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Correlative Obligation in Patent Law: The Role of Public Good in Defining the Limits of Patent Exclusivity

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CORRELATIVE OBLIGATION IN PATENT LAW:
THE ROLE OF PUBLIC GOOD IN DEFINING THE LIMITS
OF PATENT EXCLUSIVITY

SRIVIDHYA RAGAVAN*

In light of the recent outrageous price-spiking of pharmaceuticals, this Article questions the underlying justifications for exclusive rights conferred by the grant of a patent. Traditionally, patents are defined as property rights granted to encourage desirable innovation. This definition is a misfit as treating patents as property rights does a poor job of defining the limits of the patent rights as well as the public benefit goals of the system. This misfit gradually caused an imbalance in the rights versus duties construct within patent law. After a thorough analysis of the historical and philosophical perspectives of patent exclusivity, this Article concludes that the extent of exclusivity that patent monopoly currently bestows is unsupported by the philosophy of patent exclusivity that asserts strong public benefits. Alternatively, this Article presents the law of contracts as embodying a framework within which patent law can fit better. By viewing the grant of a patent as a contract with the government in exchange for the patent holder providing a benefit to society, patent owners shall have duties to the society that correspond to their rights under the patent.

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INTRODUCTION

Of all the thieves, robbers, murderers and rapists, one man emerged the “most hated man in America” in the year 2015. That man was Martin Shkreli, the Chief Executive of Turing Pharmaceuticals, and his infamy was a direct reaction to raising the price of Daraprim, a generic drug originally developed in the 1950s, by 5000%.¹ Although the patent on the Turing drug had expired, the price of pharmaceuticals in patent monopoly contexts continues to represent a significant international debate. The price of pharmaceuticals is an important election issue in the United States. In January 2016, fifty Democratic members of the House, led by Representative Lloyd Doggett of Texas, urged government agencies to consider diluting or diminishing the exclusive rights over patents on pharmaceuticals.² While the pharmaceutical industry denounced reductions in patent exclusivity as arbitrary on the grounds that they would stifle innovation, non-governmental organizations and the public seemed broadly in favor.³ At the center of this debate is the role of the exclusivity conferred by the grant of a patent. Contemporary issues involving patent law have struggled to define the limits of patent exclusivity

¹ Zakir Thomas, *Martin Shkreli: The Man of the (Pharma) Year 2015*, SPICYIP (Jan. 15, 2016), <http://spicyip.com/2016/01/guest-post-martin-shkreli-the-man-of-the-pharma-year-2015.html>.

² Kimberly Leonard, *Can the Government Already Control Drug Prices?*, U.S. NEWS (Jan. 11, 2016), <http://www.usnews.com/news/articles/2016/01/11/congressional-democrats-urge-nih-to-act-on-drug-prices>.

³ *Id.*

in the context of addressing the ability of patents to deliver the purported objective of public benefit. The effect of patent trolls on innovation, access to essential medicines, and exclusive rights on basic research tools are a mere sample of issues that have raised doubts regarding the patent system's ability to serve its preordained promise of public benefit.⁴ In all, the quest for a patent system that serves to encourage desirable innovation without imposing undue social cost is ongoing, and its end remains elusive.

Traditionally, scholarly discussions on the limits of patent exclusivity posit patents in functional terms. That is, patents are defined as property rights granted to encourage desirable innovation. The system was designed to capture the objective of enhancing public benefit by incentivizing creativity without imposing undue social cost. However, positing patent law within the property framework has been used to support a notion that the patent system is functioning to ultimately achieve its objectives.⁵ Scholars and even courts rely on a property rhetoric to sustain the patent system.⁶ Generally, the property based conception of patents has had the laudatory impact of working towards a system that results in more patents, which is decoded as more innovation, which, in turn, is discerned as an increase in public benefit.⁷ Such a perception of patents has beneficially encapsulated patent law with the appealing sheen of producing public benefit.⁸

⁴ See *Electronic Frontier Foundation: Defending Your Rights in the Digital World*, ELEC. FRONTIER FOUND., <https://www.eff.org/issues/resources-patent-troll-victims> (last visited Sept. 2, 2016); see also James Bessen, *The Evidence Is In: Patent Trolls Do Hurt Innovation*, HARV. BUS. REV. (Nov. 2014), <https://hbr.org/2014/07/the-evidence-is-in-patent-trolls-do-hurt-innovation>. See generally Robert L. Stoll, *Patent Trolls: Friend or Foe*, WIPO MAGAZINE (Apr. 2014), http://www.wipo.int/wipo_magazine/en/2014/02/article_0007.html; U.S. CONST. art. 1, § 8, cl. 8.

⁵ See William Fisher, *Theories of Intellectual Property*, in *NEW ESSAYS IN THE LEGAL AND POLITICAL THEORY OF PROPERTY*, 168, 169 (Stephen R. Munzer ed., 2001); *Horne v. Dept. of Agric.*, 135 S. Ct. 2419, 2441-43 (2015) (holding that the Takings Clause imposes a “categorical duty” on the government to pay just compensation whether it takes personal or real property, thereby overruling the Ninth Circuit, which had previously held that personal property receives less protection under the Takings Clause than real property); see also Adam Mossoff, *Patents as Constitutional Private Property: The Historical Protection of Patents Under the Takings Clause*, 87 B.U. L. REV. 689, 689 (2007).

⁶ *Id.*

⁷ See, e.g., Harold Wegner, *China Leads Top Five Patent Filing Countries*, LAIPLA (Mar. 13, 2016), <http://www.laipla.net/china-leads-top-five-patent-filing-countries/>; see also Jason Rantanen, *US Patent Application Filings for FY 2015*, PATENTLYO (Oct. 15, 2016), <http://patentlyo.com/patent/2015/10/patent-application-filings.html>.

⁸ See John C. Stedman, *Invention and Public Policy*, 12 LAW AND CONTEMP. PROBS. 649, 649-79 (1947); see also David Kestenbaum, *Evaluating The Benefits And Costs Of Patents*,

This paper asserts that patent law is a misfit within the traditional property regime. That is, the prevailing notions of patents as an extension of property rights lead one to construe patents in terms of rights rather than obligations. Property law posits rights in correlative terms and thus, defines rights from the perspective of the duty of third parties. Thus, acquisition of patent rights signals a societal duty to forbear from the patented invention. However, the property-based construct of patents does a poor job of defining the limits of the rights. As such, patent law lacks a clear outline or measure of the patent owner's duties corresponding to the rights.

For instance, property regimes, rarely, if ever, provide for absolute ownership. While Blackstone may have touted an Englishman's "sole and despotic dominion" over his land, ownership over real property is regularly subject to public interests.⁹ Eminent domain and government regulations over private property serve as examples of how public interests limit private property. Thus, in real property law, the components of ownership and the ensuing exclusivity have clear limits and are tied to the larger goals of establishing societal orderliness. In contrast, contemporary patent law struggles with defining the outer limits of patent exclusivity.¹⁰ Importantly, over time, it has resulted in a lack of correlation or proportionality between exclusive rights and the public benefit goals it seeks to achieve.¹¹ For example, a patent owner has limited duties in return for acquiring the exclusionary rights. The patent owner has no direct duty towards securing the end of public benefit, save for the disclosure. The patent mechanism does not clearly define whether, and if so, when, public interest considerations supersede the private rights of the patent owner. For example, a pharmaceutical patent owner does not have a duty to institute access-enabling mechanisms.¹² Even during a

NATIONAL PUBLIC RADIO (July 17, 2014), <http://www.npr.org/2014/07/17/332205119/evaluating-the-benefits-and-costs-of-patents> (discussing the costs and benefits of patents).

⁹ 2 WILLIAM BLACKSTONE, COMMENTARIES *2 ("[T]he right of property; or that sole and despotic dominion which one man claims and exercises over the external things of the world, in total exclusion of the right of any other individual in the universe.").

¹⁰ See, e.g., JAMES BESSEN & MICHAEL J. MEURER, PATENT FAILURE: HOW JUDGES, BUREAUCRATS, AND LAWYERS PUT INNOVATORS AT RISK 30-70 (2008) (asserting and outlining the ways in which patent laws do not work well with property rights).

¹¹ See ROBERT P. MERGES, JUSTIFYING INTELLECTUAL PROPERTY 150 (2011) [hereinafter, JUSTIFYING IP] (discussing the role of proportionality).

¹² See 35 U.S.C. § 271; Thomas F. Maffei, *The Patent Misuse Doctrine: A Balance of Patent Rights and the Public Interest*, 1 J. PAT. & TRADEMARK OFF. SOC'Y 178 (1970); see also Stedman, *supra* note 8, at 649-79; Jeanne C. Fromer, *Should The Law Care Why Intellectual Property Rights Have Been Asserted?*, 32 HOUS. L. REV. 549 (2015).

public health crisis, a patent owner is not legally obligated to price differentially or license the patent, voluntarily or compulsorily.¹³ While patent owners have a duty to honor a state's power of eminent domain, the practice of compulsory licensing has been controversial.¹⁴ Thus, under the current structure, the obligation of patent owners in the context of the larger goals of the system is unclear. A lack of clear limits, this paper highlights, has caused an imbalance in the rights versus duties construct within patent law. It has also blurred the lines that define the public benefit goals of the system.

This shift in rhetoric towards a rights-centric approach has resulted in a more Blackstonian view of patent protection, causing patent law to move away from the public benefit goals of the system. Consequently, instrumental elements of the patent system have coalesced to predominantly protect the inventor. In turn, public benefit aspects of the system have been relegated to the status of a by-product. Patent law has long suffered from a lack of a realistic scale to measure its output, which has led to technical measures such as the number of patents to become predicates of its outcome. Slowly, patent disclosures increasingly became perceived as the sole exchange for gaining exclusivity. Disclosure has come to be treated as the singular constituent element that delivers the objectives of the system.¹⁵ The resulting tendency is to treat quantitative measures – the number of patents issued – as a proxy for desirable innovation that is presumed to benefit the public. Consequently, more private property has come to denote more public benefit. That is perhaps why more patents are generally considered desirable. We are at a point where scholars, and even courts, express their discontent over the quality of innovation and disclosures.¹⁶

¹³ See generally U.S. CONST. amend. V (“[N]or shall private property be taken for public use, without just compensation.”). Eminent domain has always been an exception to the acquisition of private property, though the extension of the same principles in patent law has been much more controversial.

¹⁴ Mark W. Lauroesch, *General Compulsory Patent Licensing in the United States: Good in Theory, But Not Necessarily in Practice*, 6 SANTA CLARA HIGH TECH. L.J. 41 (1990); see Cole M. Fauver, *Compulsory Patent Licensing in the United States: An Idea Whose Time Has Come*, 8 NW. J. INT’L L. & BUS. 666 (1988).

¹⁵ See PETER DRAHOS, *A PHILOSOPHY OF INTELLECTUAL PROPERTY* 213 (1996) (explaining that the term instrumentalism is connected with the doctrine of pragmatism which in law, refers to the idea of law serving as a tool, although Drahos would define the non-duty based instrumentalism as outlined in this paper as a form of proprietarianism).

¹⁶ See *In re Bilski*, 545 F.3d 943, 1004 (Fed. Cir. 2008) (Mayer, J. dissenting) (referring to the low-threshold for patent eligibility to note that it has resulted in patents ranging from the somewhat ridiculous to the truly absurd); Sean B. Seymore, *The Teaching Function of Patents*,

This paper's main assertion is that the extent of exclusivity that patent monopoly currently bestows seems unsupported by the doctrinal construct of the philosophy behind exclusivity.¹⁷ Thus, at the outset, the discourse in this paper outlines the historical as well as the philosophical perspectives of patent exclusivity. A nuanced observation of the history of patent exclusivity reveals that the basic doctrinal and normative structure of patent law provides limited exclusivity focused on achieving the one goal of public benefit. Consequently, the goal of securing public benefit defines the limits of exclusivity, and by default, the patent system. That is, public benefit serves as the scale to measure the merits of the patent system.¹⁸ Such a measure directly addresses the obligation of the patent system and provides an outcome not only addressing the rights in patents, but more importantly, their limits.

Next, the paper traces the prevailing rights over patents. The discussion outlines how scholars and courts historically associated patent rights as a means to achieve two functional ends,¹⁹ namely: (i) encouraging or incentivizing innovation to achieve larger public benefit goals; and (ii) disseminating information through disclosure.²⁰ Over time, each of these outcomes has come to represent interrelated functions, regardless of whether they do or not in fact. Disclosure has come to be

85 NOTRE DAME L. REV. 621, 641, 667-69 (2011) (asserting that unlike how it is in its current form, the patent document should be readable to fully perform its teaching function); *see also* Charles Duhigg & Steve Lohr, *The Patent Used as a Sword*, N.Y. TIMES, Oct. 8, 2012, at A14; Benjamin N. Roin, Note, *The Disclosure Function of the Patent System (or Lack Thereof)*, 118 HARV. L. REV. 2007 (2005). *See generally* ADAM B. JAFFE & JOSH LERNER, INNOVATION AND ITS DISCONTENTS: HOW OUR BROKEN PATENT SYSTEM IS ENDANGERING INNOVATION AND PROGRESS, AND WHAT TO DO ABOUT IT (2002).

¹⁷ *See* David B. Schorr, *How Blackstone Became a Blackstonian*, 10 THEORETICAL INQUIRIES IN LAW 103, 104-06 (arguing that Blackstone himself “did not believe that this absolutist and individualist conception” of property squared with the prevailing British notions of property).

¹⁸ *See generally* GEORGE C. CHRISTIE & PATRICK H. MARTIN, JURISPRUDENCE, TEXT AND READINGS ON THE PHILOSOPHY OF LAW (3d ed. 2007).

¹⁹ *See* Roin, *supra* note 16; *see also* Timothy R. Holbrook, *Possession in Patent Law*, 59 SMU L. REV. 123 (2006); *Eldred v. Ashcroft*, 537 U.S. 186, 227 (2003) (Stevens, J., dissenting); *Pfaff v. Wells Elecs., Inc.*, 525 U.S. 55, 63 (1998) (stating that the patent system should be thought of as “a carefully crafted bargain that encourages both the creation and the public disclosure of new and useful advances in technology, in return for an exclusive monopoly for a limited period of time”); *Sony Corp. of Am. v. Universal City Studios, Inc.*, 464 U.S. 417, 429 (1984).

²⁰ *See* Roberto Mazzoleni & Richard R. Nelson, *The Benefits and Costs of Strong Patent Protection: A Contribution to the Current Debate*, 27 RES. POL'Y 273, 274-300 (1998). *See generally* U.S. PATENT & TRADEMARKS OFFICE, THE STORY OF THE AMERICAN PATENT SYSTEM: 1790-1952 (1953).

interrelated with inventive presence to the extent that more disclosure has come to mean more inventive activities. Slowly, under the contemporary view, securing patent rights is implicitly considered as satisfying the twin objectives of encouraging innovation and disseminating information. Such a construct, this paper asserts, dampens the presence of a duty of the patent owner to society. Instead, it has posited patent grants largely within a rights paradigm, diluting the duty requirement of the patent holder. Slowly, the grant of a patent is presumed to fulfill the corresponding duty to discharge the innovation and dissemination objectives of the patent system. The realigned rights and duties relationship in its prevailing form has led to a distorted understanding of patent law divorced from its social responsibilities. Thus, the absoluteness of the currently prevailing form of rights over patents, generally attributed as a by-product of association with property law, is perhaps misguided.²¹

Last, the paper asserts that the patent owner has a corresponding duty which arises from the overlay of the law of contracts on underlying patent law theories. The characteristic feature of contract law, on which intellectual property is heavily based, imposes corresponding obligations or responsibilities over the rights holder. The paper draws support from historic and philosophical sources of intellectual property law to assert that the overlay of the law of contracts on patents cannot be ignored. Instead, the overlay of the law of contracts is desirable because it can better tailor patent law to encourage innovation without undue social costs. The grant of monopoly rights is a contract with the government in exchange for the patent holder providing a benefit to society. The intrinsic nature of contract law imposes corresponding obligations on the rights holder. The contract necessarily balances granted rights with imposed corresponding obligations of the patent owner. That is, the patent owner would be subject to an obligation in proportion to the rights granted.²² Such a design would result in public benefit goals inherently limiting the ambit of patent exclusivity.

The historic role of the exclusivity doctrine, from which Part I of this paper proceeds, is the obvious starting point to appreciate the role and architecture of the exclusivity doctrine in the context of the public benefit expectations. Part II highlights how instrumental elements of the contemporary patent regime have

²¹ See also Shubha Ghosh, *Duty, Consequences, & Intellectual Property*, 10 U. ST. THOMAS L.J. 801 (2013) (noting that the heavy reliance on utilitarianism has resulted in an approach that measures success based on an aggregated rather than an individualist outcome). Ghosh points out that a measure of success under the utilitarian theory would consider technical success first, and consequences second. *Id.* at 8.

²² See generally MERGES, *supra* note 11, at 150-51.

suffered from an acute disconnect with the targeted objectives of the system, resulting in a rights-centric patent system. Next, Part III defines the ambit of the correlative duty to delineate the rights and obligations in the background of the current system. In doing so, Part III examines the kernel of the rights in patents as well as the source of the duty not to infringe and concludes that patent law needs to be reoriented from the perspective of the grant in order to achieve the public benefit objectives.

I OF EXCLUSIVITY & PUBLIC BENEFIT

This part explores the doctrinal core of patent exclusivity and presents a historical understanding of the doctrine in terms of its objectives. The historical orientation of patents is examined in the context of its nexus with the public benefit obligation. In doing so, the narrative postulates that patent exclusivity can be most effective when viewed from its ordained public function. Hence, patent exclusivity is meant to be limited by larger public benefit considerations. Disclosures, while serving an important role, cannot represent the sole exchange for gaining exclusive rights.

A. A Historical Overview of the Doctrine of Exclusivity

The core of patent law's doctrinal and normative structure can best be elucidated from the writings of Thomas Jefferson.²³ In denying a connection between patent law's proprietary underpinnings and natural rights, Jefferson asserts that the exclusive right to the invention is a direct return for the benefit that the society will derive.²⁴ Jefferson describes the concept of stable ownership as a mere gift of social law as opposed to a natural right.²⁵ Jefferson indicates that the exclusive right of the patent owner is not a natural right, but instead is an encouragement "to pursue ideas which may produce utility but this may or may not be done, according to the will and convenience of the society, without claim or

²³ *But see* Adam Mossoff, *Who Cares What Thomas Jefferson Thought about Patents? Reevaluating the Patent Privilege in Historical Context*, 72 CORNELL L. REV. 953 (2007).

²⁴ Letter from Thomas Jefferson to Isaac McPherson, No Patents on Ideas (Aug. 13, 1813), <http://www.red-bean.com/kfogel/jefferson-macpherson-letter.html>; Letter from Thomas Jefferson to James Madison (July 31, 1788), in 1 THE FOUNDERS' CONSTITUTION 476 (Philip B. Kurland & Ralph Lerner eds., 1987).

²⁵ *See* Adam D. Moore, *A Lockean Theory of Intellectual Property*, 21 HAMLINE L. REV. 65, 65 n.5 (1997) (noting that Thomas Jefferson explicitly disavowed any natural-law underpinning of intellectual property rights).

complaint from anybody.”²⁶ Thus, benefit to society is the central theme in Jefferson’s thinking. Jefferson emphasizes the line that segregates items for which society can suffer “the embarrassment of an exclusive right” from those for which it cannot.²⁷ For Jefferson, products that can benefit from exclusive rights ought to be clearly distinguished from those that do not deserve or require such protection, although he acknowledges the difficulties of the exercise.²⁸ Patent Commissioner Conway Coe would later rephrase the trade-off as one where “giving the inventor a limited amount of protection, [it] assures society of the benefits of his genius.”²⁹ Thus the internal core of patent law connects societal benefit to the vested exclusive rights.³⁰

The inherent dilemmas confronting the rights versus obligation question were captured by Thomas Jefferson in his letter to Isaac McPherson.³¹ Jefferson, himself an inventor and a draftsman of the 1793 Patent Act,³² outlined to McPherson in 1813 the social and economic rationale of the patent system.³³ He wrote, “[s]ociety may give an exclusive right to the profits arising from them, as an encouragement to men to pursue ideas which may produce utility, but this may or may not be done, according to the will and convenience of the society, without claim or complaint from anybody.”³⁴ The societal discretion outlined in Jefferson’s conception of patents creates the impression of a contract, which posits society’s benefit as the consideration for patent exclusivity.

In his classical treatise on patent law, and like many other scholars after him, George Curtis defines patents from a contractual standpoint as a “grant by the government, to the author of a new and useful invention, of the exclusive right, for

²⁶ Letter from Thomas Jefferson to Isaac McPherson (Aug. 13, 1813), <http://www.let.rug.nl/usa/presidents/thomas-jefferson/letters-of-thomas-jefferson/jefl220.php> [hereinafter *Letter to McPherson*].

²⁷ *Id.*

²⁸ *Id.* (“Considering the exclusive right to invention as given not of natural right, but for the benefit of society, I know well the difficulty of drawing a line between the things which are worth to the public the embarrassment of an exclusive patent, and those which are not.”).

²⁹ See THE STORY OF THE AMERICAN PATENT SYSTEM: 1790-1952, *supra* note 20.

³⁰ *Id.*

³¹ *Letter to McPherson*, *supra* note 26.

³² See P.J. Federico, *Operation of the Patent Act of 1790*, 18 J. PAT. OFF. SOC. 237, 238 (1936); see also *Graham v. John Deere Co. of Kansas City*, 383 U.S. 1, 7 (1996).

³³ See *Graham*, 383 U.S. at 7-9.

³⁴ *Id.* at 37 n.2; see also THOMAS JEFFERSON, VI WRITINGS OF THOMAS JEFFERSON, 180-81 (Washington ed. 2013).

the term of invention, of practicing that invention.”³⁵ The consideration for the grant, Curtis reflects, “is the benefit to the society resulting from the invention.”³⁶ When viewed through a contract law lens, a patent subjects an inventor to an obligation to provide benefits to the public in exchange for the public’s refrainment from the patented invention.

The primacy of the social benefit component of patents has survived to date and forms an integral part of U.S. patent law. For instance, at a speech delivered during the Centennial Celebration of the American Patent System in 1891, W.C. Dodge reiterated that our patent system is based on the idea of primarily benefitting the public and not the inventor.³⁷ The U.S. Supreme Court endorses the view that exclusivity is a sufferance self-imposed by society (designed as an award by the government to the inventor) to generate a larger public good. In *Graham*, the Supreme Court echoed Jefferson’s words in holding that “the patent monopoly was not designed to secure to the inventor his natural right in his discoveries. Rather, it was a reward, an inducement, to bring forth new knowledge.”³⁸ Similarly, Margaret Chon argued in 1993 that James Madison, whose thinking had significant impact on U.S. patent law, subscribed to the view that “the public good fully coincides with the claims of individuals.”³⁹ Chon discusses how Madison repeatedly claimed that there is no contradiction between simultaneously maximizing self-interest and the public good.⁴⁰ Thus, the social benefit component of patents seems to have survived contemporary times. In sum, the societal tolerance of the monopoly is to encourage creation of more innovations that benefit society, whereas disclosures merely help make the knowledge public. Society will,

³⁵ GEORGE TICKNOR CURTIS, A TREATISE ON THE LAW OF PATENTS FOR USEFUL INVENTIONS IN THE UNITED STATES OF AMERICA 1 (2d ed. 1854).

³⁶ *Id.*

³⁷ James L. Ewin, *The Minor Innovations of the Century*, in UNITED STATES BICENTENNIAL COMMEMORATIVE EDITION OF PROCEEDINGS AND ADDRESSES 478 (1892).

³⁸ *Graham*, 383 U.S. at 9 (“The grant of an exclusive right to an invention was the creation of society – at odds with the inherent free nature of disclosed ideas – and was not to be freely given. Only inventions and discoveries which furthered human knowledge, and were new and useful, justified the special inducement of a limited private monopoly.”).

³⁹ See Margaret Chon, *Postmodern “Progress”: Reconsidering the Copyright and Patent Power*, 43 DEPAUL L. REV. 97, 137-38 (1993); see also THE FEDERALIST NO. 43 (James Madison).

⁴⁰ *Id.* at 138.

for its own benefit, bear the correlative duty of tolerating the exclusive right for the term of the patent.⁴¹

B. A Philosophical Perspective of the Exclusivity Doctrine

Against this historical background of the doctrinal core of patent exclusivity, the philosophy of patent exclusivity, outlined below, further asserts the strong public benefit underpinnings in this area of the law. The predominant focus was seemingly on the end objective of the system. This part highlights that whether from a natural rights, private, or public law perspective, patents were viewed as fulfilling a social benefit objective. Thus, the narrative postulates that the role of exclusivity was limited and confined by the larger needs of the society. In doing so, this section asserts that exclusivity can be most effective when viewed from such an ordained public function.

The role of public benefit in the context of the awarded exclusive rights has traditionally resonated as part of the discussions on patents. Captured originally by Jefferson, the importance of the public benefit end has been reiterated by other distinguished experts.⁴² For instance, the Honorable William E. Simonds, Commissioner of Patents, reasoned that the extent of *natural right* exclusivity in intellectual property creations should be subject to limitations such as the principle of necessity.⁴³ “Each original inventor of an improvement in the useful arts,” he outlined, “has . . . the same kind of a title to the exclusive enjoyment thereof”⁴⁴ Commissioner Simonds further added, “[w]hile the exclusive natural right to an invention is a correct thing in theory, its exercise is suppressed through necessity.”⁴⁵ Although Simonds considered patents as natural rights (unlike Jefferson, who posited patent rights as social rights), he nonetheless found that necessity could circumscribe the extent of the rights. Thus, interference into patent exclusivity to ensure societal benefit is viewed as a legitimate exercise serving the

⁴¹ See Dotan Oliar, *Making Sense of the Intellectual Property Clause: Promotion of Progress as a Limitation on Congress’s Intellectual Property Clause*, 94 GEO. L.J. 1771, 1816 (2006) (“[The] three considerations — the fact that the Framers would not adopt the intellectual property proposals in the plenary form in which they were made, the political makeup of the Convention, and the origin of the words in the Progress Clause as qualifiers of other powers — all contribute to one consistent story according to which the Progress Clause was intended to limit Congress’s intellectual property power.”).

⁴² JEFFERSON, *supra* note 34.

⁴³ See William E. Simonds, *Natural Right of Property in Intellectual Production*, 1 YALE L.J. 16, 24 (1891).

⁴⁴ *Id.* at 24.

⁴⁵ *Id.* at 25.

objective of the system. Elsewhere Simonds outlined that “[i]n all forms of society all kinds of property are held under such conditions and limitations as society deems reasonable. Under the right of eminent domain governments take private property for public use on suitable remuneration when public necessity and convenience demanded,”⁴⁶ and that “[i]t is therefore entirely reasonable that society should set a limit to the enjoyment of the natural right of property in intellectual productions.”⁴⁷

Three important points stand out from Simonds’ work that are exemplary of early thinking regarding the limits of rights of the inventor.⁴⁸ First, early thinking on patent law was pervaded by concerns of its outcome – that is, the system’s ability to achieve its preordained objectives – rather than the rights that it created. Even a natural rights theorist such as Simonds considered circumscribing patent exclusivity to achieve the system’s objectives. Second, early developments of patent law seemed to repeatedly warrant interference into patent exclusivity if the patent system was not primarily functioning to ensure flow of benefits to society. Thus, it leaves a perception that early thinking revolved around the concept of society tolerating the grant of some rights on the inventor, as opposed to an inventor earning these rights. Third, the obvious view from the societal lens dictates adequate limitations if the end – the public benefit objective of the system – is not well served.

These three points taken together demonstrate that the correlative duty is not a per se reward for the inventor’s genius, but a toleration by society, driven and dictated by the larger public benefit. An inventor can gain recognition and rights as a consequence of the invention, but the exclusivity aspect of the right is simply an intended by-product of the correlative duty that the society willingly tolerates. From the perspective of the law of contracts, correlative duty can be viewed as a consideration for the larger public benefit. Simonds’ background as the Commissioner of Patents perhaps defined his conception of patents as a natural right. Yet both Simonds and Jefferson seem to suggest that the operation of patent law and the exercise of exclusivity is circumscribed by the needs of society.

⁴⁶ *Id.* at 23.

⁴⁷ *Id.* at 24.

⁴⁸ See MERGES, *supra* note 11, at 148 (expounding fully Locke’s theory of property and applying it to intellectual property rights).

Interestingly, Professor Balganesh makes a similar assertion in the background of H.L.A. Hart's philosophy with respect to copyright law.⁴⁹ Professor Balganesh suggests that "while the [rights and duties] always go together, the systematic neglect of copyright's 'duties' in copyright jurisprudence and scholarship has over time skewed our understanding of copyright's basic structure as an area of law endowed with an obligatory dimension. . . ." ⁵⁰ Patent law suffers from the same malaise. The rights package of patents necessarily embodies obligations imposed on patent holders, a corresponding obligation to bring forth public benefit. The framework of the obligations are perhaps reminiscent of the bipolar feature of private law highlighted by Professor Balganesh, who noted that the rights package vested on the inventor necessarily imposes a correlative duty on the society to not infringe, and a corresponding obligation on the inventor to generate public benefit.⁵¹ When exclusive rights are considered from the perspective of the self-imposed correlative duty of society to refrain from the property in exchange for public benefit, patent law can be accommodated into the edifice of private law. In turn, the inventor's corresponding duty to society arises from the overlay of the law of contracts over theories of intellectual property law.⁵²

While patent law is not a perfect fit within the property regime, broad encapsulation of the limits of patent rights treads closely with the Lockean theory of property. Locke elaborates, "Nothing was made by God for Man to spoil or destroy."⁵³ Locke conceives of property rights as entitlements to a person for exercising labor:

The same law of Nature that does by this means give us property, does also bound that property too. . . . As much as anyone can make use of to any advantage of life before it spoils, so much he may by his labor fix his property in. Whatever is beyond this is more than his share, and belongs to others. . . .⁵⁴

Thus, under the Lockean conception of property, the appropriation of property rights is only through the creator's own sweat of the brow, and the right is

⁴⁹ Shyamkrishna Balganesh, *The Obligatory Structure of Copyright Law: Unbundling the Wrong of Copying*, 125 HARV. L. REV 1664, 1665-66 (2012).

⁵⁰ *Id.* at 1666.

⁵¹ *See id.* at 1667-68.

⁵² *See id.*; Raymond T. Nimmer, *Breaking Barriers: The Relation Between Contract and Intellectual Property Law*, 13 BERKELEY TECH. L.J. 827, 844 (1998) (writing with reference to copyright law although the same principles can be applied to patent law).

⁵³ JOHN LOCKE, TWO TREATISES OF GOVERNMENT 136 (Thomas I. ed., 1947) (1690).

⁵⁴ *Id.*

subject to the sufficiency and spoliation obligations. The sufficiency restriction requires that one must leave “enough and as good” for others, which Locke asserts is an integral part of a just property regime. The spoliation principle states that the creator may only appropriate as much as the creator is able to use, and may not claim ownership of so many natural resources that some of them spoil before he is able to use them.⁵⁵

Locke’s theory of sufficiency and spoliation goes further than Simonds’ necessity theory and provides a clearer limitation to the natural rights over property. In the patent context, while Locke’s theory fully recognizes the rights of the inventor, it also subjects the rights to the sufficiency and spoilage limitations. Locke’s implication is that the space for disputes over property exists because resources can become limited even though they may presently exist in abundance. That is, an inventor’s appropriation should be limited by need and not greed. Also, property holders must leave “enough and as good” for others. Locke repeatedly suggests that there is something morally wrong with distributions in which some people’s property leaves others with very little.⁵⁶ Ironically, largess of possession has come to present a problem in the contemporary patent system. That is, the grant of patent rights cannot work to the detriment of social benefit. If it does, the sufficiency proviso will empower society to use the property for public benefit. Commenting on this, John Simmons would later say, “[t]he clear implication is that in later ages, when scarcity is a problem, there is room for doubt about . . . largeness of possession.”⁵⁷

Writing about the Lockean provisos in the context of copyright law, Wendy Gordon asserts, “[i]f a new creation renders the public domain less valuable, the proviso gives people a privilege to use the new creation to the extent necessary to make themselves as well off as they previously were.”⁵⁸ Among other things, Gordon asserts that this means that major cultural developments must be open for

⁵⁵ George H. Smith, *John Locke: Some Qualifications in Locke’s Theory of Property*, LIBERTARIANISM.ORG (Nov. 2015), available at <http://www.libertarianism.org/columns/john-locke-some-qualifications-lockes-theory-property>.

⁵⁶ Daniel M. Layman, *Sufficiency and Freedom in Locke’s Theory of Property*, EUR. J. POL. THEORY (2015), available at <http://ept.sagepub.com/content/early/2015/06/01/1474885115587118.full.pdf>.

⁵⁷ JOHN A. SIMMONS, *THE LOCKEAN THEORY OF RIGHTS* 291 (1992).

⁵⁸ Wendy J. Gordon, *A Property Right in Self-Expression: Equality and Individualism in the Natural Law of Intellectual Property*, 102 YALE L.J. 1533, 1572 (1993).

all to use in order to preserve the integrity of the public domain.⁵⁹ In the patent context, life-saving drugs created using biodiversity products or drugs created using public funds are examples of classes of things that society should have access to use to the extent necessary. Gordon also concludes that the spoliatio proviso in the copyright context prevents ownership over abstract ideas because it “preserves . . . public domain.”⁶⁰ A similar limitation is needed in the patent context. Public health is a great example to serve as a bar for limiting exclusivity following the grant of the patent. Such limitations will also define the contours of the corresponding obligation of the patent owner in return for the rights gained. Lack of an adequate public interest exception and flexibility to enable access in the patent context can lead to disastrous outcomes. This is particularly the case, for example, in the event of a public health crisis, which can potentially be more disastrous in economic value than a copyright regime without a free speech exception. Such a reading underscores the importance of the public interest limitations of patent rights.⁶¹

In the context of Lockean exceptions, it is worth pointing out that Curtis believes that public benefits from patents flowed through two channels: first, the practice of the invention during the patent term; second, the opportunity to practice the patent after its expiration.⁶² The Curtis treatise is perhaps the first to contextualize the importance of practicing the invention during the term. In doing so, Curtis seemingly connects exclusivity with the spoliatio proviso in that it imposes a burden on the patentee to practice the invention during the patent term to prevent spoliatio. Curtis’ work is significant in highlighting a nexus between exclusivity vested on the inventor and the requirement that the inventor practice the invention during the term. The question of whether practice of the invention by the inventor during the term is relevant to securing the broader public benefit goals

⁵⁹ *Id.* But see JEREMY WALDRON, GOD, LOCKE AND EQUALITY: CHRISTIAN FOUNDATIONS IN LOCKE’S POLITICAL THOUGHT 158-63 (2002) (asserting that sufficiency is not a limitation especially where resources are scarce).

⁶⁰ *Id.*

⁶¹ But see Jeremy Waldron, *From Authors to Copiers: Individual Rights and Social Values in Intellectual Property*, 68 CHI.-KENT L. REV. 841, 847 (1993) (“Being constrained by rules of intellectual property is a different matter from being constrained by material property rules. The homeless person may freeze or starve because he finds himself excluded from every sheltered place and prohibited from taking literally any piece of food.”). Waldron’s assertions completely ignore the impact of being constrained by intellectual property from accessing essential medication.

⁶² CURTIS, *supra* note 35.

of the system has become an important issue.⁶³ Curtis' conception of exclusivity as creating at least an opportunity for the public to practice the invention is much broader than a mere disclosure to the public. At the very minimum, it prevents the patentee from hoarding the patent by not putting it into use during the patent term. This conception of exclusivity prevents inventors from circumventing the patent system by deliberately not practicing the invention and, in effect, hiding the invention from the public during the term of the patent.

The above discussion on exclusivity is important to understand the foundations of the exclusivity doctrine. The repeated resonance of the public benefit objective is a common theme that informs both the historical and philosophical foundations of the exclusivity doctrine. It is imperative for the contemporary patent regimes to be engaged with the foundational objectives for the system. With that background, the discussion below outlines the role of patent disclosure to determine its role vis-à-vis patent exclusivity as well as the objectives of the system.

II

THE EMERGENCE OF A RIGHTS-CENTERED PATENT REGIME

This part traces how, over time, the U.S. patent regime has become more rights-centric by focusing on the assumption that more disclosures entail more innovation. Such an encapsulation of the patent regime relegated the public benefit objective to a secondary position as a by-product instead of a mandatory obligation. The discussion below begins with how disclosures came to occupy a central position. It then highlights the various roles that courts have embraced for patent disclosures, which in turn has taken the focus away from the question of whether the system is serving its historical objective of benefitting society.

A. *Early Signs of Disconnect*

This section examines the engagement of the exclusivity doctrine with the disclosure aspect of patent registration. In doing so, it traces the effect of such engagement as resulting in a disconnect of the exclusivity doctrine from its intended goals and public benefit expectations.

Historically, it would be incorrect to categorize the U.S. patent system as tending towards the rights side of the balance. In *Kendell v. Windsor*,⁶⁴ the

⁶³ *Id.*

⁶⁴ *Kendall v. Winsor*, 62 U.S. 322, 328 (1858).

Supreme Court noted that “[t]he limited and temporary monopoly granted to inventors was never designed for their exclusive profit or advantage . . . the benefit to the public or community at large was another and doubtless the primary object in granting and securing that monopoly.”⁶⁵ Rather, “the true policy and ends of the patent laws enacted under this Government are disclosed in that article of the Constitution . . . ‘to promote the progress of science and the useful arts,’ contemplating and necessarily implying their extension, and increasing adaptation to the uses of society.”⁶⁶ Courts were cautious not to create unwarranted private property. The skepticism against granting a patent was so high that there was a time when Justice Jackson himself lamented that “the only patent that is valid is one which this court has not been able to get its hands on.”⁶⁷

Yet the seeds of a rights-centric regime were laid much earlier. The constitutional powers of Congress notwithstanding, courts – especially the U.S. Supreme Court – have played an important role in shaping the doctrine.⁶⁸ Two cases in the early 1800s arguably set the tone for correlating public acquisition at the end of the patent term as fulfilling the components of the exclusivity obligation. In *Evans v. Eaton*,⁶⁹ the Supreme Court held that “patent law confers a benefit on the discoverer of any artful invention, which consists in a monopoly of his invention for a limited time.”⁷⁰ Further, “[t]he consideration which it requires him to pay for this benefit, is to put the public in possession of his invention; so as to enable all to use it, *after his* monopoly shall expire.”⁷¹ The Court’s use of the term “consideration” alluded to the patent holder putting the public in possession of the invention in exchange for securing the rights. But the Court defined the consideration in exchange for exclusivity as the public benefitting and progressing from the invention *after* the monopoly expires, focusing on disclosure and ignoring other important aspects such as the public benefit from practicing the invention

⁶⁵ *Id.* The House Committee reporting on the 1909 Copyright Act echoed the same sentiment: “[T]he enactment of copyright legislation by Congress under the terms of the Constitution is not based upon any natural right that the author has in his writings, . . . but upon the ground that the welfare of the public will be served” H.R. REP. NO. 60-2222, at 7 (1909).

⁶⁶ *Kendall*, 62 U.S. at 328.

⁶⁷ *Jungersen v. Ostby & Barton Co.*, 335 U.S. 560, 572 (1949).

⁶⁸ U.S. CONST. art. I, § 8, cl. 8. The concept of exclusivity is ingrained in the Constitution “to promote the Progress of Science and useful Arts, by securing for limited Times to authors and inventors the exclusive right to their respective Writings and Discoveries.” *Id.*

⁶⁹ *Evans v. Eaton*, 20 U.S. 356 (1818).

⁷⁰ *Id.* at 413; *see also* MERRILL D. PETERSON, THOMAS JEFFERSON AND THE NEW NATION: A BIOGRAPHY 937-38 (1975).

⁷¹ *Evans*, 20 U.S. at 413-14; *see also* U.S. CONST. art. I, § 8, cl. 9.

during the patent term. Similarly, in the 1829 case *Pennock v. Dialogue*,⁷² Justice Story opined that the crux of the patent system is to enable the public to ultimately acquire the innovation while recording “due regard” to the inventor in the form of exclusivity.⁷³ While it is clear that the Court conceptualized the objective of a patent in terms of public acquisition of the invention, these cases implied that the public benefit aspect of exclusivity can flow after the patent term.

Further, these cases also laid the foundation for a steady instrumental development of patents by positing a patent holder’s exclusive rights on a broad platform of the progress of science and arts.⁷⁴ That is, they led to an organic appreciation wherein the relationship between patents and the progress requirement was measured by the quantity of patents, which in turn, fed into the public benefit. The result was a slow process that steadily divorced or distanced the inventor from any direct obligation to achieve the ultimate goal of public benefit. To date, the constituent elements of the “progress” requirements remain unresolved. Whether it is the disclosure, number of patents, technological advancement, public benefit, or a combination of one or more of these factors, remains unsettled.⁷⁵ Over time, however, courts have come to view patent protection as a necessity for encouraging innovation despite economic studies to the contrary, which, in turn, has resulted in a view that the extent of private property rolled out is a standard measure of progress.⁷⁶ But even assuming that the number of patents issued can

⁷² *Pennock v. Dialogue*, 27 U.S. 1 (1829).

⁷³ *Id.* at 12 (“The constitution of the United States has declared, that congress shall have power ‘to promote the progress of science and useful arts, by securing *for limited times*, to authors and inventors, the exclusive right to their respective writings and discoveries.’ It contemplates, therefore, that this exclusive right shall exist but for a limited period, and that the period shall be subject to the discretion of congress.”).

⁷⁴ *Id.*; see also *Diamond v. Chakrabarty*, 447 U.S. 303, 315-16 (1980); Oliar, *supra* note 41, at 1816.

⁷⁵ Simone A. Rose, *The Supreme Court and Patents: Moving Toward a Postmodern Vision of “Progress”?*, 23 FORDHAM INTELL. PROP. MEDIA & ENT. L.J. 1197, 1203 (2013).

⁷⁶ See *Ass’n for Molecular Pathology v. USPTO*, 653 F.3d 1329, 1371 (Fed. Cir. 2011) (arguing that patent protection for genomic material, including isolated genes is crucial for continued innovation and economic growth of biotechnology industry). Judge Newman wrote:

The decisions in *Allappat* and *State Street Bank* confirmed the patent eligibility of many evolving areas of commerce, as inventors and investors explored new technological capabilities. The public and the economy have experienced extraordinary advances in information-based and computer-managed processes, supported by an enlarging patent base. The PTO reports that in Class 705, the examination classification associated with “business methods” and most likely to

serve as a loose measure of technological advancement, the public benefit aspect of progress, or in other words, the application of the technology towards societal progress, remains unclear.⁷⁷ That is, the patent system has been clearly posited as being ordained by the Constitution to promote progress, but much is needed to decipher the elements of progress. It cannot be mechanically equated with either technological advancement or number of patents issued without a clear delineation of public benefit goals.

Under basic contract theories, on which patent law is partly premised, vesting rights sans appropriate obligations (which happens if the term “progress” is not viewed as a limitation) would skew the contract. Thus, the constituents of progress should be defined so that the mere act of invention is not associated as a contribution to progress, whether or not it does in fact. The currently prevailing and seemingly narrow view of progress is not universally accepted, and in fact fits uneasily with constitutional goals of countries that define economic and social advancement as an element of progress.⁷⁸ International trade agreements also recognize a broader definition of progress. For example, Article 7 of the Agreement on Trade-Related Aspects of Intellectual Property Rights notes that protecting and enforcing intellectual property rights “should contribute . . . to a balance of rights and obligations” of members in a manner conducive to social and economic welfare.⁷⁹ Thus, benefits to the society from access, sustainability of the ensuing development, public health, and food security – defined more generally as

receive inventions that may not use machinery or transform physical matter, there were almost 10,000 patent applications filed in FY 2006 alone, and over 40,000 applications filed since FY 98 when *State Street Bank* was decided. An amicus in the present case reports that over 15,000 patents classified in Class 705 have issued. The industries identified with information-based and data-handling processes, as several amici curiae explain and illustrate, include fields as diverse as banking and finance, insurance, data processing, industrial engineering, and medicine.

In re Bilski, 545 F.3d at 992 (Newman, J., dissenting), *aff'd but criticized sub nom.* *Bilski v. Kappos*, 130 S. Ct. 3218 (2010).

⁷⁷ Rose, *supra* note 75, at 1201.

⁷⁸ The Indian Constitution emphasizes balancing social and economic rights. See INDIA CONST. pmbl. Article 21 of the Indian Constitution guarantees the right to life, which includes the right to good health. See *id.* art. 21.

⁷⁹ Agreement on Trade-Related Aspects of Intellectual Property Rights art. 7, Apr. 15, 1994 [hereinafter TRIPS].

public benefit – are all factors that form important measurements of progress.⁸⁰ Such a construction of progress serves as a limitation to the exclusive rights conferred in expectation of progress.⁸¹ Unfortunately, the Supreme Court has provided little guidance on the progress limitation of the intellectual property clause of the Constitution.⁸²

Notably, in 1908, the Supreme Court was presented with an opportunity to define a limit to patent rights vis-à-vis the public benefit objectives.⁸³ The Supreme Court, in *Continental Paper Bag*, considered whether it could restrain the infringement of a patent “which has long and always and unreasonably been held in nonuse . . . instead of being made beneficial to the art to which it belongs.”⁸⁴ The question presented was whether an inventor could choose not to exploit the patent during its term, or in other words, whether the owner of an unused patent is limited in law from alleging infringement.⁸⁵ In dealing with this question, the Court emphasized that exclusivity characterized the absoluteness of the inventor’s property rights: “[E]xclusion vests a legal privilege on the inventor to withhold

⁸⁰ See Rose, *supra* note 75, at 1198 (“A radicalized modern view of patent law allows us to challenge the incentive-centered narrative of promoting progress and consider this narrative’s impact on future discoveries, humanism, morality and the environment.”).

⁸¹ See Oliar, *supra* note 41, at 1804-05 (cogently constructing how from a historical, interpretative and policy perspective, the term “progress” is meant to serve as a limitation of the Constitutional powers of the Congress in the IP clause); Jeanne C. Fromer, *The Intellectual Property Clause’s External Limitations*, 61 DUKE L.J. 1329, 1339 (2012); Rose, *supra* note 75, at 1201 n.11 (“Both Oliar and Fromer evaluate the structural composition of the IP Clause and persuasively argue that the nonbinding precedent view is incorrect since it fails to give meaning to the first ‘empowerment’ portion of the clause and goes against the natural textual reading or an ends-means relationship between providing exclusive rights (the means) to promote the end result of promoting progress.”). *But see* 1 MELVILLE B. NIMMER & DAVID NIMMER, NIMMER, NIMMER ON COPYRIGHT § 1.03 (2004) (treating the “progress” portion of the IP clause as a preamble term introducing Congress’s broad powers in implementing Patent and Copyright protection).

⁸² See Malla Pollock, *What Is Congress Supposed to Promote? Defining “Progress” in Article I, Section 8, Clause 8 of the United States Constitution, or Introducing the Progress Clause*, 80 NEB. L. REV. 754, 767 (2001); Rose, *supra* note 75, at 1203 (clarifying that progress in the paper references a general sense and not progress in the copyright sense).

⁸³ See *United States v. Am. Bell Tel. Co.*, 167 U.S. 224, 250 (1897) (“The inventor is one who has discovered something of value. It is his absolute property. He may withhold the knowledge of it from the public, and he may insist upon all the advantages and benefits which the statute promises to him who discloses to the public his invention.”).

⁸⁴ *Cont’l Paper Bag Co. v. E. Paper Bag Co.* (*Continental Paper Bag*), 210 U.S. 405, 422 (1908).

⁸⁵ *Id.*

knowledge from the public while insisting on deriving the advantages and benefits the statute promises.”⁸⁶ Unused patents deprive the public of the patent’s benefits during the term and thus prejudicially impact the public interest.⁸⁷ The Court refused to acknowledge the effects of nonuse on competition or on public rights.⁸⁸ Instead, the Court noted, “[i]t is the privilege of any owner of property to use or not use it, without question of motive.”⁸⁹ As a result, the Court filtered out “working the invention during the term” from the public benefit aspect, thereby leaving “disclosure” as the sole residue that constitutes the public benefit output. In doing so, *Continental Paper Bag* marked a watershed moment, showcasing a shift towards treatment of patents as absolute property instead of a governmental grant which entails responsibilities towards the public.

After *Continental Paper Bag*, judicial opinions supporting limitations on exclusivity have remained as minority opinions.⁹⁰ Indeed, the Supreme Court expressly reconsidered *Continental Paper Bag* in *eBay v. MercExchange*,⁹¹ but unfortunately refused to reject or adopt a different approach, such as requiring the use or practice of the patented material during the term.⁹² The decision found that

⁸⁶ *Id.* at 424; *see also Am. Bell Tel. Co.*, 167 U.S. at 249.

⁸⁷ *See id.*

⁸⁸ *Continental Paper Bag*, 210 U.S. at 425 (internal quotation marks omitted) (responding to the petitioner’s assertion regarding the effect on competitors, the Court added that “whenever this court has had occasion to speak, it has decided that an inventor receives from a patent the right to exclude others from its use for the time prescribed in the statute. And, for his exclusive enjoyment of it during that time, the public faith is pledged”).

⁸⁹ *Id.* at 429.

⁹⁰ Restricting exclusivity has remained the minority position in the United States. For example, the dissent of District Judge Aldrich in the First Circuit, from where *Continental Paper Bag* was appealed, favored restricting patent rights on the grounds that nonuse of patents for private benefits discouraged inventive activity. *See Cont’l Paper Bag Co. v. E. Paper Bag Co.*, 150 F. 741 (1st Cir. 1906). Judge Aldrich stated that patents were meant to encourage invention by protecting the right to make, use and vend the product in public interest. Hence, he opined that the court should discourage activities hindering that objective by preventing the patent owner from alleging infringement. Judge Aldrich felt that the patent owner’s nonuse was for unconscionable private pecuniary gain. In not restricting the patent owner’s right, Judge Aldrich felt that the court of equity helped the owner to accomplish nonuse for private gains and thus contravened the spirit of equity and public policy. *Id.* at 745, 757. Justice Douglas recaptured the substance of Judge Aldrich’s opinion, albeit in his dissent, in *Special Equip. Co. v. Coe*, 324 U.S. 370 (1945). Justice Douglas argued that courts should interfere where patent owners misuse patents since patents are conditioned on public purposes per U.S. CONST. art. I § 8, cl. 8. *See Special Equip.*, 324 U.S. at 384; *see also Cont’l Paper Bag Co.*, 150 F. at 744-45, 757.

⁹¹ *eBay Inc. v. MercExchange, L.L.C.*, 547 U.S. 388 (2006).

⁹² *See id.* at 393.

infringement remedies should be subject to the traditional four-factor test based on equitable considerations to determine whether an injunction should issue in favor of a patent owner against an alleged infringer.⁹³ However, the Supreme Court did not go further to treat nonuse of the patent by the owner as a ground to deny injunctive relief or be a central part of the four-factor test.⁹⁴ Of particular interest is Justice Kennedy's concurrence, which specifically identifies that "[a]n industry has developed in which firms use patents not as a basis for producing and selling goods but, instead, primarily for obtaining licensing fees."⁹⁵ While Justice Kennedy strongly advocates against automatically affirming a patentee's absolute right to exclude through injunctions in cases of non-practicing patentees, the concurrence urges courts to grant damages of reasonable royalties.⁹⁶ The guidance from the Supreme Court has resulted in courts increasingly approving reasonable royalties and vacating permanent injunctions.⁹⁷ Yet *Continental Paper Bag* stands in contrast to the wisdom of the Curtis treatise.⁹⁸ The case serves as an early exemplar of how courts have failed to construe practice of inventions during the patent term as part of the inventor's obligation to contribute to the public benefit paradigm in return for exclusivity.⁹⁹ Unfortunately, courts have not ventured to determine whether a patentee's rights entail an obligation, in public interest, to practice the

⁹³ *Id.*

⁹⁴ *Id.*

⁹⁵ See *eBay*, 547 U.S. at 395-97 (Kennedy, J., concurring).

⁹⁶ *Id.*

⁹⁷ See, e.g., *Innogenetics, N.V. v. Abbott Labs.*, 512 F.3d 1363, 1380-81 (Fed. Cir. 2008) (approving a reasonable royalty award and vacating an injunction); See Neil Tyler, *Patent nonuse and technology suppression: The use of compulsory licensing to promote progress*, 162 U. Pa. L. Rev. 451, 467 (2013); See also Jaideep Venkatesan, *Compulsory Licensing of Nonpracticing Patentees After eBay v. MercExchange*, 14 VA. J.L. & TECH. 26, 31 (2009) ("These courts have decided, though not always expressly, that a nonpracticing patentee is entitled only to the royalty it would have earned had the parties executed a license . . .").

⁹⁸ CURTIS, *supra* note 35.

⁹⁹ See, for example, *SCM Corp. v. Xerox Corp.*, 645 F.2d 1195 (2d Cir. 1981) where Xerox was sued for refusing to use or license its patents involving its paper copier technology. The court asserted that this was a lawful exercise of its patent rights. See also PETER MEINHARDT, *INVENTIONS, PATENTS AND MONOPOLY* 189 (1946) ("Probably 80 to 90 percent of all patented inventions are not worked in practice."). See also Kurt M. Saunders, *Patent Nonuse and the Role of Public Interest as a Deterrent to Technology Suppression*, 15 HARV. J.L. & TECH. 389, 394 (2002) (discussing the anticompetitive effects of patent nonuse); see also SRIVIDHYA RAGAVAN, *PATENT AND TRADE DISPARITIES IN DEVELOPING COUNTRIES*, OXFORD UNIVERSITY PRESS (2012) (highlighting how internationally, jurisdictions like India did emphasize the practice through working requirements and how the TRIPS Agreement has forced such requirements to be amended on the grounds that it affects international trade).

patent during the term. Emphasis on practicing the patent during its term could have prevented some of the woes from *Continental Paper Bag*, as outlined below.

B. Woes of Continental Paper Bag

Continental Paper Bag set the tone for the manifestation of several woes from not obligating the practice of patents during the term. First, *Continental Paper Bag* has served as an important background to establish the absoluteness of the exclusive rights during the patent term and thus ignore public interest-based responsibilities of patentees to practice during the term of the patent.¹⁰⁰ Over time, patent owners have capitalized on patents by not practicing the invention during the term and reaping the benefits by asserting the patent strategically against (often unassuming) practicing entities.¹⁰¹ Patent owners keep the patent from the public until it can be successfully asserted against a practicing entity. The perversity of the problem is best understood through the reality that a new business model has developed where patent owners benefit from hoarding instead of using the patent.¹⁰² This behavior has led to ‘trolling,’ which is defined as the act of using the patent merely as an assertion tool (to assert against infringers) and not as a tool for furthering innovation.¹⁰³ That a considerable number of patent holders choose to find hoarding more rewarding than commercializing the patent during the monopoly term is telling of the woes that have affected the system from not associating practice of the invention during the term with the larger goals of the system.

Second, failing to associate the use of the patent with the resulting public interest goals has strengthened the association of disclosure with the ultimate goals of the system.¹⁰⁴ Slowly, the status of disclosure has been elevated as the main *quid*

¹⁰⁰ *Continental Paper Bag*, 210 U.S. at 424.

¹⁰¹ See, e.g., F.T.C., TO PROMOTE INNOVATION: THE PROPER BALANCE OF COMPETITION AND PATENT LAW AND POLICY 38-39 (2003), <http://www.ftc.gov/os/2003/10/innovationrpt.pdf>.

¹⁰² See, e.g., *MercExchange*, 547 U.S. at 396-97 (2006) (Kennedy, J., concurring) (“An industry has developed in which firms use patents not as a basis for production and selling goods but, instead, primarily for obtaining licensing fees.”).

¹⁰³ See Saunders, *supra* note 99 (discussing the anticompetitive effects of patent nonuse).

¹⁰⁴ Rebecca S. Eisenberg, *Patents and the Progress of Science: Exclusive Rights and Experimental Use*, 56 U. CHI. L. REV. 1017, 1028 (1989) (“The incentive to disclose argument, which has been more popular with the courts than with commentators, rests on the premise that in the absence of patent protection inventors would keep their inventions secret in order to prevent competitors from exploiting them.”); see also Fritz Machlup, Subcomm. on Patents, Trademarks, and Copyrights of the S. Comm. on the Judiciary, 85th Cong., *An Economic Review of the Patent System*, 32-33 (1958) (discussing four theses that are offered for patent protection:

pro quo of the inventor's monopoly.¹⁰⁵ Although the constitutional goal of "promoting the progress of useful arts" was never formally relegated to a secondary position,¹⁰⁶ the return for securing the bundle of rights was gradually narrowed to the element of public disclosure.¹⁰⁷ Even the Supreme Court effectively treated public disclosure as the only consideration in exchange for granting patent rights. Indeed, in 1933, the Supreme Court elaborated, "in consideration of [an invention's] disclosure and the consequent benefit to the community, the patent [wa]s granted."¹⁰⁸ This proposition later found its way into *Bonito Boats*,¹⁰⁹ the 1989 decision which laid the groundwork for the Court of Appeals for the Federal Circuit (Federal Circuit) to embrace the exact proposition.¹¹⁰ Thus, disclosure came to be the only element needed to fulfill the progress requirement.¹¹¹ As the disclosure doctrine slowly became identified with the consequential public benefit and the progress of useful arts requirement, it was a natural shift to justify patentees' rights as a return for the disclosure made.

(i) the "natural-law" thesis; (ii) the "reward-by-monopoly" thesis; (iii) the "monopoly-profit-incentive" thesis; and (iv) the "exchange-for-secrets" thesis, and further elaborating on the last thesis that it works on the premise that in the absence of patent protection inventors would keep their inventions secret in order to prevent competitors from exploiting them); WILLIAM D. NORDHAUS, *INVENTION, GROWTH, AND WELFARE: A THEORETICAL TREATMENT OF TECHNOLOGICAL CHANGE* 89 (1969).

¹⁰⁵ See, e.g., Cole M. Fauver, *Compulsory Patent Licensing in the United States: An Idea Whose Time Has Come*, 8 J. INTL. L. BUS. 666, 668-70 (1998). That is, the inventor reveals the invention in return for the government's promise of a specified statutory monopoly on the production of the idea. *Id.* at 681; see also *The Clean Air Act*, 42 U.S.C. § 7608 (2006); *Jondora Music Publ'g Co. v. Melody Recordings, Inc.*, 351 F. Supp. 572, 577 (D.N.J. 1972).

¹⁰⁶ See Timothy Holbrook, *The Treaty Power and the Patent Clause: Are There Limits on the United States' Ability to Harmonize?*, 22 CARDOZO ARTS & ENT. L.J. 1, 2-3 (2004) (asserting that the language in Article 1, § 8, cl. 8 of the Constitution "to promote the Progress of the Useful Arts" is the mandate to promote patents, and that the reference to "science" relates to the Copyright Act).

¹⁰⁷ Ewin, *supra* note 37, at 481.

¹⁰⁸ *U.S. v. Dubilier Condenser Corp.*, 289 U.S. 178, 186 *amended by U.S. v. Dubilier Condenser Corp.*, 289 U.S. 706 (1933).

¹⁰⁹ *Bonito Boats, Inc. v. Thunder Craft Boats, Inc.*, 489 U.S. 141, 150-51 (1989).

¹¹⁰ See Roin, *supra* note 16, at 2011-12 ("The Federal Circuit, which hears the bulk of patent infringement suits, frequently uses the same rhetoric, describing disclosure as the 'linchpin' and 'quid pro quo' of the patent system."); see also *W.L. Gore & Assocs. v. Garlock, Inc.*, 721 F.2d 1540, 1550 (Fed. Cir. 1983); *Enzo Biochem, Inc. v. Gen-Probe Inc.*, 323 F.3d 956, 970 (Fed. Cir. 2002).

¹¹¹ See Roin, *supra* note 16.

C. *The Rights-Centric Regime*

The above narrative highlighted how the disclosure requirement gained a central position in defining the objectives of the patent system. The narrative below describes how the disclosure requirement has been used to further expand the scope of patent rights. The disclosure requirement has resulted in more patents without necessarily resulting in a corresponding increase in innovation.

First, materials not disclosed in a specific manner were treated as being unknown to the public, and thus susceptible to creating private rights. The teaching, suggestion, and motivation (TSM) test serves as an example of this proposition. The TSM test was first applied in the 1960s by the Court of Customs and Patent Appeals (the Federal Circuit's predecessor) to determine the burden of proof for nonobviousness during patent prosecution.¹¹² In *ACS Hospital Systems*,¹¹³ the Federal Circuit first enunciated that teachings of prior art references could be combined to prove obviousness only if there was a specific teaching, suggestion, or motivation in the prior art to do so.¹¹⁴ By 1985, the Federal Circuit elevated this rule into a standardized prescription from which examiners could not derogate.¹¹⁵ Consequently, examiners were prohibited from rejecting patent applications for obviousness unless they had "elucidate[d] . . . factual teachings, suggestions or incentives from th[e] prior art that show[] . . . the propriety of [the patented] . . . combination."¹¹⁶ In other words, under the TSM test, the examiner bears the initial *prima facie* burden to show clear teaching, suggestion, or motivation from the prior art such that it would have led a person of ordinary skill in the art to combine the references to arrive at the claimed invention. Thus, a claimed application will be

¹¹² See *Application of Rinehart*, 531 F.2d 1048 (C.C.P.A. 1976); *Application of Regel*, 526 F.2d 1399 (C.C.P.A. 1975); *Application of Avery*, 518 F.2d 1228 (C.C.P.A. 1975); *Application of Imperato*, 486 F.2d 585 (C.C.P.A. 1973); *Application of Andre*, 52 C.C.P.A. 1019 (1965).

¹¹³ *ACS Hosp. Sys, Inc. v. Montefiore Hosp. (ACS Hospital Systems)*, 732 F.2d 1572, 1577 (Fed. Cir. 1984); see also ROBERT P. MERGES & JOHN F. DUFFY, *PATENT LAW AND POLICY: CASES AND MATERIALS* 664 (4th ed. 2007) [hereinafter MERGES & DUFFY].

¹¹⁴ See *ACS Hospital Systems*, 732 F.2d at 1577.

¹¹⁵ MERGES & DUFFY, *infra* note 120; see also *Ashland Oil v. Delta Resins & Refractories*, 776 F.2d 281, 297 (Fed. Cir. 1985).

¹¹⁶ *Id.*; see also *In re Kemps*, 97 F.3d 1427 (Fed. Cir. 1996) (holding that the Patent and Trademark Office's factual determinations on the issue of obviousness, regarding which references teach and whether a reference teaches toward or away from claimed invention, are binding on the Court of Appeals, which employed the clearly erroneous standard). *But see* *In re Gartside*, 203 F.3d 1305 (Fed. Cir. 2000) (reversing the above decision and noting that the PTO Board's decision will be subject to substantial evidence standard under the Administrative Procedure Act).

considered *prima facie* nonobvious unless there is a showing of specific teaching, suggestion or motivation from the prior art to make the combination.¹¹⁷

The TSM test in effect lowered the threshold of *prima facie* obviousness during prosecution by creating a standardized prescription to determine an objective element. The TSM test was touted as a means to minimize examiners' subjectivity and reduce rejections of patent applications based on hindsight bias.¹¹⁸ But it eliminated a critical element – the application of common sense of an examiner – from the obviousness determination.¹¹⁹ Thus, the TSM standard created a unique form of legal obviousness by disengaging the examiner's use of common sense.¹²⁰ The end result was application materials otherwise obvious to a person of ordinary skill in the art which were able to clear the legal nonobvious threshold.¹²¹ This greatly facilitated stacking more private rights to the detriment of the public domain. *In Re Dembiczak* stands as an outstanding demonstration of the above point.¹²² There, the Federal Circuit held that a Halloween-themed trash bag was a patentable invention because there was no prior art showing a “clear and particular” teaching to use all of the claim limitations, namely, the use of a plastic bag in pre-manufactured orange color and with specific Halloween facial indicia.¹²³ *In re Dembiczak* was by no means an aberration, but instead formed part of a steady stream of cases where the line between obvious and nonobvious was determined by what was typecast in the prior art, as opposed to what existed in the public domain.¹²⁴ While the TSM test may have taken credit for reducing rejections based on hindsight bias, it clearly led to an over-allowance of patent applications.

¹¹⁷ See Application of Rinehart, 531 F.2d at 1052 (standing for the proposition that the burden shifts onto the patentee to prove nonobviousness of the claimed invention by putting forward objective evidence).

¹¹⁸ Obviousness is an objective test conducted from the vantage point of a person of skill in the art. See 35 U.S.C. §103 (2012).

¹¹⁹ Feroz Ali Khader & Srividhya Ragavan, *Proof of Progress: The Role of Obviousness Standard in the Indian Patent Office*, in GLOBAL PERSPECTIVES ON PATENT LAW 571 (2014).

¹²⁰ Srividhya Ragavan & Feroz Khader, *The Selection Of Patents: Regulatory Reforms versus Market Reliance To Weed Out Suspect Patents*, 46(1) INT'L REV. INTELL. PROP. & COMPETITION L. 38, 44 (2015).

¹²¹ *Id.* at 44-45.

¹²² See *In re Dembiczak*, 175 F.3d 994 (Fed. Cir. 1999) *abrogated by* *In re Gartside*, 203 F.3d 1305 (Fed. Cir. 2000).

¹²³ See *id.* at 1000.

¹²⁴ See Khader & Ragavan, *supra* note 119, at 596; see also *Winner Int'l Royalty Corp. v. Wang*, 202 F.3d 1340, 1348 (Fed. Cir. 2000); *Ecolochem, Inc. v. S. Cal. Edison Co.*, 227 F.3d 1361, 1371 (Fed. Cir. 2000).

As for disclosures, in excluding specifically undisclosed materials from the definition of prior art, even if the material was otherwise obvious, the TSM test resulted in further elevating the role and importance of disclosures. The test stood on the assumption that submitted prior arts should be embodiments of every possible teaching and combination applicable to an invention. Consequently, materials not explicitly taught, suggested, or motivated by the prior art were susceptible to a *prima facie* clearance as being nonobvious.¹²⁵ The result was more patents, some of which embodied minor innovations, leading to more private rights to the detriment of the public domain and the progress requirement.¹²⁶

The rigid application of the TSM test resulted in a marked difficulty “to invalidate bad patents, and thereby stifling innovation.”¹²⁷ The costs to society from the monopolies awarded by patents embodying a lower obviousness threshold became unjustified.¹²⁸ The result was a perverse trend in the United States, where about fifty-five percent of patents were not renewed at the eight-year period after their issuance.¹²⁹ The TSM test was largely diluted after the Supreme Court intervened in *KSR v. Teleflex* and reestablished a common sense based approach similar to the statutory test in 35 U.S.C. § 103 to determine nonobviousness.¹³⁰

¹²⁵ See Timothy R. Holbrook, *Possession in Patent Law*, 59 SMU L. REV. 123, 171 (2006) (asserting that the TSM test treats the nonobviousness requirement akin to the novelty test). Holbrook suggests that it is akin to having one reference “incorporating by reference” all of the other prior arts. *Id.*

¹²⁶ *Id.*

¹²⁷ Stephen G. Kunin & Andrew K. Beverina, *KSR’s Effect on Patent Law*, 106 MICH. L. REV. 50, 50-51 (2007).

¹²⁸ See Brief of Intellectual Property Law Professors as Amici Curiae in Support of Petitioner at 9-11, *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398 (2007) (No. 04-1350); Brief of Amici Curiae Cisco Systems Inc. et al. in Support of Reversal for Petitioner at 2-3, *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398 (2007) (No. 04-1350) (arguing that the suggestion test’s low bar to patentability made patents of technologically trivial subject matter possible); Brief for the United States as Amicus Curiae Supporting Petitioner at 10, *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398 (2007) (No. 04-1350) (“[The suggestion test] exacts a heavy cost in the form of unwarranted extension of patent protection to obvious subject matter.”); see also Randall J. Hirsch, *Well Duh: Obviousness, Gas Pedals, and the Teaching-Suggestion-Motivation Test*, 6 NW. J. TECH. & INTEL. PROP. 89, 90 (2007) (asserting that the general criticism of the TSM test was that it set the threshold too low for patentability, allowing for the issuance of obvious patents, which contravenes public policy).

¹²⁹ William H. Brown, *Trends in Patent Renewal at the United States Patent and Trademark Office*, 17 WORLD PAT. INFO. 225, 227 (1995) (noting that in 1994, statistics indicated that only about fifty-five percent of patents are renewed at the end of the eight-year period).

¹³⁰ *KSR Int’l Co.*, 550 U.S. at 415-22. After *KSR*, the USPTO issued new examination guidelines outlining several bases for rejection under 35 U.S.C. § 103, one of which was the

However, the historical development of the TSM test exemplifies how disclosures were elevated to a point where common sense had a limited role.

Biotechnology patents represent an area where the disclosure requirement has been extensively used to define the rights and limits of patenting.¹³¹ For instance, a gradual lowering of standards in biotechnology inventions in the 1990s,¹³² such as in *In Re Deuel*,¹³³ largely lowered the threshold for biotechnology patent applications, resulting in an increase in biotechnology patent activity.¹³⁴

TSM test; see MANUAL OF PATENT EXAMINING PROCEDURE, § 2143 (U.S.P.T.O. 2008); see also Tom Irving, Lauren L. Stevens & Scott M. K. Lee, *Nonobviousness in the U.S. Post-KSR for Innovative Drug Companies*, 34 U. DAYTON L. REV. 157, 159 (2009).

¹³¹ See Amy Maxmen, *The Great Gene-Patent Debate: How the Myriad Genetics Gene-Patent Case Might Affect Personalized Medicine*, NATURE (July 20, 2012), <http://www.nature.com/news/the-great-gene-patent-debate-1.11044>; Julia Carbone et al., *DNA Patents and Diagnostics: Not a Pretty Picture*, 28 NATURE BIOTECHNOLOGY 784 (2010); see also *Mayo Collaborative Servs. v. Prometheus Labs., Inc. (Mayo)*, 132 S. Ct. 1289, 1302 (2012) (“The laws of nature at issue here are narrow laws that may have limited applications, but the patent claims that embody them nonetheless implicate this concern . . . [a]nd they threaten to inhibit the development of more refined treatment recommendations . . .”). See generally *Ariad Pharms., Inc. v. Eli Lilly & Co.*, 560 F.3d 1366, 1371-77 (Fed. Cir. 2009); *Petition for a Writ of Certiorari at 17, Ass’n for Molecular Pathology v. Myriad Genetics, Inc. (Myriad)*, 133 S. Ct. 2107 (2013) (No. 11-72517); *Lab. Corp. of Am. Holdings v. Metabolite Labs., Inc.*, 548 U.S. 124, 127 (2006) (Breyer, J., dissenting) (“The problem arises from the fact that patents do not only encourage research by providing monetary incentives for invention. Sometimes their presence can discourage research by impeding the free exchange of information, for example by forcing researchers to avoid the use of potentially patented ideas, by leading them to conduct costly and time-consuming searches of existing or pending patents, by requiring complex licensing arrangements, and by raising the costs of using the patented information, sometimes prohibitively so.”).

¹³² See, e.g., *Amgen v. Chugai*, 927 F.2d 1200, 1203-04 (Fed. Cir. 1991). *Amgen* was a decision rendered under 35 U.S.C. § 102(g), and thus not a question of obviousness. The case enabled the patentability of an adequately conceived DNA sequence. The Federal Circuit held that DNA sequences adequately defined in a manner sufficiently disclosing its actual structure and method of preparation would be considered as having been reduced to practice, even though an inventor may be unaware of its actual structure and nowhere near disclosing the actual structure. *Id.* at 1211; see also U.S. Patent No. 4,703,008.

¹³³ *In re Deuel*, 51 F.3d 1552, 1560 (Fed. Cir. 1995) (holding that obvious to try is not obvious); see also RAGAVAN, *supra* note 99, at 211-12.

¹³⁴ Sara Dastgheib-Vinarov, *A Higher Nonobviousness Standard for Gene Patents: Protecting Biomedical Research from the Big Chill*, 4 MARQ. INTELL. PROP. L. REV. 143 (2000).

This resulted in a proliferation of intellectual property rights in biomedical research.¹³⁵ As one court noted,

[B]etween 1990 and 1998, the total number of biotechnology patents granted to U.S. corporations has quadrupled. In contrast, between 1990 and 1998, the total number of patents issued increased by about sixty percent. This large disparity is cause for concern. It suggests that the biotechnology industry is using the relaxed nonobviousness standard to obtain genomic patents simply for corporate gain.¹³⁶

The increase in patent activity was attributed to a regime that adequately lowered thresholds, resulting in patenting of basic biotechnology research materials. It placed the biotechnology industry in a “spiral of overlapping patent claims in the hands of different owners.”¹³⁷ The result was that some basic research materials became inaccessible owing to the private property status which also increased the access cost effectively slowing down the pace of innovation in this area.¹³⁸ While these realities mandated that the free-for-all in biotechnology patent applications be capped, they also highlighted that the system greatly facilitated accumulating patent rights.¹³⁹ The Federal Circuit attempted to fix such a rights-centric patent regime by expanding the doctrine of written description, a traditional disclosure doctrine, to include enabling functions, thereby further contributing to the elevation of disclosure.¹⁴⁰ In *Eli Lilly*, the Federal Circuit held that a functional definition of a gene would be insufficient to meet the written description requirement because it merely indicates what the gene does, rather than what it

¹³⁵ See Anita Varma & David Abraham, *DNA Is Different: Legal Obviousness and the Balance Between Biotech Inventors and the Market*, 9 HARV. J.L. & TECH. 53, 78 (1996) (“On the one hand, based on prior art knowledge, the biotechnologist knows that sequencing around twenty amino acids is sufficient to obtain the cDNA sequence that codes for a particular protein, absent unforeseen difficulties. On the other hand, under current law, the expected product of this scientifically obvious manipulation is legally unobvious and thus patentable.”).

¹³⁶ Dastgheib-Vinarov, *supra* note 134, at 165.

¹³⁷ Michael A. Heller & Rebecca S. Eisenberg, *Can Patents Deter Innovation? The Anticommons in Biomedical Research*, 280 SCI. MAG. 698 (1998).

¹³⁸ *Id.*

¹³⁹ *Cf.* Dastgheib-Vinarov, *supra* note 134, at 165.

¹⁴⁰ *Regents of the Univ. of Cal. v. Eli Lilly & Co.*, 119 F.3d 1559, 1566-69 (Fed. Cir. 1997); Shraddha A. Upadhyaya, *The Postmodern Written Description Requirement: An Analysis of the Application of the Heightened Written Description Requirement to Original Claims*, 4 MINN. INTELL. PROP. REV. 65, 109-10 (2002).

is.¹⁴¹ The Federal Circuit further held that a “meaningful disclosure” was the exchange for patent exclusivity and where the disclosure was inadequate, the material was susceptible to being denied protection.¹⁴² From *Eli Lilly* in 1997 through the *Ariad* decision in 2010,¹⁴³ the Federal Circuit largely relied on enabling disclosures in the written description of biotechnology specifications as a correctional mechanism.¹⁴⁴

The above narrative highlights how disclosures have steadily grown to occupy a central role in defining the rights and limits of patenting, obviating the need for broader discussions on public benefit and the constituents of the progress requirement.

III

RECOGNIZING RESPONSIBILITIES: CORRELATIVE OBLIGATION OF PATENTS

This part examines whether the normative framework imposes any obligation on the inventor by examining the relationship between patent rights and the theoretical bases of the societal duty not to infringe. In doing so, the narrative focuses on fundamental values and returns that characterize the notions of patenting. First, this part traces the philosophical underpinnings of the patent rights framework. Second, it examines the philosophical justifications for these rights to understand the framework for establishing the obligations of the right holder. Lastly, this part focuses on how the duty practically operates and directs the law to create fundamental values and returns (privilege duty) that characterize the notions of patenting.¹⁴⁵

¹⁴¹ *Eli Lilly*, 119 F.3d at 1568; see also Lisa A. Karczewski, Comment, *Biotechnological Gene Patent Applications: The Implications of the USPTO Written Description Requirement Guidelines on the Biotechnology Industry*, 31 MCGEORGE L. REV. 1043, 1078 (2000) (arguing that the court’s holding that a generic description of the genus such as “vertebrate insulin cDNA” or “mammalian insulin cDNA” distinguishes the claimed genus only by function and hence is an inadequate written description).

¹⁴² See *Enzo Biochem*, 323 F.3d at 970; see also *Univ. of Rochester v. G.D. Searle & Co.*, 358 F.3d 916, 922 (Fed. Cir. 2004) (quoting *Enzo Biochem*, 323 F.3d at 970).

¹⁴³ *Ariad Pharmaceuticals et al. v. Eli Lilly and Company (Ariad)*, 598 F.3d 1336 (Fed. Cir. 2010).

¹⁴⁴ *Id.* at 1358 (finding the *Ariad* patent invalid on the grounds that the patent failed to adequately describe the invention and thus, to enable the specification).

¹⁴⁵ DRAHOS, *supra* note 15, at 220-23.

A. Rights Framework

Western discourse on intellectual property law conceptualizes patents as incentivizing the inventor and gathering the benefits of the exercise through public disclosure.¹⁴⁶ Exploring patents from the perspective of the relationship between the rights and obligations is essential to appreciate the existing structure of the rights-obligations balance. The desire to innovate, fuel creative genius, and promote the progress of useful arts are all explanations that support the rights paradigm of the patent system.¹⁴⁷ These explanations, however, do not fully define the societal obligation imposed on third parties to refrain from infringing patents. The narrative below examines the philosophical underpinnings that can perhaps justify the correlative obligation construct and its relationship with the vested rights of the patent holder.

Bentham categorizes rights into two distinct typologies based on their relationships with legal obligation.¹⁴⁸ Bentham's first category encompasses rights resulting from the absence of legal obligations.¹⁴⁹ Here, the law may actively permit or passively not prohibit certain actions, leaving the right holder with the liberty to decide whether or not to exercise the right.¹⁵⁰ Bentham's second category addresses rights existing as a by-product of obligations imposed by law on others.¹⁵¹ Patent exclusivity falls into this second category because it exists as a by-product of a statutorily imposed societal obligation not to infringe the patent. The legal obligation under the second category embodies a principal law "requiring the act which is obligatory" and a subsidiary law "requiring or permitting punishment for breach" of that obligation.¹⁵² The failure to conduct oneself in a specified manner as required under a principal law should result in pain (or its equivalent, loss of pleasure), which is legally imposed by a subsidiary law as a punitive measure for non-compliance with the principal law.¹⁵³ H.L.A Hart refers to this as inherently embodying both imperative and probabilistic elements.¹⁵⁴ It is imperative in that sanctions are mandated by the subsidiary law and probabilistic in

¹⁴⁶ See, e.g., MERGES ET AL., INTELLECTUAL PROPERTY IN THE NEW TECHNOLOGICAL AGE 191 (Wolters Kluwer Law & Business, 6th ed. 2012).

¹⁴⁷ See, e.g., U.S. CONST. art. I, § 8, cl. 8.

¹⁴⁸ H.L.A HART, ESSAYS ON BENTHAM 165 (1982) [hereinafter ESSAYS ON BENTHAM].

¹⁴⁹ *Id.*

¹⁵⁰ *Id.* at 166.

¹⁵¹ *Id.* at 165.

¹⁵² *Id.* at 134.

¹⁵³ *Id.* at 131-32.

¹⁵⁴ *Id.* at 132-34.

that there is a probability of incurring sanctions if obligations are not fulfilled. Bentham terms this second category of rights as “services,” typified by a “correlative obligation,” which are requirements of action or forbearance imposed on third parties.¹⁵⁵ That is, a right is an “enforced service” that results when the law creates a correlative obligation that imposes a duty of forbearance on society in favor of the right holder.¹⁵⁶ A patent right is an “enforced service” wherein infringement of patents (even if by independent creation) represents an imposed legal obligation.¹⁵⁷ The correlative obligation of the society is a service right that provides the inventor the ability to benefit from a duty of forbearance imposed on the rest of the society.¹⁵⁸ In other words, having a right correlative conferred by law onto the right holder relative to an obligation denotes that it leads to a benefit.¹⁵⁹

The benefits to the right holder under these circumstances tend to be indirect.¹⁶⁰ The right holder may, but does not have to, benefit directly from the performance of the legal obligation by others. Compliance by third parties with the legal obligation to refrain from infringing patented materials makes it conducive for the patent owner to benefit indirectly. Forbearance from the patented material by third parties prevents a potential loss.¹⁶¹ Hence, the benefits that patent exclusivity confers on the patent holder are indirect, negative in nature, and dependent upon the compliance of third parties with their legal obligations. Bentham defines them as contingently beneficial laws and notes that the duties under such laws are relative to the right holder, who wields complete control over the area covered by the duty. A right holder may, for instance, decide to prosecute one individual with a duty of forbearance while deciding to waive his rights with regard to a similar transgression by another individual. The concept of the relative duty of the right holder contrasts with the more absolute nature of such duties under criminal law, where certain actions are prohibited against all individuals by enforcement of law.¹⁶² Thus, under a contingently beneficial law, the correlative duties of third parties are akin to “species of normative property belonging to the

¹⁵⁵ *Id.* at 168-69.

¹⁵⁶ *Id.*

¹⁵⁷ *Id.* at 169.

¹⁵⁸ *Id.* at 168-69.

¹⁵⁹ *Id.* at 168.

¹⁶⁰ *Id.* at 176-77.

¹⁶¹ Daniel Sperling, *POSTHUMOUS INTERESTS: LEGAL & ETHICAL PERSPECTIVES*, CAMBRIDGE UNIVERSITY PRESS, at 72 (2008).

¹⁶² *ESSAYS ON BENTHAM*, *supra* note 148, at 185 n.88.

right holder.”¹⁶³ They are property that derives from norms that belong to identified individuals, under which the right holder is empowered by the legal provisions to enjoy a special control.¹⁶⁴ Termed as the power of “contractation,” the right holder’s power is a legal permission to an act which, if done by any other, would result in the contravention of the law.¹⁶⁵

The benefits flowing to the right holder from contingently beneficial laws invariably remain dependent on a plethora of causes and effects. For example, the patent application process has carefully tailored disclosure requirements to facilitate future replication.¹⁶⁶ Statutory requirements such as written description and enablement serve to ensure that even if the inventor perishes, the invention remains available to the public.¹⁶⁷ Thus, an inventor whose patent application falls short of statutory requirements like disclosure may see the flow of benefits discontinued under certain conditions. Similarly, a refusal to disclose the invention will lead to a refusal of the bundle of rights that forms the patent package. Thus, arguably disclosure is just one example of the expectation the general public receives in return for the correlative obligation not to infringe.¹⁶⁸ In return for the sufferance of the imposed correlative obligation, Bentham notes that the public as “unassignable individuals” acquire broad returns such as that from the disclosure.¹⁶⁹

B. Justifications for the Rights

Having discussed the nature of rights, this section examines the reason for conferring such rights and possible reasons for the societal tolerance of the correlative obligation. Thus, this section examines each of the justifications for the correlative obligation, including the law of contracts.

The first of these reasons is perhaps a sense of generosity which provides a simple enough explanation. Unfortunately, it is unlikely to be the reason for the legal obligations tailored to benefit the right holder. If mankind uniformly had such a strong sense of generosity, or any other public interest based reason to promote

¹⁶³ *Id.* at 185.

¹⁶⁴ *Id.*

¹⁶⁵ *Id.* at 169.

¹⁶⁶ *See, e.g.*, 35 U.S.C. § 112.

¹⁶⁷ *Id.*

¹⁶⁸ Lisa Larrimore Ouellette, *Do Patents Disclose Useful Information?*, 25 HARV. J.L. & TECH. 545, 594-95 (2012) (highlighting that the disclosure requirements can convey benefits conducive to the objectives of the patent system).

¹⁶⁹ *See* ESSAYS ON BENTHAM, *supra* note 148, at 175.

innovation without any expectation to itself, arguably there would be no need for rules.¹⁷⁰ David Hume, in *The Book of Morals*, asserts, “Men being naturally selfish, or endow[e]d only with a confin[e]d generosity, they are not easily induc[e]d to perform any action for the interest of strangers, except with a view to some reciprocal advantage, which they had no hope of obtaining but by such a performance.”¹⁷¹ Hume adds that “[it is] only from the selfishness and confin[e]d generosity of men, along with the scanty provision nature has made for his wants, that justice derives its origin.”¹⁷² Thus, the question of the benefit to society from treating patented property as privileged, thereby forbearing from the property during the term.

A different construct examining the basis of correlative duty is a sense of individual morality.¹⁷³ That is, does a sense of moral obligation to not take away from the inventor what he created provide adequate justification for the society’s tolerance of the correlative obligation? The interaction between law and morality is a romanticized aspect of our legal system. Like justice, morality remains elusive, and hence, provides easy explanations to appreciate normative structures. Thus, one can justify that moral obligation formed the basis of the legal obligation that imposes the correlative duty on the society. Yet, a positivist like Hart would assert that there is no necessary connection between law and morality.¹⁷⁴ Even assuming there is a connection between law and morality, morals that vest the correlative obligation on the inventor should also obligate the patent holder to certain duties in return for legal rights.

A further expansion of the concept of morality – religious morality – also fails to fully account for the self-imposed correlative duty of the society.¹⁷⁵ Religious morality asserts that God ordained labor as a fundamental right of men.¹⁷⁶ This reasoning posits that the creation of monopoly is consistent with the right to labor except that the king or lawmaker with powers to effectuate a monopoly also has a duty to ensure that it is duly limited.¹⁷⁷ This position is

¹⁷⁰ DAVID HUME, A TREATISE OF HUMAN NATURE, BOOK III: OF MORALS 519 (L.A. Selby-Bigge ed., Oxford 1896).

¹⁷¹ *Id.*

¹⁷² *Id.* at 495.

¹⁷³ ESSAYS ON BENTHAM, *supra* note 148, at 87-88.

¹⁷⁴ H.L.A. HART, THE CONCEPT OF LAW 202 (Oxford Univ. Press 1961). *See generally* Richard M. Dworkin, *Social Rules and Legal Theory*, 81 YALE L.J. 855 (1972).

¹⁷⁵ HART *supra* note 174; *see also* ESSAYS ON BENTHAM, *supra* note 148.

¹⁷⁶ *See* DRAHOS, *supra* note 15, at 22.

¹⁷⁷ *Id.* at 22-23.

reflected in the *Statute of Monopolies*, which notes that monopolies were tolerated only when they resulted in public good.¹⁷⁸

Yet another justification for the patent system is that it meant to vest a privilege so as to promote the growth of “human capital” – that is, to encourage the transfer of valuable trade and technologies.¹⁷⁹ It is well documented that in thirteenth-century England, the Crown’s prerogative in granting a monopoly was to generate more trade or technology and diffuse them into the society.¹⁸⁰ Professor Drahos, in tracing the historical and philosophical underpinnings of intellectual property rights including patents, supports the view that patent rights were considered a strong form of interference with negative liberties, or the right of others to pursue certain trade.¹⁸¹ This view supports the proposition that the inventor had an obligation to the society and is well supported by the law of contracts.

The law of contracts, by imposing a reciprocal corresponding obligation on the patent holder, can provide a better justification for the correlative obligation in the context of patent rights. As such, in a bilateral contract, one party’s obligation is correlative and reciprocal to the obligation of the other. A patent, as a government grant, repositions society as third-party beneficiaries. Imposing a duty (corresponding obligation) in exchange for the society’s correlative obligation would be a functional aspect of the grant. That is, the society has a correlative duty not to infringe the patent in return for which the patent owner has a corresponding duty to the society which includes, but is not limited to, the disclosure. Hence, the inventor, in exchange for the grant, may be charged with obligations benefitting the society. Under these circumstances, the third party, presumably the public in the context of a patent, while being the direct beneficiary lacks the legal right to enforce the contract should a breach detrimentally affect him. The right correlative to the obligation, under these circumstances, is held by the party having the control over the correlative obligation. In effect, the society will have the correlative obligation not to infringe the patent, the government will have control over the obligation, and in exchange, the patent holder will be subject to the corresponding

¹⁷⁸ RAGAVAN, *supra* note 99, at 7-8. *See also* Edward C. Walterscheid, *The Early Evolution of the United States Patent Law: Antecedents (Part II)*, 76 J. PAT. & TRADEMARK OFF. SOC’Y 849, 879 (1994) [hereinafter Walterscheid (Part II)].

¹⁷⁹ *See* DRAHOS, *supra* note 15, at 31.

¹⁸⁰ *Id.*; *see also* RAGAVAN, *supra* note 99, at 4-5; Edward C. Walterscheid, *The Early Evolution of the United States Patent Law: Antecedents (Part I)*, 76 J. PAT. & TRADEMARK OFF. SOC’Y 697, 705-08 (1994); Walterscheid (Part II), *supra* note 178.

¹⁸¹ *See* DRAHOS, *supra* note 15, at 220-23.

obligation to secure public benefit objectives. This view justifies governmental interferences in the form of, say, a compulsory license, when there is a problem affecting the flow of benefit to the society.

The contract-oriented view finds support in writings of H.L.A Hart, who, in alluding to Bentham's conception of the law of contracts, differentiates the imposition of duty under the law of contract as being "'incomplete' in a more radical way than the law underlying the institution of property."¹⁸² Part of the reason for the incomplete status is that under the law of contracts, acts that fall within the determination of the duty paradigm are left undefined. Hart suggests that "this open area may be restricted in a greater or lesser degree by the law's insertion of compulsory clauses into contracts, or by its refusal to recognize the validity of certain types of agreement."¹⁸³ Thus, general law can provide for certain compulsory restrictions on rights under certain circumstances, or government as the grantor and the control holder can insert regulations of varying degrees, which is not new to modern intellectual property systems. Using contracts as a mechanism would bind the inventor to a corresponding obligation in return for the rights. Thus, the inventor would be subject to the exercise of the power of imperation – that is, the power to ensure that individuals act in conformity with a command.¹⁸⁴ Imperative theory has its basis on the power of legislative and administrative bodies to create rules and regulations that result in increased effectiveness or efficiencies. Extending the analogy to patents, imperative theory would conceive of patents as providing exclusive rights granted under a contract wherein the rights may be limited to achieve the public benefit goals of the system.

Under the patent regime, access to the invention for the public typically begins when the patent term is over. But the correlative duty of forbearance from the property, termed as "enforced service," begins immediately after the rights are acquired.¹⁸⁵ Considering this, treating disclosures as the unique goal in exchange for patent rights does not account for the imposed correlative obligation during the patent term. Further, if societal access to the invention through disclosures were the only goal, they can be effectively generated using other mechanisms, such as a one-time prize, which can also ensure faster societal access to the innovation.

¹⁸² ESSAYS ON BENTHAM, *supra* note 148, at 209.

¹⁸³ *Id.* at 209.

¹⁸⁴ *Id.* at 201.

¹⁸⁵ *Id.* at 168.

C. Patent Law from the Rights & Duties Framework

This section provides a framework for rights and duties in the context of patent exclusivity to appreciate the public benefit objectives of the patent system. The bundle of rights awarded with the grant of a patent can be condensed into offshoots of the negative exclusionary rights. That is, the patent holder's right is limited to excluding others from commercially exploiting the invention without a license. These negative rights contrast with the affirmative rights for a property owner to use and enjoy her property. The affirmative right to use one's property gives rise to the property owner's right to exclude others,¹⁸⁶ as exclusion is important to the owner's use and enjoyment of the property.¹⁸⁷ The patent regime's focus on negative rights is different from the real property regime, but is closer to the contractual grant. Unlike real property, patents are nonrivalrous, and thus one does not need an exclusive right as a functional necessity to practice the invention in the same way that a property owner needs an exclusive right to enjoy her property. That is, the inventor can continue to use and practice the invention even without the exclusive rights. Exclusivity does not vest any additional rights to use the patented invention. Hence, it becomes important to appreciate the role and characteristics of exclusivity in patents in order to appreciate the objectives for granting it.

Unlike in property law, where property rights are granted for facilitating possession of property, the rights of the patent owner are not awarded to facilitate possession of the invention. Patent rights are subject to traversing certain minimum thresholds of inventiveness, and are acquired after careful examination by the patent office. Possession can be inconsequential to patent law. Further, not all innovations and new ideas are granted patents. A novel invention can still fail to acquire the associated bundle of rights by being subject to a statutory bar,¹⁸⁸ lack of inventive genius, or other grounds for invalidity. Unlike in real property, where interference with ownership alone is sufficient to establish trespass, in patent law,

¹⁸⁶ *Id.*; see also Wesley N. Hohfeld, *Some Fundamental Legal Conceptions as Applied in Judicial Reasoning*, 23 YALE L.J. 16, 32 (1913) (arguing that exclusion is considered important in property because it is "crucial to, and protects, a set of use privileges in relation to the res with which the owner is vested").

¹⁸⁷ Balganes, *supra* note 49, at 1669 ("The duty of forbearance, which operates once a resource is owned, signals to individuals to avoid interfering with the resource without the owner's authorization.").

¹⁸⁸ Under the old 1952 act, novel subject matter *made somehow public* more than one year before filing *could* have barred the inventor from getting a patent. See 35 U.S.C § 102(b) (2007) (amended 2011).

the determination of infringement requires proof of both ownership and validity. This sets patents apart from other forms of property.

Theoretically, every form of property (which includes the physical and the technological) would have a value (base worth) assuming there is free competition and no protection. Such base worth is the value of the property or the product covering the physical property and the technology, but without the privilege of exclusivity. The factum of exclusivity (or, relatedly, fencing of the property) can operate to impose an artificially higher market value on account of the artificial scarcity, but the minimum value or base worth should remain the same notwithstanding the presence of exclusivity. There is truly no reason to suspect that falling into the public domain would alter the property value, at least until there are substitutes in the market. In reality, unfenced land *per se* can be equally valuable as fenced land in the market, as is true with inventive ideas. And an inventor who lets the invention into the public domain should be able to generate a minimum value equivalent to the base worth, at least until the invention is replicated or recreated.¹⁸⁹ Given this, the rights associated with patents operate to create a zone of protection for the property with a view to prevent encroachment from third parties.

The above narrative posits exclusivity as a non-functional aspect of the grant. In doing so, it raises a fundamental question with respect to the correlative duty that such exclusivity imposes on the rest of the world. The term ‘correlative duty’ is used along the same lines as in property law where the grant of a right correlates to a duty of forbearance on others. But neither disclosure nor incentive to innovate fully explain the reason for society taking on the correlative obligation of forbearance from the property during the term. If disclosure from the specification was the only ultimate goal, such disclosure could be better achieved in many cases by simply letting the invention fall in the public domain without vesting the exclusive rights that are now associated with it. If incentive to innovate instead were the only goal, this objective could be served by mechanisms such as a prize, which is usually a more risk free one-time reward or recognition in celebration of the invention.¹⁹⁰ Exclusivity entails more than a prize or a reward,

¹⁸⁹ Allison et al., *Valuable Patents*, 92 GEO. L.J. 435, 437 (2004) (highlighting that the value of the patent is different from the value of the invention). Importantly, exclusivity is not required functionally to increase the value of the invention.

¹⁹⁰ See Joseph E. Stiglitz, *Prizes, Not Patents*, PROJECT SYNDICATE (Mar. 6, 2007), <https://www.project-syndicate.org/print/prizes--not-patents>; see also Benjamin N. Roin, *Intellectual Property versus Prizes: Reframing the Debate*, 81 U. CHI. L. REV. 999, 1001-03

although mechanisms like awards and prizes can also be effective to further the objective of encouraging creativity.¹⁹¹

Specifically, a system styled to monetize the technological benefits of an invention could capture most of the functional value of exclusivity and may even eliminate some of the associated dangers. Even without patents, an invention that is successful in the market can incentivize competition. Inventions protected by trade secrets increase competition by reverse engineering or substitution. Such competition, in turn, incentivizes the original creator to continue capturing the benefits of lead-time advantages. Thus, patent incentives may be redundant in some circumstances because innovators may be motivated by market profits even without patent incentives. Considering this, the societal preference for the patent system at the cost of the forbearance duties leads to a conclusion that, save for the clear public benefit paradigm, there is limited justification for the society's self-imposition of a duty.

In considering the framework for rights and duties in patent law, a balance between rights and duties is important for the patent system to benefit the public. On the one hand, a patent regime that bears a low threshold for patentability may result in a large number of patents, likely to the detriment of the public domain. While such a system is likely to generate many patents, some with limited inventiveness, the value of each individual patent is likely to be limited by the lower levels of inventiveness barring exceptional circumstances. Also, the low inventiveness threshold makes it easier to find competing substitutes in the marketplace. Soon, as each of the patent holders embodying a low threshold of inventiveness compete, they will alter the norms relative to the others resulting in a rivalrous effect. Alternatively, each patent may be dependent on other patents or would have to be bundled together in order to generate adequate market value. Each such patent holder's exclusivity will be circumscribed by other patents. The best example of the above problem of low-value patents can be found in the

(2014); Marlynn Wei, *Should Prize Replace Patents? A Critique of the Medical Innovation Prize Act of 2005*, 13 B.U. J. SCI. & TECH. L. 25, 27-28 (2007).

¹⁹¹ See Joseph E. Stiglitz, *How Intellectual Property Reinforces Inequality*, N.Y. TIMES (July 14, 2013), <http://opinionator.blogs.nytimes.com/2013/07/14/how-intellectual-property-reinforces-inequality/> (“[T]here are alternatives. Advocates of intellectual property rights have overemphasized their role in promoting innovation. Most of the key innovations — from the basic ideas underlying the computer, to transistors, to lasers, to the discovery of DNA — were not motivated by pecuniary gain. They were motivated by the quest for knowledge.”).

software industry.¹⁹² As the number of patents on comparable and substitutable technology increases, there is an increasing tendency of corporations to accumulate software patents to create a portfolio.¹⁹³ That is, patent holders consolidate their property to maximize the benefits. This results in several patents with lower levels of inventiveness representing a potent business tool rather than pockets of innovation.

Under conditions detailed above, the value from each patent (or set thereof) is best generated when they are pooled together. Such consolidation can also have the benefit of minimizing litigations between holders of patents on comparable technologies. Thus, the trend today is to acquire a patent family, which is comprised of multiple patents that ultimately protect the same invention.¹⁹⁴ Within patent families each single patent may have limited value, but together as a patent family, they increase the bargaining parity of the patent holder.¹⁹⁵ In the telecommunication and mobile phone technology business, for example, Samsung is understood to hold about 31,524 patent families, Microsoft holds about 8,887, and Apple holds about 1,941.¹⁹⁶ Under these conditions, the market value of any

¹⁹² See, e.g., Gideon Parchomovsky & R. Polk Wagner, *Patent Portfolios*, 154 U. PA. L. REV. 1, 52 (2005) (discussing how a portfolio of patents as opposed each individual patents adds to an aggregate value that is greater than individual worth of each of the patents); see also Doug Lichtman, *Aligning Patent Presumptions with the Reality of Patent Review: A Proposal for Patent Reform* 5-6 (The Brookings Inst., Discussion Paper No. 2006-10, 2006). See generally PATENTS IN THE KNOWLEDGE-BASED ECONOMY 1-2 (Wesley M. Cohen & Stephen A. Merrill eds., 2003).

¹⁹³ Cf. John R. Allison & Ronald J. Mann, *The Disputed Quality of Software Patents*, 85 WASH. U. L. REV. 297, 304 (2007) (concluding that the difference between the patents obtained large firms and smaller firms are not substantial). The authors assert that the data does not support the need for patent reforms focused on a particular area of technology. The authors also conclude that patent reforms that increase the bar for patent filings may work to the detriment of smaller firms and inventors. *Id.*

¹⁹⁴ See Parchomovsky & Wagner, *supra* note 192, at 52.

¹⁹⁵ *Id.* at 35-36.

¹⁹⁶ *Id.* at 44; see also *Microsoft-Patsnap*, MICROSOFT (Feb. 2, 2016), <http://www.patsnap.com/microsoft/> (formatting omitted) (“Microsoft has a total of 56,841 granted patents and 88,857 patent applications distributed into 46,972 patent families. Based on the countries of patent applications, the key markets for Microsoft are USA, European Patent Office and WIPO(PCT).”); *The Patent Wars: Apple versus Android*, THE CONVERSATION (Sept. 3, 2012), <http://theconversation.com/the-patent-wars-apple-versus-android-9291>; Reuven Brenner, *Must All Patents Last for 20 Years? A flexible system that recognizes the needs of different industries might lead to less legal conflict*, WALL STREET JOURNAL (Apr. 23, 2013), <http://www.wsj.com/articles/SB10001424127887324504704578413154212218668>.

one single invention is limited, and each patent holder's exclusivity is circumscribed by other patents. Each individual patent embodies limited inventiveness because of the low thresholds for protection that prevails in the first place. These conditions incentivize a larger number of arguably weaker patents.

However, the system produces patent portfolios that affect the public detrimentally in many important ways.¹⁹⁷ For example, recent studies have concluded that patent consolidation – grouping patents in “thickets” – increases transaction costs, reduces profits that derive from the commercialization of innovation and ultimately reduces incentives to innovate.¹⁹⁸ The resources required to create a portfolio and the consequential increase in bargaining parity of the portfolio owner increase the entry barrier, reduce competition in the market, and can affect small investors disproportionately.¹⁹⁹ The resulting inefficiencies affect the public detrimentally because patent protection is bestowed for materials with limited innovation.²⁰⁰ In turn, the system results in allocating more power, sometimes unfairly, to holders of large patent portfolios.

A system that rewards innovations with a lower threshold of inventiveness can result in accumulating more but can also erode the incentive for inventors to reach their maximum creative potential, or worse, can create costs that result in blocking follow-on innovations. The protection for minor innovations increases the overall need for licensing fees, further impeding innovation. Such a system is a detriment to the public domain. Under such circumstances, the incentive of exclusive rights in reality becomes a burden on the public, preventing access to what might have been otherwise available and accessible to the public. Thus, overall, a system that facilitates low threshold of patentability may frustrate the purpose of incentivizing invention. Along the same lines, largess in the rights package can prevent the system from achieving the targeted objective of

¹⁹⁷ See Parchomovsky & Wagner, *supra* note 192, at 52-54 (attempting to explain the current trend of holding families of patents each with diminishing worth but collectively increasing the bargaining strength of the holder using the theory of patent portfolio). The authors outline that the real value of patents lies in the aggregate value of the portfolio as differentiated from the value of each single patent. Such strategic collection of patent portfolio, the authors assert, presents an important array of advantages to the portfolio holder. *Id.* See also Ronald A. Cass, *Lessons from the Smartphone Wars: Patent Litigants, Patent Quality, and Software*, 16 MINN. J.L. SCI. & TECH. 1, 25-26 (2015).

¹⁹⁸ Bronwyn Hall et al., *Patent Thickets and First-time Patenting: New Evidence*, VOX (Apr. 23, 2016), available at <http://voxeu.org/article/patent-thickets-and-first-time-patenting-new-evidence>.

¹⁹⁹ *Id.*

²⁰⁰ See Parchomovsky & Wagner, *supra* note 192, at 52-54.

incentivizing invention. Under these circumstances, the enormity of the rights package can lead to societal discontent with the system.²⁰¹

Conversely, a legal system that confers limited power on the patent holder may be able to promote access to knowledge and innovation, even though it may not be able to capture all innovations under the private domain. The patent systems of several developing countries before the enactment of the TRIPS Agreement provide good examples.²⁰² Indian patent law allowed only process patents for pharmaceutical innovations with a view to improve competition. The process patent regime encouraged innovation in different methods of manufacturing known pharmaceutical products. This regime resulted in creating competing but similar products, increasing competition and thus making the product more accessible.²⁰³ Process innovations became the critical first step for the genesis and growth of the Indian pharmaceutical industry. Similarly, a rule prohibiting product patents for chemicals was first introduced in the German Patent Law of 1877 to stimulate research in alternative methods of producing a product.²⁰⁴ Within thirty years of enacting this rule, the German chemical industry became a European leader.²⁰⁵ German scientists and research workers attributed the success to the various process innovations that promoted competition. Interestingly, research in Germany attributed the failure of the French chemical industry to the product patent system.²⁰⁶ Importantly, providing exclusive rights to the process of production was considered a valuable inducement to the discovery of alternative processes.²⁰⁷ The resulting increase in diversity of the products benefited consumers. Although regimes with only process protection for pharmaceutical drugs have typically been

²⁰¹ See, e.g., *Mayo*, 132 S. Ct. at 1305 (discussing the effects of raising the price of using the patented ideas once created, requiring potential users to conduct costly and time-consuming searches of existing patents and pending patent applications, and requiring the negotiation of complex licensing arrangements).

²⁰² See, e.g., Indian Patents Act of 1970, 27 India A.I.R. Manual 450, (1979); see also Marrakesh Agreement Establishing the World Trade Organization Annex 1C, Apr. 15, 1994, 1869 U.N.T.S. 299. See generally Srividhya Ragavan, *A Patent Restriction On 'R & D: Infringers or Innovators*, 1 ILL. J.L. TECH & POL'Y 73 (2004).

²⁰³ RAGAVAN, *supra* note 99, at 42; see also Indian Patents Act of 1970, *supra* note 197.

²⁰⁴ RAGAVAN, *supra* note 99, at 58.

²⁰⁵ *Id.*; see also Loi du 5 juillet 1844 sur les brevets d'invention [Law of July 5, 1844 on Patents for Inventions], PÉRIODIQUE ET CRITIQUE [D.P. III] [PERIODIC REVIEW]; Patentgesetz [Imperial German Patent Law], May 25, 1877, REICHSGESETZBLATT [RGL].

²⁰⁶ N. Rajagopala Ayyangar, *Report on the Revision of the Patents Law in India, 1959*, SCC ONLINE 23-24 (2013) [hereinafter Ayyangar Report].

²⁰⁷ *Id.*; RAGAVAN, *supra* note 99, at 38.

faulted for having lesser rights, they should not be confused as lacking in innovation.²⁰⁸

For the patent system to be most efficient, the system should create a balance between rights and obligation.²⁰⁹ As Waldron asserts, “[t]o say that rights are a means to an end is one thing; but the correlative proposition that some should be forced to bear sacrifices for the greater social good smacks dangerously of throwing Christians to the lions for the delectation of Roman society.”²¹⁰ Justice Breyer captured this sentiment in *Mayo v. Prometheus*, opining,

[p]atent protection is, after all, a two-edged sword. On the one hand, the promise of exclusive rights provides monetary incentives that lead to creation, invention, and discovery. On the other hand, that very exclusivity can impede the flow of information that might permit, indeed spur, invention, by, for example, raising the price of using the patented ideas once created, requiring potential users to conduct costly and time-consuming searches of existing patents and pending patent applications, and requiring the negotiation of complex licensing arrangements.²¹¹

Reverberating similar sentiments, Justice Thomas in *Myriad* emphasized the importance of striking a “delicate balance between creating incentives that lead to creation, invention, and discovery and impeding the flow of information that might permit, indeed spur, invention.”²¹² Ghosh perhaps couches this concept with more precision when he asserts,

While current intellectual property law assumes the primacy of the rights of owners (emphasizing the attachment to legal ownership), nuanced consequentialism would recognize the place of the intellectual property owner in a network of relationships which create duties and obligations. Sensitivity to the consequences of intellectual

²⁰⁸ See generally RAGAVAN, *supra* note 99.

²⁰⁹ See generally MERGES, *supra* note 11, at 237-69. It is unlike the suggestion by Professor Merges of a Lockean sense of charity meant for the benefit of the *destitute*.

²¹⁰ Jeremy Waldron, *From Authors to Copiers: Individual Rights and Social Values in Intellectual Property*, 68 CHI.-KENT L. REV. 841, 862 (1993).

²¹¹ *Mayo*, 132 S. Ct. at 1305.

²¹² *Myriad*, 133 S. Ct. at 2108.

property rights is, to quote Professor Sen, sensitive ‘to agencies and relations in evaluating what is happening in the world.’²¹³

CONCLUSION

This paper attempts to capture the intrinsic core of patent law’s structure as delineated in historical sources in an unorthodox manner. It asserts that patent law is a misfit within the traditional property regime. While patent law seems to struggle to define the outer limits of patent exclusivity, the paper shows how the current levels of exclusivity seem to lack support from the doctrinal construct of the philosophy behind exclusivity. In doing so, the paper highlights the source of exclusive rights to examine how a disconnect between the instrumental elements of patents and its targeted objectives has developed over time, leading to a rights-centric patent system. Understanding the objectives of the system is important for patent law to achieve its constitutional destiny. The paper does not propose a comprehensive theory of patent law. Instead, it presents the law of contracts as embodying a framework within which patent law can fit better. The paper concludes that patent law needs a more balanced approach to ensure that the rights and obligations inherent to the system work to achieve the targeted objectives.

²¹³ Ghosh, *supra* note 21, at 815.