. patent system has the institutional traits of the public regulatory model that first animated the English patent system, and from which the United States diverged. This is not merely a divergence in the U.S. patent system over time, as foreign jurisdictions are adopting elements of the private law model for their own patent systems. One jurisdiction in particular is China, which has begun a substantial reform of its patent system over the past decade, but unlike the United States, it is creating a private law system.

Among other reforms it has implemented in contract law and in other fields of private law,¹⁰⁸ China has begun reforming its patent system within a private law model. First, it is implementing new rules at the State Intellectual Property Office (“SIPO”) that “provide for the streamlined examination of patent applications” on inventions in the high-tech sector, such as those in cloud computing, AI, the Internet, and Big Data.¹⁰⁹ As one legal news source reported, “China’s opening up [of its patent system to new high-tech innovation] contrasts with the United States’ move to cut back on business method patents and software patents.”¹¹⁰ In terms of its judicial institutions, China enacted reforms in 2014, creating three specialized IP courts in Beijing, Shanghai, and Guangzhou, and creating another fifteen IP tribunals in other regions of the country.¹¹¹ China authorized these courts to award both injunctions and damages on a finding of patent infringement.¹¹² Patent owners in Chinese courts typically seek injunctions against infringing

108. See G. Marcus Cole, *The Long Convergence: “Smart Contracts” and the “Customization” of Commercial Law*, 92 S. CAL. L. REV. 851, 853–54 (2019) (“In 1999, the National People’s Congress of the People’s Republic of China adopted the New Contract Law . . . [I]ts contract law [now] reflects the law of commerce developed over centuries in the common law of the United States, England, and before that, the Law Merchant and the *jus commune* of continental Europe.”); Aaron D. Simowitz, *Convergence and the Circulation of Money Judgments*, 92 S. CAL. L. REV. 1031, 1036 (2019) (“On June 30, 2017, a Chinese court recognized a U.S. commercial money judgment—a first in Sino-U.S. history.”).

109. Steve Brachmann, *China Streamlines Patent Examination for Internet, Big Data Patent Applications*, IPWATCHDOG (Aug. 1, 2017), <http://www.ipwatchdog.com/2017/08/01/china-streamlines-patent-examination-internet-big-data-patent-applications/id=86356>.

110. Elizabeth Chien-Hale, *A New Era for Software Patents in China*, LAW360 (May 25, 2017, 11:55 AM), <https://www.law360.com/articles/924934/a-new-era-for-software-patents-in-china>; see also Jack Ellis, *China Relaxes Rules on Software Patentability – And the United States Loses More Ground*, IAM (Mar. 3, 2017), <https://www.iam-media.com/law-policy/china-relaxes-rules-software-patent-ability-and-united-states-loses-more-ground> (“China’s apparent embrace of software patents stands in stark contrast to the situation in the United States, which many would see as the traditional home of the software industry.”).

111. Ryan Davis, *What You Need to Know About Patent Litigation in China*, LAW360 (Aug. 9, 2018), <https://www.law360.com/articles/1072015>.

112. See *id.*

products, which, unlike their U.S. counterparts, judges are “generous in awarding.”¹¹³ Finally, following the United States’ lead in creating the Court of Appeals for the Federal Circuit, a specialized single appellate court that hears all patent cases, China has announced that it is considering creating a single national IP appeals court.¹¹⁴ This would create much-valued national uniformity in judicial decisions that resolve disputes and which ultimately govern the private decision-making and private-ordering institutions in its innovation economy.

Although China initially used its patent laws and institutions to promote its own domestic economic interests, it is showing signs that it is embracing the basic tenets of equal protection under the rule of law in its patent system. As reported in early 2018, “[p]atent holders in China are likely to prevail in infringement actions . . . with specialized IP courts said to have found for foreign plaintiffs in nearly every case tried to date.”¹¹⁵ In December 2018, for example, a Chinese court issued a preliminary injunction against Apple selling older iPhone models in China in a patent infringement lawsuit filed by Qualcomm.¹¹⁶ Two months earlier and in stark contrast to the Chinese court issuing an injunction on a finding of infringement, the U.S. International Trade Commission refused to issue an exclusion order against imports of older models of the iPhone, despite the administrative law judge finding that Apple was infringing Qualcomm’s patents.¹¹⁷

A key feature of a private law model is that owners of property rights receive the same remedies as other owners of property rights, including injunctive relief for ongoing or willful infringement. The importance of these archetypical private law reforms in China’s patent system is confirmed by the response from innovators themselves. As the *New York Times* has reported, patent-intensive “Big Pharma is shrugging off its long-held fears of China’s rampant counterfeiting and cumbersome bureaucracy. . . . Executives say that the government has made inroads in toughening

113. *Id.*

114. See Bing Zhao, *China Introduces Legislation to Create a National IP Appeals Court*, IAM (Oct. 24, 2018), <https://www.iam-media.com/law-policy/china-introduces-legislation-create-national-ip-appeals-court>.

115. Grant Clark & Shelly Hagan, *What’s Intellectual Property and Does China Steal It?* BLOOMBERG: QUICKTAKE (Mar. 22, 2018, 4:58 AM), <https://www.bloomberg.com/news/articles/2018-03-22/what-s-intellectual-property-and-does-china-steal-it-quicktake>.

116. See Don Clark & Jack Nicas, *Chinese Court Says Apple Infringed on Qualcomm Patents*, N.Y. TIMES (Dec. 10, 2018), <https://www.nytimes.com/2018/12/10/technology/apple-qualcomm-patents-ruling.html>.

117. See Kristen Jakobsen Osenga, *Making Important Patents Worthless*, WASH. TIMES (Oct. 15, 2018), <https://www.washingtontimes.com/news/2018/oct/15/international-trade-commission-judge-gives-apple-a>.

protections of pharmaceutical patents.”¹¹⁸

Of course, all is not entirely well with China, as there are legitimate concerns about its government’s authoritarianism more generally, which has ramped up in recent years in other areas of its society.¹¹⁹ This effects its private law reforms in its patent system, because, as the historical and economic evidence consistently finds, private property rights only work in stable political and legal institutions defined by the rule of law. Yet, the success of China’s reform of its patent system within a private law model, and any resulting economic success in its fledgling innovation economy, may provide an incentive for political and legal actors elsewhere in the Chinese government to implement further reforms in the rule of law and limited government throughout its political and legal institutions. With the United States embracing the public law model of regulatory entitlements and discretionary decisionmaking processes in its own patent system, the United States arguably no longer has the comparative advantage to China in this key driver of its innovation economy.

CONCLUSION

Although scholars typically focus on the pendulum swings over time when courts and Congresses are either more favorable or more skeptical of patents, there is a more fundamental institutional distinction between defining patents as private property rights or regulatory entitlements. This institutional divide was a key difference between the early U.S. patent system, that was put into effect in the early republic and developed by Congress and the federal courts throughout the nineteenth century, and the early English patent system whence it arose. The success of the U.S. patent system, as evidenced in part by the explosive economic growth in the U.S. innovation economy in the nineteenth century, led to an international convergence on aspects of the U.S. private law model in its patent system. Today, though, the United States is diverging from this private law model and is returning once more to a public law model of regulatory entitlements, as evidenced in part by the creation of the PTAB, the denial of core remedies for violations of private property rights, heightened legal costs, and

118. Sui-Lee Wee, *Made in China: New and Potentially Lifesaving Drugs*, N.Y. TIMES, Jan 3, 2018, at B1.

119. See Simowitz, *supra* note 108, at 1033 (“China has decisively opened its courts to foreign judgments at the same time the Xi government has dramatically closed other economic doors. For example, the Xi government has imposed Maoist-era currency controls—an act of profound economic self-sabotage, in the view of most observers.”); Jonathan Tepperman, *China’s Great Leap Backward*, FOREIGN POL’Y (Oct. 15, 2018, 8:00 AM), <https://foreignpolicy.com/2018/10/15/chinas-great-leap-backward-xi-jinping> (reporting on China’s return to authoritarianism).

devaluing of patent rights in the marketplace. Other jurisdictions, such as China, are diverging from the United States today in implementing the private law model for their patent systems. Given the substantial historical and economic evidence correlating private law models of patent systems with innovation and economic growth, this divergence between the United States and other countries today is concerning.

