



Roadblocks in Patenting Blockchain

Technology Overview

Blockchain technology has been in the limelight for quite a while now and has achieved to secure a niche position in the global economic sector. Blockchain offers a decentralised framework and one of the key inherent features of Blockchain is the immutability of data records stored in the network which is achieved through its sophisticated encryption and cryptographic algorithms and transaction protocols.

Owing to its attractive features, several companies across industries have adopted this technology in place of conventional database and storage solutions. With such a growing adoption, several industry players are looking to enhance the underlying technology itself or make the most of its enthralling features for various applications/purposes.

Accordingly, one can see several innovations in the core technology of Blockchain, that is, the way Blockchain functions or operates. These include improvements in the following areas:

- distributed ledgers
- storage
- data structures
- transaction protocols
- cryptography/encryption/security
- smart contract platforms
- mining and consensus methodologies
- processing and validation methods

Several innovations are seen on the application or use of the technology which includes:

- enforcing cryptocurrencies
- tokenomics
- payment applications
- e-commerce
- health and property asset management
- supply chain
- voting system
- gaming system
- escrows and loyalty programs.

Roadblocks – Patent Eligibility in India

To begin with, the Indian Patents Act does not absolutely preclude patenting of Blockchain technology-based inventions. However, since the Blockchain is inherently a database and is implemented as client software, inventions pertaining to Blockchain are scrutinized under the provisions of Section 3(k) of the Patents Act which states that mathematical or business methods, computer programs per se and algorithms are not patentable.

Recently, inventions based on Blockchain based applications have become the norm and they may be under the radar of Section 3(k) as long as they are not directed to a business context: carrying out business/ trade/ financial activity/ transaction, a method of buying/selling goods through web or Blockchain in fintech (financial technology/financial sector).

Like other computer related inventions, Blockchain based solutions may be patentable if they offer a technical solution to an existing technological problem or if they suggest significant improvements to the intrinsic technology.

Considering the recent Ferid Allani case, the Delhi High Court has clearly stated that it would be retrograde to say that inventions based on computer programs are not patentable as innovations in the field of artificial intelligence, Blockchain technologies and other digital products would be based on computer programs. Furthermore, the Delhi Court went on to say that only computer programs 'per se' are excluded from patentability and if the invention demonstrates a "technical effect" or a "technical contribution", it is patentable even though it may be based on a computer program. In view of this, if blockchain-based inventions/solutions can indicate technical effect or technical contribution, they might just be able to get away from the grasp of Section 3(k).

Based on the available guidelines and jurisprudence, there is some clarity with respect to what can constitute 'technical effect' and 'technical contribution'. If we can show that Blockchain based inventions improve the functionality of general-purpose hardware/computers, it is said to demonstrate 'technical effect'. 'Technical contribution' or 'technical advance' on the other hand involves implementation of a technical solution to solve a technical problem prevalent in the Blockchain domain, the technical solution being a significant improvement over existing solution.

In India, most of the Blockchain related patent applications that are filed are awaiting examination or are in the prosecution phase awaiting final decision. Till date, the Indian Patent Office has granted a few Blockchain patents. On analysing the FER of these cases, it was not surprising to find 3(k) objections in most of these cases.

Case Study

Following section discusses a few Blockchain-based India patent applications that were granted/refused in light of Section 3(k).

Case I: (Granted)

Application No: 201811008022

Title: An Autonomous Secure Method of Communication Between IoT Devices Using Blockchain Environment by Processor

The patent application is directed towards a decentralized approach using Blockchain to augment the existing security architecture of a smart home network, which guarantees both trustworthiness and preserves user privacy. The Applicant had stated that the existing approaches to provide security in a smart home network involved use of extensive infrastructure and was centralised. The Applicant was solving this existing problem by creating an infrastructure-independent decentralised framework using Blockchain which provides verification of data transmitted between devices with a high level of privacy.

The initial set of claims submitted in the application included system/device claims for verifying and monitoring communication between IoT devices and method claim(s) counterparts directed to specific algorithms.

During the prosecution phase, the claims of the invention were rejected under Section 3(k) as being directed to computer programs per se or software application/ algorithm used for implementing secured communication system in the IoT network.

To overcome the statutory objection under Section 3(k), in addition to claim amendments, the Applicant submitted that the claimed subject matter is of technical nature as it encounters a technical problem with technical solution resulting in a technical effect. According to the Applicant, IoT devices were resource constrained with limited computational capability and needed a strong and secure communication framework that can be used to deploy security policies in the IoT network. To solve this technical issue at hand, the invention provided a secure communication framework for IoT devices using Blockchain which monitors the communication in an IoT network in an encrypted manner.

Also, the Applicant stated that the invention increases communication speed by eliminating proof of work concept, thus eliminating physical miners. The node register, mining, transaction and view chain is done in an autonomous manner with zero transaction cost and higher efficiency. Thus, the Applicant showed that the invention indeed provided a technical solution to an existing technical

problem and the technical solution has a technical effect as it improves communication speed of the network with zero transaction costs.

Based on the persuasive arguments provided by the Applicant and success in demonstrating technical effect due to the technical solution, the invention was granted a patent.

From this case study, it is evident that the Patent Office favours the grant if the invention provides a technical solution to a technical problem, the technical solution in turn demonstrating a technical effect.

Case 2: (Refused)

Application No: 201611033044

Title: *Methods, And Devices for Facilitating Real Estate Transactions*

The invention of the patent application facilitates property/real estate transactions between multiple parties on mobile devices based on numerous parameters using Blockchain. According to the Applicant, none of the prior arts provided fair valuation of the real estate properties or a transparent mechanism to sell, buy or lease a real estate property. Since there was a need to provide improved solutions for buying, selling, and leasing services, the Applicant's invention was implemented.

The claims that were submitted in the patent application were both method and system claims for facilitating property based transactions by profiling a viewing user to identify authenticity, listing multiple properties, drawing a freehand parameter contour on a property map displayed to the user, automatically generating a geofence for the freehand parameter contour based on geographical location and popping a plurality of geofence properties based on tagging with a related address data field of the listed properties, and trading the one or more properties. The claims also disclosed forward and reverse auction bidding models for executing bids.

During the prosecution phase, the claims of the invention were rejected as being within the scope of the meaning of "Business Method" under Section 3(k). The claims included steps which are algorithmic and procedural in nature, merely defining an administrative scheme representing an abstract plan or a set of rules for facilitating property-based transactions. It was further stated by the Examiner that the subject matter is not a technical problem but rather a business/administrative problem and therefore, the solution provided by the invention is a business/administrative method.

To overcome the statutory objection under Section 3(k), in the response, the Applicant defended that the invention was not a 'computer program per se' as hardware devices and computing

devices were configured on the network and that the invention had new and novel technical features over cited prior arts. The Applicant also stated that the amended claims of the invention are not a mere algorithm as an algorithm is defined to be "a finite set of well-defined instructions for accomplishing some task which, given an initial state, will result in a corresponding recognizable end-state". The Applicant further submitted that the invention as claimed involves a technical process which results in technical advance or technical contribution, such that the computation is reduced. Since the invention solves a technical problem and relies on technical steps it does not fall under Section 3(k).

The Applicant's arguments however were not persuasive enough to jump the 3(k) hurdles. After a hearing, the final order/decision from the Patent Office stated that the claims were directed to a computer-implemented method for facilitating property-based transactions, which refers to a set of computer-executable instructions for controlling a sequence of operations to obtain the desired result. Further, all the method steps lacked inventive physical constructional features and only amount to the use of processor/controller for execution of algorithm and computer programs for facilitating property-based transactions and hence not patentable under Section 3(k) as they fall within the scope of "algorithms & computer program per se".

Also, the claims disclosed method steps like "computing and executing a valid higher bid for a forward auction, a lower bid of choice for a reverse auction, or an instant bid in real time", "generating a contract agreement", "paying upfront transaction as earnest money deposit", "aggregating loan offers", "verification of selected property", "verifying a cryptographic transaction involving an exchange of crypto currency", "providing option of property swap & exchange", which merely define an administrative scheme representing an abstract plan or a set of rules for facilitating property-based transactions. Thus, the subject matter of the claims was not a technical problem but rather a business/administrative problem and the solution proposed was nothing but a business/administrative method. Hence, the claims were not patentable under Section 3(k) for falling within the scope of "business method".

The Patent Office also said the that claims were not patentable under Section 3(n) for falling within the scope of "mere presentation of information", as the method disclosed steps like "listing of-of properties based on property verification parameters", "drawing a freehand parameter contour on a property map", "automatically generating a geofence based on geographical location", "popping a plurality of geofence properties", "providing authenticity documents for verification of the viewing user & property", "providing plurality of site visit parameters", "providing a plurality of predefined contour options", "displaying plurality of nearby amenities", "providing property location", "providing a chatbot", which refers to a mere presentation of information without any inventive features over the state of the art.

Thus, it was concluded that the claimed invention is an administrative/business process rather than a technical process and the various computer devices disclosed in the claims all operate in a standard way. Also, the claims directed towards a system, are no more than the method steps of the invention claimed masquerading as a system without any other specific hardware.

In view of the aforesaid analysis and unsatisfactory submissions made by the Applicant in respect of the pertinent requirements of the Patents Act, the application was refused.

Navigating the Roadblocks

From the above case study, it is evident that any improvements to the core technology which may result in enhancing internal functioning of general-purpose hardware which includes improving efficiency, processing speed, memory consumption, or computational complexity, is patentable.

More so, the invention must demonstrate 'technical advance' or 'technical contribution' over what is already existing in the art in order to be patentable. Furthermore, Blockchain based inventions where a business or administrative method is the fulcrum, do not inherently possess a technical nature and therefore cannot be patented.

When drafting claims for such blockchain-based inventions, a working method/process may be claimed intertwined with hardware/system components to implement Blockchain technology and algorithms. Also, to avoid being bucked as a computer program per se, Blockchain technology components may be tied to a real-world or practical application.

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