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Natural Law and the American Patent Svstem

Joseph Cirasa

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Introduction

In the United Sates, a patent is a set of rights that allow an inventor to exclude others form making, using, selling, or selling the invention. The patent system grants inventors a temporary monopoly on their new technologies with the intention that the economic protection will encourage others to invent and patent their inventions as well. In exchange for these rights, the patent application must include a full disclosure of how others can make and use the invention. When the patent term expires 20 years after it was filed, the technology enters the public domain and anyone can freely use the technology. Disclosure is not the only prerequisite for obtaining a patent though. Applications are strictly scrutinized by examiners with the United States Patent and Trademark Office who ensure that the invention meets the requirements of novelty, non-obviousness, and utility. These requirements prevent the patenting of a technology that already exists or is a predictable combination of known elements.

Developments in the patent system have historically been driven by a variety of economic and private interests. There are conflicting opinions about whether these interests can be reconciled with each other and even whether or not patent law can effectively advance any of its intended goals. In this paper, we will examine whether or not the modern American patent law system achieve its goal of promoting innovation by analyzing it in accordance with the natural law theory of John Finnis's and other philosophical approaches.

History of Patent Law

Patents have always been an economic tool designed to promote technological development and innovation. The most basic concepts of patent law can be traced as far back as

ancient Greece.[1] The earliest mention of quasi-patent laws come from the ancient Greek city of Sybaris where exclusive rights would be granted to creators of unique culinary dishes for a term of one year, however the accuracy of these laws and the degree to which they were actually implemented is questionable.[2]

Modern patent law traces its origins most concretely the Venetian patent customs of the 15th century. Rulers in the Republic of Venice wished to stimulate the development of new industries locally which would stimulate their regional economies far more than importing goods would.[3] The granting of monopolies to individuals and companies provided an element of security that incentivized them to assume what might otherwise be a tremendous commercial risk when they invested their efforts to develop new technologies.[4]

This new quasi-patent system worked neatly with the existing system of guilds that made up the foundations of commerce across Europe at that time.[5] Monopolies were granted to practice their respective trades and any newcomers would have to seek a special license to make, sell, or use their inventions or risk encroaching on the domains of the various guilds who had already been granted a monopoly.[6] The monopolies were largely granted on a case by case basis before the implementation of a more structured system, with some grants going to individuals other than the inventor and others being specifically designated as open to the public.[7]

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[1] Phylarchus of Naucratis, "The Deipnosophists, or, Banquet of the Learned of Athenæus", Translated from Ancient Greek by H.Bohn 12:20, p.835
[2] Bruce Bugbee, The Genesis Of American Patent And Copyright Law 17-19 (1967).
[3] Ben McEniery, *Patent Eligibility and Physicality in The Early History of Patent Law and Practice,* 38 U. Ark. Little Rock L. Rev. 175, 181 (2016). (hereinafter McEinery History)
[4] *Id.*
[5] *Id.* at 182
[6] *Id.*
[7] *Id.*

In 1474 the Republic of Venice enacted what is widely regarded as the earliest general patent statute.[8] It provides:

> WE HAVE among us men of great genius, apt to invent and discover ingenious devices; and in view of the grandeur and virtue of our city, more such men come to us every day from divers parts. Now, if provision were made for the works and devices discovered by such persons, so that others who may see them could not build them and take the inventor's honor away, more men would then apply their genius, would discover, and would build devices of great utility and benefit to our commonwealth. Therefore: BE IT ENACTED that, by the authority of this Council, every person who shall build any new and ingenious device in this City, not previously made in our Commonwealth, shall give notice of it to the office of our General Welfare Board when it has been reduced to perfection so that it can be used and operated. It being forbidden to every other person in any of our territories and towns to make any further device conforming with and similar to said one, without the consent and license of the author, for the term of ten years. And if anybody builds it in violation hereof, the aforesaid author and inventor shall be entitled to have him summoned before any magistrate the said infringer shall be constrained to pay him hundred ducats; and the device shall be destroyed at once. It being, however, within the power and discretion of the Government, in its activities, to take and use any such device and instrument, with this condition however that no one but the author shall operate it.[9]

Though the language of the 1474 statute differs from our modern semantic structure, most of the fundamental modern patent concepts are present.[10] First, there is a clearly stated legislative intent that such a law will encourage more people to invent.[11] Second, the requirement that the invention be a "new and ingenious device" reflects the modern concepts of novelty and

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[8] Walterscheid, Edward C. Walterscheid, *The Early Evolution of the United States Patent Law: Antecedents (Part 5, Part II)*, 78 J. PAT. & TRADEMARK OFF. SOC'Y 665 (1996). While it is generally regarded that the custom of granting patents originated in Italy, there is some question as to whether the practice began in Venice or Florence.
[9] Giulio Mandich, *Venetian Origins of Inventor's Rights*, 42 J. OF THE PAT. OFF. SOC'Y 378, (1960);
[10] McEniery, *History*, *supra* at 184.
[11] *Id.*

non-obviousness.[12] Thirdly, the requirement that inventors "shall give notice of it to the office of our General Welfare Board when [the invention] has been reduced to perfection so that it can be used and operated" clearly reflects our modern requirement that inventions be useful and not merely conceptual or speculative.[13] In addition, the statute established grounds for formal registration, enforcement for infringement, and compulsory licensing to the state.[14]

The statute was considered a success[15] and undoubtedly played a part in Venice's rise to prominence and its period of economic prosperity that lasted until 1550.[16] However, Venice was also a major sea power at the time and controlled major trade routes which connected it many ports around the Mediterranean.[17] The discovery of new trade routes around the cape of good hope at the end of the fifteenth century shifted the dynamic in the Mediterranean which drove many skilled craftsmen out of Venice and out into other parts of Europe.[18] Taking their knowledge of the Venetian patent system with them, the craftsmen helped to spread the patent custom which resulted in emergence of patent laws concurrently across Europe in the fifteenth and sixteenth centuries.[19]

England

The Venetian patent system inspired the Early English patent practice in much the same way that English Patent law would go on to inspire the American system.[20] The system was similarly adopted in England to encourage development and to attract new trades to the region.[21]

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[12] *Id.*
[13] *Id.*
[14] *Id.*
[15] Walterscheid, *Antecedents (Part 1)*, *supra* note 34, at 710.
[16] McEniery, *History*, *supra* at 184.
[17] *Id.* at 183
[18] *Id.*
[19] *Id.*
[20] *Id.* at 184
[21] *Id.*; Walterscheid, *Antecedents (Part 1)*, *supra* note 34, at 700-01

This was done via "letters patent" from the crown which awarded monopoly rights to provide specific goods and/or services, often for an indefinite term.[22] In the early history, however, this practice was done mainly to attract foreign craftsmen with established trades to move to England.[23] This process continued into the reign of Queen Elizabeth I whose economic policy focused on promoting innovation by regulating in a way that encouraged creation of new trades and industries as not interfere with existing trades.[24]

The term "invention" did not have precisely the same meaning as it does in the modern patent context. The phrase "to discover" was more closely aligned with the modern concept of what it means to invent. Patents were granted to both inventors, as we understand that term, and to those who were first to introduce the technology or art to England, usually by importing it from another region.[25] For that reason, the art did not have to actually be new at all and could simply be new to England. The notion that the first person to import a new art was considered its inventor became the rule in the early case *Edgeberry v. Stephens*.[26] This conception of invention, in combination with the desire not to interfere with existing industries, meant that patents were mostly granted to immigrants.[27]

While the patent granting policies of Queen Elizabeth promoted the development of new and useful arts in the country with some degree of success, many people felt that the monarchy was abusing the power to grant monopolies to their allies or to those willing to pay for exclusive rights.[28] Queen Elizabeth I and her successor King James I were accused of granting monopolies

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[22] *Id.*
[23] *Id.*
[24] *Id.*
[25] *Id.* at 185
[26] Edgeberry v. Stephens establishes that "the first introducer of an invention practiced beyond the sea, shall be deemed the first inventor; and it is there said the act is intended to encourage new devices useful to the kingdom and whether acquired by travel or study, it is the same thing."
[27] McEniery, *History*, *supra* at 187.
[28] *Id.*

to persons who had neither invented nor imported any new commodities and were disrupting industries that were already in full swing.[29] In some cases the monarchy had granted monopolies "over necessities such as salt, starch, saltpetre, paper, and glass, thereby harming the existing trade in known commodities."[30]

Public outrage with the crown may have been without warrant as some argue that the granting of monopolies was a scapegoat for declining economic prosperity at the end of the sixteenth century that is attributable to unrelated economic forces.[31] Others have argued that the crown had no incentive to "[t]he financial returns to the Crown were at the most negligible, and, while it may be admitted that fiscal policy and the hope of raising revenue were contributing factors, they were not the main nor even an important motivating force."[32] The criticisms did not fall on deaf ears though, and the resulting struggle between Elizabeth I and Parliament ultimately resulted in the revocation of many of the objectionable patents and a subsequent deference to the common law courts to determine the validity of monopolies granted by the Crown.[33]

Following the Queen's abandonment of the crown's right to settle disputes arising from patent grants, two common law cases shaped the landscape of what the patent system would look like moving forward. The first, *Darcy v. Allen*, involved a monopoly granted for the exclusive right to manufacture, import, and sell playing cards.[34] The court offered no written opinion but gave a verdict in favor of the defendant. Because no opinion was given, the argument of defense counsel was published and interpreted as the reasoning of the court.[35] The argument was that "as

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[29] *Id.*
[30] *Id.*
[31] *Id.*
[32] Harold G. Fox, *Monopolies And Patents: A Study Of The History And Future Of The Patent Monopoly* (1947), At 188.
[33] McEniery, *History*, *supra* at 188.
[34] *Id.*
[35] *Id.* at 189

a rule, monopolies were stated to be generally contrary to law because they do not benefit the realm, they raise prices, and they reduce the merchantability of goods and reduce employment."[36] Defendant specified though that an exception existed when the monopolies were granted for a limited "reasonable" time.[37]

The second case, *The Clothworkers of Ipswich*, involved a claim by a group of tailors against another who was practicing in Ipswich but was not a member of the corporation which King James I had incorporated and chartered.[38] The court stated that "the Crown could create corporations with power to make ordinances governing trade, but the power granted did not extend to the creation of a monopoly harmful to free trade."[39] The court reasoned that the crown may grant a monopoly of limited duration to the inventor of a new trade as a form of compensation for bringing it the kingdom at his own risk and cost.[40] Monopolies could not be granted in an preexisting industry and "are royal grants of privilege given solely for the purpose of achieving policy objectives based upon the common good."[41]

Statute of Monopolies

Darcy v. Allen was decided very shortly after the death of Queen Elizabeth I but, despite the outcome of that case, her successor, James I, largely continued her practice of freely granting monopolies in preexisting industries that served his personal goals and those of his closest aristocrats.[42] King James faced a considerable amount of political pressure for these practices and he took some measures to appease the public by officially recognizing the common law

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[36] Walterscheid, *Antecedents (Part 2)*, *supra* note 34, at 868.
[37] McEniery, *History*, *supra* at 189.
[38] *Id.*
[39] *Id.*
[40] *Id.*
[41] *Id.* at 190
[42] *Id.*

principles outline in *Darcy*.[43] He was ultimately forced to revoke all existing monopolies and declare that any further grants were to be done solely for projects of new invention.[44]

The English Parliament followed up by enacting the Statute of Monopolies in 1624.[45] The statute of monopolies reflected the common law principles of skepticism of monopolies but recognized that the common good could be promoted via grants of monopolies of limited duration.[46] The statute officially provided that all prior grants of monopolies were null and void. Section 6 lays out the patent exception and the qualifications that must be satisfied in order for a patent to be granted:

> [Monopolies] shall not extend to any letters patents (b) and grants of privilege for the term of fourteen years or under, hereafter to be made, of the sole working or making of any manner of new manufactures within this realm (c) to the true and first inventor (d) and inventors of such manufactures, which others at the time of making such letters patents and grants shall not use (e), so as also they be not contrary to the law nor mischievous to the state by raising prices of commodities at home, or hurt of trade, or generally inconvenient[47]

With the exception of adding a maximum of a fourteen year term, the statute carried over existing concepts of novelty and utility. While it was a tremendous development for the internal power dynamic between the monarchy and parliament, the statute did very little to alter the common law principles that were already at play.

The passing of the Statute of Monopolies may not have changed much immediately in the application of patent law principles but it helped to clarify the policy goals that Parliament

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[43] *Id.*
[44] *Id.*
[45] Statute of Monopolies 1623, 21 Ja. 1, c. 3 (Eng.), available at http://www.legislation.gov.uk/aep/Jal/21/3/contents.
[46] McEniery, *History*, *supra* at 190.
[47] Statute of Monopolies

intended to advance going forward. One of the drafters, speaking after its passage, stated that "because the inventor bringeth to and for the Commonwealth a new manufacture by his invention, cost and charges, and therefore it is reason, that he should have a privilege for his reward (and the encouragement of others in the like) for a convenient time."[48] Even at such an early time in the law's development there was an "an inextricable link between offerings of rewards and incentives to bring new inventions to the realm."[49] This reflects the strong quid pro quo principle that drives patent law.

English Patent law continued to develop on its foundation in the statute of Monopolies for over 200 years before the introduction of any other significant patent legislation.[50] Furthermore, the statute was never repealed and remained relevant until moved to a modern patent system based on the *European Patent Convention* in 1977.[51]

Industrial Revolution and Movements Toward the Modern Era

Patent law is widely regarded as the legal foundation on which the industrial revolution was built.[52] Many argue that, without patents, the culture of innovation that allowed the industrial revolution to flourish might not have happened and the economic progress of the West may have evolved very differently.[53] With the Statute of monopolies in place and the modern concepts of patent law having taken shape, the industrial revolution's rampant technical development brought about a need to clarify and solidify the principles that would make patents the effective promoter of innovation that they were intended to be.

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[48] Edward Coke, *The Third Part Of The Institutes Of England Concerning High Treason And Other Pleas Of Crown And Criminal Clauses*, 181, 184 (1797); (altered for readability) (explaining the reasoning behind the sort of monopoly permitted by section 6 of the Statute of Monopolies).
[49] McEniery, *History*, *supra* at 192.
[50] *Id.* at 190; referring to the Patent Law Amendment Act 1852 (UK)
[51] *Id.*
[52] Rufus Pollock, *The Importance of Patents for Innovation in the Industrial Revolution.*
[53] *Id.*

Consideration

In the early years of patent law, monopolies were granted in exchange for the creation of a new industry or device in the region. The economic stimulation caused by the influx of new technologies and arts was the value provided by the inventor. Additionally, the region would benefit because the patentee would invest in the training of apprentices who would be able to work in the industry after the expiration of the patent.[54] Unlike modern patents, early grants did not require any written or illustrated description of the invention.[55] The patent system formalities at time were only concerned with registration of the invention. Inventors simply paid the registration fees and the patent was normally granted as a matter of course.[56]

Even though no description was required, a few of the early patent grants included a specification.[57] This was done by the inventors in attempt to clearly delineate the scope of their monopoly. This practice proved to be beneficial for any inventor wishing to exercise their monopoly rights and soon became a strong custom.[58] By the middle of the eighteenth century the British common law courts required every patent application to contain a specification which would include a detailed description of what the invention was and how it worked.[59] In *Liardet v. Johnson*, the courts clarified the standard that descriptions much reach:

> The third point is whether the specification is such as instructs others to make it. For the condition of giving encouragement is this: that you must specify upon record your invention in such a way as shall teach an artist, when your term is out, to make it--and to make it as well as you by your directions; for then at the end of the term, the public have

[54] McEniery, *History*, *supra* at 193.
[55] *Id.*
[56] Pollock, *supra.*
[57] McEniery, *History*, *supra* at 194.
[58] *Id.*
[59] *Id.*

the benefit of it. The inventor has the benefit during the term, and the public have the benefit after.[60]

From that point onward, the price a Patentee paid for his monopoly was not simply creating and culturing a new industry but also providing to the public instructions for how to make and use the invention.

Specifications meeting this standard were significantly more valuable consideration to the region than simply practicing the invention as before. Now everyone could use the invention at the end of its term, not just those who trained as apprentices of the patentee. The description provided by the inventor was now the primary element of consideration and other elements were secondary benefits.[61] The benefit provided to the public was now much more tangible and not speculative depending on the future actions of the patentee.

Eligible Subject Matter

The industrial revolution was an period of explosive technological development and this development was not limited to simply the creation of new gadgets. New and better techniques for the manufacture of goods and raw materials were popping up everywhere. People began filing patents for these new processes but, up until then, patents had only been granted for two physical machines or chemical substances.[62] This was the first in a long line of conflicts about where the line would be drawn to decide what could be patented and what was too abstract.

By the industrial revolution, it was universally accepted that abstract principles and laws of nature in and of themselves were not eligible for patents.[63] There was a recognition that these

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[60] *Liardet v. Johnson 1778, See* P. J. Federico, *Origins and Early History of Patents, 11 J. PAT. OFF. SOC'Y,* 294, 304 (1929); E. Wyndham Hulme, *On the History of Patent Law in the Seventeenth and Eighteenth Centuries,* 18 L. Q. R. 280, 285 (1902).

[61] Boulton and Watt v. Bull (1795) 2 H. Bl. 463 at 472 (Eng.). Justice Buller declared that "[t]he specification is the price which the patentee is to pay for the monopoly." The judgment of Lord Chief Justice Eyre also stated that "[t]he modern cases have chiefly turned upon the specifications, whether there was a fair disclosure." Id. at 491.

[62] McEniery, *History, supra* at 196.

[63] *Id.*

principles need be applied in some way.[64] The expression "any manner of new manufacture", used in the Statute of Monopolies, implied for many that an invention needed to be a distinct physical object.[65] This was put to the test in *Boulton and Watt v. Bull*, where the challenged patent was for an improvement on existing steam engine designs. Watt's steam engine removed the condenser element of the steam engine to a separate component to improve its function which he claimed was an application of certain principles of nature.

The Boulton court was fiercely split but ultimately allowed the patent to stand with the reasoning that "patent eligibility turns on a principle being reduced to a specific practical application capable of producing effects that are of benefit to the public."[66] The case was relitigated sever years later and that court unanimously upheld the patent's validity however the reasoning for such a finding was varied.[67] In *The King v. Wheeler*, the patent in question did not pertain to any new physical device. Instead, it was for a method of drying and preparing malt. The court invalidated that patent for separate issues with its specification but the court commented on the eligibility of the subject matter stating:

> Now the word 'manufactures' has been generally understood to denote either a thing made, which is useful for its own sake, and vendible as such, as a medicine, a stove, a telescope, and many others, or to mean an engine or instrument, or some part of an engine or instrument, to be employed, either in the making of some previously known article, or in some other useful purpose, as a stocking frame, or a steam engine for raising water for mines. Or it may perhaps extend also to a new process to be carried on by known implements, or elements, acting upon known substances, and ultimately

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[64]Boulton and Watt v. Bull, Justice Heath took the view that the prohibition on patenting principles extends to preclude patenting methods of production and even patents on the application of a principle.
[65] McEniery, *History*, *supra* at 196.
[66] McEniery, *History*, *supra* at 197.
[67] Chief Justice Kenyon broadly described the concept of manufacture as pertaining to, or the equivalent of "something made by the hands of man." Justice Grose was of a similar view finding that the patent was "not a patent for a mere principle, but for the working and making of a new manufacture within the words and meaning of the statute."

> producing some other known substance, but producing it in a cheaper or more expeditious manner, or of a better and more useful kind. But no merely philosophical or abstract principle can answer to the word 'manufactures'. Something of a corporeal and substantial nature, something that can be made by man from the matters subjected to his art and skill, or at the least some new mode of employing practically his art and skill, is requisite to satisfy this word.[68]

Here, the distinction between abstract principles and patentable subject matter are drawn in such a way that patents for processes would be eligible.[69] This construction aligns nicely with our current concepts however the conflicting reasoning from the courts about this issue was cause to a great deal of uncertainty about what exactly would qualify.[70]

American Patent Law

The early days of United States of America coincided with the height of the industrial revolution and, accordingly, the American Constitution recognized the importance of incentivizing innovation through the grant of monopolies.[71] In Article I, section 8, the U.S. Constitution declares:

> "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."[72]

The clause also recognizes a need to balance the potentially stifling effect of granting monopiles by necessitating Congress to make law which promote the "useful arts." The framers of the constitution used these specific terms in place of the term "manufactures" used in English law because "the phrase 'new manufactures' [was] unduly limiting for a patent system because it

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[68] The King v. Wheeler, (1819) 2 B. & Ald. 345 at 349-52 (Eng.).
[69] McEniery, *History*, *supra* at 198.
[70] *Id.*
[71] *Id.* at 199.
[72] U.S. Const. art. I, § 8, cl. 8.

seemed to exclude new processes."[73] The term "useful arts," as it is used here, can be read to mean "technological arts" in the sense that Congress should use their legislative power to promote technological advances.[74]

The first dedicated patent statute was passed approximately one year after the adoption of the Constitution and was followed shortly after with a second. The Patent Acts of 1790 and 1793 drew heavily from the English patent tradition and incorporated many of its features.[75] Like the English law, both statutes permitted a fourteen-year term and required inventors to file a comprehensive disclosure with their application containing a written specification describing the invention. Unlike the English law, the American system never permitted patents to be granted on the basis of importation of a new technology.[76]

The American system differentiated itself from that of the English by designating four categories of eligible subject matter in the Patent Act of 1793. The definition has remained have remained mostly unchanged since:

> Any new and useful art, machine, manufacture or composition of matter, or any new and useful improvement on any art, machine, manufacture or composition of matter.[77]

There is no evidence to suggest that the drafters intended for this definition to be more inclusive than the English concepts but it certainly suggests that the scope of eligible material should not

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[73] Karl B. Lutz, Patents and Science: A Clarification of the Patent Clause of the U.S. Constitution, 18 GEO. WASH. L. REV. 50, 53-54 (1949).

[74] Ben McEniery, *Physicality and The Information age: A Normative Perspective on The Patent Eligibility of Non-Physical Methods,* 10 Chi.-Kent J. Intell. Prop. 106 (2010). (hereinafter McEinery Information)

[75] Pennock v. Dialogue 27 U.S. 1, 18 (1829). "It is obvious to the careful inquirer, that many of the provisions of our patent act are derived from the principles and practice which have prevailed in the construction of that of England .... The language of [the patent clause of the Statute of Monopolies] is not, as we shall presently see, identical with ours: but the construction of it adopted by the English courts, and the principles and practice which have long regulated the grants of their patents, as they must have been known and are tacitly referred to in some of the provisions of our own statute, afford materials to illustrate it."

[76] See Gibbons v. Ogden, 22 U.S. 1, 58-59 (1824) (discussing that patents are not awarded in the United States to someone who is not an "inventor," excluding importers).

[77] This remained essentially unchanged until 1952, when Congress amended § 101 by replacing the word "art" with "process" and defining that term in § 100 (b).

be narrower than that of England.[78] The use of "manufactures" in this definition demonstrates an intention to incorporate the English principles but the inclusion of the other terms exhibits an intention to clarify them leading to confusion about whether or not American system was open to the patentability of methods and processes.[79] These questions were left to be resolved primarily by the courts which generally allowed methods that were applied to physical processes.[80]

Since the adoption of patent law in America there have been several landmark cases and changes that have effected what subject matter was eligible for a patent and in what circumstances. The introduction and evolution of these concepts are further attempts to balance the competing interests at play in the patent system.

Obviousness

Up until the late nineteenth century, patent law only required novelty.[81] So long as it hadn't been done before, and fit within one of the categories of eligible subject matter, a patent could be granted for the technology. Common law courts in England began recognizing the principles of Obviousness in the early 1900's.[82] This concept, also known as the inventive step requirement, requires that an invention be significantly more than an obvious modification or combination of existing technologies.[83] Obviousness helps to strike the balance between benefit of incentivizing invention and the cost of conferring a monopoly right by insuring that patents are awarded to valuable discoveries and not simply to every superficial variation of known

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[78] McEniery, *History*, *supra* at 201.
[79] *Id.* at 199. The 1793 Act explicitly included "any new and useful art," in the list of categories of patentable subject matter, a usage that was carried forward until "art" was replaced with "process" in 35 U.S.C. §101 and defined in § 100(b) in 1952.
[80] *Id.*
[81] McEniery, *History*, *supra* at 202.
[82] *Id.*
[83] In KSR International Co. v. Teleflex Inc, the Supreme Court unanimously rejected the Federal Circuit's "teaching, suggestion, or motivation" proxy test as the only test for determining obviousness under 35 U.S.C § 103. The Federal Circuit adopted this proxy test as an attempt to resolve the question of obviousness "with more uniformity and consistency" than would be possible under a straight application of the words in the statute. *Id.* at 134

technologies. By 1952, the United States added Obviousness as a grounds for invalidity to its patent law statute.[84]

Modern Patentable Subject Matter Cases

In 1980 the Supreme Court decided *Diamond v. Chakrabarty*, a case concerning the patentability of living genetically engineered microorganisms.[85] This case clarified just how broad the scope of statutory subject matter was.[86] The court stated that patentable subject matter comprised anything under the sun that was made by man.[87] However, just because patentable subject matter *could* be anything made by man does not mean that it *was* everything made by man since, clearly, abstract ideas were not patentable even though they could be articulated by man.[88] The Court did very little to help distinguish when something was an "unpatentable abstract idea from a practical application of an idea that is patent eligible."[89]

In 2008 the Court of Appeals for the Federal Circuit attempted to clarify the distinction by implementing a "machine or transformation test" for patentable processes in *In re Bilski*.[90] Bilski's invention was a business method pertaining to the concept of hedging risks and was determined to be patent ineligible as was an abstract idea and failed the new test.[91] Here, the CAFC's new test amounted to a physicality requirement that many criticized as being

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[84] United States Patent Act of 1952, 66 Stat. 797 (1952). Australia did it in 1952 also, UK did it in 1907

[85] 100 S.Ct. 2204. Claims were not outside the scope of patentable inventions merely because they were drawn to live organisms.

[86] In choosing such expansive terms as "manufacture" and "composition of matter," modified by the comprehensive "any," Congress plainly contemplated that the patent laws would be given wide scope.

[87] The full sentence in the Committee Reports reads, "A person may have 'invented' a machine or a manufacture, which may include anything under the sun that is made by man, but it is not necessarily patentable under section 101 unless the conditions of [this] title are fulfilled.

[88] McEniery, *Information*, *supra* at 113.

[89] *Id.*

[90] *Bilski v. Kappos*, 130 S. Ct. 3218, 3237-38 (2010) (Stevens, J., concurring).

[91] The machine-or-transformation test required that an invention must either (1) be tied to a machine or apparatus, or (2) transform an article into a different state or thing to be statutory subject matter.

unsupported by the statutory language and contrary to existing precedent.[92] On appeal in 2010, the Supreme Court upheld the ruling that the Bilski method was not patentable subject matter but reversed the ruling with respect to the CAFC's new test. Going forward, the test would be a helpful tool for identifying an eligible process but a process that failed the test was not necessarily an ineligible one. This ruling confirmed unanimously that there was no requirement of physicality for patents but the Court gave no reasoning as to why the process was considered an abstract idea, once again leaving the question unanswered.

The Supreme Court continued the trend of punting on the eligibility issue with a trio of cases in the early 2010's. *Mayo*, *Myriad*, and *Alice* each attempted to clarify patent eligibility standards but have done little to provide workable distinctions and have served mostly to introduce more ambiguity and uncertainty.[93] Furthermore, the Court in Mayo introduced a framework for analyzing claims that requires courts to "dissect" claims, which may be beyond their technical capabilities, further complicating the process. This has caused many denials and invalidations, particularly in the biotech field, which has left many patentees and practitioners frustrated that are investing time and money with little ability to predict whether or not their patents will stand.[94]

Criticism

Patent Law, although being accepted and implemented in some form almost universally, is not without its fair share of critics. Some of these criticisms are directed toward the

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[92] McEniery, *Information*, *supra* at 109. See also, *Diamond v. Diehr*, 450 U.S. 175, 184 (1981), where the Court confirmed the patentability of computer software programs.
[93] *Alice Corp. Proprietary Ltd. v. CLS Bank International*, 134 S. Ct. 2347, 2354 (2014); *Ass'n for Molecular Pathology v. Myriad Genetics, Inc.*, 133 S. Ct. 2107, 2120 (2013); *Mayo Collaborative Servs.*, 132 S. Ct. at 1289 (2012).
[94] Shai Jalfin, *6 Years Later: The Effects of the Mayo Decision on Diagnostic Methods* (2018), https://www.ipwatchdog.com/2018/07/19/6-years-later-effects-mayo-decision-diagnostic-methods/id=99206/

philosophical foundations of patent law and others are focused on the more practical applications while supporting the doctrine as a whole. The most staunch critics argue that patents actually harm innovation, the very thing it purports to promote, by limiting access by others. These ideas were advanced mostly by the proponents of free trade who believed that patents prioritized the well-being of the few over the common good. These early critics believed that:

> [Patents] projected an artificial idol of the single inventor, radically denigrated the role of the intellectual commons, and blocked a path to this commons for other citizens — citizens who were all, on this account, potential inventors too. [...] Patentees were the equivalent of squatters on public land — or better, of uncouth market traders who planted their barrows in the middle of the highway and barred the way of the people.[95]

The opposition by these critics was moderately successful across Europe but primarily resulted in reform and reorganization.[96]

Some argue that patents have expanded too far. The concern is that there is "a trend of overreaching commoditization or propertization, where the boundaries of patent law have been expanded too far" and the mechanisms designed to limit undeserving patents are inadequately enforced.[97] This results in a surplus of monopolies, stifling competition and will not result in the net societal gain intended which some argue occurred with software patents in the early part of this century.[98] Some, like John Thomas, suggest that patents should be more concrete and the current doctrine permits patents to "embrace the broadest reaches of human experience," and perhaps there are some domains such as "swinging a golf club, treating cancer or administering a

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[95] Johns, Adrian: Piracy, p. 273, citing W.R. Grove: Suggestions for Improvements in the Administration of the Patent Law, The Jurist n.s. 6 (January 28, 1860) 19-25 (online copy at Google Books), and B. Sherman, L. Bently: The Making of Modern Intellectual Property Law (CUP 1999), 50-56

[96] Johns, Adrian: Piracy. The Intellectual Property Wars from Gutenberg to Gates. The University of Chicago Press, 2009, ISBN 978-0-226-40118-8, p.248. The Netherlands abolished patents in 1869 (having established them in 1817), and did not reintroduce them until 1912. In Switzerland, criticism of patents delayed the introduction of patent laws until 1907.

[97] McEniery, *Information*, *supra* at 127.

[98] Id. See also, https://alloypatentlaw.com/alloy-patent-law-ip-legal-blog/2017/6/2/patent-law-more-harm-than-good

mortgage" which should lie beyond the reach of patent law.[99] Limiting patentable subject matter so that it must involve physical matter or be a method of transforming such would effectively "remove matters of aesthetics, personal skill and human organization from the patent system."[100]

Other practical critics argue that patents are almost worthless to all but the most wealthy and most powerful.[101] First, the complexity and high cost of obtaining a patent is prohibitive to almost all individual inventors and even smaller businesses.[102] This issue is compounded when considering that true worldwide coverage requires inventors to obtain six to ten patents in different geographies.[103] Furthermore, having a patent may not be enough to bring a successful product to market as other aspects of the product very well may fall under someone else's patent and small entities may not have the bargaining power to effectively negotiate licenses.[104]

Second, patent rights are a sword, not a shield, and using that sword can be incredibly costly. Enforcing a patent can cost millions of dollars in legal fees and can take upwards of 5 years.[105] That is a tremendous gamble for an entity of limited resources, especially when there are uncertainties such as those discussed above about whether or not a patent will hold up to judicial review.[106] This amounts to a practical impossibility for all but the largest companies. Some entities, known as patent trolls, don't produce any products. Instead, they simply sue others using vague patents with the knowledge that almost all defendants will settle to avoid the hefty costs of litigation even though they have a good chance of winning. All of this amounts to

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[99] John R. Thomas, *The Patenting of the Liberal Professions*, 40 B.C. L. REV. 1139, 1140 (1999); John R. Thomas, *The Post-Industrial Patent System*, 10 FORDHAM INTELL. PROP. MEDIA & ENT. L.J. 3 (1999)..
[100] McEniery, *Information, supra* at 132.
[101] Todd Hixon, For Most Small Companies Patents Are Just About Worthless, https://www.forbes.com/sites/toddhixon/2013/10/04/for-most-small-companies-patents-are-just-about-worthless/#5bcafad83ef3
[102] *Id.*
[103] *Id.*
[104] *Id.*
[105] *Id.*
[106] *Id.*

a huge financial undertaking for a set of rights that may never even be used. Many small entities might be better off without filing.[107]

Analysis

Although justifications for the patent system have been primarily based on utilitarian concepts throughout history, we will discuss why patent laws are wholly consistent with the theory of natural law and, in fact, why natural law provides the most complete justification for the patent system. First we will look at two of the more traditionally applied justifications, utilitarianism and natural rights, and discuss why neither of these is the most coherent justification available. Then we will look at the theory of natural law as articulated by John Finnis and apply it to modern patent law concepts.

Utilitarianism

Traditionally, the United States Patent system, and many of the systems before it, have been justified on utilitarian grounds.[108] In the United States, this is evidenced by the inclusion of Article I, Section 8, Clause 8 of the U.S. Constitution which declare its purpose "to promote the progress of science and useful arts."[109] Furthermore, founding fathers like Thomas Jefferson wrote that inventors could not inherently have rights to their inventions but, as an encouragement to society to pursue useful ideas, they should have a right to the profits from such inventions.[110] First, patent laws would provide the most utility to society because without such laws inventors would fear imitation and keep their inventions secret. Second, the expectation that inventive ventures will yield profits encourages people to invest their time and money. In both of these

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[107] *Id.*
[108] Wendy Lim, *Towards Developing a Natural Law Jurisprudence in the U.S. Patent System*, 19 Santa Clara High Technology Law Journal 561 (2003)
[109] U.S. Const. art. I, § 8, cl. 8.
[110] Jefferson Writings 1291-92 (M. Peterson Ed. 1984).

scenarios, society benefits from disclosure of the invention itself and the resulting acceleration of economic progress.

The traditional utilitarian approach has a number of flaws though. First it does not weigh the rights of the inventor in the analysis.[111] Instead, the benefits to inventors are purely incidental to the benefits that are sought for the common good. Under this approach, inventors are simply lucky that the best approach for securing these societal benefits is to give a monopoly right to the person who invented. Second, the idea that patents encourage disclosure and investment are "tenuous, and at best, describe what happens most of the time."[112] Many inventions remain trade secrets and many others only look toward patents when secrecy is impossible.[113] As a practical matter, it is nearly impossible to gather empirical evidence about what extent patents encourage these behaviors or how many inventions would have otherwise been taken to inventors' graves.[114]

The utilitarian approach also represents a problem in the sense that holding utility as the absolute standard of moral judgments is a flawed approach. Most people who use this justification, when pressed, may not actually hold true utilitarian ideals.[115] Even though historically this approach works for the very basic concepts of patent law, it is inadequate for answering many of the questions that have arisen in patent law where the utilitarian value of available outcomes is unpredictable.

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[111] Lim, *supra*, at 572.
[112] *Id.*
[113] Due largely to the tremendous time and financial investment that a patent might represent
[114] Lim, *supra*, at 571.
[115] Evidenced by the trolley problem hypotheticals

Natural Rights

Proponents of natural rights theories generally bring forth the argument that "the rights of inventors are of primary importance and the patent law exists to protect these rights, irrespective of the consequences the grant of the patent would have on the public welfare."[116] Under a pure natural rights argument:

> [A] man has a natural property right in his own ideas, the appropriation of which by another should be condemned as stealing. Society is morally obligated to recognize this property right. Property is in essence exclusive, and therefore an exclusive privilege is the only appropriate way for society to recognize this particular right.[117]

John Locke argued that individuals were entitled to property rights because a creator is entitled to the fruits of his labor.[118] This theory was traditionally applied to physical property but could be extended to intellectual property.[119] Another theory of natural property rights finds its basis in the concept that inventions and ideas contain an expression of personality and thus are an extension of the inventor's personhood, over which they have certain degree of control. [120]

The main criticisms of the natural rights arguments are how the theory deals with the limitations to these rights that are inherent to the patent system. First, natural property rights should not be subject to a term limitation like patents are.[121] Second, natural rights does not accommodate for independent creation.[122] Why should a second inventor who creates a the same technology without knowledge of the first inventor not also be entitled to the same rights? These distinctions cannot be reconciled in a purely natural property justification. By solely accounting for the property rights of the inventor and not the duties to society, natural rights theory has

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[116] Chisum, Nard, Schwartz, Newman & Kief, Principles of Patent Law vi. (2d Ed. 2001).
[117] Edith Tilton Penrose, The Economics Of The International Patent System 32 (1953).
[118] Lim, *supra*, at 577.
[119] *Id.*
[120] *Id.* at 579
[121] *Id.*
[122] *Id.*

overemphasized one side of what should be a delicate balance. This theory then, on its own is insufficient as a justification for patent law.

Natural Law

Natural Law theory offers a comprehensive justification for patent law that recognizes both individual rights and societal duties while providing a moral framework for making decisions consistent with the principles of practical reasonableness. For our purposes, the main tenets of natural law theory is that law should stem from morality and that morality is derived objectively from nature and is universal. Natural laws exists in the universe, whether we are aware of them or not.

According to John Finnis, there are a number of fundamental goods which sit at the very core of natural law theory.[123] These seven basic goods are; life, knowledge, play, aesthetic experience, friendship, and religion.[124] These self-evident goods are the fundamental principles that humans seek out and are the building blocks that make up all of the other goods in nature. All positive qualities in life can trace their origins to one or more of these seven principles.

All of our actions should serve to promote the basic goods and how we decide to act should be determined in accordance with practical reasonableness. The principle is critically important in the legal context where the principles of natural law have to bridge the gap to be effectively applied as positive law. Practical reasonableness is the principle that allows us to maximize our participation in the goods. While it is itself a basic good, practical reasonableness helps us to structure our lives and choose what good we are going to pursue every day. In order

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[123] John Finnis, *Natural Law and Natural Rights* (1980).
[124] *Id.*

to act in accordance with practical reasonableness in one's personal life one should follow Finnis's nine requirements.[125]

A Coherent Plan

The nine factors of practical reasonableness are interrelated and, like the threads of a fabric, give each other strength and context. A coherent plan is one that is consistent with the other principles of practical reasonableness which are all aspects of a coherent life plan. Acting with a rational life plan means viewing life as one whole.[126] It is not reasonable to live moment to moment or to pursue projects with a set of simple and defined objectives.[127] Patent law, then, should not be a simple reward system for invention and should be a careful and comprehensive guide for promoting the basic goods.

While some laws relate directly to a basic good, the majority simply help bring order to a society so that the people who live in it are better able to pursue the goods. Any law that does this while abiding by the principles of practical reason is a moral law. If we believe that patent law promotes technological innovation, then every one of the seven basic goods is inherently implicated because a technologically advanced society should, at least in theory, be more capable of promoting the basic goods than a society that is not. However, patent law does have a close relationship with the basic goods of knowledge and, now more than ever, life.

No Arbitrary Preference Among Values/Persons

Knowledge, like all of the seven basic goods, is intrinsically good. The value of knowledge, in a moral sense, does not stem from its usefulness, which is a stark contrast to the patent system's hard utility requirements. However, this difference is precisely why the patent

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[125] *Id.*
[126] *Id.* at 104
[127] *Id.* at 103

system can simultaneously limit the use of technology and yet remain consistent with Finnis's principles of practical reasonableness. As discussed above, subject matter limitations prevent someone from obtaining a patent on laws of nature, natural phenomena, and abstract ideas. These limitations effectively draw a line between the concepts of invention and discovery, and prevent someone from profiting on something that is inherently part of the intellectual commons.

As technology progresses, new concepts and tools are devised that challenge our existing ideas about what an invention is and the common law courts are left with the task of deciphering and drawing the lines between what is or isn't patentable. This evaluation happened for method patents in the industrial revolution and again for software patents during the tech boom of the late nineties and early 2000's. A natural law critique would point out how, while the biotech industry explodes, there is a tremendous amount of confusion about what is patentable and how inventors in these fields are facing difficulties while seeking protection for their investments. In addition one might point out that, during the early days of the tech boom, similar issues resulted in many underserving software patents being granted, which has caused its fair share of chaos.[128] The laws are hardly clear, coherent, or stable enough that people can use the law as a guide. These criticisms are valid, however, they are administrative concerns that are distinct from the question of whether or not the technology should be patented. That does not make them any less deserving of our attention but it also doesn't disqualify the principles on which patent law was built.

Patent law's strict requirements of utility, novelty, and non-obviousness are constantly chipping away at what is actually patentable. These strictures, when appropriately applied, do a

[128] "Patents were awarded on software at a furious rate in the early part of this century. Often, the actual innovation was minimal, and the resulting monopoly hurt legitimate competition." (https://alloypatentlaw.com/alloy-patent-law-ip-legal-blog/2017/6/2/patent-law-more-harm-than-good).

good job of excluding undeserving, and thus ineligible, subject matter. This means that patents are only being awarded for what amounts to very narrow uses of technology. Collectively, these restrictions ensure that inventors are not profiting from anything more than what they actually created. Therefore the resulting patent only monopolizes the knowledge that he himself brought to the table.

Furthermore, an inventor cannot obtain a monopoly rights unless he fully discloses how to make and use the invention. There are two "classes" of persons; inventors and the rest of the public. The quid pro quo nature of patent law guarantees that the interests of either class is not favored to detriment of the other. In exchange for the economic benefit the inventor must share the knowledge of how his invention works with the public. The public is free to do research with this knowledge and may even seek further patents on improvements to the ideas. The inventor does not own the ideas, he simply has the temporary right to profit from them. In this way the amount of knowledge available in the public domain increases every time an inventor seeks a patent. This effect is only compounded if we believe that patent laws are effectively encouraging further invention. It stands to reason then, that patent law promotes the basic good of knowledge by encouraging and creating a marketplace of ideas.

Life, according to Finnis, is more than simply an alternative to death or merely the opposite of inanimate objects. Promoting the basic good of human life and dignity means maintaining our mental and physical wellbeing as well as preventing the destruction of life. While the official USPTO policy is that that the office will not allow any patents that are directed to human organisms and the United States government has otherwise explicitly outlawed human cloning, questions remain about will happen with the technology in these areas that is continuously advancing.

Here, there is a great potential for the use of genetic engineering to develop treatments that can greatly reduce human suffering. On the other hand, many worry that propriety of modified genes may lead to number ethical as well as socio-economic issues. The human genome was successfully sequenced in 2003, and since then many have tried to patent segments of the human genome.[129] The Supreme Court invalidated these gene patents in 2013, however, that was on the grounds that the human genes were a product of nature and thus were not patent eligible subject matter.

The door for patenting genetically modified organisms has been open since the 1980's with the decision in Diamond vs. Chakrabarty. Technologies like CRISPR gene editing are fairly accessible for even amateur scientists which means experimentation in this area is cheap. It is inevitable that we will see a time when it is possible to create custom genes and splice them into embryos. Nothing currently prevents the USPTO from awarding patents on human DNA sequences that have been altered by humans. If these altered genes could be implanted into a human embryo, would the inventor of the gene sequence have an ownership interest that person? The technology makes possible practices that resemble eugenics but it also has great potential to eliminate many forms of suffering. Specific exclusions from the category of patentable subject matter offer some protection for the sanctity of human life, however as this technology progresses we may have a duty to amend the law to further protect the good of life.

Detachment/Commitment

A coherent plan demonstrates a commitment to promote one or more of the basic goods. While commitment is crucial, one must not be so committed to any one principle that they fall

[129] Prior to being invalidated by the ruling in *Association for Molecular Pathology v. Myriad Genetics, Inc.*, more than 4,300 human genes had been patented. (https://ghr.nlm.nih.gov/primer/testing/genepatents); see also *Intellectual Property and Genomics* (https://www.genome.gov/19016590/intellectual-property/).

into a fanatical pursuit of one value or project while ignoring the other basic goods and nine principles of practical reasonableness. Patent law seeks to facilitate the "progress of science and the useful arts" and thus promotes the basic good of knowledge. It does not, however, recklessly promote knowledge without regard for its effect on society. That kind of system might simply provide tremendous reward for every invention or innovation. In reality the law is careful balancing act between the interests of inventors and those of society as a whole. That balancing act is the practical manifestation of the principles of commitment and detachment.

Efficiency Within Reason

Similarly, a rational law will take into account the costs and benefits without ignoring the other principles. This factor requires a sort of cost-benefit analysis of the chosen path and also of the alternative methods for we should strive to achieve the most good for the least cost without straying into a strict utilitarian or consequentialist framework.[130] If the critics of patent law are to be believed, this is possibly the weakest factor for the American patent system. However, these criticisms are speculative at best when it comes to the relative benefit of alterative systems. The balance of interests discussed above is reasonably calculated to benefit to all parties involved. The system is striving to be a non-zero-sum game and the costs of this game are generally outweighed by the collective benefits.

Respect for Every Value

One of the dangers of a strictly utilitarian approach is that one could justify a law that directly damages one of the basic goods so long as the collective benefit "outweighs" the harm caused.[131] A truly reasonable law does not directly attack any basic value. It can never promote a basic good at the direct cost of another. One might argue that patented technologies have done

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[130] John Finnis, *Natural Law and Natural Rights* (1980) at 112.
[131] *Id.* at 119

plenty of harm over the years and thus patent law has contributed to the harm. As Finnis states, the unsought and unavoidable consequences that accompany every human choice are incalculable.[132] We cannot take all of these consequences into account. Especially in the patent context because technology is a tool and therefore is inherently neutral. Patent law does not *directly* damage any of the basic goods.

The Common Good

This factor is straightforward. Rational and coherent laws should have a priority of favoring and fostering the common good of one's communities.[133] The United States Constitution states that Congress shall have the power "to promote the progress of science and useful arts, by securing for limited times to authors and inventors the exclusive right to their respective writings and discoveries."[134] This short passage conveys that the primary intention of the law is to encourage the advancement of science and technology. The method of achieving this goal is by giving limited exclusive rights to inventors. The benefit to individuals is purely incidental as it is the means by which the ultimate goal is achieved. Patent law has benefited the common good by creating a marketplace for ideas in which society has gained a repository of technical knowledge.

Conscience

An informed conscience will consider each of these factors of practical reasonableness and will make its practical judgement known via a "feeling."[135] An truly informed conscience will choose what it judges to be reasonable without regard to the "the sophistries which

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[132] *Id.*
[133] *Id.* at 125
[134] U.S. Const. art. I, § 8, cl. 8.
[135] John Finnis, *Natural Law and Natural Rights* (1980) at 125.

intelligence so readily generates to rationalize indulgence, timeserving, and self-love."[136] Here, a legislator armed with a reasonable and informed conscious would find that the American patent law system complies with each of Finnis's principles of practical reasonableness and, therefore, is a set of moral laws.

Conclusion

Despite the origin of American patent law coming from utilitarian justifications, natural law theory provides the most comprehensive framework for analyzing the patent system. Through its requirements of novelty, non-obviousness, utility and written description, patent law recognizes the moral obligation to promote the basic goods, a duty to the common good of the community, but also the inherent rights of the individual.

[136] *Id.*