

An Outlook on the Blockchain Patent Arms Race

Companies are pursuing blockchain-related patents in hopes of tapping in to what's expected to become a multibillion dollar industry over the coming years.

Jeffrey M. Weinick and Richard A. Cheng, *New Jersey Law Journal*

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With all the hype surrounding Bitcoin and other cryptocurrencies, there has been a surge of patent applications relating to blockchain—one of the technologies underlying Bitcoin. To many, blockchain is seen as the next disruptive technology, with applications not only in the financial sector but also across a surprisingly broad range of seemingly unrelated industries. The result is a patent arms race, with companies pursuing blockchain-related patents in hopes of tapping in to what's expected to become a multibillion dollar industry over the coming years.

What Is a Blockchain?

Originally invented for the Bitcoin cryptocurrency, a blockchain is a public, decentralized and secure digital ledger used to record transactions between parties. Instead of being stored in a central database, each computer node of a peer-to-peer network maintains its own copy of the blockchain. When a new transaction is requested, the transaction is propagated throughout the network, where each node independently validates the transaction, combines the transaction with other transactions into a block, and broadcasts the block to the other nodes in the network. If there is a consensus among the nodes validating the transaction, the block is cryptographically linked to the last block of the blockchain to securely and permanently record the transaction. The process of validating and adding transactions to the blockchain for cryptocurrencies is referred to as “mining.” Due to the decentralized nature of the blockchain, no single entity needs to be relied upon to manage the transactions.

Many companies are beginning to recognize the value of blockchain technology beyond cryptocurrencies. Blockchain technology can be used in any industry that has a need for securely recording transactions. Some interesting applications of blockchain technology that have been proposed include managing copyrights in digital music distribution, implementing digital identifications, tracking the origin of diamonds and precious metals, and securing electronic voting platforms.

The Patent Rush

Similar to what was seen with e-commerce patents during the early days of the World Wide Web, we are now seeing a rush to file blockchain-related patent applications. This is not surprising, as patents are seen as critical in protecting business operations and securing investments.

According to data retrieved from U.S. Patent and Trademark Office (USPTO) databases, the number of blockchain-related patent applications filed in the U.S. has increased exponentially in recent years. A keyword search for patent applications containing the term “blockchain” filed with the USPTO reveals that 382 patent applications were published in 2017—up from 90 in 2016, 24 in 2015, and two in 2014. When considering the 18-month delay from when a patent application is filed to when the USPTO publishes the application, it is likely that there are a significant number of recently filed, but yet unreported, blockchain-related patent applications currently in the pipeline.

A similar upward trend can be found in the number of blockchain-related patents issued by the USPTO, where 36 patents relating to blockchain were issued in 2017—up from 10 in 2016, five in 2015, and zero in 2014.

Because of its roots in the cryptocurrency space, it is easy to see the application of blockchain technology to the financial services industry. This is reflected in the number of blockchain-related U.S. patent applications filed by financial service firms, with companies such as Bank of America, MasterCard and TD Bank among the top filers. It is also not surprising that technology companies, such as IBM and Intel, are an equally significant group of filers.

But what may be more interesting is that many non-technology companies are pursuing blockchain-related patents for applications beyond financial services. For example, Walmart recently filed U.S. Patent Publication Number 2018/0181909 for monitoring retail item distribution using blockchain technology. Live Nation Entertainment recently obtained U.S. Patent No. 9,792,742 for electronic ticketing access control using blockchain technology. Skuchain recently obtained U.S. Patent No. 9,641,338 for tracking products at various stages of a supply chain using blockchain technology.

Challenges in Obtaining Blockchain-Related Patents

To obtain a patent, an invention must be novel, non-obvious, useful and directed to patent-eligible subject matter. Of these patentability requirements, patent eligibility is likely to be the major hurdle in obtaining blockchain-related patents due to the Supreme Court's 2014 ruling in *Alice Corp. v. CLS Bank Int'l*, which states that inventions directed to abstract ideas that are merely carried out by generic computers are not patent-eligible. The Supreme Court, however, declined to define what an abstract idea is, and the Federal Circuit—which has subject matter jurisdiction over patent-related cases—has provided little clarity. This has resulted in a sharp decline in the number of patents issued by the USPTO, particularly for patent applications relating to financial services. To be sure, the Federal Circuit has found that inventions directed to specific improvements in computer capabilities are not abstract ideas and are patent-eligible.

Therefore, to increase the chances of the USPTO finding the subject matter of the invention patent-eligible, it is critical that blockchain-related patent applications be drafted with an emphasis on the technical features of blockchain—such as the distributed peer-to-peer network and the cryptographically linked blocks—while downplaying any business or financial features.

Other Forms of Protection

Patents are the most popular method for protecting an invention, as they provide their owners exclusive rights. However, patent protection generally expires 20 years from the application's filing and requires disclosure of the invention to the public. On the other hand, an invention can be protected as a trade secret, which may seem like an appealing option to avoid the uncertainty surrounding patent eligibility. However, while a trade secret lasts as long as the invention remains a secret, it will not prevent a competitor from reverse engineering the invention or another inventor from independently inventing the invention. Trade secret protection is also lost once the trade secret is disclosed, even if the disclosure is a breach of a confidential obligation.

In deciding whether to pursue protection of an invention as a patent or a trade secret, careful consideration must be given to various factors which weigh in favor of one form of protection or

the other—including the ease of reverse engineering the trade secret, how long protection is needed and the costs to obtain a patent or maintain a trade secret.

Patent Enforcement

Even if an invention is patented, there are challenges that may arise in enforcing the patent. By design, blockchain technology is distributed and decentralized across a peer-to-peer network of computer nodes. This may result in divided infringement, where no single party infringes each element of the invention. This may also result in extraterritorial infringement, where one or more elements of the invention are performed by computer nodes located outside of the U.S. Both divided infringement and extraterritorial infringement complicate the enforcement of a U.S. patent.

Blockchain-related patents may also be vulnerable to invalidity challenges, particularly in view of the uncertainty surrounding patent eligibility. Such invalidity challenges may be brought before a district court or as a post-grant review before the USPTO. Regardless of the venue, invalidity challenges are expensive, generally costing hundreds of thousands of dollars, if not more.

Many applications of blockchain technology are developed from computer programs distributed under an open-source license, which may complicate the ability to enforce a blockchain-related patent. An open-source license generally allows anyone to view, use and modify the source code of a computer program as long as they in turn allow others to do the same for their derivative work, thereby promoting open collaboration. The terms of use of any open-source source code used to develop blockchain technology should be reviewed carefully to evaluate its impact on the ability to enforce a patent.

While there have been no known lawsuits attempting to enforce a blockchain-related patent, given the increase in patent application filings and the money at stake, we expect this to change in the coming years.

Weinick is a member with Chiesa Shahinian & Giantomasi in West Orange, and serves as co-chair of the firm's Intellectual Property Group. Cheng is an associate with CSG's Intellectual Property Group. Both are registered patent attorneys.

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