Blockchain Patentability Through The Lens Of A Recent PTAB Decision

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Blockchain patent applications may be divided into two types: underlying technologies of blockchain, such as consensus methods, security, etc., and applications of blockchain in, e.g., fintech, legal, and other industries. In patent examination, the first type, because it recites underlying technology improvement, rarely elicits subject matter rejections. The second type, applications of blockchain, are often found to be directed to an abstract idea. This article analyzes a recent Patent Trial and Appeal Board (PTAB) decision in a blockchain patent application and explores drafting and prosecution strategies to anticipate subject matter scrutiny.

Patent Eligibility Under the U.S. Patent System

An invention, to be patent-eligible, must first fall within one of the four enumerated categories of patentable subject matter recited in 35 U.S.C. § 101 (i.e., process, machine, manufacture, or composition of matter). *See* MPEP § 2106.04. Though almost all blockchain patent applications pass this first step, some face scrutiny under the second step of the § 101 abstract idea exception analysis.

The USPTO essentially splits the second step into 2A (is the claim directed to an abstract idea (a judicial exception)?) and 2B (does the claim recite additional elements that amount to significantly more than the judicial exception?). Step 2A also has two prongs. For blockchain application, the first prong essentially is to determine whether the claims recite an abstract idea, i.e., (1) mathematical concepts; (2) certain methods of organizing human activity; and (3) mental processes. If a blockchain patent application is not directed to any of these categories, it will most likely be patent-eligible. Otherwise, the subject matter analysis proceeds to the second prong, where the Examiners are to determine if the exception is integrated into a practical application. To this end, the Examiners should (1) identify whether there are any additional elements beyond the abstract idea, and (2) evaluate those elements to determine whether they integrate the exception into a practical application. Two examples of practical application provided by the USPTO are most relevant to blockchain patent applications: (i) an improvement in computer functionalities, and (ii) limiting the judicial exception in some other meaningful way beyond generally linking to a technological environment. *See* MPEP § 2106.04(d)(I).

Lastly, even if the claims do not pass Step 2A, they are analyzed under Step 2B, where the Examiner must determine if there is an inventive concept such that the additional elements recited in the claims provide significantly more than the judicial exception.

Appeal 2019-004127 (Decided August 19, 2020)

Decision: 35 U.S.C. § 101 rejection of claims 1-16 reversed

This case involves the PTAB's reversal of the § 101 rejection of claims 1-16 in the 14/719,030 patent application. This patent application relates to "the linking of blockchain transactions to privately verified identities, specifically the association of a blockchain transaction to a consumer or merchant associated with a transaction account based on transaction data and stored account profiles." The application recognizes disadvantages of blockchain transactions such as long processing time, payee's inability to identify payor, and sole reliance on electronic credentials to establish ownership to digital currencies. The invention addresses such issues by combining the blockchain network and the traditional payment network.

Claim 1 of the application reviewed by the PTAB recites:

1. A method for linking blockchain transactions to privately verified identities, comprising:
[A] storing, in *an account database* of *a computer system*, a plurality of account profiles, wherein each account profile includes data related to a transaction account including at least an account identifier and account data;
[B] receiving, by *a receiver of the computer system*, a transaction message via *a payment network*, wherein the transaction message is formatted based on one or more standards and includes a plurality of data elements including at least a first data element configured to store a personal account number, a second data element configured to store a merchant identifier, and a third data element configured to store at least a blockchain network identifier and where the third data element or a fourth data element is configured to store a digital signature;
[C] identifying, by *a processor of the computer system*, a first account profile stored in the account database where the included account identifier corresponds to the personal account number stored in the first data element included in the received transaction message, and wherein the first account profile includes a public key;
[D] identifying, by the processor of the computer system, a second account profile stored in the account database where the included account identifier corresponds to the merchant identifier stored in the second data element included in the received transaction message;
[E] receiving, by the receiver of the computer system, a transaction notification, wherein the transaction notification indicates a transaction processed using *a blockchain network* associated with the blockchain network identifier stored in the third data element included in the received transaction message and includes at least a transaction identifier and an address identifier associated with one of the first account profile and the second account profile, and where the address identifier is generated using the public key;
[F] *verifying, by the processor of the computer system, the digital signature using the public key included in the first account profile*; and
[G] storing, by the processor of the computer system upon verification of the digital signature, a linkage between the transaction identifier included in the received transaction notification and at least one of: the address identifier, the personal account number, and the merchant identifier.

   (Emphases and labels of claim limitations added)

Under Step 2A Prong 1, the PTAB agreed with the Examiner on finding the claims directed to an abstract idea of storing data, receiving data, identifying data, and verification. The PTAB further agreed with the finding of the claims directed to certain methods of organizing human activities, namely "commercial transaction processing such as blockchain payment transaction, using both standard payment and blockchain payment elements to verify the identity of the payor." Accordingly, the PTAB determined the claims to recite fundamental economic practice, which is an abstract idea.

Under the same prong, however, the PTAB rejected the Examiner finding that the claims were also or alternatively directed to mental processes. The PTAB sided with the Appellant who argued that "the claims recite the explicit use of a number of technologies that cannot be performed by human work or mentally, even given a significant amount of time," because "digital signatures are of sufficient data size and complexity to not be understood by human mental work, let alone verified through the use of a public key and overly complex (by design) signature algorithms" and that "transaction messages are processed in speeds that have to be measured in nanoseconds for network reliability and due to the overwhelming number of transaction processed each day, necessitating the use of specialized computer systems, which is impossible to replicate through human mental work." In another word, performing the claimed invention with the human mind is impractical.

Moving on to Step 2A Prong 2, the PTAB identified additional elements integrating the abstract idea into a practical application that combines advantages of both blockchain processing system (e.g., anonymity) and standard payment processing system (e.g., speed, security, fraud prevention).

When identifying additional elements beyond the abstract idea, the Examiner only found "a database," "a computer system," and "a processor" are positively recited in the claims. Although not directly addressing the positive recitation issue, the PTAB agreed with the Appellant and recognized the ordered combination of "an account database," "a receiver of the computer system," "a payment network," "a processor," and "a blockchain network" to constitute the additional elements. The PTAB agreed that the claims require using both networks (i.e., the standard payment network and the blockchain network) with the computer system to ensure that the party in the submitted transaction message was a party to the blockchain transaction. Accordingly, the PTAB included "a payment network" and "a blockchain network" in the following evaluation of the additional elements.

When determining whether the additional elements integrate the abstract idea into a practical application, the Examiner concluded that the database, the computer system, and the processor merely served as tools for implementing the abstract idea and do not improve the functions of the computer system or otherwise. The PTAB, on the other hand, focused on improvements to the technological field of blockchain transactions performed using computers, such that the blockchain system can acquire the advantages of speed, security, and fraud prevention of the standard payment processing system. To accomplish these improvements, the Appellant contended that the ordered combination of the additional elements links blockchain transactions to privately verified identities. Specifically, the PTAB agreed with the Appellant that the claims "provid[e] the security of standard payment processing systems (e.g., by identifying first and second account profiles in limitations C and D of claim 1), and the privacy of blockchain payment transactions (e.g., by using a blockchain network to generate an address identifier using a public key in limitation E of claim 1), to verify a digital signature (e.g., limitation F of claim 1) stored in data elements of a receiver of the computer system (e.g., limitation B of claim 1) that is part of the account database (e.g., limitation A of claim 1)."

Overall, the identification of the two networks as additional elements and clear support for the improvements to the blockchain system appear to be the key for the PTAB to find for the Appellant.

Conclusions

As shown by the reasonings above, blockchain applications by nature can hardly be directed to mental processes. Reciting features such as digital signature and consensus verification in claims may make it appear even less accomplishable with pen and paper in practice.

Improvement to computer functionality such as the security and speed of processing blockchain transactions is likely to be recognized as a practical application. In particular, improving the blockchain network with a standard type of computer network will likely be found as a practical application. It is important for blockchain patent drafters to think about how the integration of different computer networks improves the functionality of each network and explain clearly in the specification.

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