PATenting Nature: Isn’T It Obvious?

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Is there any thing whereof it may be said, See this is new? it hath been already of old time, which was before us.¹

I. INTRODUCTION

Over twenty years ago, I spent the summer between my second and third years of law school researching and writing a law review note on the natural products exception to patentability.² Although I understood then its importance, little did I realize how many times over this period the United States Supreme Court would grapple with this issue. Just within the last six years, the Supreme Court decided Bilski v. Kappos,³ Mayo v. Prometheus,⁴ Ass’n for Molecular Pathology v. Myriad Genetics, Inc.,⁵ and Alice Corp. Pty. Ltd. v. CLS Bank International.⁶ All of those cases dealt with so-called “judicially-created exceptions” to patentability.

Who would disagree with the obvious statement, “you cannot patent nature”? The raison d’être of the patent system is to promote human endeavor and disclosure. If someone finds something created by nature, what right does he have to a monopoly grant, however limited? He did not do anything; he only stole from God, or perhaps, “Mother Nature.” One of the most fundamental aspects of patent law is the “inventive step” requirement. Humans should not be allowed to profit off of natural products. Imagine trying to patent a chemical element such as oxygen! If someone was the first to discover oxygen, should he be able to obtain a patent for it and force people to pay royalties for every breath they took? What could be more absurd?

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1. Ecclesiastes 1:10.
5. 133 S. Ct. 2107 (2013).
With this understanding, why is the Supreme Court deciding cases on such a foundational patent issue during the second decade of the twenty-first century? Patents have been around for hundreds of years. There is evidence the Greeks granted some sort of intellectual property rights 400 years before Christ. The Venetian Senate passed the first patent act in 1474. The English Crown began issuing patents in the middle of the sixteenth century. The rest of Europe followed shortly thereafter. The modern patent system was in place in Western Europe and in the English colonies in North America by the early to middle seventeenth century. The first United States Patent Act was passed by the First Congress in 1790 and signed by President George Washington, the first president of the United States. Surely such a basic axiom that you cannot patent nature was decided early. What went wrong? Why did it take until 2013 for a unanimous Supreme Court to finally decide this issue once and for all? And, after Myriad, why is the Supreme Court still deciding cases on the natural products exception to patentability in 2016 and beyond?

This Article attempts to answer these questions. First, it analyzes the first patent statute. Then, it describes how the first few court decisions in Britain and the United States applied patent law to “natural products.” Next, it shows how the Supreme Court became confused about its holdings over the many years and many decisions since the First Patent Act, so the Court no longer applies the statute in the manner in which it was written, or was intended to be interpreted, by Congress.

This confusion originated during the beginning of the computer age when the Court unsuccessfully sought assistance from Congress regarding whether to allow patents on computer programs. Consternation with granting patents on computer programs was allowed to bleed into “natural products” where now some of the most significant advances of gene therapy in the twenty-first century are considered unpatentable.

7. Robert P. Merges, On the Origins of Patent Law (1991). The recording appears in Aristotle’s Politics, which was written during the fourth century BC. Id. Aristotle opines that intellectual property rights should not be enforceable by the inventor, but by the state, which implies some sort of patent rights were being granted at the time of writing. Id.

8. Id. The Venetian Act granted a ten-year monopoly during which an inventor could turn an infringer over to the local Magistrate who would fine the infringer and destroy the infringing device. Id.

9. Id.
10. Id.
12. See infra note 13.
Finally, this Article argues that the current crisis of confidence in the patent system compels the Federal Circuit to alleviate this confusion by interpreting the most recent patent law decisions in a way that both recognizes the Supreme Court’s confusion and strengthens obviousness considerations.

II. THE PATENT ACT OF 1790

The Patent Act of 1790 was one of the very first statutes passed by the First Congress. It was enacted over 200 years ago on April 10, 1790:

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That upon the petition of any person or persons to the Secretary of State, the Secretary for the department of war, and the Attorney General of the United States, setting forth, that he, she, or they, hath or have invented or discovered any useful art, manufacture, engine, machine, or device, or any improvement therein not before known or used, and praying that a patent may be granted therefor, it shall and may be lawful to and for the Secretary of State, the Secretary for the department of war, and the Attorney General, or any two of them, if they shall deem the invention or discovery sufficiently useful and important, to cause letters patent to be made out in the name of the United States, to bear teste by the President of the United States, reciting the allegations and suggestions of the said petition, and describing the said invention or discovery, clearly, truly and fully, and thereupon granting to such petitioner or petitioners, his, her or their heirs, administrators or assigns for any term not exceeding fourteen years, the sole and exclusive right and liberty of making, constructing, using and vending to others to be used, the said invention or discovery; which letters patent shall be delivered to the Attorney General of the United States to be examined, who shall, within fifteen days next after the delivery to him, if he shall find the same conformable to this act, certify it to be so at the foot thereof, and present the letters patent so certified to the President, who shall cause the seal of the United States to be thereto affixed, and the same shall be good and available to the grantee or grantees by force of this act, to all and every intent and purpose herein contained, and shall be recorded in a book to be kept for that purpose in the office of the Secretary of State, and delivered to the patentee or his agent, and the delivery thereof shall be entered on the record and en-
dorsed on the patent by the said Secretary at the time of
granting the same.13

Other than requiring the Secretary of State, the Secretary of War,
and the Attorney General to review patents before issuing them under
the signature of the President of the United States,14 section 101 of
the current Patent Act does not differ much from the Patent Act of
1790: “Whoever invents or discovers any new and useful process, ma-
chine, manufacture, or composition of matter, or any new and useful
improvement thereof, may obtain a patent therefor, subject to the con-
ditions and requirements of this title.”15

Upon comparison of the First Patent Act with the current Patent
Act, there are few substantive differences aside from the current Act
being much shorter. The major difference is that the “new” or “nov-
elty” aspect of patentability is given its own section.16 Also, the “in-
ventive step” requirement, or the need for human endeavor in the
invention process, is likewise given its own section. Patentable sub-
ject matter shall not be “obvious.”17

The phrase that a patent should be issued to anyone who “in-
vent[s] or discover[s]” a new and useful item appears in both acts.18
In the case of the 1790 Patent Act, the phrase “invent[s] or discover[s]”
appears four times. Why insert the word “discover” in the Patent Act?
Such drafting implies that anyone who finds something useful and
previously unknown lying on the ground could receive a patent merely
for being the first person to happen to run across it. Could that have
been what the drafters intended? Perhaps the drafters of the First
Patent Act just got a little too loose with the quill. They were used to
writing and reading wordy documents like the Declaration of Indepen-
dence and the Constitution. Also, this was a great time (shortly after
the founding of a new nation no less, and the first Constitutional Re-
public at that) and great times call for great words. Perhaps they just
got a bit carried away.

14. The approval process requiring the Secretary of State, the Secretary of War,
and the Attorney General to evaluate the patentability of inventions was quickly discov-
ered to be impractical. On December 9, 1790, only seven months after its passage, the
House appointed a committee to amend the Act. See E. C. Walterscheid, Thomas Jeffer-
visited Aug. 30, 2016) (stating that the Patent Act of 1793 eliminated the patent evalua-
tion process and made patent issuance purely a Ministerial Act).
phrase “invent[s] or discover[s]”); see also 35 U.S.C. § 101 (using the phrase “invent[s] or
discover[s]”).
What if Benjamin Franklin discovered electricity and had done so after 1790? Could he have patented it? Imagine Franklin trying to get royalties from God for every lightning strike. Of course he could not have patented lighting. But the statute says “invents or discovers.” What does this mean? Let us turn now to the first courts to analyze and apply statutory language in a natural products context.

III. EARLY CASE LAW

A. Neilson v. Harford

An English Chancery court took up the “natural principles” problem during the middle of the nineteenth century. In Neilson v. Harford, the patentee improved upon the current usage of blast furnaces used to make steel. Neilson found if he injected air that was pre-heated into the blast furnace rather than cold air from the outside, the resulting steel had less carbon in it and hence, was stronger. However, it was already well-known in the industry that the hotter the furnace, the better the resulting steel. The challenge was that Neilson’s discovery was nothing more than the use of a natural principle. If more heat equals better steel, then if the air is preheated before entering the blast furnace, even stronger steel results. Defendant Harford, in his defense to Neilson’s infringement suit, argued no one can patent a natural principle; no one can patent nature.

The English court held that it was true the natural principle of making steel was well-known. However, it ruled Neilson did not try to patent the natural principle. Instead, his was the application of a natural principle to make something new: better steel. It was admitted Neilson’s steel was a terrific improvement upon the steel currently in use.

It is clear then; natural principles are not patentable, but using them in a way to produce a better product is patentable. Every invention is an improvement upon nature, natural principles, or the current state of knowledge. Neilson did not find low carbon steel lying on the ground. He built a blast furnace that made low carbon steel—of course that is patentable.


It has been suggested that this is a patent merely for a principle; but that is not so; it is a patent for the mode of carrying a principle into effect. The mode of heating air and increasing combustion was known before; this patent is taken out for the novel application of air so heated to certain useful purposes—for passing the air in a heated state, instead of a cold state as formerly, into furnaces; and the mode of operation is by interposing a closed vessel, exposed to heat, between the blowing apparatus and the furnace. That is a sufficiently practical discovery to be the subject of a patent, according to all the authorities.

Id.
Perhaps this case is not patenting nature at all. Maybe this is more like the “obviousness” issue that we are used to. Every patent attorney understands obviousness. It seems pretty clear that once someone skilled in the art understands the “natural principle”—when making steel, the hotter the better—it is pretty obvious if you use preheated air in the blast furnace, you will get better steel. However, Neilson was the first to do it. If it were truly obvious, why did we have to wait so long? Neilson’s steel was much better than the contemporary state of the art. Does it seem unfair to grant Neilson a patent for his invention? It seems not because we receive stronger steel as a result. And, Neilson receives only a limited monopoly. Once his patent expires, anyone can use his process (or a similar one or a better one) to make steel.

B. Le Roy v. Tatham

1. Introduction

The United States Supreme Court first dealt with this issue just a few years later in 1852. In Le Roy v. Tatham,21 the patentee discovered a new way to manufacture lead pipe.22 By heating the metal and forcing it through a receiver under pressure, the patentee made pipes possessing “great solidity and unusual strength.”23 The Le Roy Court held “[a] patent for leaden pipes would not be good, as it would be for an effect, and would, consequently, prohibit all other persons from using the same article, however manufactured.”24 Although the patentee is entitled to a patent for his manufacturing process, he cannot obtain a patent on the product itself.25

At first reading, this case sounds eerily similar to Neilson v. Harford.26 The only difference appears to be the metal of interest is lead rather than steel. However, the Court seems to take the opposite view of the English Court in Neilson. The Le Roy Court’s judgment is apparently unmistakable in the oft-quoted cite below:

It is admitted, that a principle is not patentable. A principle, in the abstract, is a fundamental truth; an original cause; a motive; these cannot be patented, as no one can claim in either of them an exclusive right. Nor can an exclusive right exist to a new power, should one be discovered in addition to those already known. Through the agency of machinery a new steam power may be said to have been generated. But no

24. Id. at 176.
25. Id.
one can appropriate this power exclusively to himself, under the patent laws. The same may be said of electricity, and of any other power in nature, which is alike open to all, and may be applied to useful purposes by the use of machinery.27

But what of the court’s rationale in Neilson? The lead pipe Tatham produced from his process was vastly superior to the lead pipe currently in use.28 Tatham did not stumble across this lead pipe while strolling through the forest during a Sunday afternoon jaunt. He made it through the use of a process he invented. Without this new process, there would be no new, stronger and better, lead pipe. Did Tatham steal from God? Was he trying to patent Mother Nature? It is hard to image he was. If his pipe is natural, why did we have to wait until the middle of the nineteenth century to start using it? Why do such considerations matter? Courts deciding patent law cases have cited this, and similar quotes from Le Roy, since the day the Supreme Court handed down this opinion. Like it or not, natural products are unpatentable.

However, why would the United States Supreme Court decide a case directly contrary to an English case decided only eleven years previously? Why did the Court limit Tatham to a process patent while Neilson got a patent for both his process and his product? What made the Supreme Court analyze the same sort of case in such a different manner than an English court?

2. There Must Be Some Misunderstanding . . . . There Must Be Some Kind of Mistake29

Actually, despite all the grandiloquent language in the opinion regarding the patentability of natural products, the decision in Le Roy was based upon a common (at least today it is common) patent law principle and can be stated simply: in order to obtain a product patent, a patentee must claim a product patent in his application.30 If we look at Tatham’s claim, it is clearly directed toward obtaining a patent solely on the process of manufacture:

What we claim as our invention, and desire to secure by letters-patent, is, the combination of the following parts above

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28. Le Roy v. Tatham, 63 U.S. (22 How.) 132, 140 (1859) [hereinafter Le Roy II]. The actual inventors of the process were Englishmen John and Charles Hanson. Le Roy II, 63 U.S. (22 How.) at 134-35. They invented their process in 1837 and assigned it to the Tatham family in 1841. For simplicity in the text, I use “Tatham” to represent both inventors and assignees.
30. See 35 U.S.C. § 112(b) (2012) (stating that “the specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the inventor or the joint inventor regards as the invention.”).
described, to wit, the core and bridge or guide-piece, the chamber, and the die, when used to form pipes of metal, under heat and pressure, in the manner set forth, or in any other manner substantially the same.31

The holding of the Le Roy Court is often cited as “[a] principle, in the abstract, is a fundamental truth; an original cause; a motive; these cannot be patented, as no one can claim in either of them an exclusive right.”32 Notice the phrase, “in the abstract”; is Tatham’s claim an abstract claim? Is not this case about lead pipes that are an improvement over the current state of the art? Why would the Le Roy Court use the phrase “in the abstract” in the holding of the case?

The following language, the actual holding of the case, has never been cited in any subsequent Supreme Court decision.

The patentees claimed the combination of the machinery as their invention in part, and no such claim can be sustained without establishing its novelty—not as to the parts of which it is composed, but as to the combination. The question whether the newly developed property of lead, used in the formation of pipes, might have been patented, if claimed as developed, without the invention of machinery, was not in the case.33

Therefore, the Le Roy Court specifically refused to consider whether Tatham could have received a product patent if he had properly claimed it because this issue was not before the Court. Tatham claimed only a process. The Supreme Court sent the case back to the trial court, not because natural products are unpatentable subject matter, but because the trial court instructed the jury that it need not decide whether the claimed process was novel or “new,” but that it only needed to decide whether the product of the manufacture was “new and useful.”34 According to the Court, the patent application was limited by only claiming the process. The jury needed to decide if

31. Le Roy I, 55 U.S. (14 How.) at 176. Obviously, this was a much earlier time in our patent prosecution history in which anyone would ever believe it was sufficient to describe such a large improvement over the prior art in a single claim.
33. Le Roy I, 55 U.S. (14 How.) at 177 (emphasis added). The Le Roy I Court signals that if the patentee had claimed the product, he would have received a product patent. “A new property discovered in matter, when practically applied, in the construction of a useful article of commerce or manufacture, is patentable; but the process through which the new property is developed and applied, must be stated, with such precision as to enable an ordinary mechanic to construct and apply the necessary process.” Id. at 175 (emphasis added).
34. Id. at 177.
the patentees were the first people to use this machinery to make lead pipe before the judgment could be upheld.\(^{35}\)

However, the question still persists: If the \textit{Le Roy} Court believed Tatham’s lead pipe invention was patentable, if he properly claimed it, why did the Court use such elaborate language when stating that Tatham could not patent nature? Why go to such lengths to merely explain that Tatham bungled his patent application?

\textit{Le Roy} was a not a 9-0 decision. The decision was 5-3 and there was a vigorous dissent.\(^{36}\) Believe it or not, something as simple as the rule that a patentee must properly claim his invention in his patent application was not simple in 1852. Besides lacking simplicity, it was considered a break from previous practice and was understood by both the majority and the dissent to be highly controversial.\(^{37}\) The dissent strongly believed Tatham should have been able to get a patent on his product, even though he did not specifically claim it.\(^{38}\) The dissent believed because Tatham’s specification included language about the products that were a result of his new process, it was unnecessary to expressly claim the product.\(^{39}\) The \textit{Le Roy} Court was not afraid that Tatham’s lead pipes were unpatentable. Instead, the dissent feared

\(^{35}\) It is often forgotten that upon remand, the trial court found Tatham’s patent valid and infringed. This finding was also appealed and heard by the United States Supreme Court. In \textit{Le Roy II}, the Court upheld the trial court. See \textit{Le Roy II}, 63 U.S. (22 How.) at 141. There was no dissent in \textit{Le Roy II}. See id.

\(^{36}\) \textit{Le Roy I}, 55 U.S. (14 How.) at 161. Justice Curtis recused himself from the case because he had formerly served as counsel to Tatham.

\(^{37}\) Prior to the passage of the Patent Act of 1836, claims were not contained in a patent application. Patents were based upon the language of the specification, or as the Patent Act of 1790 put it, the “description” of the invention. Section 6 of the Patent Act of 1836 required an applicant to “particularly specify and point out the part, improvement, or combination, which he claims as his own invention or discovery.” \textit{Le Roy I} was one of the first Supreme Court cases to apply this language.

\(^{38}\) \textit{Le Roy I}, 55 U.S. (14 How.) at 179 (Nelson, J., dissenting). The controversy was thus whether the requirement of a claim in a patent application meant the inventor was limited to the claimed invention or if the claim was merely beneficial to understanding the invention as expressed in the specification.

\(^{39}\) \textit{Id.} at 180. Modern patent attorneys accept the concept that a patent is limited by its claims as foundational. However, the language of Section 6 of the Patent Act of 1836, when read in context, lends somewhat less than overwhelming support to the idea that patent claims establish the full metes and bounds of the property right:

\begin{quote}
But before any inventor shall receive a patent for any such new invention or discovery, he shall deliver a written description of his invention or discovery, and of the manner and process of making, constructing, using, and compounding the same, in such full, clear, and exact terms, avoiding unnecessary prolixity, as to enable any person skilled in the art or science to which it appertains, or with which it is most nearly connected, to make, construct, compound, and use the same; and in case of any machine, he shall fully explain the principle and the several modes in which he has contemplated the application of that principle or character by which it may be distinguished from other inventions; and shall particularly specify and point out the part, improvement, or combination, which he claims as his own invention or discovery.
\end{quote}

that if the Court allowed patentees to patent everything in the specification, without specifically claiming the product, the Court would be allowing patents on “principle[s] in the abstract.” It was afraid Tatham could win infringement suits on anyone who was making any sort of stronger lead pipe because the Court would be validating a patent on all “leaden pipes.” Tatham was required to obtain a jury verdict that his manufacturing process was new and he was the first to perform it. Further, the court must be assured the invention is limited to this new manufacturing process and the specific product that results from the process. That is, there must be a “link” between the product and the process. He cannot just use the language of the specification in which he explains the products from his process are stronger lead pipes.

Furthermore, Section 5 of the Act, when describing the rights patentees can enforce against infringers, likewise is rather vague on this point.

Every such patent shall contain a short description or title of the invention or discovery, correctly indicating its nature and design, and in its terms grant to the applicant or applicants, his or their heirs, administrators, executors, or assigns, for a term not exceeding fourteen years, the full and exclusive right and liberty of making, using, and vending to others to be used, the said invention or discovery, referring to the specifications for the particulars thereof, a copy of which shall be annexed to the patent, specifying what the patentee claims as his invention or discovery.

Id. at § 5 (emphasis added).

40. See Le Roy I, 55 U.S. (14 How.) at 185-86 (Nelson, J., dissenting). If I rightly comprehend the ground upon which a majority of my brethren have placed the decision, they do not intend to controvert so much the doctrine which I have endeavored to maintain [that natural products are patentable], and which, I think, rests upon settled authority, as the application of it to the particular case. They suppose that the patentees have claimed only the combination of the different parts of the machinery described in their specification, and therefore, are tied down to the maintenance of that as the novelty of their invention. I have endeavored to show, that this is a mistaken interpretation; and that they claim the combination, only, when used to embody and give a practical application to the newly-discovered property in the lead, by means of which a new manufacture is produced, namely, wrought pipe out of a solid mass of lead; which it is conceded, was never before successfully accomplished.

Id. at 188 (Nelson, J., dissenting) (emphasis added).

41. Id. at 177.

42. Actually, if one reads this entire paragraph from Le Roy I, rather than omitting the first sentence, the language the Court uses is not so grandiloquent. The word “principle” is used by elementary writers on patent subjects, and sometimes in adjudications of courts, with such a want of precision in its application as to mislead. It is admitted, that a principle is not patentable. A principle, in the abstract, is a fundamental truth; an original cause; a motive; these cannot be patented, as no one can claim in either of them an exclusive right. Nor can an exclusive right exist to a new power, should one be discovered in addition to those already known. Through the agency of machinery a new steam power may be said to have been generated. But no one can appropriate this power exclusively to himself, under the patent laws. The same may be said of electricity, and of any other power in nature, which is alike open to all, and may be applied to useful purposes by the use of machinery.

Id. at 174-75. (emphasis added).
Thus, all the Le Roy Court articulates is that you must apply the “natural principle” to a mode of manufacture. The holding is, in fact, contrary to the holding in Neilson, but contrary only so far that the patentee must claim the product in his claims. It is not enough to merely state the “new property” of lead in the specification.43

C. O’REILLY V. MORSE

Almost immediately after Le Roy v. Tatham,44 the United States Supreme Court heard O’Reilly v. Morse.45 Samuel Morse invented the telegraph. Morse brought suit against O’Reilly for infringing his telegraph patents.46 The Court upheld all of Morse’s claims except one. The Eighth Claim was denied.

*I do not propose to limit myself to the specific machinery or parts of machinery described in the foregoing specification and claims; the essence of my invention being the use of the motive power of the electric or galvanic current, which I call electro-magnetism, however developed, for marking or printing intelligible characters, signs, or letters, at any distances, being a new application of that power, of which I claim to be the first inventor or discoverer.*47

This case is almost always cited for the proposition that so-called “abstract claims” are unpatentable.48 Much of the commentary on this case focuses on the latter portion of Claim Eight rather than the first clause. Many argue the nature of patent infringement during this period required a patent owner be able to broadly claim his invention because willful infringers abounded. Morse’s telegraph patents were no exception. When these patents were issued, willful infringers such as O’Reilly proliferated and it was difficult and expensive for Morse to pursue them all.49

43. See id. at 179-80 (Nelson, J., dissenting).
44. 55 U.S. (14 How.) 156 (1852).
45. 56 U.S. (15 How.) 62 (1853).
47. Morse, 56 U.S. (15 How.) at 86 (emphasis added).
48. See, e.g., Parker v. Flook, 437 U.S. 584, 592 (1978). The Flook Court describes the Morse Court holding as rejecting Morse’s “broad claim covering any use of electromagnetism for printing intelligible signs, characters, or letters at a distance.” Flook, 437 U.S. at 592.
49. For an excellent analysis of the difficulty Morse faced when defending his patents against willful infringers, see Adam Mossoff, O’Reilly v. Morse (Geo. Mason L. & Econ. Research Paper No-14-22, 2014), https://ssrn.com/abstract=2448363. Mossoff’s main argument is that the second part of Claim Eight shows Morse was not attempting to patent the “abstract idea” that would tie up every attempt to use electromagnetism to communicate across large distances. Instead, he argues Claim Eight should be read in conformity with the specification and the other claims, much like a Doctrine of Equivalence case is analyzed today. This was essentially the argument of the dissent. Morse,
Although interesting from a historical standpoint and as an example of how problematic litigating a patent infringement lawsuit was in the nineteenth century, criticisms such as these are misplaced. The dissenters in Morse are the same three who dissented in Le Roy (Justices Nelson, Wayne, and Greer). Once Le Roy was decided and properly understood as holding that a patent is limited by its claims, a patent claim stating the invention is not limited by either the claims or the specification cannot survive.

Although Le Roy and Morse are often viewed today as “anti-patent” decisions, there can be no reasonable doubt they were correctly decided. It is not controversial in patent law to state an invention is limited by its claims and any claim that attempts to patent future applications an inventor has not invented yet, and therefore cannot disclose, will be properly refused by the patent office.

56 U.S. (15 How.) at 128-37. It is difficult to read a claim “in conformity” with the specification and the other claims when the claim language directly forbids doing so.

50. See id. at 124; Le Roy v. Tatham, 55 U.S. (14 How.) 156, 177 (1852).

51. Morse, 56 U.S. (15 How.) at 119-20. Since the Eighth Claim attempts to claim inventions outside the specification, the Court wonders whether a contrary holding would allow a patentee to obtain a patent without even disclosing his invention. Indeed, if the eighth claim of the patentee can be maintained, there was no necessity for any specification further than to say that he had discovered that by using the motive power of electro-magnetism, he could print intelligible characters at any distance. We presume it will be admitted on all hands that no patent could have issued on such a specification. Yet this claim can derive no aid from the specification filed. It is outside of it, and the patentee claims beyond it. And if it stands, it must stand simply on the ground that the broad terms above-mentioned were a sufficient description, and entitled him to a patent in terms equally broad. In our judgment, the act of Congress cannot be so construed.

Id. at 119-20. It is true much mischief has resulted from the Supreme Court misinterpreting Morse as a prohibition against “abstract claims.” Mossoff blames the author of Morse, Chief Justice Taney. However, as this Article shows, the denial of Morse’s Eighth Claim, when read with Le Roy I, is neither unsurprising nor particularly controversial. Other commentators place the blame upon subsequent Court opinions. See Michael Risch, Everything is Patentable, 75 TENN. L. REV. 591, 601 (2008) (referencing The Telephone Cases). Risch describes the holding of Morse as interpreted by the Court in The Telephone Cases as “a subject matter ruling that simply invalidated a claim for the natural phenomenon of electromagnetic communications.” Id. at 601. The language of the Court in The Telephone Cases is not so clear-cut.

[A] claim in broad terms for the use of the motive power of the electric or galvanic current called ‘electromagnetism, however developed, for making or printing intelligible characters, letters, or signs at any distances,’ although ‘a new application of that power’ first made by Morse, was void, because it was a claim for a patent for an effect produced by the use of electromagnetism, distinct from the process or machinery necessary to produce it; but a claim for ‘making use of the motive power of magnetism, when developed by the action of such current or currents, substantially as set forth in the foregoing description, . . . as means of operating or giving motion to machinery, which may be used to imprint signals upon paper or other suitable material, or to produce sounds in any desired manner, for the purpose of telegraphic communication at any distances was sustained. The effect of that decision [Morse] was therefore that the use of magnetism as a motive power, without regard to the particular process
D. Farbenfabriken of Elberfeld Co. v. Kuehmsted

The history of the natural products patentability conundrum cannot be fully explained unless one looks at the type of patents that can be subjected to the “you can’t patent Mother Nature” argument. Therefore, let us take a look at one of the most common drugs ever invented or discovered: aspirin.

In Farbenfabriken of Elberfeld Co. v. Kuehmsted, the patentee held a patent on acetylsalicylic acid. This substance is commonly known as aspirin. Salicylic acid, in contrast, is a natural product found in many plants, including bark from the willow tree. The word “salicylic” originates from the Latin word for willow tree, *salix*. Hippocrates himself ground willow bark, made a tea from it in 400 BC, and gave it to women in childbirth and other patients to help pain and stop fevers. Could he have gotten a patent on that? Is it natural? If he gave people straight bark to chew, could he have gotten a patent on that? Is that natural? What if he did something else to the bark besides crushing it and making a tea? What if he performed some chemical process to better extract the active ingredient and make it more effective? Could he have gotten a patent on that? What is too natural to get a patent?

Acetylsalicylic acid is not natural. In what today is a common high school-level chemistry laboratory exercise, “natural” salicylic acid is combined with acetic anhydride to make acetylsalicylic acid. This is commonly known today by the name Bayer put on the bottles of pills sold in the marketplace: aspirin. Acetylsalicylic acid was an improvement over “natural” salicylic acid products that have been used for centuries. It had fewer side effects, such as stomach discomfort, which was a major problem with the salicylic acid products then in use.

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52. 171 F. 887 (N.D. Ill. 1909).
53. Farbenfabriken of Elberfeld Co. v Kuehmsted, 171 F. 887 (N.D. Ill. 1909), aff’d, 179 F. 701 (7th Cir. 1910), cert. denied, 220 U.S. 622 (1911).
55. Id.
56. Id.
Farbenfabriken court held the patentee was entitled to a patent for his product because he “took a comparatively worthless substance and changed it into a valuable one.”58 He greatly improved upon nature.

E. DENNIS V. PITNER

In Dennis v. Pitner,59 the patentee discovered an effective pesticide in the powdered root of a plant that grows in Peru and other places in South America.60 Dennis claimed to be the first to discover the plant’s root had these qualities.61 This case is similar to what Hippocrates would have experienced, had he tried to get a patent for his willow bark tea. Does Dennis deserve a patent for finding this root? Does it matter that he took the root and ground it into a powder before it was effective? Is that enough human effort to justify granting a limited monopoly?

In order to discover the answer, the Dennis court analyzed the statute.62 The statute has not changed much since the first Patent Act of 1790.

Congress provided for the granting of patents to (a) any person, (b) who has invented or discovered, (c) any new and useful, (d) art, machine, manufacture, or composition of matter, (e) or any new and useful improvements thereof, (f) not known or used by others in this country, (g) before his invention or discovery, (h) and not patented or described in any printed publication in this or any foreign country, (i) before his invention or discovery thereof . . . .63

What does the phrase “invented or discovered” mean? Did Congress intend the two words to be synonymous? Was this perhaps just a drafting error? The Dennis court holds it was not.64

What does the phrase “composition of matter” mean? Does the use of the word “composition” mean a patentee must at a minimum take two natural substances and mix them together to make a new “composition of matter?” Does that mean Hippocrates could not get a patent on salicylic acid? Hippocrates, like Dennis, only took a single

58. Farbenfabriken, 171 F. at 890. The patentee was not the first to convert salicylic acid into acetylsalicylic acid—others had done so before. Id. However, the method the patentee developed was a purer conversion resulting in less salicylic acid remaining in the drug. Id. Even small amounts of residual salicylic acid caused upset stomach and therefore reduced the drug’s efficacy. Id.
59. 106 F.2d 142 (7th Cir. 1939).
60. Dennis v. Pitner, 106 F.2d 142, 148-49 (7th Cir. 1939).
61. Dennis, 106 F.2d at 149. The Dennis patent was ultimately invalidated due to a prior art reference. Id.
62. Id. at 144-45 (analyzing 35 U.S.C. § 31 (1938) (repealed 1999)).
63. Id. at 144-45 (emphasis added) (quoting 35 U.S.C. § 31 (repealed 1999)).
64. Id. at 145.
natural substance and concentrated it. Does this mean there is no "composition" here? The Dennis court reasons the patent at issue does describe a "composition of matter" because "[t]he insecticide needed the breath of the insect upon which the powdered root could act before it became an effective insecticide."65 The Dennis court elaborated on the meaning of the phrase "composition of matter":

Seldom is there any discovery of a new phenomenon of an old chemical product that does not call for the old product's contact with a material to which it must be applied by human agencies before the phenomenon occurs. In all such cases the discoverer is well outside of the rule which excludes the issuance of patents to those who have merely discovered a law or principle of nature or fundamental truth.66

F. FUNK BROS. SEED CO. V. KALO INOCULANT CO.

1. Case Analysis

Funk Bros. Seed Co. v. Kalo Inoculant Co.67 is the bedrock of the natural products exception to patentability. It is cited in every case that analyzes whether a patentee can patent a "natural" product.

Leguminous plants, with the assistance of bacteria present in the roots of the plant, convert nitrogen, which they take from the air, to organic nitrogenous compounds (a.k.a. fertilizer).68 There are six species of these bacteria and each assists specific groups of plants to "fix" nitrogen.69 A farmer would then apply each individual bacteria species to each of his different crops.70 However, certain species of these bacteria interfered with others when mixed.71 Therefore, a farmer could not just mix the bacteria and apply the mixture to all of his crops.72 Proper and effective application required multiple passes with differing bacteria over multiple crops.73

65. Id.
It is true that an old substance with newly discovered qualities possessed those qualities before the discovery was made. But it is a refinement of distinction both illogical and unjustifiable and destructive of the laudable object of the statute to award a patent to one who puts old ingredient A with old ingredient B and produces a cure for ailment C; and deny patent protection to one who discovers that a simple and unadulterated or unmodified root or herb or a chemical has ingredients or health-giving qualities, hitherto unknown and unforeseen.

66. Id.


69. Funk Bros., 333 U.S. at 129.

70. Id. at 131.

71. Id. at 129-30.

72. Id.

73. Id.
The patentee in *Funk Bros.* discovered that certain strains of bacteria could be pre-mixed prior to application without interfering with one another. 74 The *Funk Bros.* Court held this was “no more than the discovery of some of the handiwork of nature and hence is not patentable.” 75

The following quotation is commonly cited for the proposition that natural products are unpatentable. It appears in countless cases analyzing this issue:

[Natural qualities], like the heat of the sun, electricity, or the qualities of metals, are part of the storehouse of knowledge of all men. They are manifestations of laws of nature, free to all men and reserved exclusively to none. He who discovers a hitherto unknown phenomenon of nature has no claim to a monopoly of it which the law recognizes. 76

Could the Court have been clearer that it believed the patentee did not meet the standards of the Patent Act? Whether it was for the reason that his patent was a “discovery” rather than an invention, or that it was not a “composition of matter” is irrelevant. It appears the Court was being clear, and like it or not, the Supreme Court has spoken: nature is not patentable. 77

2. Section 101 Subject Matter Rejection or Section 103 Obviousness?

The problem with reading and applying *Funk Bros.* today is that during the year it was decided, 1948, there was only one patent eligibility statute. During the Truman administration, the Patent Act was amended to “add” two requirements to patentability. Section 102 was added to describe the novelty requirement, while section 103 was added to describe the non-obviousness or the “inventive step” requirement. Both of these sections were intended to codify and simplify patentability determinations made by the Patent and Trademark Office and the courts prior to 1952. However, the 1952 revisions were not intended to change patent law. 78

There is no prohibition against natural products in section 102. The statute is a long list of acts, whereby the occurrence of any one act

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74. *Id.* at 130.
75. *Id.* at 131.
76. *Id.* at 130. Of course the sun and electricity are unpatentable. But what if someone invented a device that converted rays from the sun into electricity? Would such a device be patentable? See *Apparatus for Utilizing Solar Radiant Energy*, U.S. Patent No. 389,124 (filed Sept. 4, 1888).
77. *Funk Bros.*, 333 U.S. at 130.
destroys the novelty, and hence patentability, of an invention. None of those prohibited acts forbid the patenting of natural products.

Likewise, section 103 describes obviousness. In order to receive a patent, an inventor must show “more ingenuity . . . than the work of a mechanic skilled in the art.” Unsurprisingly, there is no explicit prohibition against patenting natural products in section 103.

If one looks closely at the holding in *Funk Bros.*, and ignores most of the grandiloquent language in the opinion, it is actually not a section 101 case (as those issues are defined post-1952). It is actually a section 103 case:

There is, of course, an advantage in the combination. The farmer need not buy six different packages for six different crops. He can buy one package and use it for any or all of his crops of leguminous plants. And, as respondent says, the packages of mixed inoculants also hold advantages for the dealers and manufacturers by reducing inventory problems and the like. But a product must be more than new and useful to be patented; it must also satisfy the requirements of invention or discovery.

Thus, the *Funk Bros.* Court specifically held the invention was “new” (novel) and “useful” (had utility). However, it believed the invention did not meet the inventive step requirement. That is what we now know as a section 103 concern:

The application of this newly discovered natural principle to the problem of packaging of inoculants may well have been an important commercial advance. But once nature’s secret of the noninhibitive quality of certain strains of the species of Rhizobium was discovered, the state of the art made the production of a mixed inoculant a simple step.

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79. Cuno Corp. v. Automatic Devices Corp., 314 U.S. 84, 90 (1941). This is one example of the Court analyzing obviousness prior to 1952.
80. *Funk Bros.*, 333 U.S. at 131 (emphasis added).
81. *Id.* at 132 (emphasis added). The statutory language of § 103 is often misinterpreted by those who believe *Funk Bros.* is based upon § 101.

A patent for a claimed invention may not be obtained, notwithstanding that the claimed invention is not identically disclosed as set forth in section 102, if the differences between the claimed invention and the prior art are such that the claimed invention as a whole would have been obvious before the effective filing date of the claimed invention to a person having ordinary skill in the art to which the claimed invention pertains. Patentability shall not be negated by the manner in which the invention was made.

35 U.S.C. § 103 (2012). Section 103’s focus on the “differences between the claimed invention and the prior art” coupled with the final statement that a patent “shall not be negated by the manner in which the invention was made” has caused many to argue that the statutory language leads to a low obvious standard. That is, as long as there are differences between the patent and the prior art, an invention is patentable. Therefore, if the obvious standard is low, *Funk Bros.* must be based on something other than obviousness concerns. The notion that the 1952 Amendments were not intended to
Once it becomes understood that the Funk Bros. Court rejected the patentee’s patent on the basis of obviousness, it becomes understandable why Justice Frankfurter’s concurrence went unheeded by the majority. Justice Frankfurter was concerned the Court’s decision would be misapplied by future courts and wished to warn against taking the majority opinion too literally.\footnote{82} Writing about the patent at issue, Justice Frankfurter stated:

[The] mixture does in fact have the new property of multi-service applicability. Multipurpose tools, multivalent vaccines, vitamin complex composites, are examples of complexes whose sole new property is the conjunction of the properties of their components. Surely the Court does not mean unwittingly to pass on the patentability of such products by formulating criteria by which future issues of patentability may be prejudged.\footnote{83}

The Court thought it was rejecting a patent based on obviousness or “inventive step” requirements. Obviousness concerns had to be decided on a subjective case-by-case basis. It was not prejudging an entire class of patentable subject matter.

The majority did not answer Justice Frankfurter’s concurrence because it knew its decision was highly controversial and also highly subjective. When it comes to an “obviousness concern,” there is nothing obvious about it.

modify the “invention” or “inventive step” determinations made by courts in previous cases is not without its detractors, however. The origin of the inventive step requirement is generally understood to begin with the case of Hotchkiss v. Greenwood, 52 U.S. (11 How.) 248 (1850). In Hotchkiss, the patentee developed a new type of doorknob. The patentee used porcelain or clay rather than metal or wood. Hotchkiss, 52 U.S. (11 How.) at 264-65. The Hotchkiss Court held:

[Un]less more ingenuity and skill in applying the old method of fastening the shank and the knob were required in the application of it to the clay or porcelain knob than were possessed by an ordinary mechanic acquainted with the business, there was an absence of that degree of skill and ingenuity which constitute essential elements of every invention. In other words, the improvement is the work of the skillful mechanic, not that of the inventor.

Id. at 267 (emphasis added). Thus, prior to the 1952 Amendments, court decisions spoke not of “obviousness,” but of the lack of “invention” or “inventive step” or the like. The 1952 Amendments codifying this requirement, however, used the term “obvious” for the first time. Many argued this was an attempt by Congress to lower the standards for patentability from Hotchkiss and its progeny. Congress was stating that an invention should be patentable so long as it was not obvious to someone skilled in the art. However, the Court in Graham specifically answered that challenge. The Court held § 103 “was intended merely as a codification of judicial precedents embracing the Hotchkiss condition.” Graham, 383 U.S. at 17.

\footnote{82} Funk Bros., 333 U.S. at 134-35 (Frankfurter, J., concurring). Justice Frankfurter did not join the dissent because he believed the inventor did not adequately identify the compatible strains in his patent application. Id. at 132.

\footnote{83} Id. at 134.
That is to say, there is no invention here unless the discovery that certain strains of the several species of these bacteria are noninhibitive and may thus be safely mixed is invention. But we cannot so hold without allowing a patent to issue on one of the ancient secrets of nature now disclosed. All that remains, therefore, are advantages of the mixed inoculants themselves. They are not enough.84

Thus, the Funk Bros. rule is encapsulated into a single word: “enough.” Like Justice Stewart, you just have to know it when you see it.85

IV. THE COURT’S ANALYSIS DURING THE PAST FIFTY YEARS AND THE DAWN OF THE COMPUTER AGE

A. GOTTSCHALK V. BENSON

The United States Supreme Court remained silent on the natural products exception to patentability for many years. However, with the introduction of computers in the 1960s, people began attempting to patent computer applications. There was quite a bit of consternation with the idea of patenting computer programs. Because it was something new, attorneys and commentators thought such patents had never been contemplated by the drafters of the Patent Act. Unfortunately, instead of analyzing computer programs under the “inventive step” requirements of section 103, an argument was made that computer programs are unpatentable because they do not meet the subject matter requirements of section 101. That is, Funk Bros. Seed Co. v. Kalo Inoculant Co.86 began to be quoted and cited as a section 101 subject matter case. The first Supreme Court case to make this error was Gottschalk v. Benson.87

In the pure binary system, any decimal from zero to ten can be represented with four digits.88 For example, the number nine is represented as 1001 in binary.89 As the number to be represented in binary increases, the difficulty for a human translating the number into binary also increases.90 The binary code system displays large numbers as the binary number for each of the digits in the number.91 For

84. Id. at 132.
86. 333 U.S. 127 (1948).
87. 409 U.S. 63 (1972).
89. Benson, 409 U.S. at 66.
90. Id.
91. Id.
example, the number 53 is 0101 0011 in the binary code system because 0101 is binary for the decimal five and 0011 is binary for the decimal three.\textsuperscript{92} In the pure binary system, however, the number 53 is represented by 110101.\textsuperscript{93}

In Benson, the patentee developed a computer program that converted binary-coded numerals into pure binary form using a well-known mathematical formula.\textsuperscript{94} In this way, it was easier to translate binary coded numbers (that are more easily understood by humans) into pure binary (the language of computers).\textsuperscript{95}

The Benson Court analyzed this case as an obviousness case and along the lines of Funk Bros. It held that granting a patent for a computer program using a mathematical formula to convert binary numbers would in effect be granting a patent on the formula itself.\textsuperscript{96} A mathematical formula is like an idea and is not patentable.\textsuperscript{97} Such a holding is completely understandable. The mathematical formula that is used to translate binary code into pure binary is already well-known. Developing a computer program that does more quickly what a person armed with this well-known formula can do by hand is not enough of an “inventive step” to qualify for a monopoly grant. Anyone with a basic knowledge of computer programming could do the same thing in a few minutes of work.\textsuperscript{98} Sorry, this is obvious: no patent.

However, instead of a short, simple opinion stating this clearly, the Benson Court got a bit loose with the pen and implied the case involves section 101 subject matter concerns. Unfortunately, the Court cited Le Roy v. Tatham\textsuperscript{99} as justification for its holding: “A principle, in the abstract, is a fundamental truth; an original cause; a motive; these cannot be patented, as no one can claim in either of them an exclusive right.”\textsuperscript{100} Compounding its error, the Court cited Funk Bros.: “He who discovers a hitherto unknown phenomenon of nature has no claim to a monopoly of it which the law recognizes. If there is to be invention from such a discovery, it must come from the application of the law of nature to a new and useful end.”\textsuperscript{101}

\begin{itemize}
  \item \textsuperscript{92} Id. at 67.
  \item \textsuperscript{93} Id.
  \item \textsuperscript{94} Id. at 65.
  \item \textsuperscript{95} Id. at 67.
  \item \textsuperscript{96} Id. at 71.
  \item \textsuperscript{97} Id.
  \item \textsuperscript{98} See id. at 67 (opining that “[t]he mathematical procedures can be carried out in existing computers long in use. No new machinery being necessary. And, as noted, they can also be performed without a computer.”).
  \item \textsuperscript{99} 55 U.S. (14 How.) 156 (1852).
  \item \textsuperscript{100} Benson, 409 U.S. at 67 (quoting Le Roy I, 55 U.S. (14 How.) 156, 175 (1852)).
  \item \textsuperscript{101} Id. (quoting Funk Bros. Seed Co. v. Kalo Inoculant Co., 333 U.S. 127, 130 (1948)).
\end{itemize}
B. Parker v. Flook

In Parker v. Flook, the patentee developed an algorithm that could be used to update alarm limits during a catalytic process to notify an operator when one of the operating conditions (such as temperature, pressure, or flow rate) exceeds optimal conditions. The Court held an algorithm was a mathematical formula, and that even if novel and non-obvious, the algorithm was unpatentable per se.

In reaching such an outcome, the Court misread many previous cases. The Court first cited section 101 and found, despite the statute explicitly including “processes” that are “discovered” as potential patentable material, the statute nevertheless does not include mathematical formulae in its “plain language.” The Court cited the dicta in Le Roy v. Tatham about “fundamental truths” being unpatentable. The Court then cited the following language from Mackay Radio & Telegraph Co. v. Radio Corp. of America, to differentiate the patentable from the unpatentable: “While a scientific truth, or the mathematical expression of it, is not patentable invention, a novel and useful structure created with the aid of knowledge of scientific truth may be.”

Next, the Court stated previous cases, including O’Reilly v. Morse, lead to the conclusion that a mathematical formula, even if newly discovered, must be considered as part of the prior art because it is a natural law or one of the “basic tools of scientific and technological work.” The Court reasoned:

Respondent’s application simply provides a new and presumably better method for calculating alarm limit values [in the well-known process of catalytic conversion of hydrocarbons]. If we assume that the method was also known, as we must under the reasoning in Morse, then respondent’s claim is, in

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104. Flook, 437 U.S. at 588-89 (stating that the Court’s holding in Benson, “forecloses a purely literal reading of § 101.”).
105. Id.
106. 55 U.S. (15 How.) 156 (1852).
111. Flook, 437 U.S. at 589 (quoting Gottschalk v. Benson, 409 U.S. 63, 67 (1972)). The Court here misread Morse as “reject[ing] Samuel Morse’s broad claim covering any use of electromagnetism for printing intelligible signs, characters, or letters at a distance.” Id. at 592 (citing O’Reilly v. Morse, 56 U.S. (15 How.) 62, 112-21 (1853)). That is not why the Court rejected Morse’s claim. The Court rejected Morse’s claim because the claim attempted to go outside the invention disclosed in the claims and in the specification (a.k.a. description). See supra note 51 and accompanying text.
effect, comparable to a claim that the formula $2\pi r$ can be usefully applied in determining the circumference of a wheel.\footnote{112.} The Court then appealed to Congress for assistance with the patentability of computer programs:

To a large extent our conclusion is based on reasoning derived from opinions written before the modern business of developing programs for computers was conceived. The youth of the industry may explain the complete absence of precedent supporting patentability. Neither the dearth of precedent, nor this decision, should therefore be interpreted as reflecting a judgment that patent protection of certain novel and useful computer programs will not promote the progress of science and the useful arts, or that such protection is undesirable as a matter of policy. Difficult questions of policy concerning the kinds of programs that may be appropriate for patent protection and the form and duration of such protection can be answered by Congress on the basis of current empirical data not equally available to this tribunal.\footnote{113.}

The \textit{Flook} Court was clearly concerned about granting patent rights for computer programs at the dawn of the computer age. The Court rejected the patent in \textit{Gottschalk v. Benson},\footnote{114. 409 U.S. 63 (1972).} and then it rejected the patent in \textit{Flook}. In order to do so, the Court had to misread historical precedent as well as statutory text, but the Court was obviously concerned with granting patents on a subject matter Congress had not considered when it wrote the patent statute. Unsurprisingly, the Court decided to err on the side of not granting patent protection to computer programs until Congress had a chance to consider the question.\footnote{115.}

\footnote{112. \textit{Flook}, 437 U.S. at 594-95. Of course, \textit{Morse} says no such thing. In order to arrive at this conclusion, the \textit{Flook} Court cites the \textit{Morse} Court's discussion of \textit{Neilson v. Harford}, Id. at 594-95. In the previous review of the holding of \textit{Neilson} in this Article, it was explained that the idea of "more heat equals better steel" was well understood in the industry at the time Neilson developed his idea. \textit{See supra} note 20 and accompanying text for information on \textit{Neilson}. The Court then cited the following language from \textit{Morse}: "We think the case must be considered as if the principle being well known, the plaintiff had first invented a mode of applying it." \textit{Flook}, 437 U.S. at 592 (quoting \textit{Morse}, 56 U.S. (15 How.) at 115). It is completely unsurprising the \textit{Neilson} court considered the notion of "more heat equals better steel" as well-known in the industry prior to Neilson's idea, because those were the facts of that case. In \textit{Flook}, the Court assumed the mathematical formula was novel and non-obvious. \textit{See supra} note 104 and accompanying text. Thus, these are vastly different fact scenarios.


115. \textit{See Flook}, 437 U.S. at 596 (reasoning that "[i]t is our duty to construe the patent statutes as they now read, in light of our prior precedents, and we must proceed cautiously when we are asked to extend patent rights into areas wholly unforeseen by Congress.").
C. DIAMOND V. CHAKRABARTY

The next Supreme Court case dealing with the natural products exception to patentability was Diamond v. Chakrabarty.\textsuperscript{116} In this case, the patentee developed a living bacteria species that was capable of breaking down petroleum products.\textsuperscript{117} Therefore, in the instance of a petroleum spill, these bacteria could be deployed.\textsuperscript{118}

Everyone agreed the bacteria species was not natural; it was human-made. The real issue before the Court was whether a living organism was a “manufacture” or a “composition of matter” and hence, patent-eligible.\textsuperscript{119} The Court ruled that the human-made microorganism qualified as patentable subject matter.\textsuperscript{120}

Chakrabarty was a highly controversial 5-4 decision and there was a vigorous dissent.\textsuperscript{121} The public saw the decision as a huge expansion of the subject matter available for patenting. Many commentators were highly critical of the idea of patenting “life.” Critics began to repeat the well-worn refrain that pretty soon, corporations will be patenting the sun.\textsuperscript{122} That is, there is no matter that is not available for patenting (and monopolizing). The material available for patenting is “boundless.”

Realizing this decision would meet intense criticism, the majority tried to temper its holding by comparing a patent for new “life” to an attempt to patent nature. No need to worry about this holding, nature is still not patentable; the majority stated, “[t]his is not to suggest that [section] 101 has no limits or that it embraces every discovery. The laws of nature, physical phenomena, and abstract ideas have been held not patentable.”\textsuperscript{123}

\begin{itemize}
  \item \textsuperscript{116} 447 U.S. 303 (1980).
  \item \textsuperscript{117}  Diamond v. Chakrabarty, 447 U.S. 303, 303 (1980).
  \item \textsuperscript{118}  Chakrabarty, 447 U.S. at 305. The bacteria would consume petroleum and convert it into simple carbon dioxide and once the petroleum disappeared, the bacteria would perish due to lack of food. \textit{Id.} at 307.
  \item \textsuperscript{119}  \textit{Id.} at 309.
  \item \textsuperscript{120}  \textit{Id.} at 318-22 (Brennan, White, Marshall, and Powell, JJ., dissenting).
  \item \textsuperscript{121}  Shortly after Chakrabarty, higher life forms were indeed patented. For example, researchers at Harvard University genetically altered a mouse to be more susceptible to acquiring cancer, making it valuable for cancer researchers. See JoAnne Eichelberger Seibold, \textit{Can Chakrabarty Survive the “Harvard Mouse”?}, 2 U. FLA. J.L. & PUB. POL’Y 81, 81-82 (1989). Further, although section 33(a) of the Leahy-Smith America Invents Act, Pub. L. No. 112-29, 125 Stat. 284 (2011) (“AIA”) includes a provision forbidding the patentability of any “claim directed to or encompassing a human organism,” the failure to define “human organism” ensures controversial patents will continue to issue. Ava Caffarini, \textit{Directed To or Encompassing a Human Organism: How Section 33 of the America Invents Act May Threaten the Future of Biotechnology}, 12 J. MARSHALL REV. INT’L LAW 768 (2013).
  \item \textsuperscript{122}  See Chakrabarty, 447 U.S. at 309 (citing Parker v. Flook, 437 U.S. 584 (1978); Gottschalk v. Benson, 409 U.S. 63, 67 (1972); Funk Bros. Seed Co. v. Kalo Inoculant Co.,
Thus, instead of simply stating there are very few, if any limits, to patentable subject matter under section 101, the Court continued its confusion between subject matter concerns under section 101 and obviousness concerns under section 103.124

D. Diamond v. Diehr

The very next year, in Diamond v. Diehr,125 the United States Supreme Court analyzed whether a process for curing synthetic rubber was patentable.126 The patented process measured the temperature inside the rubber press constantly throughout the curing process.127 A computer received these measurements and calculated a correct cure time using a well-known mathematical formula.128 The computer then signaled the rubber press to open at the proper time.129

While reaffirming its earlier holding in Gottschalk v. Benson130 that a “mathematical formula is like a law of nature” and is unpatentable, the Diehr Court held the patentee was not attempting to patent a formula, as was the case in Benson, but was instead attempting to patent a process for curing rubber.131 Therefore, the Diehr Court concluded the patentee was entitled to patent protection for his invention.132

Troublingly, the Court again uses this strange “mathematical formula is like a law of nature” language. It is a law of nature, but that is not what makes it arguably unpatentable. It is something already well-known, or it is an idea and not a mode of manufacture that produces a product. The Court analyzed Diehr as an obvious case, but it again cited the “law of nature” language from Le Roy v. Tatham133 and Funk Bros. Seed Co. v. Kalo Inoculant Co.134 when it was unnecessary to do so.

333 U.S. 127, 130 (1948); O’Reilly v. Morse, 56 U.S. (15 How.) 62, 112-21 (1854); Le Roy I, 55 U.S. (14 How.) 156, 175 (1853)).

124. See id. (quoting Funk Bros., 333 U.S. at 130) (“Thus, a new mineral discovered in the earth or a new plant found in the wild is not patentable subject matter. Likewise, Einstein could not patent his celebrated law that E=mc2; nor could Newton have patented the law of gravity. Such discoveries are ‘manifestations of . . . nature, free to all men and reserved exclusively to none.’”).


127. Diehr, 450 U.S. at 178.

128. Id.

129. Id. at 179.

130. 409 U.S. 63 (1972).

131. Diehr, 450 U.S. at 175-76.

132. Id. at 184.

133. 55 U.S. (14 How.) 156 (1853).

134. 333 U.S. 127 (1948).
The curing process at issue in Diehr was a great improvement over the previous state of the art. The temperature inside the press was viewed as an uncontrollable variable and this led to instances where the rubber was over or under cured. This analysis is, or should be, standard non-obvious analysis under the section 103 statutory requirements.

It is easy to see where someone who is not paying attention could get confused. Diehr looks a lot like Benson and Parker v. Flook. The computer in Diehr was basically just following and “applying” a well-known formula. But in Benson, the patentee attempted to patent a well-known formula that was just performed by a computer. In Flook, the patentee attempted to patent a newly discovered formula, but could not point to a solid piece of manufacture where he could say, “I made this.” The patentee in Diehr could point to his solid piece of rubber, so the Court believed this was patentable because it was really not a computer program; there was a piece of rubber that could be held. However, all these cases are close to the obviousness line. The Funk Bros. invention was close to the line, but not good enough. Benson was not really even close to the line: not good enough. Flook, probably not obvious, but we cannot extend patent rights to computer programs without clear direction from Congress. Diehr was close to the line, and just good enough. It is all rather subjective. There is no hard and fast objective rule we can come up with to decide whether something is obvious. Just like Justice Potter Stewart: We know it when we see it. And the Court is troubled by that. It wants an objective test. After all, this is patent law, a scientific endeavor.

E. KSR INTERNATIONAL CO. V. TELEFLEX, INC.

KSR International Co. v. Teleflex, Inc. is a pure section 103 case. Prior to 2007, the Federal Circuit had ruled obviousness could invalidate a patent only if the prior art leads to a “teaching, suggestion, or motivation” to perform the improvement that is the subject of the patent. The Federal Circuit was concerned that “hindsight bias” would invalidate many valid patents because small improvements in the prior art often appear obvious “in hindsight.” Obviousness, held the Federal Circuit, does not mean “obvious to try.” This test was commonly referred to as the TSM test. In KSR, the United States Supreme Court held “if a person of ordinary skill can

135. Diehr, 450 U.S. at 178.
136. Id.
137. 437 U.S. 584 (1978).
implement a predictable variation, [section] 103 likely bars its patentability."141

Upon close review of this language, the KSR ruling appears to be a restatement of the actual Funk Bros. Seed Co. v. Kalo Inoculant Co.,142 holding, but much more precisely stated. A patent must not be merely a “simple step.” The problem is the KSR case does not cite Funk Bros. Unfortunately, natural products concerns and obviousness concerns are on separate tracks, although they are headed in the same direction.

F. Bilski v. Kappos

Bilski v. Kappos143 concerned the patentability of a computer program used by investors to hedge against price fluctuations in energy markets.144 The United States Supreme Court considered whether a business method patent was a “process” patentable under the Patent Act.145

The Court ruled that a section 101 “process” included business methods.146 However, it ruled the business method of “hedging” was well known.147 Hence, although a business method could meet the section 101 test, this particular invention was unpatentable because it was an attempt to patent the “idea” of “hedging.”148 In essence, the Court ruled the business method at issue was not patentable under section 101, although business methods in general are patentable. There is no analysis of the case against section 103 because the Court held the patent at issue was not patentable under section 101.

Bilski more than any other case exemplifies the Court’s confusion between section 101 and section 103. The Court again cited Le Roy v. Tatham149 and Funk Bros. Seed Co. v. Kalo Inoculant Co.150 It continues to confuse those cases with what should be a section 103 analysis. The computer program in Bilski is not unpatentable because it is an “idea.” After all, the Court says business methods are patentable. The patent at issue in Bilski is actually not patentable because it is only the application of a well-known idea. Just as in Gottschalk v.

141. KSR Int’l, 550 U.S. at 417.
142. 333 U.S. 127 (1948).
143. 561 U.S. 593 (2010).
145. Bilski, 561 U.S. at 608.
146. Id. at 609.
147. Id. at 611. “Hedging is a fundamental economic practice long prevalent in our system of commerce and taught in any introductory finance class.” Id. (quoting In re Bilski, 545 F.3d 943, 1013 (Fed. Cir. 2008) (Rader, J., dissenting)).
149. 55 U.S. (14 How.) 156 (1853).
150. 333 U.S. 127 (1948).
The method of hedging against price fluctuations is an old practice. This is just the transfer of an old well-known practice onto a computer. Just like in Benson, a computer is just doing the same steps others have done before, only faster. That is a section 103 problem, not a section 101 problem. Once the Supreme Court decided a business method was a patentable “process” under section 101, it should have analyzed the patent under sections 102 and 103. Failing to do so was a mistake by the Court. Although the case was decided correctly, it was decided for the wrong reasons and under the wrong analysis.

G. Mayo v. Prometheus

The patents in Mayo Collaborative Services v. Prometheus Laboratories, Inc., concerned drugs that are given to patients with autoimmune diseases. Because each patient metabolizes the drugs differently, the dosage and the patient’s response to dosage must be carefully monitored. If the dosage given for a particular patient is too high, there are bad side effects; if it is too low, the drug is ineffective.

The tests to run on a patient to check for metabolites of those drugs and the analysis required of those tests was well-known by doctors “skilled in the art” of treating patients with these drugs. The patentee developed a diagnostic kit that could be used by doctors to assist them to treat a patient who needed to be treated with this sort of drug regimen.

The facts of this case are a lot like Diamond v. Diehr and Bilski v. Kappos. There is already a known way to perform this function. A doctor skilled in the art knows how to do this. However, the patentee developed a “kit” that basically describes the state of the art. Just like in Gottschalk v. Benson, just as in Diehr, just as in Bilski, the Court found the invention at issue was unpatentable. However, just as in Benson, just as in Diehr, just as in Bilski, it did so for the wrong reasons. Instead of analyzing this case as a section 103 case, it cited Le Roy v. Tatham; it cited Funk Bros. Seed Co. v. Kalo Inocu-

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151. 409 U.S. 63 (1972).
152. 132 S. Ct. 1289 (2012).
156. 561 U.S. 593 (2010).
158. 409 U.S. 63 (1972).
159. 55 U.S. (14 How.) 156 (1853).
lant Co.; it even cited Neilson v. Harford as having a comparable holding.

The very interesting escalation here, however, is the beginning of the Court’s concern with the patent system as a whole and its unwarranted belief that its section 101 unpatentable holdings in Benson, Diehr, Bilski, and now Mayo are helping the advance of art and science by not allowing patents on nature, ideas, and the like:

‘Phenomena of nature, though just discovered, mental processes, and abstract intellectual concepts are not patentable, as they are the basic tools of scientific and technological work.’ Gottschalk v. Benson, 409 U.S. 63, 67 (1972). And monopolization of those tools through the grant of a patent might tend to impede innovation more than it would tend to promote it.

It has always been known, from the beginning of the patent system, that monopolization was a serious grant of rights. Such a serious grant required a serious invention. As with the drawing of any line, there will be times when the invention claimed is close to the line. In such cases, it will never be easy to decide what is a patentable invention, and what is not.

162. Mayo, 132 S. Ct. at 1293-95. The Court spent many pages arguing that all of these cases can be decided on objective criteria. For another example, see the lengthy concurrence in Bilski authored by Justice Stevens. Bilski v. Kappos, 561 U.S. 593, 613-57 (2010) (Stevens, Ginsburg, Breyer, and Sotomayor, JJ., concurring). The question regarding why the Court believed the apparent subjective standard of section 103 is worse than an “objective standard” of section 101 is a question beyond the scope of this article. However, it is nevertheless interesting that the Court spent so much time trying to convince the reader an objective test such as the “machine or transformation test” is a better test than a subjective “too darned simple to get a patent” test. See infra note 164 and Justice Stevens’ concurrence in Bilski. Yet, the Federal Circuit has had a very difficult time applying “objective” tests such as the machine or transformation test to patentability. The author is aware that cases like Graham v. John Deere Co., 383 U.S. 1 (1966), intend to turn obviousness into an objective standard. Graham listed several things to consider when deciding what is or is not obvious. However, at the end of this list, it also stated none of these things were dispositive. Although there are objective factors one may consider when determining obvious, the determination itself is nevertheless subjective.
164. “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.” 13 Writings of Thomas Jefferson 335 (Memorial ed. 1904). Interestingly, it is quite controversial in patent circles whether the Founders intended a patent grant to be a “natural” right or a “social contract.” Using natural rights theory, many argue the Founders believed a patent right to naturally arise from an individual’s effort in creating something new and useful that benefited society. Others argue, and Thomas Jefferson appears to have believed this, that a patent should be thought of as a social contract. That is, society granted exclusive rights to an inventor in return for disclosure of his idea via the patent system. It is believed those who accept a “natural rights” view of patents are
In Ass’n for Molecular Pathology v. Myriad Genetics, Inc., 165 the patentee developed a test to determine whether a woman had an increased chance to develop breast and ovarian cancer. The test involved analyzing the patient’s DNA for two mutated DNA sequences: BRCA1 and BRCA2. 166 The hunt for the responsible genes involved with developing breast and ovarian cancer began in 1990. 167 Myriad filed for a patent on these two genes in 1995. 168 In 1996, Myriad began testing patients for these two genes. The test was expensive; Myriad charged several thousand dollars to test a patient. 169

When challenged by Myriad for infringement, other laboratories argued Myriad was trying to “patent nature.” 170 The genes naturally occur in the body. How can Myriad patent a natural gene?

For the first time, the Court ruled on the patentability of a product that under no circumstances can be viewed as close to the patentability line under its “natural product” case series. It took Myriad several years of expensive research to identify the BRCA1 and BRCA2 genes. 171 Once identified, they had to be isolated using high-tech methods of biochemistry from the rest of the DNA molecule in order to be used to identify patients who had a predisposition to developing breast and ovarian cancer. 172

 quicker to grant patents than those who believe in a social contract theory. For an excellent discussion of this controversy, see Adam Mossoff, Who Cares What Thomas Jefferson Thought About Patents? Reevaluating the Patent “Privilege” in Historical Context, 92 CORNELL L. REV. 953 (2007). Regardless of whether one accepts a “natural rights” or “social contract” theory of patent, under both systems the patent grant is understood as a powerful grant. Whether one understands the patentee as naturally entitled to his grant because of his inventive efforts or whether one believes society should only offer a patent right in exchange for a beneficial disclosure, a patentee is only entitled to a patent grant for a useful, new, and non-obvious invention. Discussions such as these, if they add any value at all, only move the line of patentability along a patentability spectrum. Regardless of where on the spectrum one resides, there will always be inventions near the line. See also infra note 206.

165. 133 S. Ct. 2107 (2013).
170. Myriad, 133 S. Ct. at 2114.
172. Brief for Respondents, Myriad, 133 S. Ct. 2107 (No. 12-398).
Thus, the Court cannot use the “obviousness” reasoning with its section 101 rejection of the patent as it did with Funk Bros. Seed Co. v. Kalo Inoculant Co.,\textsuperscript{173} Gottschalk v. Benson\textsuperscript{174} and Bilski v. Kappos.\textsuperscript{175} Unfortunately, the Court’s confusion regarding its previous analysis resulted in a clearly incorrect decision. It cited Funk Bros, but mischaracterized its holding. “Groundbreaking, innovative, or even brilliant discovery does not by itself satisfy the [section] 101 inquiry. See Funk Brothers Seed Co. v. Kalo Inoculant Co., 333 U. S. 127.”\textsuperscript{176} Further, the Court went on to explain “[t]he [Funk Bros.] Court held that the composition was not patent eligible because the patent holder did not alter the bacteria in any way. His patent claim thus fell squarely within the law of nature exception.”\textsuperscript{177}

But as we have previously seen, the Funk Bros. Court did not believe the patent then at issue was “groundbreaking” by any stretch.\textsuperscript{178} It specifically stated only that it had “some utility.” The Funk Bros. Court did not decide the patent holder in that case was not entitled to a patent solely because the bacteria were not “altered in any way.” Instead, it believed this was a factor in its decision rather than the reason for its decision. The Funk Bros. Court expressly called the patent at issue a “simple step.”\textsuperscript{179}

And to compound its mischaracterization, the Myriad Court goes further. It held cDNA, which is DNA that is synthesized or is taken out of the body and slightly modified in some manner, was patentable because it is at least slightly different than naturally-occurring DNA.\textsuperscript{180}

\textsuperscript{173} 333 U.S. 127 (1948).
\textsuperscript{174} 409 U.S. 63 (1972).
\textsuperscript{175} 561 U.S. 593 (2010).
\textsuperscript{176} Myriad, 133 S. Ct. at 2110.
\textsuperscript{177} Id. at 2117. It is interesting to note here the Court did not cite to a specific portion of the Funk Bros. opinion. Instead, it cited to the case as a whole.
\textsuperscript{178} See supra note 81 and accompanying text.
\textsuperscript{179} Id.
\textsuperscript{180} Myriad, 133 S. Ct. at 2120 (Scalia, J., concurring). Justice Scalia’s short concurrence is particularly illustrative:

I join the judgment of the Court, and all of its opinion except Part I-A and some portions of the rest of the opinion going into fine details of molecular biology. I am unable to affirm those details on my own knowledge or even my own belief. It suffices for me to affirm, having studied the opinions below and the expert briefs presented here, that the portion of DNA isolated from its natural state sought to be patented is identical to that portion of the DNA in its natural state; and that complementary DNA (cDNA) is a synthetic creation not normally present in nature.

Id.
I. ALICE CORP. PTY. LTD. V. CLS BANK INTERNATIONAL

In Alice Corp. Pty. Ltd. v. CLS Bank International, the United States Supreme Court revisited this line of cases once again. Alice is much like Gottschalk v. Benson and much like Bilski v. Kappos. The patentee in Alice obtained a patent on a computer program that evaluated “settlement risk.” The Court followed Bilski and found such a patent involved nothing other than taking a well-known formula of calculating settlement risk and programing a computer to do it much faster than could be done by hand. Yet again, despite the Court’s confusion, this case was decided not because of its section 101 subject matter, but because it was too darned simple to warrant a patent grant.

The interesting thing about Alice for our purposes is it builds on the Supreme Court’s “building block” notion. The Court believed the section 101 exceptions it created—laws of nature, natural phenomena, and abstract ideas—are the fundamental building blocks of science. Further, the Court believed if it were to grant patents on such fundamental tools, science would be impeded rather than promoted by such patents.

The problem with such a belief is every patent impedes science in some manner. Every patent locks up a portion of science so no one can practice it or promote it without paying the patent holder a license fee. Whether one believes in a “natural rights” theory or a “social contract” theory of patents, the grant is substantial. People have always understood this. However, in recent times this view has become more popular. In fact, there is a large movement currently in public discourse for the elimination of patents.

V. BAD PATENTS AND TROLLS

In July 2011, the National Public Radio show, This American Life, broadcast a story called “When Patents Attack.” The comedian Adam Carolla, whose company produces and distributes his podcasts, was sued in 2013. The patent at issue was described by the patentee as covering “the production of serialized or episodic content that can

183. 409 U.S. 63 (1972).
185. Alice, 134 S. Ct. at 2351-52.
186. Id. at 2356-57.
187. Id. at 2354-55.
188. Id.
189. See supra note 164.
190. When Patents Attack, This American Life (NPR radio broadcast July 22, 2011).
be downloaded from a specific URL that client software can retrieve and store.”191 Besides these two reports, there are many others. Entities suing to enforce patents they themselves do not practice, or who sue in a way to obtain settlements from individuals who are doing things they did not know was patented (or never dreamed were even patentable inventions) are commonly referred to as “patent trolls.” Troll litigation has not been well-received and Congress has spent quite a bit of time discussing methods to reduce troll litigation without harming the value of a properly granted patent right.192

The majority of troll remedy theory focuses on section 101 patentability or on modifications to patent law to legislate new restrictions on patent enforcement. Much of the discussion in this area focuses on forbidding patents on products of nature, software, computer hardware, or even recipes.193 Arguments are made that patent enforcement by Non-Practicing Entities (“NPEs”) should be curtailed.194 Arguments that people should not be able to patent “natural products” are strongly made.195 Some believe computer software should not be patentable.196 In fact, the Federal Reserve Bank of St. Louis recently opined that the patent system actually impedes innovation rather than promoting it. In 2012, it suggested the nation stop granting patents entirely.197 Patent lawyers ignore the patent crisis at their peril.

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193. One of the most interesting reports on this issue came from NPR’s “Planet Money” program on the patentability of “Steak-Ums.” See Can You Patent a Steak, Planet Money (NPR radio broadcast Aug. 31, 2012), http://www.npr.org/sections/money/2012/08/31/160391850/episode-399-can-you-patent-a-steak. “Steak-Ums” are thinly sliced, fully cooked, frozen steaks that allow for quick microwave heating. In addition to “Steak-Ums,” the same patentee possesses a patent on popcorn chicken. Id.


195. See, e.g., Sapna Kumar, Life, Liberty and the Pursuit of Genetic Information, 65 ALA. L. REV. 625 (2013). Kumar goes so far as to argue the Due Process Clause protects an individual’s fundamental right “to learn about their own genetic and bodily information without government hindrance.” Id. at 660. Thus, Kumar argues, patents involving “isolated genes[s]” are unconstitutional violations of an individual’s Fifth Amendment rights. Id. at 661. See also Krysta Kauble, Patenting Everything Under the Sun: Invoking the First Amendment to Limit the Use of Gene Patents, 58 UCLA L. REV. 1123 (2011). Kauble opines that the patent disclosure requirement forbids granting patents on natural phenomena because they “are preexisting objects that people discover, like gold or oxygen.” Id. at 1127. Granting patents for “natural phenomena” then removes something from the public domain and thus violates the First Amendment. Id. at 1128.


None of these suggested remedies confront the heart of the problem with the patent system. Patent quality is currently low. The standard for non-obviousness is almost non-existent. Novel and significantly useful inventions should receive a patent grant. Those “too darned simple” should be refused. Foreclosing subject matter from patentability is the wrong approach. Instead, we should look toward increasing patent quality. Once we do that, the other problems diminish. Salicylic acid (ground willow bark) was a huge innovation in its time, aspirin in its time. Low-carbon steel was a big improvement in its era. High quality lead pipes enabled man to live in cities and obtain fresh water and drain sewage from individual homes. Who would believe none of these patents should have been granted due to its subject matter?

VI. CONCLUSION

The United States Supreme Court’s jurisprudence regarding natural products patentability has been a slow but steady march toward confusing section 101 with section 103. Despite this confusion, which has occurred over 175 years, the Supreme Court has mostly decided...
cases correctly. Predictably, however, this confusion resulted in a clearly non-obvious invention in Ass'n for Molecular Pathology v. Myriad Genetics, Inc.\(^202\) being deemed a natural product, and hence unpatentable. As the United States Court of Appeals for the Federal Circuit applies the Supreme Court’s holdings in Myriad and Alice Corp. Pty. Ltd. v. CLS Bank International,\(^203\) it is hoped by understanding and accepting the Court’s confusion between sections 101 and 103, these decisions will be interpreted in the best possible manner.\(^204\)

The First Congress understood patent quality must be high in order to justify granting a limited monopoly. Upon review of the First Patent Act of 1790, we see a patent was only to be granted if the persons analyzing it “deem the invention or discovery sufficiently useful and important, to cause letters patent to be made out in the name of

\(202\). 133 S. Ct. 2107 (2013).

\(203\). 134 S. Ct. 2347 (2014).

\(204\). The Alice test for patentability is labeled by the Court as “Mayo’s framework.” Alice Corp. Pty. Ltd. v. CLS Bank Int’l, 134 S. Ct. 2347, 2357 (2014). It is a two-stage process. First, a court determines whether the claims at issue are directed toward “laws of nature, natural phenomena [or] abstract ideas.” \(\text{Id}\) at 2355. If the answer is affirmative, the claim is examined to “determine whether it contains an ‘inventive concept’ sufficient to ‘transform’ the claimed abstract idea into a patent-eligible application.” \(\text{Id}\). at 2357. Of course, the first test is subject to the numerous problems outlined in this Article. However, even if an examiner or court determines an invention meets that test, the second step of the analysis can be summarized as “too darned simple” to warrant a patent grant and should be viewed, in essence, as equivalent to a § 103 determination. Admittedly, the Supreme Court is attempting to strengthen the currently low obviousness standard of the Federal Circuit. See supra note 199. However, the standard should be strengthened for not only patents subject to the Mayo framework, but applied universally. Doing so will diminish the troll problem and bolster support for the patent system. See supra note 198 and accompanying text. Further, such a strengthened § 103 standard will reduce confusion between § 101 and § 103 rejections. If the new § 103 standard is universally applied, the answer to the first test of the Mayo framework becomes insignificant. Perhaps over time, the obviously incorrect Myriad decision will diminish in importance as overall patent quality improves. It is unclear whether “natural phenomena” are different than “natural products” when analyzing patents under the Mayo framework. The specific language of Alice is that “natural phenomena” are a judicially created patent exclusion that triggers Mayo framework analysis. Myriad apparently holds that a “natural product” does not specifically trigger Mayo. See supra notes 176-77 and accompanying text. The most recent guidance from the Patent and Trademark Office (“PTO”) attempting to apply Myriad provides that a natural product claim must “exhibit markedly different characteristics from its naturally occurring counterpart in its natural state.” 2014 Interim Guidance on Patent Subject Matter Eligibility, 79 Fed Reg. 241, 74623 (Dec. 16, 2014) (to be codified at 37 C.F.R. pt. 1). If it is markedly different, it is patentable without undergoing further Mayo framework analysis “unless the claim recites another exception (such as a law of nature or abstract idea, or a different natural phenomenon).” \(\text{Id}\). at 74623-24 (emphasis added). Thus, the PTO is certainly unsure whether “natural phenomena” include “natural products.” It is hoped the Federal Circuit will resolve this difficulty by equalizing natural phenomena and natural products in subsequent decisions, thereby minimizing Myriad. But see infra note 208.
the United States.” We as scientists and lawyers may strongly prefer an objective test for patentability, such as a TSM test or a “machine or transformation test.” But because obviousness is strictly a subjective determination, we are never going to reach that stage of perfection and yet have a patent system that achieves the goal of encouraging (without stifling) innovation. The First Congress understood that in 1790. We should also understand this concept in 2016.

Patent lawyers ignore the patent crisis at their peril. Many patent lawyers and judges fear decisions like Mayo Collaborative Services v. Prometheus Laboratories, Inc. and Alice as a deviation from traditional patent law. In actuality, the lack of patent quality was

205. See supra notes 13-14 and accompanying text (emphasis added). It is true the “sufficiently useful and important” requirement was removed from the patent statute in the Patent Act of 1793. See Patent Act of 1793, ch. 11, 1 Stat. 318-323 (1793) (amended 1800). However, this requirement rather quickly returned in the Patent Act of 1836. See Patent Act of 1836, ch. 357, 5 Stat. 117 (1836) (amended 1952). It remained for over one hundred years before Congress eliminated it in the Patent Act of 1952. Michael Risch, The Lost History of Usefulness, PRAWFSBLOG (April 26, 2010, 10:25 AM), http://prawfsblawg.blogs.com/prawfsblawg/2010/04/the-lost-history-of-usefulness.html. Patent quality has ebbed and flowed over the 200 plus years since the first Patent Statute. Thus, low value patents are certainly not a new phenomenon. Further, there is nothing magical about the phrase “sufficiently useful and important.” For example, see Ex Parte Sanche, 18 O.G. 185, 32 (1897). In that matter, the patentee invented a method “affecting the vital functions of the body in the treatment of disease” by “imparting to the body a definite electrical polarity of either quality” by connecting wires to two metal “contact plates” and having the sick person hold one whilst placing the other into “a body of matter much higher or lower in temperature than surrounding objects.” Sanche, 18 O.G. at 32. The examiner refused to grant the patent because it was not “sufficiently useful and important.” Id. at 33-34. However, the Commissioner overruled him based upon the affidavits of some patients. Id. at 35.


We build and create by bringing to the tangible and palpable reality around us new works based on instinct, simple logic, ordinary inferences, extraordinary ideas, and sometimes even genius. These advances, once part of our shared knowledge, define a new threshold from which innovation starts once more. And as progress beginning from higher levels of achievement is expected in the normal course, the results of ordinary innovation are not the subject of exclusive rights under the patent laws. Were it otherwise, patents might stifle, rather than promote, the progress of useful arts. See U.S. CONST., art. I, § 8. These premises led to the bar on patents claiming obvious subject matter established in Hotchkiss and codified in § 103.

KSR Int’l, 550 U.S. at 427. If the bar on obviousness has been codified by Congress, perhaps such grandiloquent language is unnecessary. Perhaps references to the Patent Clause are unneeded. Maybe judicially created exceptions to § 101, such as abstract ideas and natural products, are unnecessary. Perhaps simple statutory interpretation suffices. After all, in the Copyright context, the Supreme Court has been clear Congress has wide latitude “to promote the progress of the useful arts.” See Eldred v. Ashcroft, 537 U.S. 186, 208 (2003).


208. “Mayo is probably the single most disappointing case in world patent jurisprudence. It causes me great pain to recognize that the worst case in patent law history doesn’t come out of India or Pakistan or Vietnam or China, even; it has come from the United States as recently as a few years ago.” Former Chief Judge Rader of the U.S.
Federal Circuit Court of Appeals, quoted in, Richard Lloyd, Randall Rader’s Patent Truth, IAM MAGAZINE (October 1, 2014), http://www.iam-magazine.com/Magazine/Issue/68/Cover-story/Randall-Raders-patent-truth. Resistance to Mayo within the Federal Circuit unfortunately appears entrenched. See Ariosa Diagnostics, Inc. v. Sequenom, Inc., 788 F.3d 1371, 1380-81 (Fed. Cir. 2015) (Linn, J., concurring). The claims at issue in Ariosa are method claims regarding analysis of fetal DNA in a pregnant woman’s blood serum in order to detect genetic disorders in her baby. Ariosa, 788 F.3d at 1373-74. Despite the fact they are method rather than product claims, the Federal Circuit nevertheless holds these claims are unpatentable per the Mayo framework. Id. at 1376. Ariosa is interesting for two reasons. First, the Federal Circuit determined it will apply the Mayo framework to method claims involving a “natural product” because such claims are, by definition, “natural phenomena.” See supra note 204. It is true Mayo involved method claims. However, the Myriad Court went to great lengths to limit that holding to product claims. See Ass’n for Molecular Pathology v. Myriad Genetics, Inc., 133 S. Ct. 2107, 2119-20 (2013). In his concurrence, Judge Linn argues “the Supreme Court in Mayo discounted, seemingly without qualification, any ‘[p]ost-solution activity that is purely conventional or obvious.’” Ariosa, 788 F.3d at 1381 (quoting Mayo, 132 S. Ct. at 1299). According to Judge Linn, this language forecloses the patent claims at issue because once fetal DNA was found in the mother’s blood serum, which it was in nature before its discovery by man, the actual methods of amplifying it and detecting it are “purely conventional or obvious.” Ariosa, 788 F.3d at 1381. In contrast, in Ariosa “no one was amplifying and detecting paternally-inherited cfDNA using the plasma or serum of pregnant mothers.” Id. (emphasis in original). Despite this finding, Judge Linn nonetheless forcefully inserts the non-obvious “square peg” claims of Ariosa into the obvious “round hole” claims of Mayo. This is discouraging because the Mayo language Judge Linn believes mandates the decision in Ariosa is nothing more than section 103 obviousness. It is quite a stretch to hold a “breakthrough invention” is concurrently obvious. The “sweeping language” Judge Linn cites as controlling actually appears in a discussion of Flook. The full quotation of the Mayo Court’s language is not preceded by the “sweeping” word “any.” Further, there is quite a bit of qualification to that language.

And so the other steps in the [Flook] process did not limit the claim to a particular application. Moreover, “[t]he chemical processes involved in catalytic conversion of hydrocarbons[,] . . . the practice of monitoring the chemical process variables, the use of alarm limits to trigger alarms, the notion that alarm limit values must be recomputed and readjusted, and the use of computers for ‘automatic monitoring alarming’” were all “well known,” to the point where, putting the formula to the side, there was no “inventive concept” in the claimed application of the formula. “[P]ost solution activity that is purely ‘conventional or obvious,’ the Court wrote, “can[not] transform an unpatentable principle into a patentable process.” Mayo, 132 S. Ct. at 1299 (citations omitted). Flook is certainly a problematic case. However, instead of focusing on Mayo’s discussion of Flook, the Federal Circuit should have focused on Mayo-specific language.

To put the matter more succinctly, the claims inform a relevant audience about certain laws of nature; any additional steps consist of well understood, routine, conventional activity already engaged in by the scientific community; and those steps, when viewed as a whole, add nothing significant beyond the sum of their parts taken separately. For these reasons we believe that the steps are not sufficient to transform unpatentable natural correlations into patentable applications of those regularities.
a concern from the very formation of the Republic.\textsuperscript{209} The solution to the Patent Crisis is not to forbid patents on “nature”\textsuperscript{210} or “software” or “business methods” or even on “recipes.”\textsuperscript{211} Instead, section 101 should be broadly defined as “anything under the sun that is made (or discovered) by man.”\textsuperscript{212} The trick is to accompany a broad section 101

\textit{Id.} at 1298 (emphasis added). In other words, the Flook invention was “too darned simple” to warrant a patent grant. The patentee in Ariosa petitioned for review \textit{en banc}. The petition was denied 11-1. Ariosa Diagnostic, Inc. v. Sequenom, Inc., 809 F.3d 1282 (Fed. Cir. 2015). Two concurring opinions were issued and one dissent. Ariosa, 809 F.3d at 1284. Judge Newman’s dissent confirms only one judge on the entire circuit does not wish additional guidance from the Supreme Court. “I agree with my colleagues that this case is wrongly decided. However, I do not share their view that this incorrect decision is required by Supreme Court precedent.” \textit{Id.} at 1293. (Newman, J., dissenting). This direct challenge to the Supreme Court would probably not have been well received in an Ariosa decision. Thus, it is perhaps fortunate the Court denied the certiorari petition in Ariosa. Sequenom, Inc. v. Ariosa Diagnostics, Inc., 136 S. Ct. 2511 (2016). Seeking additional Supreme Court involvement in this area does not bode well for clarity. Granted, the Court might have clarified confusion when reviewing Ariosa. History, however, shows clarity is unlikely. Instead of simplifying confusion between sections 101 and 103, the Ariosa court amplified it. Again, the problem is Myriad, not Mayo nor Alice. Minimize Myriad by analyzing natural products through the Mayo framework.

Applying a heightened, while not insurmountable, obviousness standard (“too darned simple”), and the problem corrects without further intervention by the Supreme Court. Reduce the odds of more Supreme Court intervention by applying the heightened “too darned simple” test universally. Besides clarifying the natural products conundrum, such an approach will have the added benefit of diminishing the patent troll problem.

\textsuperscript{209} \textit{See}, e.g., \textit{Atl. Works v. Brady}, 107 U.S. 192, 200 (1883).

The design of the patent laws is to reward those who make some substantial discovery or invention, which adds to our knowledge and makes a step in advance in the useful arts. Such inventors are worthy of all favor. It was never the object of those laws to grant a monopoly for every trifling device, every shadow of a shade of an idea, which would naturally and spontaneously occur to any skilled mechanic or operator in the ordinary progress of manufactures. Such an indiscriminate creation of exclusive privileges tends rather to obstruct than to stimulate invention. It creates a class of speculative schemers who make it their business to watch the advancing wave of improvement, and gather its foam in the form of patented monopolies, which enable them to lay a heavy tax upon the industry of the country, without contributing anything to the real advancement of the arts. It embarrasses the honest pursuit of business with fears and apprehensions of concealed liens and unknown liabilities to lawsuits and vexatious accountings for profits made in good faith.

\textit{Atl. Works}, 107 U.S. at 200.

\textsuperscript{210} For a thorough review of the history of the natural production exception to patentability and the historical weakness of the exception (at least before \textit{Myriad}), see Christopher Beauchamp, \textit{Patenting Nature: A Problem of History}, 16 STAN. TECH. L. REV. 257 (2013).

\textsuperscript{211} \textit{See supra} note 193.

\textsuperscript{212} \textit{See} \textit{Diamond v Chakrabarty}, 447 U.S. 303, 309 (1980). Recent Federal Circuit opinions provide reason for optimism the Federal Circuit will resolve these issues without again challenging the Supreme Court. \textit{See}, e.g., \textit{Rapid Litig. Mgmt., Ltd. v. CellzDirect, Inc.}, 827 F.3d 1042 (Fed. Cir. 2016) (reversing a summary judgment determination of section 101 ineligibility for a “natural law”); \textit{Enfish, LLC v. Microsoft Corp.}, 822 F.3d 1327 (Fed. Cir. 2016) (reversing a summary judgment determination of section 101 ineligibility for an “abstract idea”); \textit{Bascom Global Internet Servs., Inc. v. AT&T Mobility LLC}, 827 F.3d 1341 (Fed. Cir. 2016) (overturning the same determina-
with a strong section 103.213. It is imperative we have a patent system that supports innovation and disclosure, has the support of the public, and can be defended as a valid use of governmental power.

I propose returning to the letter of Section 101, where eligibility is recognized for “any new and useful process, machine, manufacture, or composition of matter.” It follows that if any of these classes is claimed so broadly or vaguely or improperly as to be deemed an “abstract idea,” this could be resolved on application of the requirements and conditions of patentability.

Judge Newman’s concurrence in Bascom provides a way forward:

When all else fails (and the Benson algorithm rule clearly has), consult the statute. Arrhythmia Research Tech. v. Corazonix Corp., 958 F.2d 1053, 1066 (Fed. Cir. 1992) (Rader, J., concurring).

213. One commentator has gone so far as to seek modification of the novelty requirement because it keeps some drugs from going through the Federal Drug Administration (“FDA”) approval process, and hence, from the public. See Benjamin N. Rohin, Unpatentable Drugs and the Standards of Patentability, 87 Texas L. Rev. 503 (2009). Rigid application of the novelty requirement has resulted in some chemicals being deemed not novel because they were previously mentioned in a scientific paper, even though their beneficial use was neither known nor foreseen at the time. A pharmaceutical company will not pursue the expensive FDA approval process for a drug it cannot patent. See id. at 517-32.