



Drafting Effective Blockchain Patents

As the number of blockchain-based patents and patent applications increases, more companies have become interested in pursuing these patents. Other companies still think that blockchain-based inventions are not patentable. This paper will provide an update on blockchain patents, provide guidance on the types of blockchain inventions that are patentable and how to draft applications to maximize their value. This paper is an update to our prior paper entitled “Patent Strategies for Cryptocurrencies and Blockchain Technology” available [here](#). I recommend that you read that paper first, as this one builds on it and tries to avoid repetition.

Since that paper, the number of blockchain patents has continued to increase.

Number of Hits By Keyword

Keyword	Issued U.S. Patents			Published Applications		
	As of 1-12-18	As of 3-31-18	% Increase	As of 1-12-18	As of 3-28-18	% Increase
blockchain	61	80	48	522	657	26
cryptocurrency	55	64	16	373	418	12
bitcoin	279	317	14	1126	1231	9
Ethereum	6	8	33	74	95	28
distributed ledger	7	16	129	204	263	29
smart contract	11	17	55	160	201	26

Original Paper numbers current as of 1-12-18 based on search at USPTO.gov

This Paper numbers current as of 3-28-18 based on search at USPTO.gov

The numbers show a fairly significant percentage increase in many of these categories in just the past 2 months. Based on the significant increase in filings we are seeing in this area, it is our view that these numbers will continue to increase. The primary reasons for this are that more companies are leveraging blockchain technology to build useful applications and realizing that this technology is patentable.

As with other software-based inventions, the two biggest obstacles that applicants need to overcome are prior art rejections (under 35 U.S.C. §§102, 103) and unpatentable subject matter rejections (35 U.S.C. § 101).

With careful vetting of the inventions for which patent applications are pursued, including a competent search and legal analysis of the prior art and Section 101 issues before deciding to proceed, and skillful drafting of applications, these issues should not pose any greater concern for blockchain-based inventions than otherwise.

Overcoming Prior Art

To overcome the prior art, the applicant must show that the invention for which patent protection is sought is new and non-obvious (which is determined by a legal test). One of the biggest issues we have seen here is when a patent applicant seeks to apply a known process to blockchain technology, without more. Just as it is not patentable to take a known process and merely claim performing it with a computer, taking a known computer process and merely claiming it is performed on a blockchain or distributed ledger also is not patentable.

The key to overcoming prior art rejections for these applications is to identify new and non-obvious differences that arise due to the specific blockchain implementation. Doing so requires that the patent attorney drill down on the invention to understand the details of the implementation and draft the claims in a way that claims the new and non-obvious features.

Each case is fact dependent, so it is hard to provide a meaningful checklist for this issue. This is part of the art of skillful patent drafting. A competent patent attorney can anticipate the likely issues for any applications and help ensure that the patent specification includes a sufficient explanation of the details of the how the invention operates, as opposed to just a statement of the result of the invention. The attorney also can articulate technical advantages of the invention over known technology.

The legal issues around novelty and non-obviousness have not changed dramatically. The approach to overcoming prior art for blockchain-based patents is not that different from other computer and software-related inventions. It does, however, require a sufficient understanding of when and how a blockchain-based invention is sufficiently different than a similar approach using conventional computer systems and an ability to clearly articulate those differences. For truly innovative and patent-worthy inventions, this is not hard for a patent attorney skilled in this space.

Overcoming Section 101 Rejections

For some inventions, the more difficult issue to overcome is the Section 101 rejection for unpatentable subject matter. Recent cases have changed significantly the test for patentable subject matter. Now, according to the United States Patent and Trademark Office, the inquiry includes the following steps:

1. Determine whether the claim is directed to at least one statutory category (process, machine, manufacture, or composition of matter).
2. If so, then apply the new two part test:
 - a. Is the claim directed to a judicial exception (abstract idea, law of nature, natural phenomenon)?
 - i. If not, it is patent eligible subject matter.
 - ii. If so, go to step b.

- b. Do the additional elements of the claim, taken individual and as a combination amount to significantly more than a judicial exception?
 - i. If yes, it is patent eligible subject matter.
 - ii. If not, it is not patent eligible subject matter.

This test goes far beyond what the patent statutes clearly states. Nevertheless, it is the test that applicants must deal with.

The following is a very concise summary of some of the more helpful cases that have found patent eligible subject matter and the basis upon which it was found. We find these cases very useful when drafting claims and arguing patentable subject matter.

DDR Holdings v. Hotels.com – problem solved was particular to the Internet and the solution was necessarily rooted in computer technology in order to overcome a problem specifically arising in the realm of computer networks.

Enfish v. Microsoft – the claims were directed to an improvement to computer functionality itself, not an economic or other task for which a computer is used in its ordinary capacity. Additionally, the patent specification addressed how the claimed invention is advantageous over conventional databases.
Bascom v. AT&T – the particular arrangement of software-based filter elements was an invention that improved the performance of the computer system itself.

McRO v. Bandai – the claims focused on specific ways to improve existing technology rather than being directed to a result or effect that is an abstract idea implemented on a generic computer.

Amdocs v. Openet Telecom – claims that solved an accounting and billing problem faced by network service providers were found not abstract where the system components were arrayed in a distributed architecture that minimizes the impact on network and system resources by collecting and processing data close to its source and overcame problems of the prior art that stored information in one location, which made it difficult to keep up with massive record flows from the network devices and which required huge databases.

Trading Technologies International v. CQG – an invention is not an abstract idea if is not simply the generalized use of a computer as a tool to conduct a known or obvious process, but instead is an improvement to the capability of the system as a whole.

Thales Visionix v. United States – using specific sensors in a non-conventional manner to reduce specific measurement errors despite the use of mathematical equations to do so does not render the claims abstract.

Visual Memory v. Nvidia Corporation – technical improvements to computer memory systems are not abstract, particularly when the technical advantages of the improvements are described in patent specification.

Finjan v. Blue Coat Systems – new virus scanning approach was not abstract because it used a new kind of file that enabled a computer security system to do things it could not do before.

Core Wireless Licensing v. LG Electronics – graphical user interface claim that recited a specific way of displaying a limited set of information on small mobile device screen was deemed not abstract because it was a specific improvement over conventional user interfaces.

These cases are not a complete list of the bases upon which patent-eligible subject matter may be found. However, they have been very helpful in supporting such arguments and provide useful precedent to craft winning patentability arguments.

It is clear from these cases that many aspects of blockchain-based inventions are patent eligible. This is particularly so where the blockchain invention:

- Solves a network problem and the solution is necessarily rooted in computer technology (DDR)
- Is directed to an improvement to computer functionality itself (Enfish, Bascom)
- Claims specific ways to improve existing technology (McRO)
- Is an improvement to the capability of the system as a whole (Trading Technologies)
- Uses specific sensors in a non-conventional manner, even if the invention relies on mathematical algorithms (Thales)
- Provides a unique memory structure (Visual Memory)
- Uses a new kind of file that enables a computer system to do things it could not do before (Finjan)
- Provides new GUI functionality (Core).

As can be gleaned from these cases, it is important to draft applications and claims with these potential arguments in mind. And, as noted in some of these cases, where you are relying on an argument that you are improving an existing technology, it is beneficial to address in the specification how the claimed invention is advantageous over conventional technology.

Inventors often erroneously believe that they cannot patent their invention because it uses a mathematical algorithm. As can be seen from *Thales*, sensor-based inventions, even ones that use mathematical algorithms, can be patentable. This can be relevant to blockchain-based inventions that leverage the Internet of Things (IoT), for example, where sensor-based devices provide data to smart contracts.

Many inventors also erroneously believe that inventions that relate to business processes are not patentable. There is no per se prohibition on these patents. As seen in *Amdocs*, the patentable invention related to an accounting and billing system, which are business processes. There, the invention was a technical solution that enabled those business processes to be implemented more efficiently. Many of the blockchain-based inventions that we are seeing have parallels to this in that they provide a new technical solution to a business problem. Examples of this arise in blockchain solutions for supply chain management and other business processes that are currently inefficient. This is potentially a huge opportunity for patenting technical improvements.

Other Tips

Some courts have said that complying with Section 101 is not just a matter of how you draft claims. This is true, to some extent, in that there is no magical language that will ensure a patentable claim. However, how you draft the claims and describe the invention do matter. For example, in *Amdocs*, had the invention just focused on the result of collecting accounting and billing data more efficiently, it may not have been patentable. We have seen third party patent applications fail because the invention was articulated in a result-oriented manner without sufficient technical detail.

Additionally, all patent applications get assigned to a particular art unit based on a number of factors. Some art units (such as those that examine business method claims) have a notoriously low allowance rate. Others (such as those that examine cryptography) have a higher allowance rate. How you describe and claim the invention and other aspects of how you draft a patent application matters with respect to the determination of to which art unit your application gets assigned. For this additional reason, it is critical to understand how to skillfully draft blockchain-based applications to avoid the invention being misclassified into an art unit where the odds are stacked against you.

Divided infringement issues are relevant and need to be considered in all network-based patent applications. Blockchain-based inventions are no exception. At a high level, divided infringement results when a claim is drafted in such a way that it takes multiple parties to infringe. This can be relevant to some blockchain-based inventions due to the decentralized and/or distributed nature of some blockchain technologies. There are several ways to minimize these issues if the claims are thoughtfully drafted. The approach heavily depends on the facts. It is often helpful to draft multiple independent claims to cover different aspects of the system and different potential infringers.

Conclusion

An incredible amount of innovation is happening in this space. The solutions that prove to be commercially successful will be copied. The primary option you have to create leverage over those who may copy your work is to obtain meaningful patent protection. Due to the timing issues associated with patents, you cannot wait until someone infringes to file a patent. Often by then it is too late.

We still see news reports and other information, often written by non-lawyers, that create misperceptions around the patentability of business process-related inventions and software inventions in general. This misinformation often leads inventors to erroneously conclude that their inventions are not patentable.

Not every blockchain-based system will meet the tests for patentability. However, many have and many more will. If you are investing significant resources into building a novel blockchain-based system, you should at least consult with a patent attorney knowledgeable in blockchain technology to get a professional assessment. Do not rely on information or advice that may be inaccurate or misleading.



For more information, please contact **James Gatto** (Blockchain and Digital Currency Team Leader) at jgatto@sheppardmullin.com or at 202-747-1945.