School of Law
UNIVERSITY OF GEORGIA

Journal of Intellectual Property Law

Volume 29 | Issue 1 Article 8

October 2021

A New Way for Voting in American Elections: Addressing the Patentability of a Blockchain Mail-in Voting System

Brandon D. Waller
bdw41122@uga.edu

A New Way for Voting in American Elections: Addressing the Patentability of a Blockchain Mail-in Voting System

Cover Page Footnote

J.D. Candidate, 2022, University of Georgia School of Law.

A NEW WAY FOR VOTING IN AMERICAN ELECTIONS: ADDRESSING THE PATENABILITY OF A BLOCKCHAIN MAIL-IN VOTING SYSTEM

*Brandon D. Waller**

* J.D. Candidate, 2022, University of Georgia School of Law.

TABLE OF CONTENTS

I. INTRODUCTION

On March 13, 2020, President Trump declared a national emergency in response to the emergence of the COVID-19 virus spreading in America, and by March 19, 2020, California issued the first stay at home order.[1] With COVID-19 came widespread anxiety about going into public spaces for fear of contracting the novel virus.[2] This anxiety would lead to many questions regarding the Congressional and Presidential elections for 2020.[3]

There had been much debate about how to carry out the 2020 elections during this novel time, and a faction of the population were fearful of gathering in public at election polls.[4] A substantial amount of people wished for an election consisting primarily of mail-in voting ballots that utilized the United States Postal Service (USPS).[5] Opponents to this plan argued that this type of mass mail-in voting is a recipe for disaster that would inevitably lead to fraud and delayed election results.[6] Additionally, the USPS was doubted by many that it could carry out this huge task effectively and efficiently.[7]

The USPS, however, looked to prove it was up for the job by developing an idea that could revolutionize future elections.[8] The USPS filed a patent to use

---

[1] *A Timeline of COVID-19 Developments in 2020*, AJMC (Jan. 1, 2021), https://www.ajmc.com/view/a-timeline-of-covid19-developments-in-2020.

[2] *See, e.g.,* Zeeshan Aleem, *Poll: Many Americans Wont Venture Into Public Despite Businesses Reopening*, VOX (May 23, 2020, 3:05 PM), https://www.vox.com/covid-19-coronavirus-economy-recession-stock-market/2020/5/23/21268500/coronavirus-lockdown-poll-business-economy (surveying 1,065 U.S. adults and found that "for most activities — particularly those with higher risks of infection like concerts or using public transportation — fewer than half of those who once regularly engaged with them said they would do so if restrictions were lifted.").

[3] *Two-Thirds of Americans Expect Presidential Election Will Be Disrupted by COVID-19*, PEW RES. CTR. (Apr. 29, 2020), https://www.pewresearch.org/politics/2020/04/28/two-thirds-of-americans-expect-presidential-election-will-be-disrupted-by-covid-19/.

[4] Ylena Dzhanova, *Some Voters Are Scared the Coronavirus Will Stop Them From Casting a Ballot*, CNBC (June 1, 2020, 4:01 PM), https://www.cnbc.com/2020/06/01/some-voters-are-scared-coronavirus-will-stop-them-from-casting-ballot.html.

[5] *Id.*

[6] *See, e.g.,* Hans A. von Spakovsky, *The Risks of Mail-in Voting,* HERITAGE FOUND. (Aug. 3, 2020), https://www.heritage.org/election-integrity/commentary/the-risks-mail-voting ("Mail-in ballots are the ballots most vulnerable to being altered, stolen, or forged." Additionally, in 2016, 130 million Americans voted in the Presidential election and carrying out a similar amount of votes by mail would very likely be unmanageable.).

[7] Jill Rice, *Mail-in Voting Isn't the Solution You Hope It Is*, OBSERVER (Sept. 2, 2020), https://fordhamobserver.com/50358/opinions/mail-in-voting-isnt-the-solution-you-hope-it-is/.

[8] Secure Voting System, U.S. Patent Application No. 16/785,354, Publication No. 20200258338 (published Aug. 13, 2020) (United States Postal Service, applicant).

blockchain voting technology with mail-in voting to carry out a safe and efficient election.[9]

This Note contends that the USPS application blockchain patent application should be granted. The use of blockchain in this way is an innovative use of the already existing technology and despite blockchain being well-known, the proposed use turns it into an inventive concept that is patentable. Additionally, public policy further justifies its grant as it is in the interest of maintaining safe and secure elections.

II. BACKGROUND

A. WHAT IS BLOCKCHAIN?

"Blockchain [technology] creates a transaction ledger database that is secured by cryptography and shared by a distributed network of computers. The blockchain software records and stores every transaction that occurs on the computer network."[10] This definition sounds overwhelming, but the name "blockchain" itself is somewhat self-explanatory. That is, digital blocks that each have unique pieces of information stored on them and these blocks are then linked to more blocks creating a chain of blocks.[11]

A prevalent example of blockchain technology usage is that of Bitcoin and other similar cryptocurrencies.[12] Blockchain technology can also be applied in areas like money transfers, supply chain management, healthcare, and other record management applications just to name a few.[13] Relevant information, for whatever the purpose of the blockchain, is stored on each block.[14] The blocks that make up this chain of information each contain a unique code referred to as a "hash."[15] The hash that is given to each block "creates a unique 'fingerprint' from the block's information . . . [t]he hash of the previous block is included, along with the new block's hash, verifying that the chain contains valid entries."[16]

---

[9] *Id.*

[10] Dave Berson & Susan Berson, *Blockchain 101: Understanding Blockchain Technology and the Applicable Laws*, 88 J. KAN. BAR ASS'N 2, 40 (2019).

[11] Ali Dhanani & Ryan Dowell, *Introduction to Blockchain Technologies and Smart Contracts*, HOUS. LAW., Nov.-Dec. 2019, at 19.

[12] *The Growing List of Applications and Use Cases of Blockchain Technology in Business and Life*, BUS. INSIDER (Mar. 2, 2020, 12:24 PM), https://www.businessinsider.com/blockchain-technology-applications-use-cases.

[13] *Id.*

[14] Luke Conway, *Blockchain Explained*, INVESTOPEDIA, https://www.investopedia.com/terms/b/blockchain.asp (last updated Nov. 4, 2021).

[15] *Id.*

[16] Dhanani & Dowell, s*upra* note 11, at 19.

1. Blockchain Storage

Blockchain ledgers are often stored across many computer systems instead of just one centralized base.[17] Each computer system that adds to the blockchain maintains a copy of the blockchain as well.[18] The "spreading [of] that information across a network of computers makes the information more difficult to manipulate. With blockchain, there isn't a single, definitive account of events that can be manipulated. Instead, a hacker would need to manipulate every copy of the blockchain on the network."[19] The transaction processing of the blockchain can be done by anybody who has access to a computer, allowing anybody to download the blockchain and add to it.[20] This system, as described, is commonly referred to as a decentralized system; however, some blockchains systems operate through a centralized system, and many businesses and governments that use blockchain will do so with a centralized storing method.[21] These entities choose this type of system because "[a]ccess to a centralized blockchain is restricted, with only known participants being permitted to process and view records on the blockchain . . . [t]he advantage of centralized blockchains is that they can currently process records and transactions at a higher speed, and with a lower energy cost, than decentralized blockchains."[22]

2. Blockchain Security

Blockchain offers an ideal means for storing information without the threat of somebody hacking in and changing the information being stored. To change the information contained in the blockchain, a potential hacker would need to change individual blocks along with all the blocks linked to it in order to avoid detection.[23] Additionally, the blocks are secured through the hash marks that create a unique fingerprint for each block thus acting "as a personal digital signature. If a record is altered, the signature will become invalid and the peer network will know right away that something has happened."[24]

---

[17] *See id.* (stating that "blockchain can be viewed as a recordkeeping system with no single storage location or authority, in which each new record is intrinsically tied to the previous record.").

[18] *Id.*

[19] Ahsan ul haq, *Is Blockchain Private?*, MEDIUM (Jan. 20, 2020), https://medium.com/@ahsanazhar48/anyone-can-view-the-contents-of-the-blockchain-but-users-can-also-opt-to-connect-their-computers-b8691f3557f5.

[20] Berson & Berson, *supra* note 10, at 41.

[21] *Id.*

[22] Dave Berson, *Blockchain Law*, BLOCKCHAIN L. GUIDE, https://blockchainlawguide.com/blockchain/ (last visited Oct. 14, 2021).

[23] Curtis Miles, *Blockchain Security: What Keeps Your Transaction Data Safe?,* IBM (Dec. 12, 2017), https://www.ibm.com/blogs/blockchain/2017/12/blockchain-security-what-keeps-your-transaction-data-safe/.

[24] *Id.*

Blockchains utilizing a decentralized network are difficult to hack because they are continually updated and stored across many systems around the world and "don't have a single point of failure and cannot be changed from a single computer."[25] In order to hack into and change a blockchain, a "massive amount[] of computing power" is required as the majority of the blockchain must be accessed and altered simultaneously.[26] Hacking a centralized system poses challenges as well. "If a hacker tampers with one block, causing a new hash to be created, the hash of all following blocks in the chain must also be recomputed for the tampered block to be valid."[27]

Additionally, many blockchain networks implement tests called "consensus models" whereby the user requesting to add blocks must prove their identity to the system.[28] Bitcoin uses the common system called "proof of work" that requires the computer to solve a complex mathematical problem before being granted access to add a block.[29] A proof of work system does not make hacking impossible. Rather, the system makes it an overwhelming task as a hacker "would need to control more than 50% of all computing power on the blockchain so as to be able to overwhelm all other participants in the network."[30]

3. Example of a Blockchain System

A goal of blockchain is to allow information to be added but to protect against past information being edited.[31] One of the first well-known applications of blockchain came about with the development of Bitcoin, which was built using a blockchain system.[32] Bitcoin uses a decentralized network that is "immutable, which means that the data entered is irreversible. For Bitcoin, this means that transactions are permanently recorded and viewable to anyone."[33] Individual transactions are recorded on the blockchain to make it possible to trace each transaction and to ensure that someone is not spending bitcoins they do not own or to make copies of a Bitcoin.[34]

---

[25] Santhosh Palavesh, *Here's How You Can Secure Your Data with Blockchain*, ENTREPRENEUR (Aug. 15, 2018), https://www.entrepreneur.com/article/318477.

[26] Miles, *supra* note 23.

[27] Josephine Chang & Alek Emery, *Blockchain Patentability* 101, 42 L.A. Law. 20, 22 (2019).

[28] *What is Blockchain?*, PROQIS, https://insights.btoes.com/what-is-blockchain (last visited Oct. 14, 2021).

[29] *Id.*

[30] *Id.*

[31] Conway, *supra* note 14.

[32] *Id.*

[33] Conway, *supra* note 14.

[34] *Guide: What is Bitcoin and How Does Bitcoin Work?*, BBC (Feb. 5, 2021), https://www.bbc.co.uk/newsround/25622442.

B. USPS'S BLOCKCHAIN VOTING SYSTEM

The COVID-19 pandemic caused an increased demand for mail-in voting as 37 states saw mail-in voting ballots account for half of all votes cast in the 2020 primary election.[35] A major argument, however, against using mail-in voting is the doubt that it can be done without inducing some sort of fraud.[36]

The USPS sought to provide a means to carry out a more secure mail-in voting system.[37] The USPS filed for a patent with the United States Patent and Trademark Office for a blockchain voting system that could be used in United States elections.[38] Specifically, the USPS states in its patent application:

> A voting system can use the security of blockchain and the mail to provide a reliable voting system. A registered voter receives a computer readable code in the mail and confirms identity and confirms correct ballot information in an election. The system separates voter identification and votes to ensure vote anonymity, and stores votes on a distributed ledger in a blockchain.[39]

The voter receives the readable code and then will either use this code to access the online system, or the voter will fill out a mailed ballot and submit a picture of the ballot to the blockchain system using the code.[40] By assigning each voter a unique code to access the blockchain, this ensures that no voter can vote twice and that a ballot correctly corresponds to the voter that casts it.[41] This assigned code would be the unique identifier that creates the hash on the block that stores the voter's information.

---

[35] Drew Desilver, *Mail-in Voting Became Much More Common in 2020 Primaries as COVID-19 Spread*, PEW RES. CTR. (Oct. 13, 2020), https://www.pewresearch.org/fact-tank/2020/10/13/mail-in-voting-became-much-more-common-in-2020-primaries-as-covid-19-spread/.

[36] Amber Phillips, *Examining the Arguments Against Voting by Mail: Does It Really Lead to Fraud or Benefit Only Democrats?*, WASH. POST (May 20, 2020), https://www.washingtonpost.com/politics/2020/05/20/what-are-arguments-against-voting-by-mail/.

[37] Secure Voting System*, supra* note 8, at 1.

[38] *Id.*

[39] *Id.*

[40] Tyler Sonnemaker, *As Trump Tries to Sabotage Mail-in Voting, the USPS Has an Idea to Defend It Against Fraud, Using Blockchain*, BUS. INSIDER (Aug. 17, 2020, 9:10 PM), https://www.businessinsider.com/usps-blockchain-patent-prevent-mail-in-voting-fraud-trump-attacks-2020-8.

[41] *Id.*

III. ANALYSIS

A. GOVERNMENT'S RIGHT TO PATENT

The first issue that comes to mind when thinking of the USPS's patent is whether a federal government agency may even own a patent. This issue, however, is quickly resolved by the Bayh-Dole Act.[42] This Act gives the presumption that the federal government can in fact own patents as the Act allows the federal government to issue licenses on its owned inventions.[43] Thus, in the case of the USPS's application for a blockchain patent, the fact that a federal government agency is applying for a patent should not preclude the issuance of a patent as indicated by the Bayh-Dole Act.[44]

B. BLOCKCHAIN PATENABILITY

The second issue turns to the patentability of a blockchain system in general. The patentability of blockchain systems leads to a myriad of complex questions. As blockchain has been recognized for being a successful and secure platform to share information, and as a result, many entities filed Blockchain applications.[45] "According to the National Law Review, by mid-January 2018 more than 60 U.S. patents related to blockchain technologies had been issued. In addition, more than 500 applications had been filed."[46] The success rate of being granted a patent for blockchain technology seems very low given these numbers by the National Law Review. Perhaps this is because it may be difficult to create a new and novel blockchain system that is worthy of being patented. The most common types of firms holding blockchain patents deal in the areas of banking, finance, and tech industries.[47] This makes sense as blockchain is the foundation of cryptocurrencies such as Bitcoin.[48]

The Supreme Court has devised a two-part test for the patentability of abstract ideas.[49] Under the first prong, the court must "'determine whether the

---

[42] *See* 35 U.S.C. § 202 (licensing federally owned inventions); 35 U.S.C. § 207(a)(1) (allowing for federal agencies to "apply for, obtain, and maintain patents or other forms of protection in the United States and in foreign countries on inventions in which the Federal Government owns a right, title, or interest").

[43] *Id.*

[44] *Id.*

[45] *See* Trevor Krajewski & Rich Lettiere, *Blockchain and Intellectual Property*, 54 LES NOUVELLES 1, 2 (2019) ("The number of blockchain-related patents has been growing dramatically, and patent applications have increased by over 50x from 2012 to 2017.").

[46] Barry R. Lewin, *Blockchain and Patents*, 25 No. 02 WL J. INTELL. PROP. 1, 3 (2018).

[47] *Id.*

[48] Conway, *supra* note 14.

[49] Bascom Global Internet Serv., Inc. v. AT&T Mobility LLC, 827 F.3d 1341, 1347 (Fed. Cir. 2016).

claims at issue are directed to a patent-ineligible concept.'"[50] If so, then the second part of the test requires the court to determine if new elements have been added to the claim to make it an inventive concept and thus patent-eligible.[51] The Court has in certain cases "found software-related patents eligible under both steps of the test . . . ." [52]

1. Step 1 of 2-part test

To receive a patent in general, the idea must be "novel, useful and not obvious over prior inventions."[53] Because blockchain is a software system that is very well-known, this test may be difficult to satisfy for a new blockchain system patent.

With software patents such as blockchain systems, other issues typically arise.[54] It can be difficult to determine what may constitute patentable subject matter. The Supreme Court, however, created a test from the case *Mayo Collaborative Services v. Prometheus Laboratories, Inc.* for these instances that distinguishes between what is patentable and what is not.[55] The first step under the *Mayo* test is to "determine whether the patent claims laws of nature, natural phenomena, or abstract ideas, or patent-eligible applications of those concepts."[56] The second prong of the test "is to determine whether the additional elements of the patent application 'transform the nature of the claim' into a patent-eligible application."[57] This second step is sometimes referred to as the "inventive concept."[58]

For a blockchain patent filing to be granted, case law dictates that it needs to pass the test laid out in *Mayo*.[59] Often times, issues arise for these filings in passing the first prong of the test.[60] Pertaining to the first step of the *Mayo* test, opponents to the issuing of a software patent often cite to the case of *Alice Corp. Pty. Ltd. v. CLS Bank Int'l*.[61] This case involved a patent that used a computer system as a third party intermediary that was designed to mitigate settlement risk involved in financial transactions.[62] In dicta, the Supreme Court stated that it has

---

[50] *Id.* (quoting Alice Corp. v. CLS Bank Int., 573 U.S. 208, 218 (2014)).

[51] *Id.* at 1349.

[52] *Id.* at 1348.

[53] Lewin, *supra* note 46, at 3.

[54] Inayat Chaudhry, *The Patentability of Blockchain Technology and the Future of Innovation*, 10 LANDSLIDE 21, 22 (2018).

[55] *Id.*

[56] *Id.*

[57] *Id.*

[58] *Id.*

[59] *Id.*

[60] *Id* at 23.

[61] 573 U.S. 208 (2014).

[62] *Id.* at 212.

"'long held that this provision contains an important implicit exception: Laws of nature, natural phenomena, and abstract ideas are not patentable' . . . [because they are] . . . 'the basic tools of scientific and technological work.'"[63] Additionally, the Court stated that "'[m]onopolization of those tools through the grant of a patent might tend to impede innovation more than it would tend to promote it,' thereby thwarting the primary object of the patent laws."[64] The Supreme Court in this case increased the difficulty of obtaining a patent on blockchain technology as a patent examiner may decide that a blockchain is a "patent-ineligible abstract idea[]."[65]

All hope should not be lost. A blockchain may still very well be given a patent. For instance, "both the [United States Patent and Trademark Office] and the Federal Circuit have acknowledged that innovations aimed at delivering technical improvements are patent [sic] eligible. The technical improvements may be the functioning of the computer itself or improvements to another technology or technical field."[66] A type of patentable innovation can be seen in the case of *Bascom Global Internet Services, Inc. v. AT&T Mobility LLC.*[67] In this case, the patent at issue was "directed to a system and method for filtering Internet content."[68] The United States Federal Circuit

> agreed that the limitations of the claims, taken individually, recited generic computer, network, and internet components, none of which was inventive by itself. However, the Federal Circuit concluded that the combination of the claimed elements amounted to significantly more than the abstract idea because of the nonconventional and non-generic arrangement of those elements that provided a technical improvement in the art.[69]

Thus, applying the same reasoning, even though blockchain is already very well-known, a blockchain system may still be patentable if there can be a sufficient showing that the new elements amount to significantly more than just an abstract idea.

---

[63] *Id.* at 216 (quoting Ass'n for Molecular Pathology v. Myriad Genetics, Inc., 569 U.S. 576, 589 (2013)).

[64] *Id.* at 216 (quoting Mayo Collaborative Servs. v. Prometheus Labs., Inc., 566 U.S. 66, 71 (2012)).

[65] Chang & Emery, *supra* note 27, at 23.

[66] *Id.*

[67] 827 F.3d 1341 (Fed. Cir. 2016).

[68] Chang & Emery, *supra* note 27, at 23.

[69] *Id.* at 23-24.

Another case that should give optimism to those who wish to obtain a patent for a blockchain system is the case of *DDR Holdings, LLC v. Hotels.com, L.P.*[70] In this case, the patents at issue involved "systems and methods of generating a composite web page that combines certain visual elements of a 'host' website with content of a third-party merchant. For example, the generated composite web page may combine the logo, background color, and fonts of the host website with product information from the merchant."[71] The court found the software was valid for warranting a patent and specifically stated that it "is necessarily rooted in computer technology in order to overcome a problem specifically arising in the realm of computer networks."[72]

As the two previous cases illustrate, hope is not lost for a patent on blockchain technology. If the blockchain software provides a solution to a technological problem, a court would likely deem it to be patentable.[73] A blockchain patent filing needs to be as specific as possible to increase the chances of being granted a patent.[74] The solution to the problem the patent seeks to address should be narrowly tailored as a court is more likely to rule that the idea is not patentable if the description of the patent is general in nature.[75] The likelihood of being granted a patent increases with specificity to which the patent relates.[76]

In summary of this first-prong test, a blockchain patent must be more than an abstract idea. As the Court in *Alice* stated, if not more, then society would be hindered if such ideas were patented as it would slow down the evolution of technology.[77] As the court in *Bascom Global Internet Services* held, Bascom had sufficiently "alleged that an inventive concept can be found in the ordered combination of claim limitations that transform the abstract idea of filtering content into a particular, practical application of that abstract idea."[78] The court in the *DDR Holdings* case applied a similar rule.[79] Therefore, for a blockchain system to satisfy the first test, it must be more than an abstract idea and must solve a technological problem.

In applying the first prong of the test to the USPS application for blockchain voting technology, good arguments can be made that the USPS's system is in fact patent worthy. The USPS is seeking to use blockchain in a new way, that is

---

[70] 773 F.3d 1245 (Fed. Cir. 2014).

[71] *Id.* at 1248.

[72] *Id.* at 1257.

[73] Chang & Emery, *supra* note 27, at 24.

[74] *Id.*

[75] *Id.*

[76] *Id.*

[77] Alice Corp. v. CLS Bank Int., 573 U.S. 208, 216 (2014).

[78] Bascom Global Internet Serv., Inc. v. AT&T Mobility LLC, 827 F.3d 1341, 1352 (Fed. Cir. 2016).

[79] DDR Holdings, LLC v. Hotel.com L.P., 773 F.3d 1245, 1255 (Fed. Cir. 2014).

by sending a code to voters that will then in turn use that code to access a blockchain voting ledger to ensure anonymity and a safe voting system.[80] By showing the way that the USPS intends to use blockchain technology in an innovative way to secure an election, a court should find that this prong of the *Mayo* test is satisfied as providing a unique code to registered voters to allow them to access a blockchain system is a technical improvement to the technology. Additionally, this system is likely to pass the scrutiny as applied in the *DDR Holdings* case that stated that "the claimed solution is necessarily rooted in computer technology in order to overcome a problem specifically arising in the realm of computer networks."[81] Arguably, the USPS blockchain patent does solve an issue arising from computer networks. The issue being that it is difficult to provide a platform for a secure election for mail-in voting which is a modern problem that requires a solution and the filed blockchain patent may adequately solve this issue. Lastly, the USPS's application should be granted because the description of the patent is not general in nature. The patent seeks to solve a specific problem and in doing so the filing contains a detailed plan to accomplish this goal of providing a safe and secure voting system.[82]

2. Step 2 of 2-part test

After passing the first prong of the test, the invention or idea must then pass the scrutiny of the second prong of the *Mayo* test.[83] The court in *Mayo* stated that "[i]f a law of nature is not patentable, then neither is a process reciting a law of nature, unless that process has additional features that provide practical assurance that the process is more than a drafting effort designed to monopolize the law of nature itself."[84] This prong requires that additional elements be added to a natural phenomenon or an abstract idea to make it an inventive concept that is patentable.[85] This second prong of the *Mayo* test can be very difficult for a blockchain patent filing to pass. This is usually due to "the fact that the algorithm behind the blockchain technology is already 'well known in the art' . . . ."[86] This is exacerbated by the fact that blockchain software is so well-known that colleges across the country teach classes on the coding that runs blockchain systems.[87] Because blockchain software algorithms have become so well-known, a new patent filing with blockchain must present a new aspect as an "inventive

[80] Secure Voting System, *supra* note 8, at 1.

[81] *DDR Holdings*, 773 F.3d at 1257.

[82] Secure Voting System, *supra* note 8, at 1.

[83] Chaudhry, *supra* note 54, at 22.

[84] Mayo Collaborative Servs. v. Prometheus Labs., Inc., 566 U.S. 66, 77 (2012).

[85] Chaudhry, *supra* note 54, at 22.

[86] *Id.* at 23.

[87] *Id.*

concept" that is capable of solving modern issues that have yet to be solved by other blockchain technology.[88]

"Important additions and variations" of a blockchain system may make it eligible to be patented.[89] Such an instance is seen in the case of *Diamond v. Diehr*.[90] In this case, the Court held that "the inventor was granted the patent because the invention used a 'thermocouple' to record constant temperature measurements inside the rubber mold--something 'the industry ha[d] not been able to obtain.'"[91] Specifically, the Court noted that "we concluded that such an algorithm, or mathematical formula, is like a law of nature, which cannot be the subject of a patent."[92] The Court went on to say that a mathematical formula may still be patentable.[93] The Court stated that "'[w]hile a scientific truth, or the mathematical expression of it, is not a patentable invention, a novel and useful structure created with the aid of knowledge of scientific truth may be.'"[94] The analysis from *Diamond* leads to the conclusion that blockchain technologies, despite being relatively common knowledge or perhaps considered a law of nature, are still patent-eligible so long as the claim incorporates blockchain as to become a novel structure.

The USPS patent application for its proposed blockchain voting system is likely to pass the second prong of the test required to be granted its patent. The application sets out for a system using blockchain that otherwise by itself would fail this second prong; however, the caveat is that the proposal arguably includes an important variation or addition. This variation or addition being that a readable code is sent to voters that in turn use that code to access the blockchain.[95] The question then becomes: is this an important enough variation to warrant granting a patent to such a system, and does this variation when looked at in the whole constitute a new and noteworthy invention deserving of patent protection? Certainly, the use of blockchain technology that the USPS is seeking a patent for is creative in that it involves sending voters a code that they then use to vote using a blockchain system. As of the 2020 presidential election, blockchain technologies have not been patented in this way.

Because of the increasing demand for mail-in voting and the cry for help that mail-in voting could lead to fraud, the policy rationale of labeling this as an important addition may be sufficient to promote and secure governmental elections. Therefore, the USPS application may be granted for this reason alone.

---

[88] *Id.*

[89] *Id.*

[90] 450 U.S. 175 (1981).

[91] Chaudhry, *supra* note 54, at 23 (quoting Diamond, 450 U.S. at 178).

[92] Diamond, 450 U.S. at 186.

[93] *Id.* at 187.

[94] *Id.* at 188 (quoting Mackay Radio & Telegraph Co. v. Radio of America, 306 U.S. 86, 94 (1939)).

[95] Secure Voting System*, supra* note 8, at 1.

If this is deemed to not be an important variation, however, then the application fails entirely regardless of the fact it would likely pass the first prong of the patentability test. This last prong is more of a toss-up, but the policy rationale should ultimately be a deciding factor and lead the United States Patent and Trademark Office to grant the application.

IV. CONCLUSION

Blockchain technology has become so well-known and used in the technological world today to prevent fraud and injustice. Obtaining a patent for a system that primarily uses blockchain technology, however, may be an onerous task. Perhaps this is because blockchain is no longer some inventive abstract concept that is usually required of a patent and the Court in *Alice* has increased the difficulty in obtaining a patent with blockchain technology.[96]

The USPS's patent application raises interesting questions as to whether it should be granted. The application clearly and substantially relies on the use of a blockchain technology that has been around since 1991.[97] It needs blockchain as its base for the very purpose of providing a secure and fraudulent-free way to hold an election where votes cannot be manipulated, or at least give the population confidence in a secure system. Blockchain accomplishes this goal because of its anti-fraud capabilities. Because of its heavy reliance on this system, the precedent set forth in *Alice* could make it very difficult to be granted a patent. The USPS could claim that by adding a readable code, which is unique and sent to each individual voter that is then used to access the blockchain ledger to cast only one vote per candidate, is a significant addition to the already commonplace system. Arguably, such an addition turns the application into an inventive concept and thus is patentable. On top of this sufficient addition, the USPS should add that this patent should be granted in the interest of America and democracy—a strong policy argument to grant the patent. At the end of the day, this application should be granted. The additive element of readable codes, coupled with the policy argument that such a system is needed to give faith to the American people for safe and secure elections, should get the USPS over the hump to have its patent granted.

---

[96] *See generally* Alice Corp. v. CLS Bank Int'l., 573 U.S. 208, 221 (2014) (stating that "[w]e conclude that the method claims, which merely require generic computer implementation, fail to transform that abstract idea into a patent-eligible invention.").

[97] Conway, *supra* note 14.