Inventing Invention: A Case Study of Legal Innovation

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[The so-called patentability requirement was invented by the Americans, in particular the Justices of the U.S. Supreme Court in the famous case Hotchkiss v. Greenwood in 1850.]

—Friedrich-Karl Beier

This is a story about innovation—legal innovation. At the beginning of the nineteenth century, all countries having patent systems generally required patentable inventions to be both new and useful. Those two requirements have now been joined by a third: Patentable inventions must be new, useful, and nonobvious. This development is not unique to the law of the United States. Every nation in the World Trade Organization now applies these three standards in awarding patents.2

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2. The members of the World Trade Organization are required by treaty to award patents for all inventions that “are new, involve an inventive step and are capable of industrial application.” Agreement on Trade-Related Aspects of Intellectual Property art. 27.1, Apr. 15, 1994, Marrakesh Agreement Establishing the World Trade Organization, Annex 1C, Legal Instruments—Results of the Uruguay Round, 33 I.L.M. 81, 94 (1994). A footnote defines “inventive step” and “capable of industrial application” as “synonymous with the terms ‘non-obvious’ and ‘useful’ respectively.” Id. art. 27.1 n.5. Where the “inventive step” test is used for patentability, the term is often explicitly defined to refer to something that is “not obvious to a person skilled in the art.” European Patent Convention art. 56, Oct. 5, 1973, 1065 U.N.T.S. 199, 273; Patents Act, 1977, c. 37, § 3 (U.K.); Lei No. 9.279, art. 13, de 14 de Maio de 1996, D.O.U. de 15.05.1996 (Brazil), available at http://www.jpo.go.jp/shiryou_e/s_sonota_e/fips_e/brazil/ipl/mokuji.htm; Patentgesetz [Patent Act],
Though nonobviousness is the most recently developed of the three requirements for obtaining a patent, it is now generally considered to be the defining feature of invention. Indeed, in the United States, what is today called nonobviousness was for about a century known as the invention doctrine, and in many countries, the doctrine is still known as the inventive step or simply the patentability requirement. The doctrine is widely understood to be so fundamental to the proper functioning of the patent system that it can be accurately described as the “final gatekeeper of the patent system,” the “ultimate condition of patentability,” and “the heart of the patent law.”

This Article traces how this defining doctrine of invention was itself invented by the world legal culture.

For scholars of intellectual property law, this history provides significant insights into the proper functioning and continued development of the doctrine. For example, one great puzzle posed by this history is how early patent systems could possibly have functioned without any doctrine similar to what is now seen as a central and fundamental pillar of innovation law. To a great extent, the emerging modern theory of nonobviousness helps to solve this puzzle: Modern theory predicts that the nonobviousness requirement plays its most important role where society and technology are experiencing rapid change. In a more static society, theory predicts that the obviousness doctrine would be less important. Thus, this Article shows that history and theory are mutually reinforcing, for the nonobviousness
requirement did not develop until the rapid technological and social changes of the nineteenth century demanded it.

The case study presented in this Article is also of much more general interest. Change is endemic in law. Law review articles are filled with tales of the “development” or “evolution” of law. Each new judicial decision, each new piece of legislation, even each new legal argument crafted by ordinary lawyers brings some small increment of novelty and change to the law. All lawyers, judges, and legislators know this to be true, and it has become a shibboleth that the law must change, grow, and develop as social conditions do. Yet despite the omnipresent recognition of legal change, only a few scholars have devoted substantial attention to the processes by which legal precedents develop and change over a substantial period of time. The existing scholarly treatments of legal change are invariably primitive. Legal change is treated as if it is something that just happens—that follows inexorably from the emergence of social needs and changed social conditions. Legal precedent is analogized to fungible capital stock, sequential chapters in a chain novel, or Darwinian evolution.

The historical rise of the nonobviousness standard reveals more depth and texture in the process of legal change, and it introduces a new element—the possibility of true innovation in law. True innovation here means not any change (like a change in social values or a mere change in fashion) but rather a change that is an intellectual advance and is objectively better in accomplishing the purposes of the law. Although the process of legal innovation appears to be based largely on trial and error, intellectual justifications appear essential for the continued development and ultimate success of the innovation. Innovation can occur at any level in the legal hierarchy, though it usually begins humbly. At the lowest level, litigants in practical disputes are constantly casting about for new angles and new arguments that might help to clarify, develop, or change the law, and lower courts accept or reject these suggested changes. The accepted innovations can either grow, as other courts adopt them and provide further articulation and rationales for them, or

9. See, e.g., E. Donald Elliott, The Evolutionary Tradition in Jurisprudence, 85 Colum. L. Rev. 38, 38 (1985) (observing that “the idea that law ‘evolves’ is so deeply ingrained in Anglo-American legal thought that most lawyers are no longer even conscious of it as a metaphor,” but also asserting that the law “grows by feeding on ideas from outside, not by inventing new ones of its own”); see also infra notes 10–14.
wither, as other courts narrow or reject them. Successful doctrines eventually receive greater permanence as courts higher in the hierarchy endorse them. Higher still in the hierarchy, the legislature can choose whether to codify doctrines developed in the courts. Uncodified doctrines may wither as they remain subject to the common law process of continual reinterpretation and modification. But codified doctrines can become pillars of the law. They can—as the nonobviousness requirement has—become part of the law of other jurisdictions and enshrined in worldwide treaties.

Legal innovations do not, however, always begin at the bottom of the legal hierarchy. Novel developments can also come directly from a legislature. Unprecedented legislative developments may start small—perhaps as mere exceptions to more general rules. In the process of litigation, courts will attempt to articulate justifications for the exception, and those justifications will lead to either more generous or grudging applications of the rule. Scholarly commentators too play a role, though traditionally that role has been largely limited to creating justifications for existing innovations. The process of justification is essential for the survival of the innovation, for unjustified rules do not seem to thrive. In the end, a legal innovation can truly be said to be successful when it is widely accepted and sufficiently justified.

The history provided here shows one successful doctrine that has grown up and conquered the world and also many failed doctrines that had promising beginnings but then withered. The most striking feature of this history is its timescale: Legal innovations take decades, even centuries, to develop. Moreover, legal doctrines later seen to reflect deeply flawed policy can remain stable law for large portions of a century before their downfall. This result has obvious relevance to the great debate over the so-called positive theory of economic analysis of law, which posits that various areas of law are “best explained as if the judges who created the law through decisions operating as precedents in later cases were trying to promote efficient resource allocation.”

13. William M. Landes & Richard A. Posner, The Economic Structure of Tort Law 1 (1987). Though this famous articulation of the “positive” economic analysis of law was written specifically about tort law, it has been applied more generally. See Richard A. Posner, Economic Analysis of Law 6 (1st ed. 1972) (defining a “positive role” for economic analysis of law in “explaining the rules and outcomes of the legal system as they are” and positing that “[s]ince judges are frequently called upon to decide cases in which economic factors are inescapable, it is not surprising that they should frequently decide in accordance with an intuitive perception of cost and efficiency”); cf. Lewis A. Kornhauser, A Guide to the Perplexed Claims of Efficiency in Law, 8 Hofstra L. Rev. 591, 591 (1980) (arguing that the normative and positive claims of law and economics are deceptive); Richard A. Posner, A Reply to Some Recent Criticisms of the Efficiency Theory of the Common Law, 9 Hofstra L. Rev. 775, 775 (1981) (addressing critics of the normative and positive models of law and economics); George L. Priest, The Common Law Process and the Selection of Efficient Rules, 6 J. Legal Stud. 65, 65 (1977) (“[T]he tendency of the set of all legal rules to become dominated by rules achieving efficient as opposed to inefficient effects is substantially more pervasive than might be thought.”).
sophisticated, this theory has been highly controversial.\textsuperscript{14} The area of patent law is a particularly attractive area to test the positive theory of economic analysis because, unlike many other areas, such as tort and criminal law, the patent system has long been based on utilitarian considerations rather than considerations of fairness or justice.

The history of the nonobviousness doctrine shows that in the very long run, considerations of economic efficiency do put pressure on legal actors (not only on judges, but legislators, commentators, attorneys, and other actors in the legal culture) to create, adopt, and justify economically efficient doctrines. However, the relevant time span within which those considerations can operate is very long—on the order of several decades at least.

Law develops like a technology. Engineers have incentives to make their products as efficient as possible, but those incentives do not mean that our past, present, or future technologies are free from imperfections and inefficiencies. So too, the law at any point in time may be riddled with problems and imperfections. As time passes, the law progresses, though not always linearly (law also has its failed experiments). If there is a major difference between law and other technologies, it lies in the extraordinarily weak and sluggish mechanism for progress in law. The success or failure of an experiment in law cannot be measured immediately, and it may never be subject to rigorous empirical proof. Moreover, the incentives of those developing law to produce efficient doctrine are terribly weak and subject to corruption.

Analogizing legal development to technological development does not deny that the process resembles other development processes—especially the evolution of living organisms. Modern evolutionary theory accepts that evolution is subject to historical chance and that no organism can be assumed to represent the best possible organism for its environment.\textsuperscript{15} The natural kingdom is not Dr. Pangloss’s “best of all possible worlds.” So too the processes of legal and technological change are subject to a variety of constraints, including pure historical accident, and the current state of development cannot be assumed to be close to optimal. Yet law ultimately is driven not solely by impersonal pressures to achieve greater functionality, but at least to some degree also by the intelligent design of human creators. In that fundamental respect, the analogy to evolutionary theory breaks down.

\textsuperscript{14} See, e.g., Richard A. Epstein, \textit{The Economics of Tort Law: A Hurried and Partial Overview}, 10 KAN. J.L. \& PUB. POL’Y 60, 64 (2000) (“[I]t turns out that the positive economic analysis of law says that you people have been doing it right all along, even though you do not know a word about the subject, for which I think the caveat is: if that is the case, then let’s say that ignorance is bliss and the less you learn about economics the better we will all be . . . .”).

\textsuperscript{15} See, e.g., S.J. Gould \& R.C. Lewontin, \textit{The Spandrels of San Marco and the Panglossian Paradigm: A Critique of the Adaptationist Programme}, 205 PROC. ROYAL SOC’Y LONDON, SERIES B, BIOLOGICAL SCI., 581, 583 (1979) (stressing the various constraints on evolutionary processes and stating that organisms evolve subject to those constraints).
This case study does not, it should be emphasized, challenge the general accuracy of the positive theory of economic analysis of law, but it does highlight the caveats accompanying the theory. The positive theory of economic analysis of law should “not [be] conceived as asserting a perfect congruence between law and efficiency.”16 “The incentives of judges [and we might add, legislators, commentators, and other legal actors] to fashion efficient doctrine are weak . . . .”17 The limitations of any positive theory of economic analysis do not militate against applying economic analysis to law. Rather, those limitations suggest that economic analysis of law should have a more unabashedly normative component, which might facilitate innovation and progress in law.

I. Current Wisdom Concerning the Invention Standard

The best way to appreciate the development of the invention doctrine is to begin at the end of the story, with the law and theory as they exist today. Current law in almost all major developed countries generally requires that to be patentable, an invention must reflect a certain quantum of technical achievement. In the U.S. patent statute, patents are prohibited from issuing to inventions that “would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.”18 Similarly, the European Patent Convention—as well as the English, German, and Dutch statutes—requires patentable inventions to be “not obvious to a person skilled in the art.”19 The Korean and Japanese laws forbid patents if the invention “could easily have been made” by a person skilled in the art.20 In sum, world patent law has now reached a consensus that the type of invention required for patentability must include some step that is not technically trivial, where triviality is measured by the capabilities of a person skilled in the relevant technical field. This general requirement, which will be referred to here as nonobviousness, is now recognized throughout the world as the essence of invention.

On first impression, denying patents for trivial advances may seem like a straightforward application of the legal maxim “de minimis non curat lex.”

17. Id. at 28. As Judge Posner has noted elsewhere, the compensation of judges and lawyers does not directly depend on their production of good precedent, for they receive no royalties even if they help to produce a precedent that guides thousands of future cases. POSNER, supra note 10, § 20.2, at 584.
which generally allows courts to ignore “purely trivial effects.” But that intuition is not correct. Developments that are technologically trivial could have great economic significance, and the *de minimis* doctrine usually does not authorize ignoring matters with a significant economic effect. Furthermore, the nonobviousness requirement is significantly more stringent than would be expected if it were merely a particular manifestation of the general *de minimis* rule: A group of engineers can work on a problem for weeks; they can arrive at a solution that is new; the solution can have significant economic value; and still, that solution may be deemed “obvious” and therefore unpatentable.

Similarly, the nonobviousness doctrine cannot be explained by reference to more general principles of intellectual property law. Indeed in copyright, the branch of intellectual property law that most closely resembles patent law, the standard for obtaining rights is extremely low. Copyrights are generally available for “original works of authorship.” While this standard requires some “spark” of creativity, “[t]he vast majority of works make the grade quite easily, as they possess some creative spark, ‘no matter how crude, humble or obvious’ it might be.” A ten-year-old who completes her creative writing homework is entitled to a copyright, even if she spent only an hour writing a trite story, and even if her teacher thought the effort worth no more than a “C.”

The high standard of creativity required to obtain patent rights is thus not explicable in terms of a general legal policy or even as a policy general throughout intellectual property law. The standard can be explained by reference to the broad scope of rights conferred by patents, discussed in subpart (I)(A) below, and by an economic analysis of the implications of granting such rights, discussed in subpart (I)(B). Finally, subpart (I)(C) of this Part gives a brief overview of the historical tests, the development of which will be explained in greater detail in the remainder of the Article.

21. See Republic of Argentina v. Weltover, Inc., 504 U.S. 607, 618 (1992) (noting that if a foreign entity’s alleged wrongdoing has minimal effects within the United States, the doctrine of *de minimis non curat lex* precludes U.S. courts from exercising jurisdiction).

22. See Bowles v. Ormesher Bros., 65 F. Supp. 791, 794, 793–94 (D. Neb. 1946) (rejecting a *de minimis* argument for the defendant’s evasion of the Price Control Act because it would result in “ruinous inflation and economic disorder. And there is nothing minimal . . . in that consequence”).

23. The point is demonstrated by the facts of *Calmar, Inc. v. Cook Chemical Co.*, which is reported as a companion case in *Graham*. See *Graham* v. John Deere Co., 383 U.S. 1, 26–37 (1966) (holding obvious and therefore invalid a patent on a new cap for a pump sprayer even though the cap had taken months to design and enjoyed success in the market).


A. More Rights, More Responsibilities

Two fundamental differences in the scope of rights protected by copyrights and patents explain the difference between the standards of creativity needed to support the rights. First, unlike a patent, a copyright prevents only copying of the protected work. It grants no rights over independent creations of similar or even identical works, nor does it preclude use of any previously available work. Granting copyrights for the trivial efforts of a ten-year-old does not necessarily stifle the creative work of others because if other ten-year-olds can also produce the triviality, the copyright system allows them to do so. A copyright on a triviality will thus have a limited economic impact. Even if people are willing to pay for the triviality, each independent creator will be in competition with others and none is likely to be able to charge much for the work.

Second, copyrights protect only particular expressions of ideas, but patent rights can protect at a much broader and more conceptual level. Thus, the first writer to describe a telephone in an engineering treatise or the first fiction writer to use a telephone as a crucial element in a story cannot prevent other writers from describing the function of a telephone or from using the telephone as an important element in advancing a plot. A patent on the telephone, however, can—and in fact did—grant rights covering all practical uses of telephone technology during the term of the patent.

There are good justifications for the different scope of rights in patent and copyright. It is a well-worn axiom that copyright is said to protect expressions, rather than the underlying ideas conveyed in a work. The meaning of this axiom is best revealed by considering the typical subject matter that is covered by a copyright, such as a book, song, picture, or movie. Each of these works consists of numerous well-known parts, be they words, notes, sounds, geometric shapes, or images. The number of potential parts is vast, and the number of possible combinations infinite or practically so. It is well known that all of the relevant parts are capable of being combined

27. See Kewanee Oil Co. v. Bicron Corp., 416 U.S. 470, 478 (1974) (noting that patent “protection goes not only to copying the subject matter, which is forbidden under the Copyright Act, 17 U.S.C. § 1 et seq., but also to independent creation”).


29. See The Telephone Cases, 126 U.S. 1, 572–73 (1888) (sustaining Alexander Graham Bell’s very broad patent on basic telephone technology). Bell’s broadest patent claim covered “[t]he method of, and apparatus for, transmitting vocal or other sounds . . . by causing electrical undulations, similar in form to the vibrations of the air accompanying the said vocal or other sounds . . . .” Id. at 13–14. Bell’s key concept was encompassed in the phrase “electrical undulations.” Prior attempts to create a telephone had attempted to replicate sound using pulses of electricity, with the electrical circuit being established and broken many times per second. Id. at 7–9. Bell’s insight was that sound could be carried by varying the intensity of a continuous current of electricity. Id. His technique—using intensity waves or undulations of continuous current rather than pulses of electricity—both distinguished his telephone from all prior (unsuccessful) attempts and defined his broad property right.
(perhaps in accordance to set rules, like the rules of grammar). The intellectual feat—the difficult work that society wants to protect—involves combining a large number of those elements into a desirable work, and the desirability of the work is tied to all the particulars of the combination, not the general concept. A sufficient right to encourage that sort of work may be narrow in legal terms—e.g., one that does not preclude independent creation and that does not protect the work at a conceptual level. The apparently narrow scope of the right will not be very important as a practical matter because, while it is theoretically possible for an entire book or song to be independently created by two individuals, as a practical matter the chances of that happening are virtually zero. Similarly, the absence of conceptual protection will not much harm the right holder because subsequent developers using the same general concept (e.g., to write a book about a magical school for witches and wizards) will still face the daunting task of executing a concept well, and the earlier work will not necessarily help the subsequent developer much in that task. Thus, the legal limitations on the right do not prevent the right holder from enjoying significant protection as a practical matter.

By contrast, the hard work society is attempting to encourage in the patent system is conceptual in nature, and it is much more likely to be independently created by multiple parties. A narrow right that allows for independent creation and protects only the precise details of a particular embodiment of the invention is unlikely to give sufficient protection, as a practical matter, to encourage the type of investments and work that society wants to encourage. Moreover, unlike in copyright, allowing a defense of independent invention will also significantly limit the practical value of the right. An independent-invention defense would also present difficult administrative problems because courts would have a difficult time distinguishing between true and false claims of duplication. By contrast, in the copyright area, claims of true independent duplication are much more rare.

Finally, permitting independent creation as a defense in patent law would encourage unproductive duplication. Once an invention has been created—once a technical insight such as Alexander Graham Bell’s has been made—it is a waste of resources for others to continue working in an attempt to achieve that insight a second time. If independent invention were a defense, firms would have an incentive to wall off their researchers from knowledge of new discoveries and to continue funding their researchers’ attempts to discover independently what has already been discovered. By contrast, independently created copyrighted works are so unlikely to be identical that the problem of wasteful duplication is negligible.

The differences in scope of patents and copyrights have long been thought to justify requiring very different levels of creativity to obtain the rights. Because patents preclude more than just copying, patent law has always required novelty as a substantial element of the creative standard that must be met. Thus, no valid patent can be obtained by an inventor who
independently creates something previously available in the “prior art.” This rule is easily justified because it prevents already-existing matter from falling under a new set of exclusive rights, thereby preventing researchers from being overrewarded with rights more valuable than the researchers’ actual contributions.30

The broader scope of patent rights may also seem to provide an easy justification for the nonobviousness doctrine. The intuition is that compared to copyrights, patent rights place much greater restrictions on the freedom of others, and thus, more is demanded from the inventor than from the author. With greater rights come more stringent requirements for obtaining the rights. This justification suggests that if patent law granted narrower rights and allowed independent creation as a defense, the standard of creativity could sensibly be set lower. In fact, this approach is sometimes taken in this and other countries by permitting a special class of patent-like rights that operate more like copyrights. Independent creation is a defense to infringement, and rights are more limited to the specific configuration disclosed by the inventor. Correspondingly, the level of creativity needed to obtain the patent-like right is lower: nonobviousness is not required and sometimes not even novelty need be shown.31

Such petite patent rights are not, however, necessarily wise policy.32 While such limited rights avoid the difficulties of having to define a stringent standard of creativity, they require courts to determine whether an accused infringer copied or independently achieved the relevant advance. That task may be very difficult where the protected subject matter is not an idiosyncratic creation (like a story) but a conceptual advance that even if independently created, is likely to be highly similar or identical to the first creation. Thus, society may have good reasons to permit intellectual

30. Such overrewards would be inefficient because researchers would expend too many resources trying to obtain the rewards. An analogy would be to offer a $50 reward to find a $25 lost watch.
31. The example in the United States is the Semiconductor Chip Protection Act of 1984, 17 U.S.C. §§ 901–914 (2000), which protects semiconductor-chip designs only against copying and requires neither novelty nor nonobviousness to obtain rights. Similarly, the German law provides for two alternatives to standard utility patents; both have lower standards for obtaining protection and correspondingly fewer rights. The German utility model protection, or Gebrauchsmuster, applies a “weaker standard than nonobviousness” and provides protection for a much shorter period of time. J.H. Reichman, Legal Hybrids Between the Patent and Copyright Paradigms, 94 COLUM. L. REV. 2432, 2458 (1994); see also Reeves Bros. v. U.S. Laminating Corp., 282 F. Supp. 118, 134–35 (E.D.N.Y. 1966) (noting that applicants for a Gebrauchsmuster do not have to satisfy the nonobviousness requirement, but that protection is limited to a six-year term), aff’d, 417 F.2d 869 (2d Cir. 1969). The German design registration, known as Geschmacksmuster, requires nothing similar to the nonobviousness standard but provides protection only against copying. See 1 DONALD S. CHISUM, CHISUM ON PATENTS § 3.06[2], at 3-193 (2006) (noting that the Geschmacksmuster only protects “against copying or imitation of the design and does not protect against innocent duplication”).
property rights that do not allow a defense of independent creation, and where such rights do exist, we can demand a relatively high standard of creativity of those wishing to obtain them.

The intuition that more should be demanded in exchange for greater rights seems to provide a fair guide to the levels of creativity demanded across copyright and patent law, but the nonobviousness standard for patentable inventions can also be supported by a more rigorous economic rationale.

B. The Economic View: The Economic Effects of Trivial Patents

The economic importance of the nonobviousness requirement can best be understood by considering the consequences of eliminating the doctrine and permitting patents to issue on trivial inventions. It is important to emphasize that “trivial” inventions here refers to technologically trivial inventions—in other words, inventions that can be had for little cost in technological research and development. For these inventions, the rewards of the patent system are assumed to be largely unnecessary. The basic intuition is that for such trivial “inventions” (“developments” might be the better word), enough incentive to create them is provided even by being the first to market the innovation or by other means of intellectual property protection. While that is the correct basic intuition, the nonobviousness doctrine in actual practice can be seen as performing four similar but slightly different functions.

1. Preventing “Thickets” of Economically Trivial Patents.—Although technical triviality does not necessarily imply economic triviality, at least some technically trivial developments are also economically trivial. A good example might be the patent at issue in *Graham v. John Deere Co.*[34] which involved a very slight modification of a prior art clamp for holding a plow shank (the positions of certain pieces were changed slightly and the plow shank was fastened to the clamp more securely).[35] This patented clamp almost certainly did not have great economic significance; indeed, the patentee never bothered to practice the patent.[36] For such patents, the basic intuition for denying patentability to obvious developments holds: to the extent these developments are worth producing, sufficient incentives exist for ordinary mechanics and engineers to create them.

For two reasons, however, preventing economically and technically trivial patents does not provide the best justification for the nonobviousness

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33. This assumption has been made in prior scholarly treatments of the nonobviousness doctrine. See, e.g., Glynn S. Lunney Jr., *Patent Law, the Federal Circuit, and the Supreme Court: A Quiet Revolution*, 11 SUP. CT. ECON. REV. 1, 3–4 (2004) (describing the result of eliminating the nonobviousness requirement as “extending patent protection to innovations that would have been devised and disclosed without the inducement of a patent”).


35. Id. at 22–23.

doctrine. First, if the patent is truly economically trivial, then the burden on the economy will be slight. The adverse effects of such patents are felt mainly in aggregate: a low standard of patentability creates the possibility of a thicket of economically and technically trivial patents. The social costs imposed by each one are small, but they make it expensive for firms to search through issued patents to determine whether their technology has been patented by others. Second, a thicket of economically trivial patents can be discouraged by other techniques, most notably by charging sufficient fees for obtaining or maintaining each patent. Ideally, the issuance and maintenance fees should account not only for the administrative costs of prosecuting a patent application, but also for the costs that the patent will impose on third parties who have to search for the patent and discern the extent of the exclusive rights granted.

The remaining three functions of the nonobviousness doctrine concern economically significant patents. These functions provide the principal justifications for the doctrine. Often more than one function can be observed in a single case.

2. Preventing the Exploitation of Exogenous Developments.—The most important function of the nonobviousness doctrine is to prevent individuals from patenting obvious, yet economically significant, responses to new conditions or “exogenous” developments—i.e., developments achieved through some cause not attributable to the patent applicant’s efforts. There is no good substitute for the nonobviousness doctrine in these circumstances. Higher filing or maintenance fees will not deter inventors from seeking such patents because the patent rights, if valid, will be quite valuable. Two good illustrations of this function are the Selden patent on the automobile (U.S. Patent Number 549,160), issued in 1895, and the 1-Click® patent (U.S. Patent Number 5,960,411), issued to Amazon.com in 1999. Both of these patents were, and are, controversial, and both have had difficulty meeting the nonobviousness requirement.37

37. The Selden patent was used to collect hundreds of thousands of dollars in royalties between 1895 and 1911. See William Greenleaf, Monopoly on Wheels: Henry Ford and the Selden Automobile Patent 239 (1961) (“An authoritative estimate of the total royalties garnered under the [Selden] patent has been fixed at $5,800,000.”). The patent was responsible for “deter[ring] many investors from entering the industry.” Id. at 173. Just prior to its natural expiration, a court of appeals narrowly construed the patent’s broad claims because, the court held, the broad claim in the patent would otherwise be “invalid for want of invention.” Columbia Motor Car Co. v. C.A. Duerr & Co., 184 F. 893, 901 (2d Cir. 1911). The 1-Click® patent was issued in 1999 and was immediately used to obtain an injunction against Amazon.com’s competitor, Barnesandnoble.com. James Gleick, Patently Absurd, N.Y. Times Mag., Mar. 12, 2000, at 44, 44. The patent immediately drew widespread criticism. See, e.g., id. (“When 21st-century historians look back at the breakdown of the United States patent system, they will see a turning point in the case of Jeff Bezos and Amazon.com and their special invention: ‘The patented One Click® feature,’ [as] Bezos calls it.”). The injunction against Barnesandnoble.com was later vacated because the Federal Circuit found “substantial questions” as to whether the 1-Click® patent was anticipated or rendered obvious by the prior art. Amazon.com v. Barnesandnoble.com, 239 F.3d 1343, 1350, 1366
If valid, these patents confer valuable rights. Substantial application fees will not dissuade individuals from obtaining such patents if the law will allow them to do so. As in all cases of economically significant patents, a good question to ask in deciding nonobviousness is this: if the invention is obvious and valuable, why did no other person see fit to make the invention and to seek the patent prior to the patentees? In each case there is a very good answer: just prior to the patented development, other important events occurred that made the development easier to create, more valuable, or both. Consider Selden’s patent on the combination of an internal gasoline combustion engine with all of the other elements of a car (running wheels, carriage, steering mechanism, etc.). In 1877 (Selden’s alleged date of invention), in internal combustion gasoline engines were just beginning to become a viable technology, so it is not surprising that no one had yet mounted a test engine onto a car. Once such engines became available (which occurred not through any efforts by Selden), it required little intelligence to think that a lightweight new engine with output measured in horsepower might serve as a substitute for carriage horses. Similarly, the 1-Click® process was created by Jeff Bezos sometime prior to May 1997, during the very advent of widespread Internet commerce. It is not surprising that no one patented methods for speeding Internet commerce prior to the rise of such commerce. When the social need did arise, many clear ways to satisfy it became obvious.

The 1-Click® litigation also demonstrates a problem of proving obviousness where social needs or capabilities have quickly changed so as to open up a new range of valuable, obvious developments. The prior art will be very close in time to the alleged invention, and the new development, precisely because it is obvious, may not be well documented. Researchers on the cutting edge of technology do not waste time publishing or documenting the obvious. In the 1-Click® case, the prior art examined by the district court originated from the mid-1990s, within a year or two of the alleged 1-

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38. Columbia Motor Car Co., 184 F. at 897 n.1.
40. Nat’l Research Council, A Patent System for the 21st Century 90 (Stephen A. Merrill et al. eds., 2004) (“[S]cientists, artisans, and creative people generally speaking strive to publish non-obvious information. So if it is obvious to those of skill in the art to combine references, it is unlikely that they will publish such information.”).
Click® invention.\footnote{See id. at 1233–35 (citing five pieces of prior art and providing development dates for four of them—1995, 1996, 1996, and the mid-1990s).} Also four of the five pieces of prior art were not patented, suggesting that similar developments were not considered patentable by other firms or even worth the trouble of publishing as interesting or important advances.\footnote{The fifth piece of prior art was also another broad patent to seemingly basic and trivial developments necessary for Internet commerce. Fittingly perhaps, the owners of that patent have targeted Amazon.com, among others, for infringement of that patent. See Soverain Software LLC v. Amazon.com, Inc., 383 F. Supp. 2d 904, 906 (E.D. Tex. 2005).} Other pieces of prior art may also have existed, but it is notoriously difficult to document prior art that is merely practiced in a nascent industry. When this pattern of facts appears, a court should be wary of claims that seemingly obvious advances are nonobvious.

This analysis also suggests that the timing and circumstances surrounding the arrival of a new development can provide good proxies of technical difficulty: where the problem and the tools for solving it have long existed, the advent of a new solution strongly indicates that the problem was difficult. Conversely, where the novel idea occurs to multiple people soon after a problem arises or soon after tools for solving the problem become available, the novel development should not be eligible for any patent right having broad rights and a bar against independent creation. Similarly, the analysis suggests that a strong obviousness doctrine is most important to societies or to individual industries experiencing rapid change.

3. \textit{Allocating Rewards Among Inventors}.—Another distinct function of the obviousness doctrine is to allocate the rewards of the patent royalties among inventors or alleged inventors. The classic situation here is where an inventor works to achieve an advance over all the prior art known to the inventor, but unbeknownst to that inventor, another inventor has already achieved a highly similar invention. The obviousness doctrine protects the scope of the first inventor’s achievement by preventing others from obtaining rights to obvious variants of the first inventor’s work.

This function can be seen in both of the cases decided by the Supreme Court in the consolidated \textit{Graham v. John Deere Co.} cases. In \textit{Graham} itself, the advances that Graham thought he had achieved—securing the plow shank better and eliminating wear between the shank and another piece in the plow clamp—had already been accomplished by another inventor, Elmer Rolf.\footnote{See U.S. Patent Number 2,739,518 (filed Apr. 19, 1952) (issued to Elmer Rolf on Mar. 27, 1956); Graham v. John Deere Co., 383 U.S. 1, 26 (1966) (stating that “the mechanical operation [of Rolf’s clamp] is identical” to Graham’s clamp and holding that the Graham’s clamp “presents no operative mechanical distinctions, much less nonobvious differences”).} Graham was almost certainly not aware of Rolf’s work, and in fact, Graham could have achieved priority of invention over Rolf if Graham had filed his patent application just a few months earlier.\footnote{Graham completed the conception of his invention by March of 1950, see Transcript of Record at 255–56, \textit{Graham}, 383 U.S. 1 (No. 11), but Graham did not constructively reduce it to}
and under complex rules for determining patent priority, Rolf’s work was considered prior to Graham’s.\textsuperscript{45} The two inventions were not identical,\textsuperscript{46} but the nonobviousness doctrine provided Rolf with a bit more protection: it prevented Graham from patenting trivial, workmanlike variations of Rolf’s basic idea, and it thereby may have protected Rolf’s ability to practice slightly modified versions of his invention without having to license another patent.

A similar situation occurred in the Case. There, all the objective evidence seemed to suggest that Cook Chemical’s patent was valid.\textsuperscript{48} There had long been felt a need for a better type of cap to cover leaky insecticide sprayers; other companies had not found a solution; the inventor at Cook Chemical, Baxter Scoggin, worked long and hard to find a solution; and others copied Scoggin’s solution once it was found.\textsuperscript{49} But all of these objective factors were consistent with what actually happened in the case: another inventor, Jay Livingstone, had created the same type of solution and filed for a patent slightly earlier.\textsuperscript{50} Scoggin was not aware of Livingstone’s solution because Livingstone’s patent application was held in secrecy for most of the time when Scoggin was working on a solution.\textsuperscript{51} Livingstone’s cap design, which was disclosed but not

\textsuperscript{45} Under patent law’s timing rules, Rolf’s invention was considered prior to Graham’s invention because, even though Graham may have conceived of the invention first (in 1950), Graham could not prove that he exercised diligence from a time prior to Rolf’s actual construction of the invention through to the date on which Graham filed his application. See 35 U.S.C. §102(g) (2000).

\textsuperscript{46} See, e.g., id. at 26 (finding that in the older device “the position of the shank and hinge plate appears reversed”).

\textsuperscript{47} Calmar, Inc. v. Cook Chemical Co. is reported as a companion case in Graham. Id. at 26–37.

\textsuperscript{48} See id. at 29, 29–32 (recounting Cook Chemical’s argument that its invention contained a “unique combination” of old elements and satisfied a “long-felt need in the industry for such a device”).

\textsuperscript{49} Id. at 29.

\textsuperscript{50} See id. at 28, 31 (indicating that by 1956, Scoggin had perfected the shipper-sprayer and a patent was granted in 1959 to Cook Chemical as his assignee). Livingstone’s patent application was filed in 1953. See U.S. Patent No. 2,715,480 (filed Mar. 9, 1953).

\textsuperscript{51} Scoggin was assigned to find better packaging for pump sprayers in 1954 and did not perfect his invention until 1956. See Graham, 383 U.S. at 28. The Livingstone patent was not publicly available until it issued as a patent on August 16, 1955, long after Scoggin had begun to seek his own solution. See U.S. Patent No. 2,715,480 (filed Mar. 9, 1953) (issued Aug. 16, 1955).
claimed in his patent application, was prior art under 35 U.S.C. § 102(e).52 The invalidation of Scoggin’s patent almost certainly helped Livingstone, who was then able to practice his invention without having to worry about trespassing on Scoggin’s rights.

This justification also accounts for one modern exception to general obviousness analysis. The rule operative in Calmar v. Cook Chemical—that an invention must be nonobvious when compared not only to all publicly available prior art, but also to “secret” art, such as material disclosed in a prior patent application that has been filed but has not yet been made public—holds true generally in patent law.53 That general rule protects the earlier applicant because material disclosed in a patent application, even if it is not claimed in the application, is often needed to practice the claimed invention. In such circumstances, the obviousness doctrine protects the full scope of one inventor’s rights from another’s subsequent claims. Yet if the earlier application and the later invention were owned by a single entity at the time of the invention, the prior application is not used as prior art for obviousness purposes. The same party will receive the rewards from both patents in such cases, so allocating rewards among parties is not a concern. The law thus eliminates the nonobviousness requirement in those circumstances and allows the granting of patents, provided that at least mere novelty exists over the prior commonly owned invention.54

4. **Limiting the Scope of Rights.**—The obviousness doctrine also has an important role in limiting the scope of rights that an inventor can claim. Again, the Selden case provides a very good historical example. In that case, the court of appeals thought that Selden had exercised “something more than mere mechanical skill” and held that “invention was involved.”55 But Selden’s invention was more narrow than the broad claim to any combination of a lightweight internal combustion engine with the other elements of a car. At most, Selden had made certain improvements in the structure of a particular class of gasoline engine—the so-called constant pressure engine—which had since become obsolete.56 The court held that for these

52. See Graham, 383 U.S. at 31 n.17 (observing that the sealing feature was not specifically claimed in the Livingstone patent, but it was disclosed in the drawings and specifications, and under long-settled law the feature became public property).


54. A similar exception exists for the other categories of so-called secret prior art. See 35 U.S.C. § 103(c) (2000 & Supp. IV 2004) (“Subject matter developed by another person, which qualifies as prior art only under one or more of subsections (e), (f), and (g) of section 102 of this title, shall not preclude patentability under this section where the subject matter and the claimed invention were, at the time the invention was made, owned by the same person . . . .”).


56. In the early automotive era, gasoline engines fell within two classes. Id. at 898. The “constant pressure” engine burned the gasoline vapor very smoothly while the volume in the piston expanded. Id. at 904. The “constant volume” engine ignited the vapor all at once in a small
improvements, Selden was entitled to a patent for his improved engine as well as for his improved engine mounted on a car chassis if he wished. Yet the court restricted Selden’s patent rights to match the extent of his inventive contribution. It emphatically rejected “the theory that Selden invented a light engine, an engine of small bulk, or an engine of high speed, using those terms absolutely.”

The use of the obviousness doctrine to confine claim scope can also be seen in the recent *KSR v. Teleflex* case. There, the Supreme Court held that one particular patent claim on an adjustable accelerator pedal—claim 4 of U.S. Patent Number 6,237,565—was obvious and therefore invalid. The patent itself has three other claims that are more narrow and that more closely track the specific type of adjustable pedal created by the named inventor. It is entirely possible that those more specific claims could be valid—even though the fourth claim is invalid. If those other claims are valid, the obviousness doctrine will have operated to confine the scope of the inventor’s claims.

This fourth function of nonobviousness brings us back to the intuition of “more rights, more responsibilities.” Even within patent law, as claims become broader, a more general and fundamental contribution will be necessary to sustain the rights.

### C. Historical Tests of Invention

The four economic functions of the obviousness doctrine provide good predictors of when the doctrine will be important and when it will not. The obviousness doctrine will be least important in societies where (1) patent rights are expensive to obtain and to enforce, (2) the pace of social change is relatively slow, (3) few inventors are likely to be working on similar projects, and (4) patent rights are kept relatively narrow. These conditions prevailed prior to the nineteenth century, and a clear conception of obviousness did not exist during that period. As patents became easier to obtain, patent rights

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57. See id. at 907–08 (“The claim is held to be valid as covering a combination in a road locomotive of the different elements with a liquid hydrocarbon compression engine of the Brayton type; the limitation to this type being read into the claim by the specification to save it from invalidity.”).

58. Id. at 908.


60. Id. at 1745.

61. See U.S. Patent No. 6,237,565 cols.5–6 (filed Aug. 22, 2000) (detailing three other claims that all include in the claim language a “guide member” on which the pedal adjusts back and forth).
broader, society less static, and inventors more numerous, the need for obvi-
ousness or some similar doctrine grew more dire. Still, the progress toward a
worldwide obviousness standard was not linear.

The chart below summarizes some of the different standards for
patentable invention that have been employed in the last half millennium.
Subjective tests look to the inventor’s own efforts. Such tests have been em-
ployed only occasionally throughout history. In the United States, a
subjective approach to judging patentability is now precluded by the last
sentence of § 103(a).  

The tests in the right column are objective; they are
not contingent on any efforts or qualities of the inventor. Roughly, the tests
listed lower in the columns are more difficult to satisfy.

<table>
<thead>
<tr>
<th>Subjective Tests</th>
<th>Objective Tests</th>
</tr>
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<tbody>
<tr>
<td>Novelty Only</td>
<td>Nonobviousness</td>
</tr>
<tr>
<td>(English practice seventeenth–nineteenth centuries)</td>
<td>(Dominant American practice 1850–present)</td>
</tr>
<tr>
<td>(French practice until twentieth century)</td>
<td>(English practice 1890–present)</td>
</tr>
<tr>
<td>Sweat of the Brow</td>
<td>Substantial Novelty / Nontriviality</td>
</tr>
<tr>
<td>(Venetian practice)</td>
<td>(American practice early nineteenth century)</td>
</tr>
<tr>
<td>Flash of Creative Genius</td>
<td>Objective Genius</td>
</tr>
<tr>
<td>(Cuno, 63 1941)</td>
<td>(Variant of American practice 1850–1952 and another interpretation of Cuno)</td>
</tr>
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As we will see, the history does not show steady progress toward the
nonobviousness standard, even though this standard (or some closely related verbal equivalent) eventually became a worldwide standard. Rather, while some concept of ingenuity was initially in the first patent law (Venice’s), the concept was lost when the idea of a patent system was transported to England. There, English practice required novelty or substantial novelty for a long period of time. American law, most likely inspired by an unusual exception in French law, began to move away from a novelty-only standard

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62. See 35 U.S.C. § 103(a) (2000) ("Patentability shall not be negatived by the manner in which the invention was made.").
63. Cuno Eng’g Corp. v. Automatic Devices Corp., 314 U.S. 84 (1941).
in the early 1800s. American law invented a concept of invention or nonobviousness that is based upon the capabilities of a person having ordinary skill in a field, but American law also experimented with arguably more stringent standards. English law lagged behind American law in recognizing nonobviousness, but after latching onto nonobviousness in the late nineteenth century, English law never experimented with more rigorous tests. While French law originated the statutory language that American common law judges would transform into the nonobviousness requirement, France was late to adopt nonobviousness into its law.

The development is spasmodic and irregular, with a general convergence taking decades to occur. Nor should this history suggest that the development process is complete. Rather, while a consensus on obviousness has been reached, nations continue to experiment with more accurate and more precise conceptions of obviousness. To a more detailed look at this history, we now turn.

II. Embryonic Patent Law: The Rise and Fall of Ingenuity

The relatively recent development of the nonobviousness doctrine is explained in part by the overall youth of the entire field of patent law. Unlike areas such as tort, contract, or more general property law, which can easily trace their origins back thousands of years, patent law can be traced back only a little more than half of a millennium, and it began in much the same way as the obviousness doctrine—tentatively, narrowly, and experimentally. At first, a few exclusive rights were granted to individual businesses as a discretionary reward for some innovation or the introduction of new technology from another country. These grants were at first exceptional, for antimonopoly policies were deeply rooted in ancient law. But the exceptions were generalized into a regular system for rewarding innovation, and that system spread as countries copied the legal innovation from each other. There were policy missteps in the process—and one of those missteps was the loss of any sense that the patent must cover something truly inventive rather than merely something new.

A. The Venetian Experiment and the Original Test of Invention

Patent law began as an exception to the classical hostility to legal monopolies in general and to innovation rewards in particular. In the Hellenistic era, Aristotle considered and rejected the idea of providing some incentive for innovation. His hostility toward the idea was based in part on

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64. See William Seagle, The History of Law 59–69 (1946) (discussing the development of archaic law).

a fear of social change and in part on the practical concern that people would generate novelties merely to obtain a reward rather than to achieve any practical benefit.\textsuperscript{66} While Aristotle provided a scholarly impediment to the development of patent law, late Roman law provided a legal impediment. In the late fifth century, Emperor Zeno issued a decree that strictly prohibited monopolies on “anything . . . [in] the common use of mankind,” with the punishment for disobedience set as loss of all property and perpetual exile.\textsuperscript{67} For hundreds of years after Zeno’s decree, nothing resembling a patent appeared in Europe or, so far as anyone can determine, anywhere else in the world. In Europe at least, the absence of patents can be explained partly because Europe lacked a state with sufficient sophistication to develop a patent policy and also partly because the late Roman hostility toward monopolies endured in the legal culture.

Precursors to patents began to appear in European jurisdictions during the fourteenth and early fifteenth centuries.\textsuperscript{68} These early “proto-patents”\textsuperscript{69}

\begin{itemize}
\item 66. Id. II.8.1268b25–31, at 2013; see also Trevor J. Saunders, Aristotle’s Politics Translated with a Commentary 145 (1995) (noting that “Greek literature on rewards and honours, on social and technical progress, and on the merits and demerits of making changes to laws and customs, is full of echoes of the points made” by Aristotle). Curiously, Aristotle opposed innovation rewards because he thought the idea would generate new legal innovations. See 2 Aristotle, supra note 65, II.8.1268b27–1269a14, at 2013–14 (“[f]or, under pretence of doing a public service, a man may introduce measures which are really destructive to the laws or to the constitution . . . .”); see also Merges & Duffy, supra note 6, at 1–2 (describing Aristotle’s concern that a system of innovation rewards would encourage legal innovations and Aristotle’s assertion that the law should not change too quickly); F.D. Prager, The Early Growth and Influence of Intellectual Property, 34 J. Pat. Off. Soc’y 106, 113 (1952) (concluding that Aristotle was concerned about “possible abuse [of innovation rewards] in the legal and constitutional field, where he definitely preferred stability to any development”). Of course, patents have generally not been granted for legal innovations—at least not yet! See Merges & Duffy, supra note 6, at 204–05 (stating that innovations in regulatory functions by private institutions are patentable and questioning whether legal and regulatory techniques will soon be patented); Ian Ayres, Supply-Side Inefficiencies and Competitive Federalism: Lessons from Patents, Yachting, and Bluebooks, in INTERNATIONAL REGULATORY COMPETITION AND COORDINATION 239, 241 (Joseph McCahery et al. eds., 1996) (“[i]nnovations in corporate law will not occur at the efficient rate [because legal] innovations are not accorded the same kinds of protection that are accorded to patents and other types of intellectual property.”); John F. Duffy, The FCC and the Patent System: Progressive Ideals, Jacksonian Realism, and the Technology of Regulation, 71 U. Colo. L. Rev. 1071, 1150 (2000) (describing the absence of market rewards for regulatory innovations as a problem to be remedied).
\item 67. S.P. Scott, 13 The Civil Law 120 (1932) (translating book IV, title 59 of the Code of Justinian). Zeno’s decree purported to make illegal not only private monopolies but even those purportedly authorized by imperial “[r]escript already promulgated, or which may hereafter be promulgated.” Id. The decree is traditionally dated to approximately 480 A.D. See Prager, supra note 66, at 115.
\item 68. See Simon Thorley et al., Terrell on the Law of Patents § 1-06, at 2 (16th ed. 2006) (tracing the origins of English patent law to the “prerogative of the Crown” to grant charters and patents to trade guilds and corporations). Between 1331 and 1452, the Crown granted exclusive rights to various “foreign weavers and other craftsmen.” Id. However, at least some of these grants do not seem to have been predicated on innovation. See id. (noting that grants were conferred for importing Cornish tin and for selling sweet wines in the City of London).
\end{itemize}
or “quasi-patents” were merely ad hoc grants of exclusive business rights from a sovereign entity. While some of these grants were based explicitly on industrial innovations or other introductions of novel technologies, others seem to have been motivated in part by other policy objectives, including outright favoritism. Thus, for example, a 1398 decree from the Duke of Saxony conferred an exclusive right to produce paper on a new paper mill, even though at the time the art of paper making was, at best, only new to that particular region of Europe. Similarly, monopoly privileges in glassmaking were also granted in France during the fourteenth century, but those grants seem to have been designed “to restrict—not stimulate—French glassmaking in order to conserve the forests which provided wood and charcoal for this industry.”

This period is best described as an era of experimentation with state-sponsored monopolies. The influence of the antimonopoly policy of Roman law waned, and numerous states began to grant monopolies to serve a variety of commercial or political ends.

The policy of granting monopolies specifically and solely to encourage technological development first crystallized in the Venetian Republic. In the later half of the fifteenth century, Venice granted monopoly privileges with increasing frequency for allegedly improved industrial devices and processes brought about by the applicant’s “skill and experience.”

70. Prager, supra note 66, at 123.
71. See BRUCE W. BUGBEE, GENESIS OF AMERICAN PATENT AND COPYRIGHT LAW 14 (1967) (noting that in England “‘letters patent’ . . . were issued for all sorts of privileges and grants” and that “true patents of invention—which were very late in appearing—comprised only a very small fraction of the total”).
72. Prager, supra note 66, at 123–24 (discussing the grant and setting forth a partial translation from the original German). The recitation in the grant mentions only that the mill is “newly started” and has obtained the Duke’s “favor and grace.” Id. at 123. The grant protects the mill from any competition that might be damaging in any manner. Id. at 123–24.
73. BUGBEE, supra note 71, at 169 n.30; see Prager, supra note 66, at 124 (also viewing as a type of quasi-patent the early French grants of monopolies “for the establishment of glass furnaces in forests owned by the Crown”).
74. See, e.g., BUGBEE, supra note 71, at 23 (crediting the Venetian Republic with “the world’s first known patent system”); DONALD S. CHISUM ET AL., PRINCIPLES OF PATENT LAW 11 (3d ed. 2004) (noting that the Venetian Republic enacted “the first known patent statute”); M. Frumkin, The Origin of Patents, 27 J. PAT. OFF. SOC’Y 143, 144 (1945) (“After 1450 the grant of real patents became quite systematic in Venice.”); Prager, supra note 66, at 107–08 (noting that the system of patent monopolies was perfected in Italy, mainly in Venice during the fifteenth century); Edward C. Walterscheid, The Early Evolution of the United States Patent Law: Antecedents (Part 1), 76 J. PAT. & TRADEMARK OFF. SOC’Y 697, 706 (1994) (same). Venice’s claim to priority in the development of the first true patent law is based on the work of Giulio Mandich. See Giulio Mandich, Venetian Patents (1450–1550), 30 J. PAT. OFF. SOC’Y 166, 169 (1948) (“We can now claim the priority of Venice in recognizing the right of inventors.”).
75. Mandich, supra note 74, at 173 (quoting a Venetian monopoly grant made in 1460 for an improved stove).
“pertinent thoughts and labors,”76 or “efforts, study and ingenuity.”77 The grants thus looked to the efforts of the individual being rewarded. If such “sweat of the brow” were seen as a prerequisite to exclusive rights, then the Venetian patent system was employing a patentability standard that required more than mere novelty and utility, but the standard was subjective.

The practice of rewarding innovation with exclusive rights was confirmed in the Venetian Act of March 19, 1474, which is the first-known legislative statement of generally applicable patent principles:

WE HAVE among us men of great genius, apt to invent and discover ingenious devices; and in view of the grandeur and virtue of our City, more such men come to us every day from divers parts. Now, if provision were made for the works and devices discovered by such persons, so that others who may see them could not build them and take the inventor’s honor away, more men would then apply their genius, would discover, and would build devices of great utility and benefit to our commonwealth. Therefore:

BE IT ENACTED that, by the authority of this Council, every person who shall build any new and ingenious device in this City, not previously made in our Commonwealth, shall give notice of it to the office of our General Welfare Board when it has been reduced to perfection so that it can be used and operated. It being forbidden to every other person in any of our territories and towns to make any further device conforming with and similar to said one, without the consent and license of the author, for the term of 10 years. And if anybody builds it in violation hereof, the aforesaid author and inventor shall be entitled to have him summoned before any magistrate of this City, by which magistrate the said infringer shall be constrained to pay him hundred ducats; and the device shall be destroyed at once. It being, however, with the power and discretion of the Government, in its activities, to take and use any such device and instrument, with this condition however that no one but the author shall operate it.78

Of more enduring significance than any innovation rewarded under it, this Venetian statute is a true legal innovation. The statute includes many recognizable features of modern patent law: an exclusive right; a limited term; at least a crude administrative examination; and requirements of novelty (albeit mere territorial novelty), operability, and utility.

An embryonic requirement of nonobviousness or inventiveness also seems to appear, for the statute requires the device to be a “new and ingenious device”—in the original Italian, “nuovo et ingegnoso artifico.”79

76. Id. at 173 (quoting a Venetian monopoly grant made in 1460 for a device for raising water).
77. Id. at 174 (quoting a Venetian monopoly grant made in 1469 for the newly imported art of printing).
78. Id. at 176–77 (quoting a translation of the Venetian statute’s original language by F.D. Prager).
79. Id. at 177.
Writing in the middle part of the twentieth century, Giulio Mandich interpreted this passage as setting forth “in outline, a requirement of inventive merit . . . according to which the invention must not be a trifling, all too obvious application of known technology.”\footnote{Id.} That may, however, be too much of a twentieth-century spin. As with grants prior to 1474, subsequent Venetian patents (which, despite the general legislative declaration, were often still granted in separate acts) tended to emphasize “the heavy expense, assiduous labors, and burning of the midnight oil” that the applicant undertook to create the invention.\footnote{Id. at 184.} In other words, the test was subjective—looking to the efforts of the inventor—not objective.

The policy set forth in the Venetian statute was quite plainly copied throughout Europe. The historical evidence is strong that other jurisdictions did not independently invent the concept of patent law, but rather followed the Venetian example. Nevertheless, if the Venetian statute or practice did include some concept of an invention standard in addition to mere novelty and utility, that concept was lost as the Venetian concept of patent law was transmitted. One jurisdiction in particular seems responsible for the loss—England.

B. The English Experience and the Loss of Ingenuity

The concept of patent law as the modern world knows it—i.e., as a legal device for rewarding innovations—was imported into England from Venice. Letters patent (open or public letters) granting exclusive franchises were well known in England by the mid-fifteenth century, but such letters had previously been used to encourage industrial growth or relocation, not as a reward for innovation.\footnote{See E. Wyndham Hulme, The History of the Patent System Under the Prerogative and at Common Law, 12 LAW Q. REV. 141, 142–44 (1896) (describing the English system of patents as a means of industrial protectionism).} The idea of using letters patent to reward innovation was introduced to England by an Italian, Jacobus Acontius, who came from an area dominated by the Venetian Republic and who may even have had “first hand” knowledge of the Venetian system as a patentee.\footnote{See Jeremy Phillips, The English Patent as a Reward for Invention: The Importation of an Idea, 3 J. LEGAL HIST. 71, 75 (1982) (discussing evidence suggesting that Acontius acquired the concept of the patent reward from personal experience as a patentee in Venice, rather than through printed material).} In 1559, Acontius sent Elizabeth I a petition reciting that through “much expense in experiments,” he had discovered “most useful things,” but that without a royal prohibition on using machines such as his, he “shall have no returns” on his investments.\footnote{Id. at 71.} Acontius’s royal grant, which occurred in 1565,
contained the core thought of the patent system: “[I]t is right that inventors should be rewarded and protected against others making profit out of their discoveries.”85

In the ensuing years, English monarchs established a practice of rewarding innovation with the grant of a patent. The patents themselves would use language highly similar to that found in Venetian patent grants, stressing that the exclusive rights were conferred because the monarch wished to “favour[] ... ingenious and profitable inventions” and because the inventors had expended “great travail and industry,” it was “agreeable to justice, that the authors of so laudable and useful inventions should, in some good measure, reap the fruits of their studies, labours, and charges.”86 Early English patent grants thus show some evidence that along with the general idea of a patent system, the English also imported some idea that patents should be based on “ingenious” and “laudable” advances requiring study, labor, and investment.87 Thus, the English patent system also seemed to have imported the subjective standard of invention used by Venice.

Over the next two-and-a-half centuries, however, the English did nothing to advance the Venetian concept of invention. Indeed, the core thought that a patent should be based on more than mere novelty and utility was utterly lost during this period. Some of the explanation for this loss involves factors that were outside the control of the English legal and political system. The Venetian concept of invention was primitive at best, and because a more static society needs the concept of nonobviousness or an

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85. Id.; see also WILLIAM HYDE PRICE, THE ENGLISH PATENTS OF MONOPOLY 7–8 (1913) (tracing the English patent system back to the petition for a reward filed by “Giacopo Acontio” (a variant of the name Jacobus Acontius)); Hulme, supra note 82, at 148, 151 (recognizing that Acontius “first suggested to the Crown that a monopoly was the most effectual method of rewarding an inventor” and that “the acceptance by the Crown of the Monopoly policy advocated by Acontius” produced a “revolution” in the English system).

86. Dudley’s Patent, Letters Patent to Edward Lord Dudley (Feb. 22, 1622), reprinted in THOMAS WEBSTER, REPORTS AND NOTES OF CASES ON LETTERS PATENT FOR INVENTIONS 14, 14 (London, Thomas Blenkarn 1844). Other evidence also suggests that the English borrowed the idea of innovation patents from Venice. At least one sixteenth-century English book attributes to Venice the idea of granting public rewards for invention, and the early English patents covering innovations also tended to follow the Venetian practice of issuing the grant with a term of years divisible by five (usually ten or twenty years), rather than the preexisting English practice of having the term of monopoly grants be divisible by seven (usually fourteen or twenty-one years). See Maximilian Frumkin, Early History of Patents for Invention, 26 TRANSACTIO NS NEWCOMEN SOC’Y 47, 50–51 (1947) (referring to Hulme’s Statistical Bibliography, Etc., which claims 1561 as the beginning of the English patent system). As one historian has concluded, “one way or another, Italian influence shows like a thread in all incipient patent systems.” Id. at 52; see also CHRISTINE MACLEOD, INVENTING THE INDUSTRIAL REVOLUTION: THE ENGLISH PATENT SYSTEM, 1660–1800, at 10–11 (1988) (concluding that the English patent system was borrowed from Venice).

87. See MACLEOD, supra note 86, at 13 (noting that petitions for patents in late seventeenth-century England regularly mentioned the labor and costs expended by the inventor and described the potential social and economic benefits of the invention); see also Frumkin, supra note 86, at 50 (explaining that the notion of privileges for new ideas and inventions had to be borrowed from Venice).
inventive step less than a more dynamic society,\textsuperscript{88} the need for an invention doctrine was almost certainly less than today. Still, the loss of ingenuity can be traced to specific failings in the English legal system, including institutional weaknesses, at least two influential missteps by the leading seventeenth-century commentator, and perhaps most importantly, a major distraction caused by a constitutional fight between the Crown and Parliament. The English experience thus demonstrates the missteps that can occur during the development of legal doctrine. We begin our study with the constitutional conflict.

The arrival of the concept of invention monopolies from Venice did not put an end to English Crown’s unfortunate practice of granting other kinds of monopolies to royal favorites. By the end of the sixteenth century, that practice had, to put it mildly, gotten out of hand. Patents conferred monopolies for vinegar, salt, horns, iron, bags, bottles, and other common commodities.\textsuperscript{89} Queen Elizabeth I even went so far as to reward one of her favorites, Sir Walter Raleigh, with a patent covering wine shops.\textsuperscript{90} So many patents were issued that one entrepreneur sought and obtained a patent “for writing letters patent.”\textsuperscript{91} It was an indication of just how wrong things were that writing patents had become a lucrative industry in itself.

The English legal and political culture reacted to this abuse, but the ensuing constitutional fight distracted legal thinkers from the task of maintaining and refining a concept of invention. As a first step in curbing the abuse of the royal patenting power, Parliament pressured Queen Elizabeth to decree in 1602 that courts could determine the validity of letters patent according to the principles of common law.\textsuperscript{92} Prior to this decree, the power of the courts to invalidate patents was quite limited. If the letter patent recited that it had been granted because of a new invention, then the patent could be invalidated if the court determined that no invention had been made. The theory in such cases was that the patent was based on a “false

\textsuperscript{88} See supra section I(B)(2) (explaining that the obviousness doctrine is most important where exogenous changes in technology or other social conditions give rise to obvious, but nonetheless valuable, novelties).

\textsuperscript{89} See WALTER F. ROGERS, 1 THE LAW OF PATENTS 264 (1914) (setting forth a list of patents granted during the period); see also Graham v. John Deere Co., 383 U.S. 1, 5 (1966) (noting that the abusive “practices . . . of the Crown in granting monopolies to court favorites in goods or businesses which had long before been enjoyed by the public” were “eventually curtailed by the Statute of Monopolies”); THORLEY ET AL., supra note 68, § 1-10, at 3–4 (noting that in the time leading up to the 1623 Statute of Monopolies, “[t]he abuses of the monopoly system finally became so scandalous that the agents most concerned in enforcing certain patents were impeached”).

\textsuperscript{90} See BUGBEE, supra note 71, at 37 (describing Queen Elizabeth I’s “notorious” habit of granting monopolies for control or supervisory powers over well-established commercial activities, such as the authority over wine shops given to Sir Walter Raleigh).

\textsuperscript{91} ROGERS, supra note 89, at 263.

\textsuperscript{92} See HAROLD G. FOX, MONOPOLIES AND PATENTS 77 (1947) (noting that Elizabeth’s decree promised that no monopolies could be “put into execution but such as should first have a trial according to the law for the good of the people”).
premise,93 and thus the invalidation was not an affront to royal power. Queen Elizabeth’s decree allowed the courts to consider the validity of noninnovation patents as well, but significantly, it did not specify the grounds on which such patents could be invalidated.

The famous case of Darcy v. Allen94 arose soon after Queen Elizabeth’s decree. The patent in that case covered the importation and sale of playing cards, and it was clearly based on favoritism rather than innovation.95 Though the defendant’s attorneys challenged the validity of such patents, the difficulty with such a challenge was that it raised highly sensitive questions concerning royal constitutional power to grant monopolies, and the legal precedents on the subject were sparse. Ultimately, the judges ruled for the defendant but gave no reasons for their decision.96 Because the defendant’s attorney had relied on numerous grounds to defeat the patentee’s suit—including some grounds that would not have invalidated the patent and some that would invalidate the patent while imposing relatively modest limits on the Crown’s power to issue patents—the decision did not end the controversy over royal monopolies.

Twenty years after Darcy, the controversy over royal monopolies culminated with Parliament’s passage in 1623 of the Statute of Monopolies.97

93. See Jacob I. Corré, The Argument, Decision, and Reports of Darcy v. Allen, 45 EMORY L.J. 1261, 1204–05 (1996) (explaining that patents of invention could be invalidated on the grounds of false premise when it was later discovered that there was no new invention).


95. The claimed justification for the monopoly on playing-card manufacture and import was that “card-playing was becom[ing] more frequent,” and the Queen desired that “her subjects might apply themselves to more lawful and necessary trades.” The Case of Monopolies, 11 Co. Rep. at 84b, 77 Eng. Rep. at 1260; see also Darcy, [1603] Noy at 173, 74 Eng. Rep. at 1131 (claiming the motivation to be the Queen’s perception that “divers subjects of able bodies which might go to plow, did imploy themselves in the art of making cards”). Coke records the defense, noting the plaintiff’s lack of expertise: “And it cannot be intended, that Edward Darcy an Esquire, and a groom of the Queen’s Privy Chamber, has any skill in this mechanical trade of making cards . . . .” The Case of Monopolies, 11 Co. Rep. at 87a, 77 Eng. Rep. at 1264. Noy quotes the defense arguing that the patent failed entirely in its stated aims: “This patent is no restraint of card-playing. But rather an occasion of increase of play, as I can prove plainly, as it is now used, and doth but take the trade of making and selling of cards from many persons, and giveth that trade to one, which is unlawful.” Darcy, [1603] Noy at 184–85, 74 Eng. Rep. at 1141.

96. See Corré, supra note 93, at 1267–72 (discussing the uncertainty in the basis for the decision).

97. Statute of Monopolies, 1623, 21 Jac., c. 3 (Eng.). The proviso on invention patents reads:

Provided alsoe That any Declaracion before mentioned shall not extend to any tres Patents and Graunt of Privilege for the tearme of fowerteene yeares or under, hereafter to be made of the sole working or makinge of any manner of new Manufactures within this Realme, to the true and first Inventor and Inventors of such Manufactures, which others at the tymes of makinge such tres Patents and Graunts shall not use, soe as alsoe they be not contrary to the Lawe nor mischievous to the State, by raisinge prices of Commodities at home, or hurt of Trade, or generallie inconvenient; the said fourteene
This statute was destined to become famous in two branches of law. In what
we now call antitrust (or, in Europe, competition law), the Statute is a re-
owned early precedent demonstrating the Western preference for
competition over monopoly. In patent law, the statute remained for more
than two centuries the sole statutory recognition of the English system for
granting monopolies for innovations. Such is the importance of the Statute
that even into the twenty-first century, courts deciding patent cases continue
to interpret and apply the language of the Statute.

Yet perhaps because the Statute of Monopolies was directed primarily at
ending the long controversy over abusive royal monopolies, it did not focus
on innovation policy nor attempt to articulate intellectual justifications for
the award of innovation monopolies. Rather, the Statute had an effect on
innovation law only through a single proviso, which exempted patents for
inventions from the Statute’s general prohibition on royal patent monopolies.
The crucial language permits the Crown to continue issuing patents for “any
manner of new Manufactures.” Unlike the Venetian statute, mere novelty
is sufficient to fall within the proviso; there is no explicit requirement of
ingenuity.

It is easy today to criticize the Statute of Monopolies as deficient
because it lost the Venetian concept of ingenuity. But the Statute itself was a
tremendously positive development in England’s general monopoly policy.
The loss of ingenuity is better viewed as collateral damage from the decades
of abusive monopolies by the Crown. Thought and energy were properly

\[\text{id.} \ § 6. \] The text of the Statute of Monopolies is available online on the U.K. Statute Law Database

98. 1 EARL W. KINTNER, FEDERAL ANTITRUST LAW § 2.3, at 48 (1980) (citing the Statute of
Monopolies as a “famous” declaration by Parliament of “its sense of the common law” against
monopolies). In antitrust law, the Statute of Monopolies is often credited as originating the private
action for treble damages. See Edward D. Cavanagh, Detrebling Antitrust Damages: An Idea
Whose Time Has Come?, 61 TUL. L. REV. 777, 782 (1987) (explaining that the treble damages
clause of the Sherman Antitrust Act was apparently patterned “after a similar provision contained in
a statute on monopolies which was enacted by the British Parliament in 1623”); James A. Rahl,
(mentioning that treble damage suits “were invented by the English Statute of Monopolies of
1623”).

http://www.austlii.edu.au/au/cases/cth/federal_ct/2001/445.html, where the Federal Court of
Australia recognized that the definition of patentable invention descends directly from the Statute of
Monopolies. The Australian court interpreted this ancient language to sustain the validity of a
business-method patent directed to the operation of customer-loyalty programs with so-called smart
cards (e.g., a credit or debit card containing a microprocessor). Id.

100. THOMAS WEBSTER, THE LAW AND PRACTICE OF LETTERS PATENT FOR INVENTIONS 44–
45 (London, Crofts & Blenkarn 1841) [hereinafter WEBSTER, 1841 LAW AND PRACTICE].

101. Statute of Monopolies § 6 (emphasis added).
directed toward the more urgent task of ending those abuses. The concept of invention received less attention and accordingly suffered some degradation.

The controversy over royal monopolies was not, however, the only explanation for the loss of an ingenuity concept. Though it had no explicit requirement other than mere novelty, the Statute of Monopolies contained several textual bases from which a doctrine of invention could have been developed. No such doctrine did develop—or at least did not develop until the second half of the nineteenth century—because of missteps, institutional deficiencies, and historical accidents.

One textual basis for developing an invention doctrine was the requirement that patents be awarded only to the “true and first Inventor or Inventors.” This language could have been seized upon to demand that patentees actually have exercised an inventive faculty. Yet the structure of the Statute did not lend itself to this reading. The Statute appears to contemplate that any “new Manufactures” would be patentable, and the language “to the true and first Inventor and Inventors of such Manufactures” seems merely to specify who would be the proper recipient of the patent. Moreover, the word “inventor” was, at the time, considered to extend not only to any discoverer, but even to an introducer of a novelty. Thus, the Statute permitted the continued issuance of so-called patents of importation—patents issued to the first person to introduce an existing foreign technology to domestic industry. Such patents may advance other policy goals (such as encouraging entrepreneurs to test new markets), but they are not necessarily congruent with the policy of fostering technical innovation. The survival of such patents in England created another barrier to further development of a more modern concept of invention under the Statute of Monopolies.

The Statute of Monopolies did, however, continue the discretion of the royal government to refuse patents, and the government could have demanded that patent applicants have demonstrated significant creativity as a prerequisite for a patent. The textual basis for the government’s continuing discretion was quite solid. The Statute of Monopolies expressly stated that with respect to the granting of monopolies on new manufactures, the Statute was designed to keep the law the same as before—as “if this Act had never byn made”—and the Crown’s preexisting power to grant monopolies was

102. Id.

103. See E. Wyndham Hulme, *On the History of Patent Law in the Seventeenth and Eighteenth Centuries*, 18 LAW Q. REV. 280, 281 (1902) (relying on older definitions of the word “invent” to conclude that “the proper interpretation of ‘the first and true inventor’ of the statute in 1623 was the true and first founder or institutor of a manufacture”); see also id. (observing that the concept of invention in the modern sense, “i.e., the exercise of the inventive faculty, was not an essential qualification” under the Statute of Monopolies).

104. See Edward C. Walterscheid, *Divergent Evolution of the Patent Power and the Copyright Power*, 9 MARQ. INTELL. PROP. L. REV. 307, 344 (2005) (“Great Britain and indeed every other country with a patent custom at the time the Constitution was drafted authorized so-called patents of importation.”).

a discretionary power of royal prerogative. Furthermore, the Statute included broad language authorizing the denial of patents where they would be “mischievous to the State, by raisinge prices of Commodities at home, or hurt of Trade, or generallie inconvenient.” 106  This language provided not only a textual basis for the utility doctrine of patent law (the requirement that patented inventions be useful), 107 but also a basis for denying “inconvenient” patents under a broad range of circumstances. Yet this possible basis for an invention doctrine was ignored for two-and-a-half centuries due to both institutional limitations and a misstep by Sir Edward Coke, who was the leading commentator in the field.

Soon after enactment of the Statute, Coke’s influential commentary gave as one example of an “inconvenien t” patent a new type of mill that would have replaced workers and thus threatened “to turn so many labouring men to idleness.” 108 That example is shockingly Luddite, and disfavoring labor-saving inventions would seem to be very bad innovation policy. Fortunately, Coke’s commentary did not have the destructive impact that it could have had. There is no evidence that the English Crown generally denied patents due to fears of increased unemployment. Yet throughout the seventeenth and eighteenth centuries, the Crown authorities did continue to exercise considerable discretion in denying patents ad hoc on political grounds. For example, the government refused patents on inventions that threatened a particular source of royal taxes (e.g., by allowing a lower taxed good to be substituted for a higher taxed one) 109 or that drew opposition from

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106. Id.

107. See EDWARD COKE, THE THIRD PART OF THE INSTITUTES OF THE LAWS OF ENGLAND 183 (William S. Hein Co. 1986) (1641) (interpreting the language “nor mischievous to the state by raising of prices of commodities at home” as requiring that “[i]n every such new manufacture that deserves a priviledge, there must be urgens necessitas, and evidens utilitas”); see also Morgan v. Seaward, (1837) 2 M. & W. 544, 562, 150 Eng. Rep. 874, 881 (Exch. Div.) (“A grant of a monopoly for an invention which is altogether useless may well be considered as ‘mischievous to the state, to the hurt of the trade, or generally inconvenient,’ within the meaning of the [Statute of Monopolies].”). Baron Parke also noted, however, the then-standard practice did not rely on the statutory language as the basis for invalidating useless patents: “It may be that the proper form of plea is to use the words of the statute, and not to plead the want of utility; though it would probably be too late to take that objection in the present stage.” Id. Some precedent in the late twentieth century suggested that the nonobviousness doctrine was also grounded in this statutory language. See, e.g., Blendax-Werke’s Application, [1980] R.P.C. 491, 505 (Pat. Ct.) (quoting the “generally inconvenient” language of § 6 of the Statute of Monopolies); L’Oréal’s Application, [1970] R.P.C. 565, 572, 569–72 (Pat. App. Trib.) (citing the Statute of Monopolies, and stating that a patent with no basis for nonobviousness had “contributed nothing to the stock of human knowledge” and therefore granting a patent “would be both hurtful to trade and generally inconvenient”). But that justification was a mere afterthought, as the English nonobviousness doctrine developed in the late nineteenth century without any reliance on the text of the Statute of Monopolies.

108. COKE, supra note 107, at 183–84.

109. See MACLEOD, supra note 86, at 22–24 (providing examples in which the royal government in the sixteenth and seventeenth centuries questioned or rejected patent applications due to concerns over tax revenues).
a politically powerful guild, company, or trade association. But the royal discretion was not used to refine the concept of invention or to develop a requirement that patents cover a significant technological contribution.

The institutional structure of the English patent system provides a good explanation for why royal officials focused more on politics than on technological achievement. The English patent system of that time is often described as a “registration” system because, unlike the current U.S. system, the executive branch officials would undertake no systematic examination of the patent application to ensure the bona fides of the alleged invention. As one historian describes the process, the novelty of the invention “was generally taken on trust,” with the understanding that the courts could invalidate issued patents found not to be novel. Still, the applicant had no right to obtain a patent, and the executive was entitled to exercise discretion. But because the officers charged with administering the system were political officials, they tended to consider political factors rather than technological factors. An enormous practical problem stood in the way of developing a concept of invention within the executive branch: the royal government would have needed to hire a bureaucracy capable of distinguishing the worthy from the unworthy—the inventive from the noninventive. In fact, the English continued to resist the idea of a technological examination of patent applications well into the twentieth century, when the registration style of a patent system was finally abandoned. With such an institutional structure, there was little hope of the executive officials refining the concept of invention.

One last statutory basis for developing a doctrine of invention is the requirement that patents “be not contrary to the Lawe.” The history explains the meaning of that requirement. The Statute of Monopolies did not itself create a law of patents so much as abolish the royal abuses of the patenting power. Thus, English commentators have consistently read the

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110. See id. at 43 (“Opposition from interested parties may have obstructed more applications than is apparent from official records. Henry Oldenburg’s attempt to patent watch springs, for example, was halted by opposition within the Royal Society . . . .”); id. at 32 (detailing the government’s refusal to issue a patent for a new method of drawing gold and silver wire because of opposition by the London Gold and Silver Wire Drawers).

111. E.g., id. at 41.

112. Id.

113. Id. at 42.

114. The main officers holding discretion in the royal government were the law officers (the Attorney or Solicitor General) and the members of the Privy Council, which had power to revoke a patent. Id. at 41–42.


116. Statute of Monopolies, 1623, 21 Jac., c. 3, § 6 (Eng.).
Statute of Monopolies as “distinctly recognis[ing] the existence of an old common law.”

The Statute of Monopolies thus left an opening—the common law—by which courts and commentators could have developed an invention doctrine. Moreover, in summarizing the theory under which the common law accepted patents for inventions, Coke echoed the original Venetian theory that patents reward inventors for their hard work and ingenuity and thereby encourage others to make similar efforts:

[T]he reason wherefore such a privilege is good in law is, because the inventor bringeth to and for the common wealth a new manufacture by his invention, cost and charges, and therefore it is reason, that he should have a privilege for his reward (and the encouragement of others in the like) for a convenient time. Coke’s commentary even retained some notion that a patent should be based on more than just novelty and utility. He opined that a patent could not be “consonant” to the preexisting common law unless it was “substantially and essentially newly invented.”

Despite this possible basis for developing a more rigorous conception of invention, the English courts failed to do so. The institutional structure of the English patent system again provides part of the reason for this failure. The English system for obtaining a patent was expensive and cumbersome. In the seventeenth and eighteenth centuries, only a small number of persistent inventors were able to wring patents from the system. To some degree, the difficulty of obtaining a patent decreased the need for a stringent legal requirement of invention. Part of the justification for the modern nonobviousness requirement is that it prevents a profusion of paltry patents from clogging the channels of commerce and industry. But economically trivial patents can also be thwarted by an expensive application process.

The expense and difficulty of the application process is only part of the reason for the nondevelopment of the invention doctrine. Another part of the problem can be traced to Coke’s commentary. In explaining the preexisting common law concept of invention, Coke referred to an unpublished sixteenth-century case, Bircot’s Case, which he summarized as recognizing that “if the substance was in esse [in existence] before, and a new addition thereunto, though that addition make the former more profitable, yet it is not a new manufacture in law.” Such an addition—

117. THOMAS WEBSTER, REPORTS AND NOTES OF CASES ON LETTERS PATENT FOR INVENTIONS iii (London, Thomas Blenkarn 1844).
118. COKE, supra note 107, at 184.
119. Id. at 183.
120. See id. at 40–57 (detailing a variety of administrative and legal obstacles to obtaining patents in the seventeenth and eighteenth centuries).
121. See id. at 184 (discussing Bircot’s Case).
122. Id.
even a profitable one—should be disfavored because it was “to put but a new button to an old coat: and it is much easier to add than to invent.” Coke’s commentary thus encouraged courts to disfavor patents for improvements to existing technology.

In hindsight, Coke’s view is plainly a misstep in the development of the invention doctrine, but that misstep took time to correct. As late as 1741, one court adhered to Coke’s view and invalidated the patent on a plow that was “not substantially and absolutely a new invention but barely and only a small additional improvement on an old invention, such as was frequently made on many other utensils in husbandry.” At best, Coke’s views could be read to support a “substantial” novelty standard of patentability, but that standard is a highly ambiguous and imperfect measure of invention.

Not until the late eighteenth century did the courts reject Coke’s views. Eliminating hostility to improvement patents was surely a positive development. As Lord Mansfield noted in 1776, “if the objection to the patent on the grounds of the invention being only an addition to an old machine were to prevail, that objection would go to repeal almost every patent that was ever granted.” Moreover, Coke’s account of Bircot’s Case—with its assertion that addition is easier than invention, like putting a new button on an old coat—had “more quaintness than solidity in the reason assigned.” Improvement patents are ubiquitous, and adding something useful and new to an existing machine is not always so trivial as Coke thought.

But correcting Coke’s misstep had its own cost. In rejecting Coke’s hostility to improvement patents, the English courts also eliminated the last

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123. Id.
124. MACLEOD, supra note 86, at 68.
125. See, e.g., Boulton & Watt v. Bull, (1795) 1 Carpmel Pat. Cas. 117, 145 (Ct. Com. Pl.) (opinion of Eyre, L.C.J.) (criticizing Coke’s commentary on patents as “sometimes not quite intelligible”) and noting that to the extent Coke was arguing that a mere addition to an existing manufacture would not support a patent, that principle “has been . . . not adhered to”; Morris v. Bramson, (1776) 1 Carpmel Pat. Cas. 30, 34 (K.B.). Some cases kept an echo of Coke’s view by, for example, observing that “if there be any thing material and new, which is an improvement of the trade, that will be sufficient to support a patent.” The King v. Arkwright, (1785) 1 Carpmel Pat. Cas. 53, 93 (K.B.) (opinion of Buller, J.) (emphasis added). Materiality was measured by the utility of the addition to the trade, not by the technical difficulty in accomplishing the addition.
126. Bramson, 1 Carpmel Pat. Cas. at 34.
127. Boulton, 1 Carpmel Pat. Cas. at 142 (opinion of Buller, J.). Justice Buller thought that “arts and sciences . . . were at so low an ebb, in comparison with that point to which they have been since advanced, and the effect and utility of improvements so little known, that I do not think [Bircot’s Case] ought to preclude the question [whether additions may be patented].” Id. at 142–43 (citation omitted). The American treatise writer Willard Phillips also noted that the rule in Bircot’s Case was abandoned by English courts in the late eighteenth century. WILLARD PHILLIPS, THE LAW OF PATENTS FOR INVENTIONS 116–19 (Boston, Am. Stationers’ Co. 1837).
vestiges of an invention doctrine from English law. In 1842, the court in *Crane v. Price* could declare:

"If the result produced by such a combination [of two previously known things] is either a new article, or a better article, or a cheaper article to the public, than that produced by the old method, that such combination is an invention or manufacture intended by the [Statute of Monopolies], and may well become the subject of a patent . . . ."

*Crane* thus established that novelty and utility alone were sufficient to sustain patentability under English law. Technical difficulty had become wholly foreign to the English law.

In sum, the history from the sixteenth through to the mid-nineteenth centuries shows English law gradually forgetting or losing any concept of invention inherited from Venetian law. If a manufacture was new and useful in trade, then it was considered a patentable invention under English law. The English experience demonstrates that the evolution of legal doctrine is not linear. Major mistakes can occur, and more importantly, they can persist for decades or even centuries.

English law would eventually embrace an obviousness doctrine, but not until fairly late in the nineteenth century, several decades after the United States had recognized that novelty and utility were not the only prerequisites to a patent. In the middle of the nineteenth century, some English decisions employed a somewhat broader sense of the “novelty” requirement, but it was not until 1889 that the English precedents began to use the concept of obviousness. Yet, once English cases did adopt the obviousness doctrine, they did not, as American courts did, experiment with a more stringent standard of invention. Perhaps because the English courts evolved from a system that focused almost exclusively on novelty, they did not believe it possible to impose a very stringent standard of invention.

III. The Rise of the Invention Standard: The American Contribution

The origins of the modern nonobviousness doctrine in the law of the United States—and indeed perhaps also in worldwide law, to the extent that
other nations copied from the United States—can be traced back directly to a
tiny exception contained in the French Patent Law of 1791.132 In France,
little came of the exception. But the United States borrowed the French
exception, and here it flourished. As judges applied the exception in specific
cases, it was narrowed in some respects and expanded in others. By 1836,
when the statutory language embodying the exception was repealed, the
doctrine spawned by the statutory exception had already mutated into a more
general requirement of patent law. That general doctrine survived and
indeed began to take on even more importance. The transformation of a
small exception into one of the fundamental prerequisites for obtaining a
patent was completed in Hotchkiss v. Greenwood.133 That case—as the quote
at the beginning of this Article shows—would become internationally
famous. Yet Hotchkiss’s fame is only partially deserved. It was a single
event in the development of a new patentability standard, but it grew out of
earlier incremental legal experiments that were nourished by commentators
and by the common law process.

A. Early American Patent Statutes: English, American, and French Components

The patent law of the United States has always required that an
invention must be (1) new and (2) useful to be patentable.134 In the early
history of the U.S. patent system, those two requirements formed the essence
of the patentability standard. In this respect, the early U.S. law followed
English law.

Yet although English law provided the baseline, American law had
distinctive features. The country’s first patent statute hinted of a possible
third requirement for patentability. The 1790 Patent Act conferred discretion
on the members of a patent board (consisting of the Secretary of State, the
Secretary of War, and the Attorney General) to grant a patent “if they shall
deem the invention or discovery sufficiently useful and important.”135
Though that requirement is semantically quite different from the modern
nonobviousness requirement, it can be viewed as similar if “sufficiently . . .
important” is construed as referring to technical importance. The 1790
statute was, however, short-lived, and no judicial decisions ever interpreted
the requirement.136

132. Decree of May 25, 1791, Collection Générale des Décrets Rendus par L’Assemblée
Nationale [General Collection of Decrees by the National Assembly], May 1791, p. 164.
133. 52 U.S. 248 (1851).
134. See MERGES & DUFFY, supra note 6, at 357 (“To obtain a patent, you must do something
new. This is bedrock patent law, and has been for a long time, at least since the seventeenth
century.”); id. at 207 (explaining that the Patent Act’s utility requirement “descends directly from
language authored by Thomas Jefferson and enacted into law in 1793”).
135. Act of Apr. 10, 1790, ch. 7, § 1, 1 Stat. 109, 110 (repealed 1793) (emphasizes added).
136. The “sufficiently useful and important” formulation was revived in 1836. See Patent Act
of 1836, ch. 354, § 7, 5 Stat. 115, 120 (amended 1870). And it remained in force until the
The “sufficient importance” requirement in the 1790 Act seems to have been the basis for a provision in the patent bill that Thomas Jefferson drafted in 1791. Very soon after the enactment of the 1790 Act, Jefferson realized that the statute’s administrative structure was fatally flawed. The Patent Board created by the statute consisted of federal cabinet members, and such high governmental officials did not have the time, or usually, the expertise, to pass on the merits of patent applications. Jefferson’s 1791 bill proposed abolishing the Patent Board and establishing a so-called registration system of issuing patents similar to that used by the English: patents would issue as a matter of course upon application, and no official would examine the application beforehand to try to determine the validity of the claim to a patent. The switch from an examination to a registration system meant that there was no federal official to enforce the sufficient importance requirement prior to the issuance of the patent. To compensate for that loss, Jefferson’s draft bill would have provided a new defense to be adjudicated in court: an infringement action could be defeated if the patented invention “is so unimportant and obvious that it ought not to be the subject of an exclusive right.”

This “unimportant and obvious” language has been cited as a very early forerunner of the modern nonobviousness requirement. But despite the enactment of the Patent Act of 1952. See, e.g., 35 U.S.C. § 36 (1946); Rev. Stat. § 4893 (1873–1874). Nevertheless, the statutory language was little cited and little used. See P.J. Federico, Commentary on the New Patent Act, 75 J. Pat. & Trademark Off. Soc’y 161, 197 (1993) (originally published in 1954) (explaining that the 1952 Act omitted the phrase “sufficiently useful and important” because “[t]he meaning of this old phrase was obscure and it had seldom been resorted to either in the Patent Office or in the courts”); Giles S. Rich, Principles of Patentability, 28 Geo. Wash. L. Rev. 393, 398 (1960) (citing Federico’s views and agreeing that the “sufficiently useful and important” language was “disused and moribund”). The one Supreme Court discussion of this language occurs in Reckendorfer v. Faber, 92 U.S. 347, 351–58 (1876). Though the Reckendorfer opinion states that courts could review the Patent Commissioner’s judgment concerning the “importance” of an invention, the decision also seems to recognize invention and importance as separate and distinct requirements. See id. at 354–55. Yet, even if Reckendorfer were read as relying on the “sufficiently . . . important” language as a basis for the invention doctrine, that reliance would have been a mere afterthought since the invention doctrine was created prior to 1876 and had not previously been justified as an interpretation of the “sufficiently . . . important” requirement.

138. Thomas Jefferson, Draft of a Bill to Promote the Progress of the Useful Arts (Feb. 7, 1791), in 5 The Writings of Thomas Jefferson, 1788–1792, at 278–80 (Paul Leicester Ford ed., New York, G.P. Putnam’s Sons 1895). That proposal was not radical; the English patent system had always been a registration system. See MacLeod, supra note 86, at 41.
139. Jefferson, supra note 138, at 279 (emphasis added). Jefferson’s draft included language that survives today as the basic description of what is patentable—“any new and useful art, machine, or composition of matter or any new and useful improvement on any art, machine, or composition of matter.” Id. at 278; cf. 35 U.S.C. § 101 (2000). Jefferson’s draft did not include any limitation barring patents on varied proportions or forms. See Jefferson, supra, at 278–80.
140. See, e.g., Beier, supra note 1, at 304–05 (discussing Thomas Jefferson’s belief that the two historical requirements of patentability, novelty and utility, should be replaced by the standards of unimportant and obvious to prevent monopolies); Giles S. Rich, Principles of Patentability, 28 Geo. Wash. L. Rev. 393, 403 (1960) (quoting Thomas Jefferson’s suggested revision for the 1790 Act
appearance of the word “obvious,” the provision has only slight significance in the development of the invention standard. The 1790 Act itself had already pioneered the concept that unimportant inventions should not be patented. Jefferson copied that concept and narrowed it a bit so that patents would be denied only to inventions that were both “unimportant” and “obvious.” Either that language is redundant, or if unimportant is interpreted to mean economically unimportant, the standard would not serve the crucial function of denying patents for important and valuable, but nonetheless technologically trivial, developments.

Jefferson’s proposal for invalidating “unimportant and obvious” patents was never enacted, and in fact, Jefferson himself seems to have proposed the defense only tentatively—this particular defense was set off in parentheses in Jefferson’s draft.141

Jefferson’s draft was introduced into Congress on February 7, 1791. It was reintroduced in the next Congress, where it was debated, amended, and enacted. In addition to the deletion of Jefferson’s “unimportant and obvious” language, the bill was amended in one other significant respect. The Act stated that “simply changing the form or the proportions of any machine, or composition of matter, in any degree, shall not be deemed a discovery.” This provision, which in American law would develop into the nonobviousness requirement, was nearly a verbatim translation of a provision in the French Patent Law of May 25, 1791. Though American commentators have, it seems, remained oblivious to the origin of the “form or proportions” language in the 1793 American statute, French commentators have long understood that the American statute had copied from the French 1791 act.146

The impact of the “form or proportions” language in the two countries could hardly be more different. In France, the language had no significant impact. Indeed, French law long maintained the position that in most cases, an invention should not be patented if it is “so unimportant and obvious that it ought not to be the subject of an exclusive right”).

141. See Jefferson, supra note 138, at 279. No other language in the entire draft bill is marked off in parentheses. See id. at 278–80. The context—the parenthetical is included in a list of other defenses—might perhaps indicate that Jefferson was uncertain whether such a defense should be included.

142. 2 ANNALS OF CONG. 1987 (1791).
143. 3 ANNALS OF CONG. 741 (1792).
144. Act of Feb. 21, 1793, ch. 11, § 2, 1 Stat. 318, 321 (repealed 1836).
145. The original French text is: “Ne seront point mis au rang des perfection industrielles les changemens de formes ou de proportions, non plus que les ornemens, de quelque genre que ce puisse être.” Decree of May 14, 1791, Collection Générale des Décrets Rendus par L’Assemblée Nationale [General Collection of Decrees by the National Assembly], May 1791, p. 169.

146. See Théodore Regnault, DE LA LÉGISLATION ET DE LA JURISPRUDENCE CONCERNANT LES BREVETS D’INVENTION, DE PERFECTIONNEMENT ET D’IMPORTATION 177 n.2 (Paris, Bavoux 1825) (cross-referencing the later American statute); id. at 7 (setting forth a translation of the American statute with a cross-reference to title 2, article 8 of the French statute).
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a patent could be awarded merely upon proof of novelty and utility. Thus, as late as the mid-twentieth century, one commentator on French law observed:

The most striking difference between the French law and that of the English-speaking countries appears to be the difference in emphasis on “invention.” If in France the patent covers a new industrial product, or new means, or a new application of old means, to obtain an industrial product or result, the question whether the advance involves invention becomes of very minor importance, if indeed it does not disappear.147

As another commentator described it, “[u]nder the French system, therefore, there is an almost, if not complete, lack of any requirement of invention as it is understood in the Anglo-Saxon countries.”148

In the United States, however, the language imported from France soon began to have a significant impact as common law courts interpreted the language in a line of precedents that began moving toward a more general doctrine. As early as 1816, a trial court interpreted the provision to mean that a patentable improvement must involve a change in the “principle of the machine,” not “a mere change in the form or proportions.”149 This interpretation was expressly approved by the Supreme Court in 1822,150 and later cases made clear that the change in “principle” was the key to patentability. As Chief Justice Marshall stressed:

It is not every change of form and proportion which is declared to be no discovery, but that which is simply a change of form or proportion, and nothing more. If, by changing the form and proportion, a new effect is produced, there is not simply a change of form and proportion, but a change of principle also.151

In determining whether a novel creation was patentable, the courts emphasized the concept of a change in principle to such an extent that the concept continued to thrive even after the Patent Act of 1836 eliminated the statutory language barring patents on mere changes in “form” or “proportions.”152 The elimination of that statutory language seemed merely to have liberated the doctrine; it became free to grow into a much more complex and general rule. Indeed, in 1837, one year after the repeal of the statutory language, a treatise on American patent law by Willard Phillips provided the first really clear articulation of the obviousness doctrine in

148. FOX, supra note 92, at 286.
world history. Phillips asserted that the “form or proportions” language was one manifestation of a “more general rule” forbidding “obvious” patents:

The second section of the act of Congress of 1793, which authorizes a patent for an improvement, declares “that simply changing the form or the proportions of any machine, or composition of matter, in any degree, shall not be deemed a discovery.” This construction would undoubtedly have been put upon the law without any such express exception. It is indeed but a branch of the more general rule in giving a construction to the law, namely, that any change or modification of a machine or other patentable subject, which would be obvious to every person acquainted with the use of it, and which makes no material alteration in the mode and principles of its operation, and by which no material addition is made, is not a ground for claiming a patent. \(^{153}\)

Phillips had his causation backwards: the “more general rule” grew out of the express statutory exception, not the other way around. But Phillips was correct in asserting that American law was beginning to recognize a more general doctrine, and Phillips’s formulation may very well have helped American courts in making the change. For example, the 1846 circuit court decision in \textit{Hovey v. Stevens} \(^{154}\) continued to pay lip service to the old rule that a patentable development must be not only “new in form” but “also new in principle.” \(^{155}\) But the \textit{Hovey} court also added that in deciding whether the invention contained a change in principle, the court would consider testimony that the change was “a very obvious change to any mechanic” \(^{156}\) — language strikingly similar to Phillips’s obviousness formulation. Thus, even before the middle of the nineteenth century, U.S. courts began to look to obviousness as at least one element in defining the concept of a “change in principle” that had become a precondition for patentability.

The change was, however, very gradual and not noticed by all. The 1849 treatise by George Ticknor Curtis—who would quickly become the leading authority in the nation on patent law—began with the admonition that “the subject of every patent should be ‘new and useful’” \(^{157}\) and included only the briefest possible mention of any additional limitation on patentability. \(^{158}\) Indeed, Curtis’s treatise reads much more like contemporary

155. \textit{Id.} at 612.
156. \textit{Id.}
158. In one section of his treatise, Curtis states that “if an alleged invention is absolutely frivolous and foolish, though it may have the element of novelty, in one sense, it is not the subject of a patent.” \textit{Id.} § 7, at 6. In the category of frivolous and foolish inventions, he includes “mere colorable variations, or slight and unimportant changes.” \textit{Id.} The employment of “an obvious substitute” was, for Curtis, an example of an unpatentable “colorable variation” but only “if the
English law, and it plainly embraced the view that if a change was sufficiently useful, it could be patented.¹⁵⁹

B. The Hotchkiss Formulation

*Hotchkiss v. Greenwood*, the Supreme Court’s first major opinion in this area, replaced the early requirement of inventive principle with a more general doctrine that demanded a sufficient “degree of skill and ingenuity” as a condition for patentability.¹⁶⁰ The alleged invention in *Hotchkiss* was a doorknob made of clay or porcelain; the prior art included knobs identical in all respects except made of wood or metal.¹⁶¹ *Hotchkiss* would have been an easy case under the old statute prohibiting mere changes in form. But, as previously mentioned, the repeal of that statute had spurred the courts to create a more general doctrine along the lines suggested in the Phillips treatise. Consistent with this trend, the trial court instructed the jury that the patent was invalid if “the knob of clay was simply the substitution of one material for another . . . and no more ingenuity or skill required to construct the knob in this way than that possessed by an ordinary mechanic acquainted with the business.”¹⁶² The jury returned a verdict for the defendant, and on appeal, the Supreme Court affirmed.¹⁶³

Parts of the Supreme Court’s opinion harkened back to the preexisting law. For example, the Court stressed that the change at issue was a mere “formal” change,¹⁶⁴ echoing the old statutory rule barring patents on mere changes in “form.” But *Hotchkiss* was much more than a recapitulation of the old statutory prohibition against formal changes. The Court broadly held that “every invention” must be the product of “more ingenuity and skill . . . than were possessed by an ordinary mechanic acquainted with the business.”¹⁶⁵ If that condition was not met, as the Court held it was not in

¹⁵⁹. See id. § 9, at 8 (reciting the English view that “[i]f there be anything material and new which is an improvement of the trade, that will be sufficient to support a patent” (quoting The King v. Arkwright, (1785) 1 Webs. Pat. Cas. 71 (K.B.) (opinion of Buller, J.))).


¹⁶¹. *Id.* at 265–66.

¹⁶². *Id.* at 265.

¹⁶³. *Id.* at 267.

¹⁶⁴. *Id.* at 266.

¹⁶⁵. *Id.* at 267 (emphasis added).
*Hotchkiss*, then “the improvement is the work of the skilful mechanic, not that of the inventor,” and no valid patent on it could be issued.\(^{166}\)

The holding in *Hotchkiss* can be viewed as including two parts, one of which is salutary and survives to this day; the other would lead to nearly catastrophic results for the patent system. The salutary feature is that *Hotchkiss* oriented the inquiry toward what the Court called the “ordinary mechanic acquainted with the business.”\(^{167}\) This feature survives today; the statutory obviousness analysis must take place using the perspective of “a person having ordinary skill in the art to which said subject matter pertains.”\(^{168}\)

The troubling part of *Hotchkiss* required that an invention show “more ingenuity and skill” than is possessed by the ordinary mechanic.\(^{169}\) That portion of *Hotchkiss* was terribly ambiguous. It could have meant merely that the invention had to show some advance beyond what could have been produced in the ordinary course by a mechanic armed with the preexisting knowledge and exercising a normal amount of ingenuity and skill. Indeed, this is now the modern interpretation of *Hotchkiss*, and this interpretation allowed the Supreme Court to read the modern obviousness requirement “as a codification of judicial precedents embracing the *Hotchkiss* condition.”\(^{170}\) But a much more stringent interpretation is also possible. *Hotchkiss* could have meant that if a person having ordinary ingenuity and skill could eventually produce the innovation (perhaps after months or years of persistent effort), then the innovation would not be patentable. The contrast with modern law is clear. Under the statutory nonobviousness standard, a technical advance is patentable if it is not *obvious* to the person of skill at the time of invention. If an advance requires months of effort to achieve, it may very well be held nonobvious, even though the advance is attributable more to the persistent and painstaking application of ordinary ingenuity than to a “genius” level of ingenuity.

Thus, while *Hotchkiss* gave birth to a general doctrine of invention, the direct predecessor of the modern obviousness standard, the test established by the Court would prove troubling because it was vague and could be interpreted to be unreasonably demanding. Justice Woodbury, who argued futilely in dissent for the position articulated in the Curtis treatise, predicted that the Court’s holding would be “open to great looseness or uncertainty in practice.”\(^{171}\) His warning was prescient. *Hotchkiss* purported to demand more skill and ingenuity than that possessed by the ordinary mechanic, but it

\(^{166}\) Id.

\(^{167}\) Id.


\(^{169}\) *Hotchkiss*, 52 U.S. at 267.


\(^{171}\) *Hotchkiss*, 52 U.S. at 270 (Woodbury, J., dissenting); see also id. at 269 (relying on the Curtis treatises).
was unclear how much more skill and ingenuity was needed to sustain a patent.

C. Different Interpretations of Hotchkiss and the 1952 Statutory Rule

Within a quarter century of Hotchkiss, the standard of invention already seemed to be moving quite high, with some Supreme Court cases describing the relevant distinction as being “between mechanical skill . . . and inventive genius.”\(^{172}\) But the Court was not consistent. At times the Court interpreted the Hotchkiss standard in a manner seemingly more lax than modern law—holding that patentability could be presumed where, because of the inventor’s efforts, “a machine has acquired new functions and useful properties.”\(^{173}\) More often, at least through the end of the nineteenth century and the first few decades of the twentieth century, the Court used language quite similar to the modern standard. In an 1880 case, for example, the Court described a patentable invention as “involv[ing] something more than what is obvious to persons skilled in the art to which it relates.”\(^{174}\) And in an 1883 case, the Court contrasted invention, “which adds to our knowledge and makes a step in advance in the useful arts,” with an unpatentable “trifling device, every shadow of a shade of an idea, which would naturally and spontaneously occur to any skilled mechanic or operator in the ordinary progress of manufactures.”\(^{175}\) The former formulation is nearly identical to the modern statute. The latter formulation too is very close to the modern obviousness test because it makes unpatentable only things that would “naturally and spontaneously” occur to persons of skill in the art, and it recognizes that any “step in advance” should be patentable, even if the step was made merely by diligent efforts of ordinary ingenuity.

Nevertheless, the vagueness in Hotchkiss always left open the possibility that the patentability standard could be interpreted too stringently, and by the middle of the twentieth century, the Supreme Court seemed to be doing just that. The 1941 decision in Cuno Engineering Corp. v. Automatic Devices Corp. was seen as a particularly extreme example. The invention in Cuno was an automatic electric cigarette lighter for cars.\(^{176}\) Prior art car lighters had to be held in place while they heated.\(^{177}\) If the user did not hold the lighter in place long enough, it would not be hot enough to light a

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172. Reckendorfer v. Faber, 92 U.S. 347, 357 (1875).
173. Smith v. Goodyear Dental Vulcanite Co., 93 U.S. 486, 496 (1876); see also Edmund W. Kitch, Graham v. John Deere Co.: New Standards for Patents, 1966 Sup. Ct. Rev. 293, 323, 322–23 (noting the variation in the Supreme Court’s patentability standard during the late nineteenth and early twentieth century and concluding that “[t]he reason for the Court’s inability to settle on the non-obviousness test as the controlling one may be due to the fact that it was never acknowledged to be a new test, but rather a continuation of an old one always required by statute”).
177. Id. at 87.
cigarette.\textsuperscript{178} If held in too long, the lighter could overheat and burn out.\textsuperscript{179} The lighters therefore demanded “rather continual attention on the part of the person using them.”\textsuperscript{180} The inventor in \textit{Cuno} succeeded in building a lighter with a thermostatic control so that the lighter would turn off when it reached the correct temperature.\textsuperscript{181} As a bonus, the motion of the lighter as it turned off (which would typically be accompanied by a clicking sound) would alert the user that the lighter was ready.\textsuperscript{182} The Court acknowledged that the invention required “[i]ngenuity” but nonetheless held it unpatentable because the amount of ingenuity was “no more than that to be expected of a mechanic skilled in the art.”\textsuperscript{183} A patentable invention, the Court held, “must reveal the flash of creative genius, not merely the skill of the calling.”\textsuperscript{184}

\textit{Cuno}’s “flash of creative genius” test was not unprecedented; it flowed rather naturally from one strand of the decisions interpreting \textit{Hotchkiss}. Nonetheless, the clarity with which the \textit{Cuno} Court stated the test had the potential to be catastrophic for the patent system. Many technical advances are made by rather ordinary engineers who have nothing more than the “skill of the calling”—with the calling being the engineering of improvements on existing technologies. These engineers may not have many flashes of “genius;” they are not in contention for Nobel Prizes. But their hard work does push forward the useful arts. If, ex ante, the engineers are confronting difficult problems with uncertain prospects of finding a solution, then the solution—if and when it is found—should be patentable, without regard to whether the solution was found by genius or by tenacious plodding.\textsuperscript{186} Otherwise, firms may have inadequate incentives to underwrite this sort of work, and research into improvements in the useful arts could be severely curtailed.

Patent practitioners were generally not happy with the Court’s increasingly stringent standard of invention. In fact, even some of the Justices themselves began to question whether they were going too far. In one particularly poignant passage, Justice Jackson lamented that the Court had developed such a “strong passion” for striking down patents under its increasingly stringent invention standard “that the only patent that is valid is

\begin{itemize}
\item \textsuperscript{178} Id.
\item \textsuperscript{179} Id.
\item \textsuperscript{180} Id.
\item \textsuperscript{181} Id.
\item \textsuperscript{182} See U.S. Pat. No. 1,736,544 col.5 ll.50–54 (filed Aug. 24, 1927) (issued Nov. 19, 1929) (noting that when sufficiently hot, the thermostat would “throw[] the socket with the plug to the off position” and that “[t]he plug may then be removed and . . . the cigarette may be lighted”).
\item \textsuperscript{183} \textit{Cuno Eng’g Corp.}, 314 U.S. at 91–92.
\item \textsuperscript{184} Id. at 91.
\item \textsuperscript{185} Id.
\item \textsuperscript{186} See Robert P. Merges, \textit{Uncertainty and the Standard of Patentability}, 7 HIGH TECH. L.J. 1, 57–65 (1992) (exploring the incentivizing value of a patent to high-cost, multiple-institution research).
\end{itemize}
one which this Court has not been able to get its hands on.” 187 Moreover, Cuno had not explicitly overruled any prior cases, so lax as well as moderate interpretations of Hotchkiss persisted. The various interpretations of the invention standard became infamous. They would lead Judge Learned Hand to despair in 1950 that the invention standard “is as fugitive, impalpable, wayward, and vague a phantom as exists in the whole paraphernalia of legal concepts . . . . If there be an issue more troublesome, or more apt for litigation than this, we are not aware of it.” 188

In the midst of general unhappiness with the Court’s invention standard—and just three years after Justice Jackson’s famous lament—Congress stepped in and enacted § 103 of the 1952 Patent Act. 189 The new statute provided that a new and useful advance would be viewed as unpatentable only if it “would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.” 190 This is not a ridiculously low standard of patentability; the standard still requires a fairly substantial contribution. But it was designed to end the Court’s search for a distinction between ordinary and extraordinary ingenuity and to focus the inquiry solely on obviousness. The statute also stated that “[p]atentability shall not be negatived by the manner in which the invention was made.” 191 Though perhaps awkwardly phrased, this further provision was intended to clarify that the particular inventor’s method and talents would be irrelevant to the inquiry. Thus, the inventor seized with a “flash of genius” would not be favored over an engineer with ordinary skill and ingenuity who worked diligently and ploddingly toward a useful advance.

Before examining the obviousness standard in the 1952 U.S. Patent Act in more detail, we should look once again at the English experience, for English law honed in on obviousness as the exclusive key to patentability decades before American law did.

IV. An English Refinement: The “Obviousness” Touchstone

The misstep made by English law in the early seventeenth century—when Lord Coke’s commentaries had suggested that “new additions” to existing manufacturers could not be patented—held sway until the late eighteenth century, when it was squarely rejected by both the courts and the commentators. 192 After rejecting Coke’s views, the English courts struggled for most of the nineteenth century with a patentability standard that required

191. Id.
192. See supra notes 118–25 and accompanying text.
only novelty and utility. Compared to their American counterparts, the English courts were more cautious—changing precedent more slowly and more incrementally. This approach had its costs: English courts did not recognize any general principle similar to *Hotchkiss* until about four decades after American courts had. But the slower approach also had its benefits: once they were willing to modify the law of patentability, English courts took the incremental step towards nonobviousness as the correct touchstone of patentability. Unlike their American counterparts, they did not experiment with a more demanding standard. A consensus in favor of the obviousness standard developed much more quickly than in the United States, and the standard was codified in England two decades earlier than in the United States.

There are three important lessons from the English experience. The first is that even among nations at similar stages of economic development and with similar legal cultures, disuniformity in law may persist for decades. In the first half of the nineteenth century, when the courts and commentators in the United States were slowly building the basis for the invention doctrine eventually recognized in *Hotchkiss v. Greenwood*, English courts and commentators were building the intellectual case against any such development.

Thomas Webster, one of the most widely cited patent authorities both in his own country and in the United States, considered but ultimately rejected the possibility of using obviousness as a metric to judge patentability. In 1841, Webster published both a long treatise on English patent law and a shorter supplement devoted exclusively to the “subject matter” that could be covered by patents. Webster had read the American treatise by Phillips, and in the supplement on patentable subject matter, Webster raised the concept of obviousness in the specific context where the alleged invention was a new “application of known agents or things.” In that context, Webster asserted that “wherever the only change is of so simple a nature, or so obvious, as to exclude all idea of skill, thought or design—always supposing no new manufacture, as above described, to be the result—the application is not such as can be the subject-matter of letters patent.”

At first glance, that statement appears to be a fairly ringing endorsement of the obviousness principle. What’s more, Webster recognized that the problem of obviousness (at least in the context of so-called new applications)

193. See supra note 129 and accompanying text.
194. WEBSTER, 1841 LAW AND PRACTICE, supra note 100.
195. WEBSTER, SUBJECT-MATTER, supra note 158.
196. Webster cited Phillips in his main treatise as an authority on the American law of patentable subject matter. See WEBSTER, 1841 LAW AND PRACTICE, supra note 100, at 8 n.1 (citing “Willard Phillips on Patents”). In this era, the rudimentary obviousness doctrine was developing as part of the patentable-subject-matter doctrine.
197. WEBSTER, SUBJECT-MATTER, supra note 158, at 24.
198. Id.
was directly tied to a more advanced state of technological development.\textsuperscript{199} Webster also recognized that the problem of obvious applications (which he believed to be unpatentable) led directly to “the more general question,” which he saw as a matter of “what amount of invention is sufficient to support a patent.”\textsuperscript{200} Yet after a lengthy analysis of that question, Webster ultimately arrived at the “general conclusion . . . that any change, however minute, if leading to a beneficial result in the arts and manufactures, is sufficient to support a patent.”\textsuperscript{201} Thus, much like the dissent in \textit{Hotchkiss}, Webster believed that beneficial results—not obviousness—were the key to judging patentability.

Webster’s views were soon adopted by Chief Judge Tindal in the \textit{Crane v. Price} case, where the English Court of Common Pleas squarely rejected the notion that there was any requirement for patentability beyond novelty and utility.\textsuperscript{203} \textit{Crane} would remain good English law for decades.\textsuperscript{204} Thus in

\begin{itemize}
\item \textsuperscript{199} Webster asserts that the problem of new applications—with the attendant problem of obvious applications—occurs more frequently when the country enters “an advanced state of the arts and manufactures.” \textit{Id.} at 23. He recognized, however imperfectly and incompletely, that the problem of obviousness (again, at least in the field of new applications) does not arise as frequently in “the first era of invention,” when “manufactures are in their infancy.” \textit{Id.}
\item \textsuperscript{200} \textit{Id.} at 24.
\item \textsuperscript{201} \textit{Id.} at 36. In this context, Webster discusses a case invalidating a patent on a method for constructing a ship’s anchor. \textit{Id.} at 34. For Webster, the patent was invalid in part because the supposed new methods for construction had been “borrowed” from other areas, such as the methods for constructing hammers and pickaxes, that “would obviously and immediately present themselves.” \textit{Id.} But the obviousness of the borrowed method was not Webster’s only ground for approving of the patent’s invalidation. He also mentions that the patentee had presented no evidence that the method possessed “superiority” over prior methods. \textit{Id.}
\item \textsuperscript{202} See \textit{Hotchkiss v. Greenwood}, 52 U.S. 248, 268 (1851) (Woodbury, J., dissenting) (“[I]n my view the true test of its being patentable was, if the invention was new, and better and cheaper than what preceded it.”); see also \textit{id.} at 269 (finding support in Webster’s views on patentable subject matter).
\item \textsuperscript{203} See \textit{Crane v. Price}, (1842) 4 Man. & G. 580, 604, 134 Eng. Rep. 239, 248 (Ct. Com. Pl.) (holding that the only questions to be decided in passing on the validity of the patent are whether the process produces a “better or a cheaper article” and whether the alleged invention is “new”).
\item \textsuperscript{204} The disuniformity between U.S. and English law is well illustrated in parallel provisions in the Phillips and Webster treatises. Phillips, the earlier of the two writers, held that “there may be cases in which the substitution of a different material may be a[n] invention.” \textit{PHILLIPS, supra} note 127, at 134; see also \textit{id.} at 133 (“The substitution of one material for another is not, at least ordinarily, an invention for which a patent can be claimed.”). Phillips gave as an example that a patent could not issue for the first silver teapot if earthen teapots had previously been known. \textit{Id.} at 134. Webster considered precisely the same example (which was apparently based on a famous rhetorical question asked by a prominent attorney), but he resolved it in favor of patentability. To Webster, the silver teapot could not be patented if the same product had existed previously “for making similar infusions from other ingredients” and had merely been applied to the making of tea. \textit{WEBSTER, SUBJECT-MATTER, supra} note 158, at 25 n.r. But if only earthen, not silver, teapots had previously existed, then a patent could issue on the silver teapot because “[n]o one can say that a silver and an earthen pot are the same manufacture.” \textit{Id.} This disuniformity continued well into the final quarter of the nineteenth century. See, e.g., \textit{THOMAS TERRELL, THE LAW AND PRACTICE RELATING TO LETTERS PATENT FOR INVENTIONS} 33–34 (London, Henry Sweet 1884) (stating that a patent could be valid “although each principle or process in it was previously well known, provided that the mode of combining these processes was new and produced a beneficial result”).
\end{itemize}
the middle part of the nineteenth century, the patent law of the United States was diverging from English law, and the resulting disuniformity would remain for many decades.

Identifying the cause for the disuniformity is more difficult, but at least some of the reason appears to be pure historical accident. For example, because American statutory law had copied the French prohibition on patenting mere changes in “form or proportions,” early American courts and commentators were driven to develop a coherent theory to explain limitations on patentability. English courts, by contrast, had the language of the Statute of Monopolies, which seemed to allow patents for all “new Manufactures.”

Another pure accident of circumstance concerns the views of the commentators, especially those of Webster. Webster’s endorsement of a novelty and utility standard and the adoption of that view in *Crane v. Price* were not entirely unrelated events. Webster is listed as one of the attorneys who appeared for the patentee in *Crane*, and though the case was argued before the panel of judges in the Court of Common Pleas in 1842, the trial had occurred in 1840, the year before Webster published his treatise on patentable subject matter. Thus, Webster’s rejection of a general obviousness standard may have been influenced by his client’s interests, and the path of subsequent English law could have been affected by the resulting agreement between a leading commentator and an important court decision. By contrast, commentary was split in the United States, with Phillips articulating a general obviousness standard and Curtis following Webster and the English courts in rejecting such a test. The split among the leading American commentators may have provided the *Hotchkiss* Court with more flexibility in choosing which approach seemed correct.

The second major point to take from the English experience is the prevalence of international borrowing. Neither the English courts nor the English commentators can be fairly credited with independently developing

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*see also id. at 50 (requiring that a patent be a “substantial improvement” but judging the substantiality in terms of utility and allowing proof that the result is better or cheaper to suffice).*

205. *See supra* notes 144–46 and accompanying text.

206. *See Statute of Monopolies, 1623, 21 Jac., c. 3, § 6 (Eng.).*


208. *Id.* at 589, 594, 134 Eng. Rep. at 243, 245.

209. *See PHILLIPS, supra* note 127, at 128 (“The sufficiency of the invention depends not upon the labor, skill, study, or expense applied or bestowed upon it, but upon its being diverse and distinguishable from what is familiar and well known, and also substantially and materially, not slightly and trivially so.”).

210. *See CURTIS, supra* note 157, § 9, at 8 & n.1 (quoting the holding of *Crane v. Price* with favor and also stating that “[a] concise and lucid dictum of Buller, J., presents a capital test of the sufficiency of many inventions: ‘If there be anything material and new which is an improvement of the trade, that will be sufficient to support a patent.’” (quoting The King v. Arkwright, (1785) 1 Webs. Pat. Cas. 71 (K.B.) (opinion of Buller, J.))). Curtis also repeatedly cites with favor to the Webster treatise on the “Subject-Matter of Patents.” *See id.* at 6 n.1, 7 nn.1 & 3, 8 nn.1 & 4.
the obviousness doctrine. Rather the historical record seems quite clear that
the English borrowed the idea from the American legal system. For
example, the first English commentator to mention obviousness as at least a
potential factor in determining patentability, Webster, had read the Phillips
treatise,211 which contained the first really sound articulation of obviousness.
Though Webster ultimately rejected obviousness as a general principle of
patentability, he did introduce the concept into English law for the limited
purpose of deciding whether a new “application” of old subjects could be
patented. That doctrine would grow and expand in English law, and there is
at least some evidence that English lawyers remained cognizant of American
developments. For example, in 1853, John Paxton Norman published a
treatise that was the first English treatise to cite Hotchkiss v. Greenwood
and that also broadened the use of obviousness beyond that contemplated by
Webster. Webster had allowed obviousness to be used where there was a
new “application” without any “adaptation” of the subject matter. Norman,
who had the benefit of Hotchkiss, gave the obviousness inquiry more promi-
nence and stated that even in the case of adaptations, patentability should
turn on “whether [the old device’s] capability of adaptation to such new
purpose, without the necessity of modification, is obvious or not?”212 By
such gradual steps, the American standard of invention seeped into English
law.

Third, the English experience—every bit as much as the American—
shows that new legal doctrines evolve from the tools at hand and that the
developed doctrine often reflects the historical accidents of the doctrine’s
origins. In the United States, the Hotchkiss standard developed out of case
law interpreting the 1793 statutory provision that barred patents on changes
in form or proportions. In English law, the basic tools to develop an inven-
tion standard were (i) the novelty concept and (ii) the doctrine denying
patents for new applications of old technology. For example, Ormson v.
Clarke213 an 1862 decision, would later be cited as a case about the degree of
“ingenuity” required to sustain a patent.214 Yet Chief Justice Erle decided the
case on the grounds that the patent—which covered a boiler cast in a single
piece rather than in multiple pieces—was “not new” because the boiler itself,
once constructed, was not novel compared to the prior art.215 The other

211. See supra note 196 and accompanying text.
212. JOHN PAXTON NORMAN, A TREATISE ON THE LAW AND PRACTICE RELATING TO LETTERS
PATENT FOR INVENTIONS 13 (London, Butterworths 1853).
214. See, e.g., HENRY CUNYNGHAME, ENGLISH PATENT PRACTICE 118, 118, 120–21 (London,
William Clowes & Sons 1894) (listing Ormson as a case in which a patent was “held bad for want
of ingenuity”); COURTNEY TERRELL, THE LAW AND PRACTICE RELATING TO LETTERS PATENT FOR
INVENTIONS 61 & n.s (4th ed. 1906) (citing Ormson as a case where an insufficient amount of
“ingenuity” was disclosed).
as 1890, Ormson was still interpreted by the Queen’s Bench Division court as a case supporting the
justices agreed with Erle, and no one discussed "ingenuity" as a requirement of patenting.

Similarly, in the 1865 case of Harwood v. Great Northern Railway Co., the House of Lords invalidated a patent on a new use of a certain type of "fish joint," a metal joint for holding together two beams or rails. The particular design of the fish joint had been previously used to hold together wooden beams in the building of bridges. The patentee tried to claim exclusive rights to using the fish joint for connecting the rails of railroads. In invalidating the patent, the House of Lords, per Lord Westbury, reasoned that "you cannot have a patent for a well-known mechanical contrivance merely when it is applied in a manner or to a purpose, which is not quite the same, but is analogous to the manner or the purpose in or to which it has been hitherto notoriously used."

Doctrinally, Harwood could be classified as a novelty case by reasoning that using existing technology merely to perform a different function did not really involve anything new, and indeed, lack of novelty was expressly how the decision was framed in the House of Lords. Nevertheless, soon after Harwood, some judges were candidly acknowledging that a legal fiction was being employed: the holdings of no novelty were really judgments that the new adaptation was such as "naturally to suggest itself to a person turning his mind to the subject," while patents should be awarded only to those new adaptations that "require some application of thought and study." From these new-adaptation cases, the conceptual framework spread more generally to other types of patent cases.

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216. See Ormson, 13 C.B. (N.S.) at 339, 143 Eng. Rep. at 135 (opinion of Williams, J.) (“I also am of opinion that this rule must be made absolute.”); id. at 340, 143 Eng. Rep. at 135 (opinion of Byles, J.) (“I am of the same opinion.”); id. (opinion of Keating, J.) (“I am entirely of the same opinion.”).


219. Id. at 655, 11 Eng. Rep. at 1488.

220. Id. at 658, 11 Eng. Rep. at 1490.


223. See, e.g., id. at 683, 11 Eng. Rep. at 1499 (asserting that the patent was invalid because "there was no novelty in the patent"); id. at 684, 11 Eng. Rep. at 1499 (reasoning that the patent was "without novelty" because the mere application of a joint for bridge beams to rails cannot "be treated as a novelty").

224. Penn v. Bibby, (1866) 2 L.R.Ch. 127, 136. In Penn, Lord Chelmsford was already expressing frustration with the fiction: It is very difficult to extract any principle from the various decisions on [new applications of old things] which can be applied with certainty to every case; nor, indeed, is it easy to reconcile them with each other. The criterion given by Lord Campbell [in one case] has been frequently cited (as it was in the present argument), that a patent may be valid for the application of an old invention to a new purpose, but to make it valid there must be some novelty in the application. I cannot help thinking
Still, the transition took decades. Even in the early 1880s, courts were continuing to profess that novelty, if coupled with utility, was sufficient to sustain a patent. In the 1881 case of *Hayward v. Hamilton*, for example, Lord Justice Bramwell on the Court of Appeal maintained that a patentable invention required nothing more than novelty:

> [O]ne cannot help making this remark, that it is very strange if it is no invention that it has never been done before. Why has it never been done before? Why, because nobody else found it out, which I take to be an equivalent to inventing, and I think, therefore, that his patent is sustainable.

In the same case, Lord Justice Brett also stated that “[i]t seemed to [him] in all previous cases it had been taken for granted that if the thing were new and useful there must have been an invention.” Still, he equivocated just a bit, stating that while in “nine hundred and ninety-nine cases out of a thousand” mere novelty and utility were “sufficient to make an invention,” he did not think “that could be predicated as an absolute rule of law, because [he thought] it [was] possible, although a thing were new and useful, it might be, under certain circumstances, that there was no invention in it.”

Yet beneath the veneer of stability in the law, the English courts and lawyers were experimenting with increasingly demanding conceptions of novelty. A key case is *Saxby v. Gloucester Waggon Co.* This case has a claim—a flawed claim as we shall see—to being the first case to introduce the obviousness concept into English law. The patent in suit involved a new rail-line switch designed to insure that the connections between railway lines (e.g., the connection between a main line and various branch lines) could not be changed without simultaneously changing the appropriate signals indicating the current state of the switch. Such switches were not new, and the switch covered by the patent in suit merely combined various features from two prior art patents. At the trial level, the Queen’s Bench Divisional

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226. Id. at 117 (opinion of Bramwell, L.J.). A similar, though earlier, case is *Murray v. Clayton*, (1872) 7 Ch. App. 570. In *Murray*, the Court of Appeal reversed a trial court ruling of patent invalidity. Id. at 584. The chancellor at the trial level held the patent invalid because it was “the mere arrangement of common elementary mechanical materials . . . which produces no other result than that which had been previously accomplished by other mechanical arrangements and construction.” Id. at 583. The Court of Appeals, per Lord Justice James, disagreed, stating that it was “very difficult to reconcile this proposition with what has been said by many Judges in many cases, and more particularly in the case of *Crane v. Price*.” Id. at 584.
228. Id.
229. (1881) 7 Q.B.D. 305.
230. Id. at 307–08.
231. Id. at 309–10.
Court held that the patent was invalid for “want of novelty”232 because “any person of ordinary knowledge of the subject would, by placing the two [earlier devices] side by side, be able to effect the desired combination without making any further experiment or gaining any further information.”233 In 1882, the Court of Appeal affirmed that decision, and although no complete report of that decision was ever published, one treatise—written by James Johnson and J. Henry Johnson—quotes Master of the Rolls Jessel as reasoning that something does not qualify as an “invention” if it is “so clear, so simple, and so obvious . . . that any ordinary workman can do [it] without any difficulty.”234

Jessel’s reasoning, as reported in the Johnsons’ treatise, contains within it crucial elements of the modern obviousness doctrine: the touchstone of ability is the “ordinary workman,” which seems roughly equivalent to the modern “person of ordinary skill in the art,” and unpatentability is linked to what is obvious or what can be achieved “without any difficulty.”235 Why then was this case not viewed as a watershed in English patent law? There are three very good reasons. First, the Court of Appeal decision went largely unreported. While one standard patent case reporter—Griffin’s Patent Cases—gave a summary of the Court of Appeal decision, the summary omitted the reasoning quoted above.236 Second, the case was appealed to the House of Lords, which did not embrace the reasoning of the Court of Appeal. Rather, Lord Blackburn, writing the only reported opinion for the House of Lords, did not believe “the question of a competent mechanic or an ordinary skilled workman, and the like, really comes into play at all in this case.”237 Blackburn framed the issue more conventionally, stating that the crucial question was whether the patent covered “anything except what was known to the public before.”238 Third, even after reformulating the issue in more conventional novelty terms, Blackburn balked at resting the decision solely on that ground. He instead held the patent invalid because another worker at a different railroad had drawn the precise combination and showed the drawings to twenty-two or twenty-three coworkers.239 Though the subject of

232. Id. at 306.
233. Id. at 312.
235. Id.
236. See Saxby v. Gloucester Wagon Co., (1883) 2 Griff. Pat. Cas. 54, 55–56 (C.A.) (appeal taken from Q.B.D.) (holding the patent invalid because the invention in question was discovered and published prior to the date of the patent).
238. Id.
239. See id. (agreeing with the Court of Appeal and holding that the workmen’s knowledge of the invention made it publicly known even though they were bound to secrecy).
those drawings was never built and never shown to anyone outside the worker’s company, Blackburn affirmed what had been an alternate holding of the Court of Appeal—that the drawings were a “publication,” which anticipated the invention.240

In light of these facts, it seems utterly puzzling that the writers of any treatise would place so much emphasis on a passage from Jessel’s unreported opinion in the Court of Appeal. Why did the Johnsons do so? The mystery is easily solved, and it highlights once again the importance of lawyers and commentators in changing the law: J. Henry Johnson was the defendant’s solicitor in Saxby.241 The passage from Jessel’s opinion in the Court of Appeal was emphasized in the Johnsons’ treatise probably because it most nearly reflected J. Henry Johnson’s own arguments that were pressed on the court. Moreover, there is other good evidence that the Johnsons were unusually interested in publicizing the views articulated in Saxby. The only reporter who reproduced a summary of the Court of Appeal and House of Lords opinions—Griffin—described the case as being “not reported” and thanked “J.H. & J.Y. Johnson for the notes of the judgment of the H.L. [the House of Lords].”242

It seems clear that the Johnsons were innovators. In their treatise, they devoted an entire section to discussing the “Amount of Invention” needed to sustain a patent.243 Yet the very premise of that section was radical. English courts had repeatedly stated that any amount of invention was sufficient to sustain a patent, and many opinions suggested that mere novelty and utility were sufficient to demonstrate invention.244 The first edition of Thomas Terrell’s patent treatise—which was also published in 1884 and enjoyed such great success that new editions continue to be published today—was quite explicit in embracing the view that novelty and utility were sufficient to sustain a patent.245 Other commentators of the time were closer to Terrell than to the Johnsons. Indeed, the degree to which the Johnsons’ views on patentability were not quite consistent with the prevailing doctrine can be seen in Lord Blackburn’s opinion delivering the House of Lords judgment in Saxby, which seemed to stretch the law concerning publication so as to avoid having to deal more directly with the defense’s arguments on obviousness. In sum, James and J. Henry Johnson were the English equivalent of the American Willard Phillips: they were practitioners and treatise writers who observed a trend in the law and were able to distill a coherent principle from

240. Id.


244. See TERRELL, supra note 204, at 32–34 (listing and briefly describing the holdings of several major English patent cases setting out various formulations of the requirements of novelty and utility).

245. See id. at 22 (“[T]he inventor must have invented a new and useful invention.”).
the trend before the courts were able to perceive the principle. Within a decade, that principle would be the law of England.

In 1887 and 1888, however, the issue was still clearly not resolved. In an 1887 patent case decided by the House of Lords, Lord Halsbury scoffed at the argument that anything more than novelty was required to support a patent. The argument, as Halsbury framed it, was that a patent should be invalidated because “analogous” things “had been discovered; people ought to have discovered it or were on the brink of discovering it; therefore this true and first inventor only completed by one step the route to which chemical discoveries had been tending without his aid.”

Halsbury rejected the argument in the strongest of terms, stating that “[s]uch a principle . . . would be fatal to the rights of all inventors, and is . . . as inconsistent with that branch of our jurisprudence as it is destitute of judicial authority and contrary to the interests of scientific research.” Yet in the very same case, Lord Herschell (who would, within three years, definitively establish the English obviousness doctrine) was clearly open to the argument: he considered whether “chemical analogy would at once indicate the supposed invention” and rejected the argument only after he considered expert testimony that the relevant chemical analogy was not easy in this particular case. The unsettled posture of the law can also be seen in the 1888 case of Gosnell v. Bishop, where Lord Justice Bowen asked counsel during oral argument whether “the fact that a patented article is new, and comes into use and has a large sale, [is] sufficient to prove that such article is good subject-matter?”

The counsel disagreed. While the defendant’s attorney stated that he knew of “no case which decides that” and asserted that “[t]here must be ingenuity,” the patentee’s counsel argued that “anything material and new which is an improvement in the trade will support a patent.” The court did not decide the validity issue because it affirmed a judgment of no infringement. But
in his opinion, Lord Justice Bowen suggested that the validity issue would turn on whether there had been a sufficient “amount of newness” to sustain a patent, and he identified the key case in which novelty alone is not well correlated with invention: Where “demand itself [was] quite new,” the “novelty of the demand [could have] produced immediately and without any operation of ingenuity, an obvious article.”

The crucial period of change for the English law—the period when the judges finally began to acknowledge that a valid patent must be supported by something more than novelty and utility—came in 1889 and 1890. In February of 1889, the Court of Appeal invalidated the patent at issue in *Blakey v. Latham*, which involved a new type of heel plate for boots. Prior art heel plates had been attached with nails or screws that were driven through a hole in the heel plate. The new type of heel plate was molded with pegs or nails as part of the plate itself. A very similar form of construction had previously been used with toe plates, and so the court viewed the question in the case as this: “[I]s there any invention in applying what was applied before to the toe of the boot to the heel of the boot?” All the judges agreed that there was no invention, and each opinion is noteworthy. Lord Justice Cotton was the most clear in setting forth how the legal doctrine was changing. He acknowledged that *Crane v. Price* required mere novelty and utility to sustain a patent, but he reasoned that “a thing is not to be called new in the sense of *Crane v. Price*, simply because that particular thing has never been seen before. To be new in a patent sense it is necessary that the novelty must show invention.” Cotton also hinted that the court was announcing new doctrine, stating that “it is necessary, at this period of time, to prevent any slight modification in an article of use being patented when there is really no invention whatever in that modification.”

Lord Justices Lindley and Lopes were more candid in discussing the policies driving the decision. Lindley stressed that “if a patent is to be held good for any departure, however slight, from that which was known before, just consider what it means. It would put a stop to all improvements.”

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255. *Id.* at 158 (opinion of Bowen, L.J.).
256. *Id.* at 184.
257. *Id.* at 186 (opinion of Cotton, L.J.).
258. *Id.* at 188.
259. *Id.* at 187. Lord Justice Cotton and Lord Justice Lopes were also explicit in limiting the reach of the prior decision in *Hayward v. Hamilton*. See *Id.* at 188 (opinion of Cotton, L.J.) (noting that he “do[es] not agree with all that the Master of the Rolls says there”); *Id.* at 189 (opinion of Lopes, L.J.) (opining that *Hayward* had “gone, I think, further, probably, than any other case in favour of patentees”).
260. *Id.* at 188 (opinion of Cotton, L.J.).
261. *Id.* at 189 (opinion of Lindley, L.J.).
Lindley’s core insight was that “[t]here must be a quid pro quo . . . , a Patentee must give the public something,” and that otherwise “we shall have trade paralyzed in every direction, and no end of actions.” Lopes continued Lindley’s themes, opining that the courts had previously been “too indulgent to Patentees” and that “[i]f patents like this are held to be good, . . . it seems to me that there will be no end of patents, and little freedom of trade.” Lopes also set forth a specific test, which was very close to the modern obviousness framework and which would gain some currency in later cases:

The material question to be considered in a case like this is, whether the alleged discovery lies so much out of the track of what was known before as not naturally to suggest itself to a person thinking on the subject: it must not be the obvious or natural suggestion of what was previously known.

In June of the same year, the House of Lords decided *Thomson v. American Braided Wire Company*, which sustained a patent for a new form of a woman’s bustle made from braided wire. Braided wire had previously been used in making hollow cushions and similar objects, and the defendant argued that the use of a braided wire for a bustle was merely an “analogous” use. Though the Lords sustained the patent, they did so on narrow grounds. Lord Herschell, who delivered the most influential opinion in the case, stated that if the patent had claimed any bustle made of braided wire, then the patent would have been invalid. Yet Herschell believed that the patent was more narrow and that it encompassed only bustles made by clamping the braided wire at the waist in a particular way. Construed in this narrow way, the patent could not be held invalid for “no invention” because the clamping design for the braided wire was “not so obvious as to occur to everyone contemplating the use of braided wire for the purpose of a bustle.” Although Lord Herschell’s opinion in *American Braided Wire* has been cited by modern English judges and commentators as the origin of the

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264. Id.
265. Id. (opinion of Lopes, L.J.).
268. Id. at 528.
269. Id. at 527 (opinion of Herschell, L.).
270. See id. (“If I thought that the Patentee had claimed the mere use of tubular sections of braided wire as a bustle, however fastened or secured, I should arrive at the conclusion that the Defendants’ contention was well founded . . . .”)
271. See id. (“[T]he method of fastening the ends by clamping plates is an essential part of that which is claimed.”).
272. Id. at 528.
English obviousness doctrine, it is more properly described as the first House of Lords opinion to embrace some form of obviousness doctrine, for the Johnsons’ treatise came five years, and the Court of Appeal’s decision in Blakey four months, before Herschell’s contribution.

The innovative part of American Braided Wire was to extend the “analogous use” precedents to consider whether the components of the alleged invention—not the whole of the invention—were being used in ways analogous to their uses in the prior art. The effect of this change was immediate. In 1890, English appellate courts decided four important cases on the sufficiency of invention, and together these cases solidified the change in doctrine. In Williams v. Nye, decided in March of 1890, the Court of Appeal invalidated a patent on a combination meat-mincing and sausage-filling machine. Meat mincing had previously been combined with sausage filling in a single machine. The plaintiff’s patent was to the combination of a new type of mincer, which had been patented by another inventor, together with a prior art sausage-filling machine. The court unanimously agreed that the patent was invalid. Delivering the first and most detailed of the opinions, Lord Justice Cotton realized that some “expressions” in Hayward v. Howard favored the patentee’s case, but he thought “if one were to read the opinions of the noble Lords in American Braided Wire one might gain considerable benefit from those opinions.”

Ultimately, Cotton reasoned that the combination was unpatentable because it was made with “no difficulty at all” and lacked a “substantial exercise of the inventive power or inventive faculty.” Though Cotton claimed to be merely applying the earlier analogous use doctrine from Harwood v. Great Northern Railway Co., he was quite clearly following American Braided Wire’s reinterpretation of that doctrine.

In March of 1890, the House of Lords unanimously reversed a judgment of the Court of Appeal and held a patent invalid in Morgan & Co. v. Windover & Co. The case involved a carriage having “composite” springs mounted in the front part of the carriage. Composite springs had previously been used in the rear portion of the carriage, and the patentee was

274. (1890) 7 R.P.C. 62 (C.A.).
275. Id. at 62.
276. Id. at 63.
277. Id. at 66 (opinion of Cotton, L.J.).
278. Id.; id. at 68 (opinion of Lindley, L.J.); id. at 69 (opinion of Lopes, L.J.).
279. Id. at 68 (opinion of Cotton, L.J.).
280. Id. at 67.
281. See id. at 68.
282. (1890) 7 R.P.C. 131 (H.L.).
283. Id. at 131–32.
the first to use them in place of the ordinary type of springs previously used in the front.\textsuperscript{284} The reasoning of the House of Lords was best summed up by Lord Herschell, who opined that the patent was invalid because it required no “mechanical ingenuity and skill to adapt the composite springs which had heretofore been used in the hind part of the carriage to the front part of the carriage.”\textsuperscript{285} Already, skill and ingenuity were becoming the primary focus.

In July of 1890, the Court of Appeal in \textit{Elias v. Grovesend Tinplate Co.}\textsuperscript{286} invalidated a patent on a small improvement in a machine for producing tin plates.\textsuperscript{287} The effect of the recent decisions could be seen in the arguments made by counsel for the patentee. Though representing the patentee, Thomas Terrell (the treatise writer previously mentioned)\textsuperscript{288} conceded that a patentable improvement must contain “invention” to support a valid patent. Moreover, in claiming that his client’s work did constitute true “invention,” Terrell argued that the improvement was “not obvious.”\textsuperscript{289} In prior years, patentees’ counsel had typically refused to concede that anything more than novelty needed to be proven. In deciding the case, all three judges relied on the \textit{Morgan} decision. Although one judge asserted that\textit{ Morgan} had established “no new law,”\textsuperscript{290} the other two judges more candidly admitted that\textit{ Morgan} had articulated the law “perhaps more distinctly”\textsuperscript{291} than any prior case and that it “probably [would] be the starting point for some time to come.”\textsuperscript{292} Moreover, Lord Justice Lindley’s opinion gives a good indication that change was taking place, for Lindley went all the way back to the text of the 1623 Statute of Monopolies for the proposition that patents should “be not contrary to the law, or mischievous to the State by raising of prices or commodities at home, or hurt of trade, or generally inconvenient.”\textsuperscript{293} Lindley recognized that this passage was “often forgotten,” but he asserted that it was “of the utmost importance in dealing with patent cases” because it demonstrated that even if there is “something which answers the description of a new manufacture [and] somebody who, in one

\begin{itemize}
\item \textsuperscript{284} \textit{Id.}
\item \textsuperscript{285} \textit{Id.} at 137 (opinion of Herschell, L.). Other Lords offered similar opinions. To Lord Halsbury, it was “an absolute condition to the validity of a patent that there should be what may properly be called the invention; and the application of well-known things to a new analogous use is not properly the subject of a patent.” \textit{Id.} at 134 (opinion of Halsbury, L.C.). Lord Watson relied upon the \textit{American Braided Wire} case to hold that patentee must have exercised a “degree of inventive ingenuity” sufficient to protect him. \textit{Id.} at 136 (opinion of Watson, L.).
\item \textsuperscript{286} (1890) 7 R.P.C. 455 (Q.B.D.).
\item \textsuperscript{287} \textit{Id.} at 455.
\item \textsuperscript{288} \textit{See supra note} 204.
\item \textsuperscript{289} \textit{Grovesend Tinplate Co.}, 7 R.P.C. at 458. Moulton, Q.C., and Thomas Terrell argued for the plaintiff: “Subject matter involves two considerations, utility and invention. There was need of it. We are also the first persons to use it, and thereby effect a great saving of labour and expense. Why did not others think of it before? It was not obvious.” \textit{Id.}
\item \textsuperscript{290} \textit{Id.} at 468 (opinion of Bowen, L.J.).
\item \textsuperscript{291} \textit{Id.} at 463 (opinion of the Master of the Rolls).
\item \textsuperscript{292} \textit{Id.} at 467 (opinion of Lindley, L.J.).
\item \textsuperscript{293} \textit{Id.}
\end{itemize}
sense, can be called an inventor,” “it does not follow that . . . he is entitled to
a patent for his new manufacture.” Thus, more than two-and-a-half centu-
ries after the enactment of the Statute of Monopolies, its long-forgotten
caveats were resurrected to help justify a change that was already well
underway.

By the time of the fourth case, Vickers, Sons & Co. v. Siddell, decided by the House of Lords in August of 1890, the change in the law
seems to have been complete. Once again, the patentee’s counsel was forced
to argue that the invention was patentable because it “require[d] ingenuity
and was not obvious.” In sustaining the patent on a new appliance for use
in forging, Lord Herschell stated the obviousness test in nearly modern form,
asserting that the key question was “whether this mode of dealing with
forgings . . . was so obvious that it would at once occur to anyone acquainted
with the subject, and desirous of accomplishing the end, or whether it re-
quired some invention to devise it.”

Almost immediately, Lord Herschell’s formulations of obviousness
became the standard canon that lawyers for both the patentees and defendants
would use in presenting their cases. Treatise writers too would soon aban-
don the older doctrine, which had emphasized analogous uses as a novelty
problem, and embrace obviousness as a general test broadly applicable to all
situations. Moreover, even judges who were skeptical of the obviousness
doctrine had to concede that it was the law. For example, Master of the Rolls
Brett, who in Hayward v. Hamilton expressed extreme skepticism that
anything more than novelty was required for a patent, had to admit in 1894

294. Id.
295. (1890) 7 R.P.C. 292 (H.L.).
296. Id. at 301; see also id. at 302 (arguing that the patent is valid because the invention “was
not obvious to persons engaged on these forgings to use this appliance”).
297. Id. at 304.
(referring the court to Morgan v. Windover and to Lord Herschell’s views generally concerning the
“amount of invention” needed to sustain a patent); id. at 366 (referring to Lord Herschell’s opinions
in American Braided Wire and Vickers and acknowledging that a patented invention “must not be so
obvious that it would at once occur to anyone”). Even while admitting that obviousness was the
correct test, some counsel for patentees in the early twentieth century would sometimes try to slant
the issue by citing pre-1889 cases, which of course framed the patentability issue in terms of
novelty and utility. See, e.g., Sharp & Dohme Inc. v. Boots Pure Drug Co., (1928) 45 R.P.C. 153,
163 (C.A.) (citing the 1887 case of Badische v. Lowenstein, (1887) 12 App. Cas. 710 (H.L.) (appeal
taken from C.A.) as providing “the meaning of ‘obvious’” even though no judge in the case applied
that doctrine). Subsequent cases frequently cited the argument set forth in Sharp by Cripps, the
King’s counsel, as identifying the correct question to ask in English obviousness cases. See, e.g.,
(H.L.) (appeal taken from C.A.) (citing Sharp, 45 R.P.C. at 173). Modern cases continue to identify
Herschell’s opinion in Vickers as supplying the correct formulation for the obviousness standard of
(quoting Lord Herschell’s test for obviousness, i.e., “so obvious that it would at once occur to
anyone acquainted with the subject, and desirous of accomplishing the end” (internal quotations
omitted)).
that his views were not the law, even though he viewed the new doctrine “with an amused contempt” and was given to characterizing the rule in “homely language, hardly judicial”: “so easy any fool could do it.”299 That skepticism would continue to be expressed by various English judges and treatise writers,300 and perhaps those views helped to keep the English standard of patentability at obviousness and not any higher.

When the United Kingdom finally did recognize a third component to the patentability test, it adopted the most narrow vision of the invention tests that had been articulated by the American courts.301 It is easy to see why this occurred historically. The English courts were far more bound to precedent than American courts were. Thus, when they finally deviated from their novelty-and-utility-only approach, they did so incrementally. The transition started in cases involving so-called new applications, where a device or product was merely being shifted from one use to another closely analogous use.302

English law was clearly a second mover with respect to the obviousness doctrine, and it moved at a seemingly glacial pace. But as a slow second mover, English law gained an advantage over the more innovative but less stable legal culture in the United States. While the U.S. legal system was toying with the possibility of moving the patentability standard from obviousness all the way up to a genius standard during the late nineteenth and early twentieth centuries, English law focused solely on obviousness. Indeed, during this period, English commentators tended to emphasize that the standard of patentability was not high and that almost any amount of invention would be sufficient to sustain a patent.303


300. See, e.g., British Westinghouse Elec. & Mfg. Co. v. Braulik, (1910) 27 R.P.C. 209, 230 (C.A.) (opinion of Moulton, L.J.) (“I view with suspicion arguments to the effect that a new combination, bringing with it new and important consequences in the shape of practical machines, is not an invention . . . .  [This analysis] is unfair to the inventors, and in my opinion it is not countenanced by English Patent Law.”); FOX, supra note 92, at 240 (decrying the British shift away from mere novelty and utility); Alfred Daniell, Inventions and Invention, 11 JURID. REV. 151, 168, 172 (1899) (describing the newly announced invention doctrine as an impossible criterion and arguing that the British courts should have followed the older practice). Writing in 1899, Daniell also traces the transition away from a novelty-and-utility standard and toward invention or nonobviousness as occurring between 1880 and 1895. See id. at 165–66. Daniell saw the downfall of the novelty-and-utility standard as beginning with Lord Justice Brett’s dicta in Hayward that an invention or nonobviousness doctrine might perhaps be applied to invalidate a patent in only one in a thousand cases. Id. at 164–65.

301. See supra text accompanying notes 172–75.

302. A good example was the case of Harwood v. Great Northern Railway Co., (1865) 11 H.L.C. 654, 655, 11 Eng. Rep. 1488, 1488 (appeal taken from Exch. Chamber), which is discussed supra text accompanying notes 218–24.

303. See, e.g., CUNYNGHAME, supra note 214, at 94 (“If there be invention the degree of it may be slight.”); ROBERT FROST, A TREATISE ON THE LAW AND PRACTICE RELATING TO LETTERS PATENT FOR INVENTIONS 27 (London, Stevens & Haynes 2d ed. 1898) (considering “whether any particular quantum of invention . . . is necessary to the support of a grant of letters patent” and
Thus, although English law came around to obviousness more slowly, when it did come around, the country’s legal culture seems to have more rapidly developed a general consensus that obviousness was the correct standard. That consensus led to an earlier codification of the standard—in 1932,\textsuperscript{304} a full two decades ahead of codification in the United States.

One final point: in both England and the United States, neither the courts nor the commentators devoted much effort to justifying the obviousness doctrine or to articulating the policies behind the doctrine. The treatises and court cases are filled with discussions of logic and linguistics about what the precise test for patentability is. But only a few—a very few—passages reveal any real intuition behind the doctrine. For example, at the turn of the century, one insightful commentator identified a central question for all obviousness cases: “If this useful device is merely the outcome of ordinary skill, why was it not thought of before?”\textsuperscript{305} Few judges or commentators offered any real insight into how to answer that question. One notable exception was Lord Justice Bowen’s opinion in Gosnell v. Bishop in which he observed that a novel demand could generate “immediately and

\textsuperscript{304}See Patents and Designs Act, 1932, 22 & 23 Geo. 5, c. 32, § 3 (Eng.) (providing that a patent may be invalidated where “the invention is obvious and does not involve any inventive step having regard to what was known or used prior to the date of the patent”). Though the English statute also refers to the “inventive step” concept, English case law before and after 1932 defined inventive step in terms of whether the subject matter was not obvious. \textit{See, e.g.,} Elec. & Musical Indus., Ltd. v. Lissen, Ltd., (1938) 4 All E.R. 221, 250 (H.L.) (holding that the patent exhibited “inventive step” because the judge did “not think the solution [provided by the patent invention] obvious”); \textit{In re Daniel Emil Erickson’s Letters Patent, (1923) 16 Lloyd’s List L.R. 106, 109 (Ch. Div.)} (stating a challenge to a patent’s “inventive step” should be decided by reference to “whether the step taken by the inventor was an obvious step or not”). English case law also tested obviousness from the perspective of the person skilled in the relevant art. \textit{See Cleveland Graphite Bronze Coy. & Vandervell Prods., Ltd. v. Glacier Metal Coy. Ltd, (1948) 65 R.P.C. 375 (Ch. Div. 1948)} (testing obviousness/inventive step by reference to what “would be obvious to the skilled person”).

\textsuperscript{305}ALFRED AUGUSTUS THORNTON, THORNTON ON PATENTS 3 (1910).
without any operation of ingenuity, an obvious article.”

Bowen’s insight would be repeated in one treatise, but beyond such isolated passages, precious little intuitive guidance was provided for applications of the newly announced obviousness doctrine.

V. Other American Innovations: The Graham Framework and the Teaching-Suggestion-Motivation Test

In the United States, the history of the nonobviousness doctrine during the last half century has been dominated by two rather different developments, one at the Supreme Court of the United States and the other at an intermediate appellate court. At the Supreme Court, the newly codified obviousness standard was interpreted in a manner largely consistent with prior Supreme Court precedent on the standard for patentability, but with two significant clarifications. The Supreme Court’s decisions came in the first twenty-five years after the enactment of the obviousness standard. Soon thereafter, Congress created a new intermediate appellate court with nationwide jurisdiction over nearly all patent cases. This court, the United States Court of Appeals for the Federal Circuit, has attempted a new innovation in the law of obviousness, but it appears now that this innovation is likely to be abandoned. Each of these elements is considered below.

A. The Supreme Court’s Interpretation of the Obviousness Standard: Graham and Its Progeny

In 1966, fourteen years after the obviousness standard was codified in U.S. law, the Supreme Court of the United States first interpreted the new statutory standard in the case of Graham v. John Deere Co. The case is important for two major developments. First, the Supreme Court interpreted the obviousness standard as largely a codification of its own earlier precedents on the patentability standard, but in making that interpretation, the Court also definitively rejected its earlier suggestions that the patentability standard may require an exercise of genius. Suggestions that genius had been the correct standard had been made only intermittently. The larger bulk of the Court’s precedents prior to the 1952 codification had looked to the abilities of a person of ordinary skill in the art and had required merely that the patentable invention demonstrate some advance beyond those abilities. Still, the
explicit disavowal of a genius standard was significant in that it made clear that U.S. law required only nonobviousness. In this respect, U.S. law became consistent with English law.

Another significant development in the Graham opinion was the establishment of a four-step framework for analyzing the obviousness question. Though this framework was faithful to the statutory language of the 1952 codification, its details were very much the Supreme Court’s creation. To decide a question of obviousness, courts were first, to determine the scope and content of the prior art; second, to ascertain the differences between the prior art in the claims at issue; third, to resolve the level of ordinary skill in the art; and fourth, to determine the obviousness or nonobviousness of the subject matter based on the factors identified in the first three steps. In addition, courts could consider such secondary considerations as commercial success, long-felt or unsolved needs, and the failure of others. This framework had its strength in the first three steps, which focus attention on the precise factors that should govern the obviousness decision. A similar framework was adopted by the English courts some two decades later, and though explicit evidence of copying is not available, there is strong circumstantial evidence. The similarity between the frameworks alone—both are four-step tests and three of the four steps are substantially identical—suggests that the Graham decision had some direct or indirect influence on the English courts. Moreover, the patentee in the English case was an American corporation that was simultaneously involved in litigation in the United States. It would seem reasonable to assume that at the very least, the plaintiff’s American and overseas counsel conferred

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312. Id.
313. Id.
314. See Windsurfing Int’l Inc. v. Tabur Marine (Gr. Brit.) Ltd., [1985] R.P.C. 59, 73–74 (C.A.). The Windsurfing analysis requires the following steps to be followed:
The first is to identify the inventive concept embodied in the patent in suit. Thereafter, the court has to assume the mantle of the normally skilled but unimaginative addressee in the art at the priority date and to impute to him what was, at that date, common, general knowledge in the art in question. The third step is to identify what, if any, differences exist between the matter cited as being “known or used” and the alleged invention. Finally, the court has to ask itself whether, viewed without any knowledge of the alleged invention, those differences constitute steps that would have been obvious to the skilled man or whether they require any degree of invention.
with each other from time to time and that the U.S. framework for obviousness analysis might have been transmitted to the overseas attorneys.

The weakness of the *Graham* decision is that although its framework leads courts to develop a clear understanding of the differences between the claimed invention and the prior art, the framework tells courts little about how they are supposed to determine whether those differences are obvious or not. To solve this problem, the Supreme Court in *Graham* and in later cases fell back upon two things. First, the Court relied upon its older case law and applied the wisdom and the rules of thumb that had been developed in those older cases over the course of the century. Second, the Court relied on its own judgment. These two things seemed perfectly appropriate bases for decision in the absence of anything better. But it would have been better if the Court had tried to articulate in much greater detail the circumstances under which the obviousness doctrine was important for barring patents on novel developments.

B. The Rise and Fall of the Teaching-Suggestion-Motivation Test

During the thirty years between 1976 and 2006, the Supreme Court heard no cases concerning the substance of the obviousness doctrine. In the Supreme Court’s absence, a new appellate court—the Federal Circuit—took the lead in the development of obviousness law. The Federal Circuit’s major contribution during that period was the so-called teaching-suggestion-motivation test, which precluded the combination of any prior art components in an obviousness analysis unless the prior art contains a teaching, suggestion, or motivation to support the combination. The test was overturned in the 2007 Supreme Court decision *KSR International Co. v. Teleflex Inc.* The rise and fall of the Federal Circuit’s test dramatically illustrates the continuing evolution of the patentability standard, and the new

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316. See *Graham*, 383 U.S. at 33 (1966) (citing Hogg v. Emerson, 52 U.S. (11 How.) 587 (1850) and Crawford v. Heysinger, 123 U.S. 589 (1887)) (“It is, of course, well settled that an invention is construed not only in the light of the claims, but also with reference to the file wrapper or prosecution history in the patent office.”); id. (citing Powers-Kennedy Contracting Corp. v. Concrete Mixing & Conveying Co., 282 U.S. 175 (1930) and Schriber-Schroth Co. v. Cleveland Trust Co., 311 U.S. 211, 220–21 (1940)) (“Claims as allowed must be read and interpreted with reference to rejected ones and to the state of the art; and claims that have been narrowed in order to obtain the issuance of a patent by distinguishing the prior art cannot be sustained to cover that which was previously by limitation eliminated from the patent.”).

317. Id. at 36 (rejecting nontechnical considerations that may have favored the patentee and asserting without reference to expert testimony that the innovation covered by the patent at issue consists of “exceedingly small and quite nontechnical mechanical differences in a device which was old in the art”).

318. In re Johnston, 435 F.3d 1381, 1384 (Fed. Cir. 2006) (“Precedent requires that to find a combination obvious there must be some teaching, suggestion, or motivation in the prior art to select the teachings of separate references and combine them to produce the claimed combination.”).

Supreme Court decision in *KSR* shows that the standard will certainly continue to develop.

The teaching-suggestion-motivation test grew out of a number of earlier decisions holding patents invalid on the grounds that the relevant patented combination had been suggested in the prior art.\(^{320}\) Those cases were uncontroversial; indeed, they may be considered obvious cases of obviousness.\(^{321}\) In the early 1980s, however, the Federal Circuit began to interpret these cases as holding that a suggestion to combine was *required* and that without such a suggestion no patented combination could be held invalid.\(^{322}\) The test evolved into such a rigid rule that the Patent and Trademark Office believed it could not reject a patent application unless it was able to “connect the dots” from the prior art “very, very clearly.”\(^{323}\)

In defense of the test, it must be said that the Federal Circuit was making a valiant attempt to fill in the gap that the Supreme Court had left open in *Graham*. *Graham* told lower courts much about how they were to approach obviousness questions but little about how they were to *decide* them. The teaching-suggestion-motivation test attempted to provide a more precise metric for deciding the obviousness question. The Federal Circuit

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\(^{320}\) See, e.g., *In re Wiseman*, 596 F.2d 1019, 1023 (C.C.P.A. 1979) (holding that a solution for brake fading was obvious based on prior art that suggested the same solution for a similar problem); *In re Sheckler*, 438 F.2d 999, 1000–01 (C.C.P.A. 1971) (holding that a masonry block invention was obvious because the teachings of prior art suggested the inventor’s combination).

\(^{321}\) One line of chemical cases also served as an antecedent to the teaching-suggestion-motivation test. Those cases typically involved prior art that disclosed sufficient information to permit a competent chemist to make a very broad family or genus of chemical compounds, which might encompass thousands or perhaps even millions of slightly different compounds. The Court of Customs and Patent Appeals (one of the Federal Circuit’s predecessor courts that had jurisdiction to hear appeals from the Patent Office) held that such prior art did not render obvious each and every compound within the genus “in the absence of any suggestion in the prior art as to why [a particular compound within the genus] should be made.” *In re Bergel*, 292 F.2d 955, 956 (C.C.P.A. 1961). Prior to the creation of the Federal Circuit, that line of decisions was confined to the chemical area, which is considered a highly unpredictable art because similar chemical structures often have quite different and unforeseeable properties. See, e.g., *In re Papesch*, 315 F.2d 381, 391 (C.C.P.A. 1963) (noting that patentability in one case was found “in spite of close similarity of chemical structure”).

\(^{322}\) See, e.g., Ashland Oil, Inc. v. Delta Resins & Refractories, Inc., 776 F.2d 281, 297 (Fed. Cir. 1985) (concluding that a district court may not hold a patent invalid for obviousness if the court has not made findings to show that the prior art included “any factual teachings, suggestions or incentives . . . that showed the propriety of [patented] combination”); ACS Hosp. Sys., Inc. v. Montefiore Hosp., 732 F.2d 1572, 1577 (Fed. Cir. 1984) (“[T]eachings of [prior art] references can be combined only if there is some suggestion or incentive to do so.”); *In re Sernaker*, 702 F.2d 989, 995–96 (Fed. Cir. 1983) (“[P]rior art references in combination do not make an invention obvious unless something in the prior art references would suggest the advantage to be derived from combining their teachings.”); W.L. Gore & Assocs., Inc. v. Garlock, Inc., 721 F.2d 1540, 1551 (Fed. Cir. 1983) (“In concluding that obviousness was established by the teachings in various pairs of references, the district court lost sight of the principle that there must have been something present in those teachings to suggest to one skilled in the art that the claimed invention before the court would have been obvious.”).

also justified the test with overt discussions of policy. The court stressed an important problem in obviousness analyses—the analysis always occurs retrospectively and is therefore subject to the problem of a so-called hindsight bias. Generally speaking, such an overt discussion of policy and of the pragmatic problems associated with the obviousness doctrine was a step in the right direction; at least the court was providing some intuitive guidance for applications of the obviousness doctrine.

Yet despite those positive attributes, the Federal Circuit’s teaching-suggestion-motivation test suffered from two serious defects. First, the test was flatly inconsistent with a number of Supreme Court cases on the obviousness doctrine. In a number of decisions prior to KSR, the Supreme Court had held that a patent generally may not cover a mere combination of old elements wherein each element performs its previously known functions. Under the Supreme Court test, such combinations are patentable only in limited circumstances, and the applicant seeking a patent on such combinations faces a heavy burden to establish patentability. Under the Federal Circuit test, by contrast, any combination—including a combination of known elements with each element performing its known function—was presumptively patentable. Unless the party challenging patentability can point to a teaching, suggestion, or motivation to make the combination, it was patentable.

Second, the Federal Circuit’s emphasis on hindsight bias fails to identify any positive policy in favor of the obviousness doctrine. If the problem of hindsight were the only consideration relevant when applying obviousness, the best solution would be to abolish the doctrine entirely. All

324. See, e.g., In re Rouffet, 149 F.3d 1350, 1357 (Fed. Cir. 1998) (“[V]irtually all [inventions] are combinations of old elements. . . . If identification of each claimed element in the prior art were sufficient to negate patentability, very few patents would ever issue.”); Sensonics, Inc. v. Aerosonic Corp., 81 F.3d 1566, 1570 (Fed. Cir. 1996) (“To draw on hindsight knowledge of the patented invention, when the prior art does not contain or suggest that knowledge, is to use the invention as a template for its own reconstruction—an illogical and inappropriate process by which to determine patentability.”).

325. See, e.g., Alza Corp. v. Mylan Labs. Inc., 464 F.3d 1286, 1290 (Fed. Cir. 2006) (noting that the Supreme Court in Graham “recognized the importance of guarding against hindsight” and explaining that the Federal Circuit’s “motivation to combine” requirement is designed to prevent hindsight bias).

326. See KSR Int’l Co. v. Teleflex Inc., 127 S. Ct. 1727, 1739 (2007) (rejecting the Federal Circuit’s “rigid approach” to obviousness because it was “inconsistent” with Supreme Court cases “set[ting] forth an expansive and flexible approach” to determining obviousness).


328. See Great Atl. & Pac. Tea Co. v. Supermarket Equip. Corp., 340 U.S. 147, 152 (1950) (“The conjunction or concert of known elements must contribute something; only when the whole in some way exceeds the sum of its parts is the accumulation of old devices patentable. . . . Courts should scrutinize combination patent claims with a care proportioned to the difficulty and improbability of finding invention in an assembly of old elements.”).

obviousness inquiries suffer from the possibility of hindsight bias because they are inherently retrospective. The obviousness doctrine cannot be appropriately applied unless the courts understand the positive policies advanced by the doctrine. Only then can those positive policies be balanced against the potential problem of a hindsight bias as well as the other difficulties inherent in having inexpert courts make retrospective technical judgments.

Indeed, when the positive policies behind the obviousness doctrine are considered, the teaching-suggestion-motivation test can be seen as failing at precisely the point where the obviousness doctrine is most necessary. Teachings, suggestions, and motivations are least likely to appear in the prior art where sudden changes have brought about new conditions that give new value to obvious but previously unimportant combinations. In such circumstances, the prior art would not have documented the combination because it would have been doubly uninteresting—both technologically obvious and economically unimportant. Yet theory predicts that cases of sudden change are precisely the situations in which the obviousness doctrine has the most work to do.

Interestingly enough, even before the Supreme Court disapproved of the test, the Federal Circuit had already begun dismantling the teaching-suggestion-motivation test by interpreting it as exceptionally flexible and by permitting the test to be satisfied by all manner of implicit and indeed nonexistent teachings, suggestions, or motivations. That line of cases, which began after the Supreme Court showed interest by granting certiorari to review the validity of the test, reveals the theoretical weakness of the basic test: If the test is interpreted with rigor so as to require a fairly explicit teaching, suggestion, or motivation, the test will accomplish the goal of curbing any potential hindsight bias but at the cost of limiting the obviousness doctrine to the most extreme and most easily proven cases of obviousness. If, by contrast, the doctrine is interpreted flexibly so as to permit courts to derive implicit teachings from the prior art, then the test has little or no capacity to constrain hindsight bias.

330. See In re Kahn, 441 F.3d 977, 987 (Fed. Cir. 2006) (“A suggestion, teaching, or motivation to combine the relevant prior art teachings does not have to be found explicitly in the prior art, as ‘the teaching, motivation, or suggestion may be implicit from the prior art as a whole, rather than expressly stated in the references . . . .’” (quoting In re Kotzab, 217 F.3d 1365, 1370 (Fed. Cir. 2000))); see also KSR Int’l Co. v. Teleflex Inc., 127 S. Ct. 1727, 1743 (2007) (noting that the Federal Circuit “has since elaborated a broader conception of the TSM test than was applied in the instant matter” and citing some of the cases decided after the certiorari petition in KSR was filed).


332. See In re Kahn, 441 F.3d at 987–88 (explaining that teachings may be implicit in prior art and need not be expressly stated); Alza Corp. v. Mylan Labs. Inc., 464 F.3d 1286, 1290 (Fed. Cir. 2006) (noting the flexibility of the doctrine and explaining that a motivation to combine may be found in implicit teachings).
In the overarching development of the patentability standard, the downfall of the Federal Circuit’s teaching-suggestion-motivation test will be viewed as memorable for three reasons. First, experience with the Federal Circuit’s test provides additional evidence of the crucial link between the obviousness doctrine and rapid change. The Federal Circuit’s test was widely understood to be favorable to patents, and so experience with the test shows the effects of maintaining a fairly low threshold for patentability. Here, theory corresponds well with reality, as criticism of the teaching-suggestion-motivation test was most prevalent in the electronics and software industries, where technological change has been highly rapid in the last quarter century.333 Thus, a constrained obviousness doctrine created difficulties for industries that theory predicts needed the doctrine most.

The facts of *KSR* well illustrate the point. Although *KSR* was about a patent on a new gas pedal, the novelty of the device consisted solely in combining an existing gas pedal with an electronic sensor. That combination became important in the 1990s precisely because rapid progress in computer technology had allowed automobile manufacturers to install computers in cars to control the engine.334 Once a computer was used to control the function of the engine, gas pedals had to be updated to communicate electronically with the computer rather than (as was previously done) to communicate mechanically by attaching a cable or other linkage from the pedal to valves on the engine’s carburetor or fuel-injection unit.335 The necessary update—combining prior art pedals with electronic sensors—generated many devices that are both new (because the prior art previously included only pedals with mechanical connections) and valuable (because most cars are now using computers). A low nonobviousness test might allow patents on these new combinations even if only slight creativity was needed to make the update.336 Yet such obvious but valuable improvements define the very category for which the nonobviousness requirement is most important.

A second point about the experience with the teaching-suggestion-motivation test is that the rise and fall of the doctrine once again gives some indication of the timescale on which legal doctrine evolves. The Federal

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333. *See, e.g.*, Brief of Amicus Curiae Electronic Frontier Foundation in Support of Petitioner at 14, *KSR*, 127 S. Ct. 1727 (No. 04-1350) (“[T]he suggestion test is particularly damaging to industries, like the software industry, that depend on incremental innovation . . . .”); id. at 17 (“The *Graham* test is well-suited to assess obviousness in the software development context, given the relative lack of easily-accessible documentation of prior art, the incremental nature of software development, and the rapidly evolving level of skill of ordinary software developers.”).

334. *See KSR*, 127 S. Ct. at 1735 (noting that at the time of the alleged invention, it had become “more common to install computers in cars to control engine operation”).

335. *See id.* (noting that “[a] cable or mechanical link does not suffice for” communicating throttle activity to the computer).

336. *See id.* at 1735–36 (noting that it had become common to install computers in cars and that earlier patents had disclosed various techniques for mounting electronic sensors onto prior art pedal assemblies).
Circuit’s test was the de facto law in the United States for approximately a quarter century before the Supreme Court’s decision in *KSR*. During that time, the doctrine is best considered an experiment. If the experiment had gone well, perhaps its fate would have been different. It might not have generated such controversy; other nations might have adopted the test; and it might have become an accepted part of patent canon. That did not happen, but the important point is how long the test survived. Legal experimentation, like the teaching-suggestion-motivation test, takes decades to complete, and not all experiments are successful. The progress of legal technology is accordingly glacial.

Third and finally, the ultimate result in *KSR* is very clearly not going to be the end to the development of the doctrine. Even as the *KSR* decision is celebrated by its champions, the limitations of the decision have to be readily acknowledged. Though it resoundingly disapproved of the Federal Circuit’s obviousness doctrine and invalidated the patent claim at issue in the case, the Supreme Court was nevertheless cautious in writing the opinion. Much of the legal discussion in the case is directed to restating several “principles” of the Supreme Court’s prior obviousness cases and to identifying “the flaws in the [Federal Circuit’s] . . . narrow conception of the obviousness inquiry.” That discussion makes clear that the teaching-suggestion-motivation test cannot serve as the exclusive touchstone for obviousness determinations, and it redirects the doctrine back toward a more traditional “functional approach” set forth in earlier Supreme Court cases.

At the very end of the *KSR* opinion, the Court did include one passage that might seem to add some new elements to Supreme Court case law on obviousness. The Court stated that the “results of ordinary innovation are not the subject of exclusive rights under the patent laws” and that “[w]here it otherwise patents might stifle, rather than promote, the progress of useful arts.” The concept of “ordinary innovation” is new to Supreme Court patent case law—the phrase had never previously been used by the Court. Yet the phrase seems merely another way of stating what is in the statute. In context, “innovation” here seems to refer merely to something that is new, and that accords with standard dictionary definitions of the word. If so,
then it is quite clear that § 103 of the Patent Act does preclude the patenting of innovations (i.e., things that satisfy the novelty requirement found in § 102 of the Act) where the innovation is “ordinary” in the sense that it would have been obvious to a person of ordinary skill in the art. More important is the Supreme Court’s recognition that patents on obvious innovations could serve to stifle rather than promote progress. Though that justification for the obviousness doctrine was well grounded in the commentary on the doctrine, it had not been so plainly incorporated into Supreme Court precedent on obviousness. Still, recognizing that obvious patents could defeat the purpose of the patent system—to promote progress in innovations—merely draws attention to one known and very general policy supporting the doctrine. It is a good rhetorical flourish, and it is effective in stressing an important reason for having the obviousness doctrine. But it provides little guidance as to how courts should shape and apply the doctrine.

The KSR decision can thus be fairly summarized as merely returning the law roughly to the point where it was in 1982 (the year the Federal Circuit was created), with the sole addition being in the form of a negative: The lower courts are forbidden from developing the doctrine along the path that the Federal Circuit attempted in the first quarter century of its history. The Supreme Court’s cautious approach in KSR is understandable. The Court itself had not considered the obviousness doctrine in more than thirty years, and during the last two decades, judges, lawyers, scholars, and policy makers have focused their attentions on evaluating the merits and demerits of the teaching-suggestion-motivation test. The Court was not in a particularly good position to announce any new overarching principle or principles of obviousness, and the Court was certainly not going to repeat the “flaw[ed]” approach of the Federal Circuit by replacing one rigid formulation of doctrine with another, different rigid formulation. It was enough for the

342. See FED. TRADE COMM’N, supra note 323, ch. 4, at 1 (“A questionable patent can raise costs and prevent competition and innovation that otherwise would benefit consumers.”); MERGES & DUFFY, supra note 6, at 615 (noting that “granting patents to obvious developments may compromise the incentives that the patent system provides to develop nonobvious inventions” because such patents can diminish the flow of royalties to the holders of patents on nonobvious inventions).

343. A similar thought was expressed in Bonito Boats, Inc. v. Thunder Craft Boats, Inc., 489 U.S. 141, 146 (1989), where the Court stated that the nation’s patent laws are intended to strike “a careful balance between the need to promote innovation and the recognition that imitation and refinement through imitation are both necessary to invention itself and the very lifeblood of a competitive economy.” But that statement tended to suggest that overly broad patent laws might retard invention by precluding “imitation and refinement,” and the case involved the right to copy something that had not been patented. Patents on obvious innovations can retard innovation in other ways too, most clearly by curtailing the right of other skilled technicians independently to develop, invest in, and use their own “ordinary innovations,” and by forcing the owners of patents on nonobvious inventions to split their royalties with the owners of patents on obvious improvements to those inventions.

344. See KSR, 127 S. Ct. at 1741 (rejecting the Federal Circuit’s “transform[ation of a] general principle into a rigid rule that limits the obviousness inquiry” and explaining that the court’s
Supreme Court to decide the fate of the Federal Circuit’s experiment in doctrine and to rule on the particular patent claim at issue.

Because the KSR Court was so cautious, the obviousness doctrine will now likely be subject to significant intellectual foment for a period of years. One possibility is that the doctrine will remain limited largely to the statutory language, and courts will ask directly whether “the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art.”

In the KSR oral argument, the Chief Justice seemed to have some sympathy for this view, stating that the teaching-suggestion-motivation test merely “adds a layer of Federal Circuit jargon that lawyers can then bandy back and forth” and that especially if the test is interpreted to include many implicit suggestions, it was “worse than meaningless because it complicates the inquiry rather than focusing on the statute.”

But in its final opinion, the Supreme Court seemed open to the possibility that the case law could supplement the statutory inquiry with additional principles and insights, with the obvious caveat that the statutory inquiry could not be boiled down exclusively to a three-word test.

A fitting epilogue to the KSR decision can be found in the penultimate paragraph of the opinion, where the Court recognized that “[w]e build and create by bringing to the tangible and palpable reality around us new works based on instinct, simple logic, ordinary inferences, extraordinary ideas, and sometimes even genius. These advances, once part of our shared knowledge, define a new threshold from which innovation starts once more.” The KSR opinion is itself a “new work[]” based, as much of law is, on instinct, logic and inferences. It is an advance in the same sense that any recognition of failure in an experiment advances knowledge, albeit only knowledge of what not to do. From this new threshold, legal innovation will start once more.

VI. Conclusions

This Article began with Friedrich-Karl Beier, one of the leading German intellectual property scholars of the twentieth century, commending the Justices of the U.S. Supreme Court for inventing the patentability requirement in the 1851 Hotchkiss v. Greenwood decision. Yet as we have

“flaw[ed]” analysis related “for the most part to the court’s narrow conception of the obviousness inquiry”.

346. Transcript of Oral Argument at 40, KSR, 127 S. Ct. 1727 (No. 04-1350), available at http://www.supremecourtus.gov/oral_arguments/argument_transcripts/04-1350.pdf. Justice Scalia elaborated on this point, stating: “It is misleading to say that the whole world is embraced within these three nouns, teaching, suggestion, or motivation, and then you define teaching, suggestion, or motivation to mean anything that renders it nonobvious. This is gobbledygook.” Id. at 41.
347. KSR, 127 S. Ct. at 1746.
seen, the invention of the invention standard presents a far more complex story. Who then, if anyone, should be credited with the invention of invention? Among the many contenders, Willard Phillips seems to have the best claim. His 1837 treatise appears to be the first influential work to articulate a clear “general rule” that patents should be granted only for achievements that are not obvious. Like all inventors, however, Phillips owed a heavy debt to his predecessors. The French provided the intellectual seed that mere changes in form and proportions should not be patentable, and prior to Phillips, the American common law courts had already begun nourishing the seed imported from France into a much more significant, if not fully appreciated, doctrine. The nascent doctrine also needed the subsequent recognition provided by the Supreme Court decision in *Hotchkiss*. Though the Justices of the Supreme Court cannot claim to be originators, they were popularizers of the general invention test, and popularizers too have great value in implementing and spreading a technology. And long before the contributions of the French, Phillips, and the *Hotchkiss* Court, the Venetian conception of hard work and ingenuity comes down through history like a Da Vinci sketch of some future technology, less influential than perhaps it should have been but beautiful and suggestive nonetheless.

Development never ends with a pathbreaking pioneer, and if there were a prize for the second place in the invention of invention, it would be shared by many participants in the English legal system in the years centered around 1890. The Johnsons and their treatise seem to have been the first to push English law toward nonobviousness as a touchstone of patentability. The English Court of Appeal and House of Lords, and especially Lord Herschell in the latter body, brought along the necessary insight and authority to incorporate the doctrine into the law of the country. Nor were the English judges and Lords mere copyists. They took the still rough-hewn work of the Americans and refined it to such a degree that it was soon capable of precise statutory expression. That statutory product then found its way back across the Atlantic for codification into U.S. law in 1952.

This history is significant for much more than properly crediting the developers of the doctrine, for the comparatively late development of obviousness poses a great puzzle. Though it is now considered an essential gatekeeper of the patent system, the obviousness doctrine was unknown for hundreds of years after the creation of patent law. The solution to this conundrum provides a significant insight into the purpose of the doctrine. Older patent systems functioned reasonably well despite the absence of what is now seen as a major component of patent law because there was simply less need for the doctrine. Social change and technological development were so incremental that useful, valuable, and new developments were highly likely to be the product of inventive effort rather than some other change not occasioned by the inventor’s work. Moreover, patents were initially quite narrow rights—more like copyrights of today—and at least in England, were
also difficult to obtain. As the patent system became more successful in breeding technological change, more expansive in its ambitions, and more friendly to inventors, obviousness became increasingly important to the proper functioning of the system. Indeed, it is possible that in the future the standard of patentability may continue to rise gradually as the pace of social and technological change quickens, and as the patent system attempts to do even more for meritorious inventors.

The history of obviousness also has significant implications for our view of how the law develops. The first and most obvious point concerns the prevalence of international borrowing. Nation-states do not seem to create new legal conceptions independently nearly as frequently as they borrow them from other nation-states. The United States borrowed from France; England from the United States; and the United States back again from England. Even after the crystallization of nonobviousness as the patentability standard, refinements follow the same pattern, as the English courts seem to have partially borrowed the framework that the Supreme Court constructed in the Graham case for evaluating obviousness questions. These do not appear to be instances of independent creation. The particular forms of expression are simply too close for it to be supposed that legal thinkers created such highly similar doctrine independently. Moreover, it is quite clear from the historical record that at least some of the influential legal thinkers in each jurisdiction had access to legal materials from the other jurisdiction and were looking there for guidance.348

A second important point is the degree of disuniformity that is seen across nations and the speed with which this disuniformity dissipates. Nations with similar legal cultures and industrial capabilities, such as the United States and England, sometimes maintain significant differences in their law for periods of decades. The speed of convergence on a single “common” law seems extraordinarily slow.

Indeed, a close examination of the English precedents during the period between 1840 and 1880 shows that the English were not eagerly waiting to copy United States law but were very much willing to diverge. The English courts and commentators hung onto their precedents until the economic pressures from increasingly rapid progress forced their hand. (It is no mere coincidence that the forerunners of obviousness decisions in English law—Harwood and Saxby—involved innovations for railroads, an industry that experienced rapid change and development in the nineteenth century.) That conservative approach may very well make sense because the legal field suffers from such poor incentives for encouraging rigorous development and testing of new law, and even where actors have some incentive, they confront

348. See supra notes 144–51, 196–206 and accompanying text (describing the reciprocal influence of French, American, and British legal materials on the development of each country’s patent laws).
a dearth of tools for accurately measuring the social value of legal innovation. Thus, nations and their legal actors wait to adopt legal innovations because they do not know whether the innovation is a pathbreaking and salutary development, like obviousness, or a disastrous experiment that will eventually be discarded, like Coke’s hostility to improvement patents or the flirtation in the United States with a genius standard. All this tends to confirm the loose fit between current law and the positive efficiency of that law, and to foster a healthy skepticism that the law in any country is optimal.

Third and finally, the analysis applied in legal materials, including cases and treatises, supplies an additional reason for why the speed of convergence is so extraordinarily slow. Legal documents tend to avoid overt discussions of policy except in very rare instances. In place of policy analysis, legal instruments often rely excessively on parsing language and discussions of logic. Indeed, even when courts are trying to change the law, they often deny that they are doing so by creating clever reconstructions of the language that previously defined the relevant doctrine. Thus, for example, in the nineteenth century, the English courts, when they finally began to adopt a general obviousness doctrine, denied that they were doing so.349 Instead, they claimed initially that the patents that were being invalidated were simply not really new.350 Similarly, when the Federal Circuit began to abandon its teaching-suggestion-motivation test in 2006, the court denied that it was doing anything new even though it was changing its decisional law dramatically. That overarching and traditional feature of the legal culture does not at all foster the progressive development of the law.

The hope for the future has to be that in fashioning and explaining doctrine, courts and commentators can provide better justifications and discussions of the principles animating the doctrine. Courts will always find it necessary to create canonical verbal formulations to articulate what the law is. But those verbal formulations do not themselves provide any intuition for why the law is. Without such intuition, it is difficult to apply the law well and all but impossible to continue the law’s development. Economic analysis and other forms of overt policy analysis have central roles to play in that process, but the roles should not be limited to merely generating positive explanations to justify the current structure of law. Rather, the analysis should emphasize the normative, identifying the strengths and weaknesses of the status quo and pointing the way to better law for tomorrow.

349. See supra notes 214–40 and accompanying text.
350. See supra notes 214–40 and accompanying text.