Protecting Blockchain Investments in a Patent Troll World

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PROTECTING BLOCKCHAIN INVESTMENTS IN A PATENT TROLL WORLD

Kelli Spearman*

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I. INTRODUCTION

When blockchain technology was first introduced via the now-infamous Bitcoin in 2008, it was almost immediately recognized by the tech industry as being even more valuable (and certainly less volatile) than the cryptocurrency it embodied. The publicly distributed ledger known as the blockchain has created a frenzy that is continuing to grow as industries explore future adaptations of the technology. Following this explosion of cross-industry innovation, intellectual property issues naturally follow as early adaptors seek to capture the value of pioneering new blockchain technology. The rising popularity of the blockchain has created an intellectual property gold-rush as firms hoping to capitalize on new adaptations race to the patent office to have their “substantial improvements” recorded. This note provides necessary background material regarding intellectual property, particularly patent and copyright law, its underlying policy and implementations, and application to the blockchain. It also seeks to provide a solution to the problem of patent trolling and general uncertainty regarding ownership of the newly minted blockchain technology.

Part II provides a comparison of patent and copyright law and examines possible market effects. Part II also discusses patent policy and the underlying economic incentive theory which prompted the Framers of the U.S. Constitution to provide the basis for ownership in intellectual property. Finally, Part II introduces the controversial problem of “patent trolling,” wherein the trolling company purchases patents for the sole purpose of exacting licensing fees or enforcement damages from other entities. Part III begins with an analysis of the current state of the blockchain patent landscape. Part III then considers three potential sources for a solution to blockchain’s current “patent problem”: an industry-led defensive alliance; potential legislative fixes; and ultimately, the inevitable weigh-in by the courts, along with Alice implications on currently existing patents, none of which have spawned substantive enforcement or patent-challenge litigation (yet).

II. BACKGROUND

A. INTELLECTUAL PROPERTY

1. Patent and Copyright. Intellectual property refers to the ownership of a “product[1] of human intellect or property that derives from work of the mind.” Because intellectual property is intangible, individual ownership of an idea, once uttered, cannot be physically guarded. Thus, a “right” to a particular idea must

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be enforced by some greater authority in order to be viable.\textsuperscript{2} The U.S. Constitution, in order “to promote the Progress of Science and useful Arts,” gave Congress the power to bestow upon “[a]uthors and [i]nventors” a temporary property right in their “respective [w]ritings and [d]iscoveries.”\textsuperscript{3} Congress later bifurcated the clause, creating two major categories of intellectual property—one for authors, the other for inventors—by passing separate patent\textsuperscript{4} and copyright\textsuperscript{5} acts during its first term in 1790.\textsuperscript{6} Although the two categories have evolved over time, they remain distinct both conceptually and in the breadth, duration, and vesting of their respective rights.\textsuperscript{7} Current copyright law protects “original works . . . in any tangible medium of expression,” including books, music, plays, and motion pictures.\textsuperscript{8} Patent law, on the other hand, protects “any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof.”\textsuperscript{9} Copyright “rights” vest immediately upon the creation of copyrightable material in any tangible medium of expression (although formal registration may be required later for enforcement).\textsuperscript{10} Copyright protects against reproduction, distribution, and display of the copyrighted work\textsuperscript{11} but does not protect against independent creation of identical or substantially similar work by someone else.\textsuperscript{12} In general, the length of a copyright extends through the life of the creator plus an additional 70 years.\textsuperscript{13}

Unlike the automatic privileges of copyright, an inventor seeking patent protection must first file an application with the U.S. Patent and Trademark Office (USPTO), and patent rights vest only upon government approval. “In order to secure a patent, an applicant must demonstrate, among other things, that the invention is new, useful, and nonobvious . . . .”\textsuperscript{14} In return for completing the application process, a successful patent applicant is then awarded

\textsuperscript{3} U.S. CONST. art. I, § 8, cl. 8.
\textsuperscript{4} An Act to promote the progress of useful Arts, ch. 7, § 1, 1, Stat. 109 (1790) (repealed 1793).
\textsuperscript{5} An Act for the encouragement of learning, by securing the copies of maps, charts, and books, to the authors and proprietors of such copies, during the times therein mentioned, ch. 15 § 1, 1, Stat. 124 (1790) (repealed 1802).
\textsuperscript{7} Id.
\textsuperscript{13} 17 U.S.C.A. § 302(a) (Westlaw through Pub. L. No. 115-231).
\textsuperscript{14} Mandel, \textit{supra} note 6, at 266–67.
with broad protection, prohibiting the making, using, selling, or importing of a patented good—even by independent creation.\textsuperscript{15} However, this breadth of protection lasts only a fraction of a copyright term: a patent has a lifespan of a mere 20 years, beginning on the date of the application.\textsuperscript{16}

2. Economic Incentive. How exactly do patent and copyright law fulfill their constitutional purpose to “promote the Progress of Science and useful Arts”?\textsuperscript{17} The U.S. Supreme Court has stated that “[t]he economic philosophy behind the clause empowering Congress to grant patents and copyrights is the conviction that encouragement of individual effort by personal gain is the best way to advance public welfare.”\textsuperscript{18} This utilitarian theory is predominant throughout American IP law,\textsuperscript{19} and is premised on the proposition that without economic incentive, would-be authors and inventors within a free market will be less inclined to expend their efforts and resources to create new artistic works or inventions.\textsuperscript{20} This economic incentive is not naturally present in the production of intellectual property because of intellectual property’s intangible nature: once a new artistic work or invention is created and offered to the public for sale, the underlying idea or knowledge is subject to copying by second adaptors.\textsuperscript{21} This occurs because knowledge and information itself is by its nature a public good; it is both non-rivalrous and non-excludable, meaning others can benefit from an idea without any additional cost, and indeed, it is difficult if not impossible to prevent others from benefiting without paying.\textsuperscript{22} This exploitation by third-party second adaptors is particularly attractive because they bear none of the costs involved in initial research or development of the idea, and can sell at a lower price.\textsuperscript{23} Thus, “an exclusive privilege is absolutely necessary” in order to encourage desirable innovation because “[w]ithout the assistance of the laws, the inventor would almost always be driven out of the market . . . .”\textsuperscript{24} Given that the constitutional fix to the free market’s underproduction of intellectual property

\textsuperscript{17} U.S. Const. art. I, § 8, cl. 8.
\textsuperscript{18} Mazer v. Stein, 347 U.S. 201, 219 (1954).
\textsuperscript{20} Mandel, supra note 6, at 269–70.
\textsuperscript{21} Id.
\textsuperscript{23} Jeremy Bentham, A MANUAL OF POLITICAL ECONOMY 71(G.P. Putnam 1839).
\textsuperscript{24} Id.
"goods" is to grant a mini-monopoly to the creator, it follows that the public will suffer the negative consequences naturally arising from monopoly. After all, the public would benefit in the absence of patent and copyright from the second adaptor's cheaper product—assuming the product was created to begin with, absent intellectual property's monopolistic incentive. Thus, the granting of intellectual property rights does constitute a trade-off among the public: more and better goods in exchange for higher-than-competitive prices (at least during the duration of the copyright or patent). This makes sense policy-wise, until the public costs of granting these mini-monopoly rights outweigh the benefits of more and better goods. Because a competitive free market will naturally under-produce public goods such as intellectual property, intellectual property law should be viewed as a solution to a free market failure. However, it is critical to remember that creating and awarding temporary property rights is not the ultimate end-goal intimated by the Constitution and to be watchful for instances in which intellectual property law itself may impede the promotion of science and the arts.

3. The Patent Trolling Problem. Accepting that patents are intended to generate increased innovation by incentivizing developers with lucrative mini-monopolies, patent trolling presents a circumstance in which the person (or more likely, legal entity) holding a patent is neither the inventor nor producer of the patented good. Instead, these "non-practicing entities" (NPEs) purchase patents for the sole purpose of cashing in on their patent-blessed monopoly by asserting patent-holder rights against other companies, either by suing (or threatening to sue) for patent infringement or by selling them a licensing agreement. A patent troll exercises only the same basic rights given to every patent-holder; but unlike those held by inventors and innovators, these rights seem misplaced when wielded by profit-gorging companies who, from their very nature as NPEs, contribute nothing to the goal of promoting innovation. "Like the proverbial troll who waits under the bridge to collect a toll from unwary passers-by, a 'patent troll'... exacts a toll, in the form of a license fee, from other persons or entities the 'troll' believes infringes (or do infringe) the patent."

Patent trolls present an incentive problem: namely, the Constitutionally-granted economic incentive to promote science and the arts is not actually incentivizing any innovation in the hands of these non-practicing entities. However, even

Manuel, supra note 6, at 269.


Id. at 296.

entities deemed patent trolls presumably purchased their patent from an innovator who received at least a nominal economic incentive for their work, and there is healthy debate on whether or to what extent so-called trolls actually harm the ultimate goal of innovation.\textsuperscript{30} Accepting that the economic incentive to create is at least somewhat misplaced among non-practicing entities, how powerful (and harmful) is a patent wielded by a troll? To understand the breadth of the problem, a look at the underlying patent system is helpful. The USPTO receives over a half-million patent applications each year.\textsuperscript{31} The patent examination process currently takes upwards of two years,\textsuperscript{32} and the application success rate is around 55\% for new (non-renewal) patents.\textsuperscript{33} Once granted, a patent carries a presumption of validity—meaning a potential competitor seeking to use the patented technology carries the burden of proving by “clear and convincing evidence” that the patent was improperly granted.\textsuperscript{34} Despite the seemingly lengthy two-year application process, critics of the current patent system point to the Patent Office’s limited fiscal and human resources, as well as lack of third-party or adversarial process as evidence that the Office’s 55\% acceptance rate does not warrant such great deference.\textsuperscript{35} Their argument is basically this: despite the Patent Office’s general expertise in technology, the scope of patent coverage is too broad for an examiner to have expertise in the precise technology seeking a patent—which is presumably novel and cutting-edge itself.\textsuperscript{36} The Patent Office could remedy this by hiring more examiners with greater expertise, but this increase in effectiveness would increase the cost of the patenting process for inventors and be prohibitively expensive.\textsuperscript{37} Lastly, given the examiners’ necessarily limited expertise in the new and novel patent-seeking technology, they are forced to rely upon documentation provided by the applicant.\textsuperscript{38} This is, of course, unavoidable given the confidentiality necessary for


\textsuperscript{32} Vic Lin, \textit{How long is the US patent application process (how much time does it take to get a utility patent?)}, PATENT TRADEMARK BLOG, IP Q&A (Sept. 17, 2018), http:// www.patenttrademarkblog.com/how-long-us-utility-patent-application-process/.


\textsuperscript{35} \textit{Id.} at 51–56.

\textsuperscript{36} \textit{Id.}

\textsuperscript{37} \textit{Id.}

\textsuperscript{38} \textit{Id.}
pre-patented technologies.\textsuperscript{39} However, the absence of any adversarial proceeding—deemed quintessential in other legal proceedings as the best process for the revelation of full information—supports the conclusion that the patenting process itself might often produce false positives in the form of wrongfully-approved patents.\textsuperscript{40} The negative market consequences following this possibility of a false patent are compounded by the fact that a competitor who seeks to begin using or continue to use potentially infringing technology must face the burden of overcoming the patent’s presumptive validity.\textsuperscript{41} Facing the prospect of expensive and time-consuming litigation in which the allegedly infringing company carries the burden of proof, companies may find it in their best interest to yield to the demands of a patent troll rather than face uncertainty in court.\textsuperscript{42}

In addition to misdirected incentives and the patent-process problem, a strategic patent troll scheme has naturally emerged to take full advantage of the current patent system. The strategy starts with a “trolling arsenal” equipped with “a portfolio of inexpensive, broad, and widely applicable patents.”\textsuperscript{43} In order to be profit-maximizing for the troll, patents should be purchased as cheaply as possible with the greatest utility possible—meaning patents that are broad enough to be brandished against as many other organizations as possible, or that cover a specific and essential component of a particularly deep-pocketed target company’s technology.\textsuperscript{44} Bankruptcy proceedings provide a unique opportunity for trolls to purchase patents at heavily discounted prices from failed technology companies.\textsuperscript{45} Once an effective arsenal is in place, a patent troll has three central money-making strategies for wielding its weapons: obtaining licensing fees, procuring settlements, and seeking court-ordered damages for infringement.\textsuperscript{46}

Patent trolls are a well-established part of American IP law and result in predictable inefficiencies and social costs; blockchain is merely the newest playground at which these IP bullies have shown up.

B. THE BLOCKCHAIN

1. The Blockchain’s Origins in Bitcoin. Blockchain technology is perhaps best explained using its original public debut: the Bitcoin. In 2008, a mysterious cryptographer (or cryptographers) working under the pseudonym Satoshi

\textsuperscript{39} Id. at 46.
\textsuperscript{40} Id. at 54–55.
\textsuperscript{41} Id. at 51.
\textsuperscript{43} Id. at 245.
\textsuperscript{44} Id. at 246.
\textsuperscript{45} Id.
\textsuperscript{46} Id. at 247.
Nakamoto published the Bitcoin Whitepaper, outlining a decentralized peer-to-peer system for making payments online using a new form of electronic money: the bitcoin. Under the pre-bitcoin model, two parties seeking to exchange money via the Internet used a trusted third party—such as a bank—to facilitate the transaction. However, a bank cannot perfectly guarantee a transaction, and the costs of mediating disputes are transferred to the parties via fees, minimum transaction amounts, and reduced privacy in the form of additional customer information requirements. To solve these problems, Nakamoto proposed a cryptocurrency exchange facilitated by a distributed ledger system known as the blockchain. The bitcoin itself is composed of a chain of digital signatures, and exchanging a bitcoin occurs by adding your “signature” to the end of the chain. To avoid duplicate spending with the same coin, each transaction is timestamped and publicly announced via a public ledger—the blockchain. The blockchain is best understood as a public archive of all past transactions among collective bitcoin users, from the very first transaction between Satoshi and fellow programmer Hal Finney, to the most recently verified group of transactions. Before being permanently added to the blockchain, transactions are grouped into blocks and verified according to their timestamp by various independent computers connected to the bitcoin network, called nodes. Each node receives a copy of the blockchain ledger and independently works to satisfy a complex algorithm in order to verify the block. Any disagreement among nodes is resolved using the “consensus mechanism.” Thus, the integrity of the blockchain depends upon an ever-present majority of honest nodes. However, the ability of a group of rogue actors to successfully manipulate the blockchain becomes exponentially less probable as the numbers of transaction blocks and nodes increase. The process of adding a new block to the chain currently takes

49 Id.
50 Id.
51 Id. at 2.
52 Id.
55 Id.
56 Nakamoto, supra note 48, at 8.
57 Id.
about 10 minutes. However, the confirmation time for a particular transaction can vary significantly (from a few seconds to 90 minutes) depending on the fee the sender pays. The fee attached to a transaction is completely discretionary—a sender may choose not to pay any fee at all—but doing so removes the only incentive for nodes to verify the transaction in a timely manner. Six confirmations is commonly considered to be the safety equivalent to six months on a credit card transaction. Sophisticated cryptography allows this distributed ledger to be both widely public, yet concurrently private for individualized users.

2. The Future of Blockchain. Although the terms bitcoin and blockchain are currently used almost synonymously, the blockchain technology underpinning bitcoin has far greater technological implications. In his opening statement addressing the House Subcommittee on Commerce, Manufacturing, and Trade, Congressman Michael Burgess described blockchain technology as having “the potential to disrupt a whole host of industries from financial services to manufacturing, supply chain management, and to health care records, by infusing transparency and trust in traditionally closed systems.” Rep. Burgess cited the “billion dollars in capital investment [from] over 1,000 firms, most of which are startup companies,” as evidence that the blockchain was already beginning to have considerable impact on the economy. What kind of adaptations does a billion-dollar investment across multiple industries produce? The most logical next step for the blockchain is Big Finance—and somewhat ironically, the industry that was supposed to be obliterated by the blockchain has been its most aggressive adaptor. Banks, of course, can use the blockchain in much the same way that Bitcoin does—as a distributed ledger to record money transactions. However, banks have focused on “permissioned blockchains,” which can be restricted to the banks’ customers and authorized personnel. The blockchain has the capability of transforming the finance industry entirely—everything from trading stock, wiring money, and even internal bank processes such as regulatory compliance. Smart contracts, or self-executing transaction protocols, are also an emerging and potentially industry-altering blockchain application.

59 Id.
60 Id.
61 Id.
63 Id.
65 Id.
more general application of the blockchain is individual digital security. In the
wake of massively expensive corporate security breaches (think Home Depot
and Target), the blockchain, through encrypted digital signatures, offers an
authorization process that is self-assured and efficient. Blockchain could also
revolutionize the way healthcare industries keep and share patient records,
reduce fraud in online-shopping, and has the potential to revolutionize logistics
and supply-chain management through more efficient paperwork processing,
counterfeit identification, and origin and status tracking. The sheer diversity of
potential blockchain applications should have dollar signs popping into your
head—the next big question is how to successfully capture that value.

3. Who owns the blockchain? Although Satoshi Nakamoto is the attributed
creator of the blockchain, the technology's genesis is actually a bit more
complex: Bitcoin was developed using open-source software, and like many
open-source projects of its size, the blockchain software is the collaborative
work-effort of numerous programmers worldwide. Nakamoto himself cites
eight authorities in the Bitcoin Whitepaper, including Wei Dai, who first
suggested the idea of a decentralized cryptocurrency in 1998. The open-source
nature of the blockchain’s underlying software has several implications for future
adaptors and consumers. Perhaps of greatest relevance to the end-user is the
fact that open-source software is generally free to download and use. Unlike a
Microsoft Word subscription, you can install the latest version of open-source
blockchain software as many times, and on as many computers, as you would
like, and its actual use is likewise unrestricted by the typical mandatory user-
agreement. From a developer’s perspective, open-source means the freedom to
modify the underlying source code and redistribute it. Open-source naturally
facilitates collaboration amongst coders from all corners of the globe who would likely never come in contact with each other otherwise.

Although open-source software seems to theoretically fall into the public domain category, it is often actually protected by a copyright license—commonly called a “copyleft” license, because it serves the reverse function of regular copyright by allowing wide adoption among users. Although there is a small variety of available open-source licenses, the blockchain is specifically covered under a MIT license—a half-page document which states the underlying software is “AS-IS” and includes broad disclaimers of warranties and damages. Importantly for this discussion, the MIT license does not reference patentability. Thus, although the blockchain code is protected against further copyright, adaptations of the underlying blockchain code, if sufficiently new, useful, and nonobvious, are eligible for patent protection.

III. ANALYSIS

A. CURRENT BLOCKCHAIN PATENT LANDSCAPE

Since the blockchain was first introduced in 2008, it is estimated that “over 2,500 patent applications have been filed” for inventions that have either implemented blockchain technology or improved upon it. Large financial institutions have been some of the first applicants in the rush to the patent office; Goldman Sachs, MasterCard, and Bank of America have each submitted applications for their own proprietary blockchain inventions, with MasterCard and Bank of America filing over thirty blockchain-related patent applications apiece. Behind each patent filing is a host of lawyers—and of course, the innovative team that came up with the idea to be patented. These first-adaptors sink considerable financial resources into each new patent, despite general market uncertainty and rumors of an impending “patent war” involving blockchain technology. Ambiguity regarding the patentability of the blockchain creates a considerable disincentive for first-adaptors to make this investment.


78 Id.

79 Id.


There are three possible resolutions to this problem: (1) the market works itself out, i.e., blockchain adaptors and patent trolls go to war, each side picks a strategy, and individual winners and losers are announced in the courtroom; (2) the legislature steps in; or (3) the court system adopts a uniform rule.

B. A MARKET RESOLUTION

First adapters of the blockchain have tried to curb future blockchain battles by creating a barricade using their collective patents. A majority of the entities filing applications with the patent office have already stated that they intend to only use their prospective patent defensively—meaning that, if granted a patent, they will not attempt to prevent others from using similar or even the same invention by suing to enforce their patent (i.e., using the patent offensively). "In its most basic form, defensive patenting is the practice of seeking patents in order to deter offensive lawsuits rather than to gain more traditional patent benefits such as seeking licensing revenue, facilitating joint research and development, or excluding competitors."\(^3\) In theory, a patent used only defensively is like an insurance policy: the company holding the patent uses it as a shield to prevent being sued by other companies operating in the same industry or using similar technology.\(^4\) The defensive patent strategy is a market-developed response to the substantial risk involved in implementing and relying upon intellectual property for business operations.\(^5\)

There are a few shortcomings to this market solution. Perhaps most obvious is the fact that although a patent-holder may state that its intent is to use a patent defensively, the patent office does not issue a specialized defensive-only patent.\(^6\) This means that whatever the patent-holder's original intent, they do have some discretion to change their mind later (although a patent-holder may be estopped from enforcing a patent after knowingly allowing extended infringement). A second shortcoming to this approach is that although a defensive patent provides some protection to the patent-holder, this protection does not automatically extend to the market as a whole. However, a competitor may be able to claim

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\(^4\) Id.

\(^5\) Id.

reasonable reliance on a “patent pledge” or publicly announced defensive patent strategy under basic contract law theory.\(^8^7\)

Another possible market solution is to create patent coalitions, where companies with similar patents pool their intellectual property to create a much larger combined defensive patent shield. “To engage in defensive patenting, competitors within an industry each build significant patent portfolios and then threaten to use those portfolios in response to offensive patent threats. The greater the size and scope of a given firm’s portfolio, the more dangerous and costly it is to litigate against, thus serving as an ex ante deterrent.”\(^8^8\) Unfortunately, even pooled patent portfolios tend to be an ineffective shield against patent trolls. Indeed, these portfolios present an exponentially greater risk of exposure if the portfolio ends up in the hands of a patent troll,\(^8^9\) because the potential of provoking a retaliatory infringement suit from participants in the patent pool does not faze the typical non-practicing entity.\(^9^0\)

C. A LEGISLATIVE FIX

Currently, the blockchain-patent war conversation is taking place predominately in the private sector. State legislatures are just now adopting legislation recognizing the technology, with some forward-thinking states adopting their own task forces on the topic.\(^9^1\) However, because patents are granted by the federal government, there seems to be little that states can do to influence patent-holders’ property rights.\(^9^2\) At the federal level, Congress has been characteristically slow to act. Despite hearings dating back to 2013, and a Texas Congressman’s efforts to introduce a bill proposing a moratorium on all regulation of cryptocurrencies, neither house appears to be in any hurry to act.\(^9^3\)

Yet legislation (like patent trolls) often follows big money; as private companies find their lucrative blockchain innovations are being threatened, they

\(^8^8\) Schultz & Urban, supra note 83, at 6.
\(^8^9\) Id. at 17.
\(^9^0\) See generally id.
may find the services of lobbying firms an attractive investment. A very basic legislative solution would be the creation of a federal open-source patent that allows the original innovator to seek a patent that ensures the availability of the technology to future adaptors and requires further innovations to remain open-source. As previously discussed, copyright law has been adapted for a similar effect via open-source licenses. However, under current patent law, the doctrine of patent misuse prevents private parties from instituting a form of patent "copyleft" via contract. The doctrine of patent misuse prevents parties from extending the power of the original patent—thus, a patent with a twenty-year monopoly cannot regulate all future patents based on the original idea.

An alternate solution would be for Congress to create an official defensive patent for adaptors seeking protection against patent trolls. As previously discussed, these patents would not necessarily deter non-practicing entity trolls from initiating law suits. On the other hand, an official "defensive patent" which prohibits the holder from asserting claims against other users would at least negate the problem of powerful patent portfolios falling into the hands of trolls and provide assurance to the current blockchain-patent landscape.

Despite these possible legislative solutions to the impending blockchain-patent war, new legislation is perhaps the least probable fix to the patent problem. The process of turning a bill into a law requires a certain amount of political momentum; the possibility of success is dubious, particularly in today's political climate. Additionally, the court system is perhaps better equipped to address the problem without crafting dramatically new legislation.

D. A SUPREME COURT RULE EXTENDING ALICE TO THE BLOCKCHAIN

Due to ineffective defensive coalitions and the impracticalities of new legislation, blockchain's patent problem will most likely be left up to the courts to solve. Despite significant efforts and expense by U.S. companies seeking to patent their substantial improvements on the blockchain and even their relative success in receiving patents, it remains unclear how the courts will analyze this new technology under current patent law. Although there has been significant patent activity regarding blockchain applications to a wide variety of industries, as of the writing of this note, none of these applications have resulted in appeals within the patent office (which would then be appealable to the Federal Circuit). Similarly, none of the granted patents have spawned litigation. However, as industries figure out how to capitalize off of their blockchain inventions, the fight

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95 Id. at 136.
for a twenty-year monopoly via patent is sure to follow. Current intellectual property law provides some guidance, although exact application will remain uncertain until properly litigated.

The U.S. Supreme Court recently clarified what constitutes patentable subject-matter in the computer software case Alice Corp. Pty v. CLS Bank Int'l.96 Alice involved a patented computer system designed to mitigate settlement risk within financial transactions.97 Settlement risk is the issue of trust underlying a transaction—it is “the risk that only one party to an agreed-upon financial exchange will satisfy its obligation”98 (aptly, this is also one of the basic issues blockchain purports to solve). In analyzing whether certain material is patentable, the Court distinguished between “patents that claim the building blocks of human ingenuity, which are ineligible for patent protection, from those that integrate the building blocks into something more.”99 The Court referred back to the two-step test announced in Mayo to determine what material rises to the level of patentability: “[f]irst, we determine whether the claims at issue are directed to one of those patent-ineligible concepts,” which includes “laws of nature, natural phenomena, and abstract ideas.”100 The court analyzes the patented invention both element-by-element and then as a whole to determine if the nature of the invention falls within one of the patent-exempt categories.101 If the patented invention fails at step one, it may still be redeemed under Mayo step two, where the court “examine[s] the elements of the claim to determine whether it contains an inventive concept sufficient to transform the claimed abstract idea into a patent-eligible application.”102 In addition to finding that the claimed methodology for mitigating settlement risk was unpatentable, the Court in Alice reiterated the fact that merely computerizing an abstract idea, such as an algorithm, is not a sufficiently new or useful application necessary in order to be patent-eligible.103

The precedent established in Alice, though not directly on-point for litigation involving cryptocurrencies or the blockchain, provides a workable rule that the Federal Circuit can apply to new applications of blockchain technology. The broader the court’s application of the Alice ruling to blockchain patents, the fewer patents that will stand. This is perhaps the simplest solution to the blockchain patent problem because it negates the patent and coveted monopoly implications

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97 Id. at 2349.
98 Id. at 2349.
99 Id. at 2350 (quoting Mayo Collaborative Servs. v. Prometheus Labs, Inc., 566 U.S. 66, 88 (2012)(internal quotation marks and brackets omitted)).
100 Id. at 2355 (quoting Mayo Collaborative Servs. v. Prometheus Labs, Inc., 566 U.S. 66, 88 (2012)).
101 Id.
102 Id. at 2357.
103 Id.
altogether; a blockchain application that is unpatentable is left to the public domain, which allows future innovators to use the idea freely and without recourse from would-be trolls. Right now, this decision—whether a blockchain application is patentable or not—is being made within the U.S. Patent and Trademark Office. Given the sheer number of blockchain related patents that have been issued, it appears the rule announced via Alice has not been applied in a sweeping fashion.

IV. CONCLUSION

Despite its mysterious origins, blockchain technology has the ability to dramatically transform multiple industries, from finance to healthcare to government voting and beyond—yet questions of ownership threaten to stall and even suppress future innovation and adaptation. The beginnings of a new technology wave and the uncertainty surrounding its associated intellectual property rights provides patent trolls with a particularly attractive opportunity to monopolize the blockchain and hold it hostage until an appropriate ransom is paid. The economic incentive theory underlying intellectual property suggests this behavior undermines the constitutional purposes for creating intellectual property, and results in greater market inefficiency. Despite possible market and legislative fixes to the blockchain’s patent problem, it is the court system that ultimately is best equipped—and who will inevitably get the opportunity—to answer uncertainties about the intellectual property rights surrounding the blockchain.

A broad application of the reasoning announced in Alice, where the Court held that the computerization of a fundamental economic idea was itself unpatentable (minus any elements which constitute “significantly more” than the abstract idea) would push the blockchain back into the public domain (where it seems its creators intended it to be all along) and allow new adaptors to invest in the technology without fear of legal repercussion from other competitors or patent trolls. Considering the subjectivity associated with the phrase “significantly more,” this broad reading would not seem to constitute a broad deviation from the current status quo.