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# PATENTING OF BUSINESS METHODS: ISSUES AND CHALLENGES

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## ABSTRACT

*A business method can be understood as an effective method of conducting commercial transaction. An external patent incentive is not necessary to encourage and motivate the creation of business methods. The globalization, liberalization and industrialization have paved the way for increasing business all over the world. For which business method has assumed much importance. Business method patents are relatively new species of patent regime and holder of business methods has exclusive rights to a particular way of doing business. This paper focuses on patenting of business methods in India and USA and existing position in TRIPS.*

**Keywords:** Business Methods Patent, Commercial Exploitation, E-Commerce, Intellectual Property Rights, Innovation and Industrial Application.

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## 1. INTRODUCTION

Modern economy is often addressed as knowledge economy where knowledge is treated as one of the important sources of power. In a knowledge economy the role of intellectual property rights (IPRs) is beyond any doubt as it provides for commercial exploitation of knowledge through laws. It is generally assumed that IPR help encourage creative and inventive activity and make for orderly marketing of proprietary goods and services [1]. There are many kinds of Intellectual Property Rights are there in which patent is one among them. The patent is described as *litterae patentes* because it is open letter, not sealed up, but exposed to view, with

a Great Seal pendant at the bottom and are usually addressed by the Sovereign to all the subject of Realm [2]. Origin of the patent system could be traced back in 1311 when patent was granted in England to one John Kempe, a Finish weaver for trading in England [3]. In medieval England, patent was one of the royal prerogatives to grant monopoly rights to the foreign weavers and other craftsmen or trading communities by “allowing them to practice their trade and overcoming guild relations which suppressed competition. [4]” Patent generally refers to an entitlement which is conferred upon the person i.e. the one who invents something new, fulfilling the basic criteria or does some substantial improvement on any existing subject matter [5]. Thus, patent right can be said to be acting both ways - in one hand it assures incentives for the existing innovation and on the other hand it supplies motivation for future research activities [6]. An invention must be novel. In addition to newness the invention must be useful. This concept of novelty covers both process as well as products. Patent covers the use of substance for a new purpose but it cannot be a discovery for which patent can be claimed. Thus while considering patent applications the distinction between discovery and innovation must be kept in mind [7]. The claimed innovation must be capable of being distinguished from the prior art base. It is of the essence that the claimed innovation must not already exist in the public domain. To satisfy this requirement, recourse should be taken to gathering all necessary information from throughout world. This is required to be judged from the point of view of a person with ordinary skills in the similar field in which the patent has been sought for by the inventor. The third requirement for patenting an innovation is non-obviousness. That is to say that the claimed invention must be non-obvious to a person skilled in the art to which the invention relates [8]. The crux of the concept of non-obviousness lies into the putting of certain extra skill than what a person with reasonable prudence in the same field would have put into the same subject matter. It is thus always more than normal skill and technicality. Patent system is necessary to reduce the various uncertainties surrounding the inventive activities. History shows that countries that formerly lacking in term of technological advancement, used to contest with the advanced countries to come to a reasonably equal platform. For that sake technology was borrowed from advanced countries and used with due recognition [9]. According to Section 2 (1) (ac), which explains, “capable of industrial application, in relation to an invention means that the invention is capable of being made or used in any kind of industry”. The interpretation of the words “capable of industrial application” is also subject to judicial scrutiny. An invention, in order to be patentable, must be capable of being made or used in some kind of industry. Hence, ‘industry’ should be understood in its broadest sense as including any useful practical activity as distinct from purely intellectual or aesthetic activity, and does not necessarily imply the use of a machine or the manufacture of an article. An ‘invention’ within the meaning of the Act is an invention for a manner of new manufacture that is in some way associated with trade and commerce, meaning traffic in goods, i.e. exchange of commodities for money or other commodities [10]. ‘Invention’ includes both products and processes. In the case of a product patent, the article or apparatus itself, which is the end product, qualifies for a patent protection. In the case of process patent, the patent protection is limited to a particular process through which the end product is attained.

The philosophy underlying the concept of inventive step is similar to that in novelty. By granting monopoly over an obvious thing, the public should not be prevented from doing anything that is merely an obvious extension or workshop variation of what was already known [11]. The Patents Act defines an invention to mean a new product or process involving an inventive step and capable of industrial application. Section 2(1) (ja) defines inventive step as follows: ‘inventive step’ means a feature of an invention that involves technical advance as compared to the existing knowledge or having economic significance or both and that makes the invention not obvious to a person skilled in the art. Section 5 introduced the process patent and product patent distinction in providing that no patent shall be granted in respect of claims

for substances intended for use as food or as medicine or as drug, but claims for the methods or processes of manufacture of these substances shall be patentable. With the omission of section 5, such distinction is of limited relevance. The term invention means 'to find out something or discover something not found or discovered by any one before' [12]. An invention is understood based on how the three of its subjective constituents, i.e. novelty, inventive step, and industrial application are understood. The subject matter should involve an invention over what is old [13]. In 1985, in a classic case, *Windsurfing International v. Taburmarine*, [14] the Court propounded four-step test to determine the inventive step in an invention. They are as follows: (i) the Court must identify the inventive concept embodied in the patent; (ii) It must assume the mantle of the normally skilled but unimaginative addressee in the art at the priority date and impute to him what was, at that date, common general knowledge in the art in question; (iii) It must identify what, if any, differences exist between the matters cited as being "known or used" and the alleged invention; (iv) It must ask itself whether, viewed without any knowledge of the alleged invention, those differences constituted steps which would have been obvious to the skilled man or whether they required any degree of invention. This test laid down in *Windsurfing* case, stands as the guidepost in determining whether an invention involves inventive step or not.

## 2. BUSINESS METHODS PATENTS

The term Business method patents (BMPs) are patents granted for particular business models that are unique to a particular organization. It has not been defined by any statute, but is commonly used to describe patents relating to business methods, which usually fall within the realm of e-commerce transactions. BMPs usually cover aspects of software and Internet communications. Generally, business method and software patents are being sought by IT companies, Apps developers, and the proprietors of online market and auction sites. Software firms dealing in web-based applications or providing web-based support are among the major filers. Business method today is capable of IP protection in countries like USA, Australia, Japan and New Zealand. India is against granting of protection to Business Method. Business Patents are those patents which are given to business methods or business systems or like. A business method may be defined as "a method of operating any aspect of an economic enterprise" [15]. Business method patents are part of a larger family of patents known as utility patents, which protect inventions, chemical formulas, processes, and other discoveries. A business method is classified as a process, because it is not a physical object like a mechanical invention or chemical composition. According to international classification done by WIPO Business Method Patents are divided into a number of classes which basically fall in G06Q class and are defined as : "Data processing systems or methods, specially adapted for administrative, commercial, financial, managerial, supervisory or forecasting purposes; systems or methods specially adapted for administrative, commercial, financial, managerial, supervisory or forecasting purposes, not otherwise provided for". Traditionally, business methods were either in public domain or protected under trade secrets. They were not considered patentable because they were mere concepts without any connection to physical objects. Today, however, many businesses are carried out with computers. Financial services heavily rely on computers to process and transfer enormous amounts of data. Further, the Internet has provided new ways of doing business on-line, rather than physical contacts and transactions between a seller and a purchaser. Due to high economic stakes put on these new business methods and the growing importance of e-commerce in our society, the debate on the feasibility and possibility of patenting business methods has continued at both the national and international levels. It should be noted that the term "business method patents" requires some explanation. In general, business methods may be performed either in manual ways in a physical environment (for

example, how to minimize a queue at a cashier) or by computer software in the cyberspace (for example, a method of searching the cheapest air ticket in a minimum time on the Internet).

### 3. BUSINESS METHODS PATENTS IN UNITED STATES OF AMERICA

Historically, business methods were not regarded as patentable subject matter by the USPTO. The USPTO broached the subject of whether business methods should be patentable subject matter as early as 1869, when it was determined that methods of book-keeping should not be considered patentable subject matter, and were “contrary to the spirit of the patent law construed by the Office for years” [16]. Additionally, the patentability of business methods was discussed in 1883 in *United States Credit System Co. v. American Credit Indemnity Co* [17]. In that case, the Second Circuit affirmed that a method of “transacting common business” did not constitute patentable subject matter. In the 1908 case of *Hotel Security Checking Co. v. Lorraine* [18], the Second Circuit held that a book-keeping system designed to prevent embezzlement by waiters, as a system of transacting business, was invalid due to a lack of novelty. However, in dicta, the court also stated that any business method *per se* was unpatentable. Based on this dicta, the so-called “business method exception doctrine” developed, under which business methods were not considered patentable subject matter. As a result, business methods that might have otherwise been patentable subject matter were not disclosed to the public. It is likely that in most cases, these business methods were kept in-house as trade secrets, the result of which was that these business methods never entered the public domain. The business method exception doctrine continued over the years, and was cited by the Board of Patent Appeals and Interferences in *In re Schrader* [19], in which the Board’s invalidation of a patent under 35 U.S.C. § 101 was upheld by the Federal Circuit as recently as 1994. However, it should be noted that the Federal Circuit’s majority opinion did not mention the business method exception, and only referred to the mathematical algorithm exception to 35 U.S.C. 101.

For many years, the USPTO took the position that "methods of doing business" were not patentable. However, with emergence in the 1980 and 1990s of patent applications on internet or computer enabled methods of doing commerce, USPTO found that it was no longer practical to determine if a particular computer implemented invention was a technological invention or a business invention. Consequently they took the position that examiners would not have to determine if a claimed invention was a method of doing business or not. They would determine patentability based on the same statutory requirements as any other invention. The allowance of patents on computer implemented methods for doing business was challenged in the 1998. The court affirmed the position of the USPTO and rejected the theory that a "method of doing business" was excluded subject matter. The USPTO continued to require, however, that business method inventions must apply, involve, use or advance the "technological arts" in order to be patentable. This was based on an unpublished decision of the U.S. Board of Patent Appeals and Interferences. However, this requirement could be met by merely requiring that the invention be carried out on a computer [20]. The main judicial thrust which favored business method patents was given in the case of *State Street Bank v. Signature Financial Group* [21]. In this case Signature Financial Group was granted a patent for pooling of assets in a centralized hub. The patent claim comprised of implementation of requirements under some internal revenue regulation for the avoidance of tax regulation on partnership. The Court held that the transformation of data, representing discrete dollar amounts, by a machine through a series of mathematical calculations into a final share price, constitutes a practical application of a mathematical algorithm, formula, or calculation, because it produces a useful, concrete and tangible result, a final share price momentarily fixed for recording and reporting purposes and even accepted and relied upon by regulatory authorities and in subsequent trades.

According to many scholars this case acts as an impetus to the emergence of business method and software patents as prior to this case, business methods were treated to be non-patentable. This case laid down the principle that a claimed innovation is entitled for protection through patent if the same includes certain practical application and produces a useful, concrete and tangible result. In *Street Bank is AT & T Corp. v. Excel Communications* [22], where AT & T had a three step method used for receiving calls and messages and processing of the same for billing in a convenient manner. The patent was objected by the defendants on the ground that the process involved mathematical algorithms and hence the same is not patentable ab initio. However at the final stage of proceedings the Court reiterated the decision given in the State Street case and held that mathematical algorithms can only be regarded as non-patentable as long as they convey ideas at abstract basis. But if the same can be used in such a way so as to produce some kind of useful, concrete and tangible result then automatically they come within the territory of being patentable. The patent in question was thus held to be valid as it has also satisfied the essential tests required under the patent laws. Although the United States Patent and Trademark Office (“PTO”) had issued business method patents (“BMPs”) prior to 1999,<sup>3</sup> the decisions of the United States Court of Appeals for the Federal Circuit (“Federal Circuit”) in *State Street Bank & Trust Co. v. Signature Financial Group, Inc.* [23] in 1998 and *AT&T Corp. v. Excel Communications, Inc.* [24] in 1999 led to a significant increase in the number of BMP applications filed with and granted by the PTO. Although grants of such patents have considerably stabilized in recent years, many policy issues raised by financial, electronic commerce and software companies in response to the *State Street Bank* and *AT&T Corp.* decisions regarding the patentability of business methods remain unanswered. Several legal and economic scholars, as well as the press, have examined this issue and have raised concerns about the quantity, quality and patentability of BMPs. The trickle of business method patents issued by the United States Patent Office became a flood after the State Street Bank decision in 1998. Many scholars, both legal and economic, have critiqued both the quality of these patents and the decision itself. The judgment that gave foremost momentum to business method patents was delivered in the case of *In re Bilski* [25]. In this case the applicant filed an application for patent of some kind of method involving hedging of risks in commodities.

### 3. TRIPS AND BUSINESS METHODS PATENTS

The Agreement on Trade Related Aspects of Intellectual Property Rights (TRIPS), 1994 is regarded as the foremost agreement at a global forum covering all sorts of intellectual property rights. Article 27 of this agreement provides that patents shall be available for any inventions, whether products or processes, in all fields of technology, provided that they are new, involve an inventive step and are capable of industrial application. Though business method patents are not directly addressed by the agreement but still we can bring the same into its ambit. The agreement allows members to allow patent on product or process which fulfils the conditions of 1) Novelty 2) Non-Obviousness and 3) Industrial Applicability. Since business method patents are treated as a special category of process patents hence they can be said to be governed under the provisions of TRIPS Agreement and this kind of patents are also thus subject to the limitations laid down under the provisions of Article 27 itself. When it comes to the TRIPS background of business method patents, one may reasonably foresee the close-knit of business method and software patents. Generally to solve problems certain systems may be used which can be both technical and non-technical. There lies a very thin line of relationship between these two as in modern day business method patents involve preferred embodiment of software which helps in implementing the business method. In other words, a business method patent may be dependant on the software patent to a great extent as the latter helps the former to implement the main patented object. It should be remembered that TRIPS agreement obliges the member states to observe minimum standards and not the maximums. Hence while this agreement

obliges members to provide compulsory patent protection to technological innovations however it cannot be said to be prohibited for members to grant patent protection to those innovations which are non-technological in nature. Though United States of America has taken a lead with regard to business method patents, however it is not the end of the story. It is therefore very pertinent for us to discuss about the approaches taken by other significant countries with reference to this recent development in patent laws. In this section we will undertake certain countries like the European Union, Japan and Canada in to the consideration.

#### **4. PATENTING OF BUSINESS METHODS IN INDIA**

Business Method Patents is one of the most amazing topics in the patent industry though in India according to the Indian patent Act and Rules these are not patentable [26]. A business method may be defined as "a method of operating any aspect of an economic enterprise". First of all let us have a look at some basic points related to Business Method Patents and how these Patents help in improving/growing business for both independent inventors and major corporations. Business Method Patents are a class of Patents which disclose and claim new methods of doing business and include new types of e-commerce, insurance, tax compliance etc. Business method patents are a relatively new species of patent and there have been several reviews investigating the appropriateness of patenting business methods. Every company has its own strategy and goals and accordingly evolves an approach to achieve them. The approach may involve method of marketing their product, method of giving importance and weight age to their client, method of carrying out business transactions including financial transactions and other such related aspects. Companies invest huge amounts of their resources to innovate and develop new and unique systems. These companies would like to ensure that their innovative methods and approach is be protected. Business Method Patents can be one way of protecting such systems. Hence Business Method Patents help inventors or companies to prevent or stop their competitors or other firms from making use of their unique ideas and work. A cutting-edge issue in regard to business-method patents is whether they are patent-ineligible because they are not "technological," regardless of whether they meet the other criteria of patent-eligibility and patentability. It is also important to look into few instances to know more about business methods patents. In Amazon case [27] one-click patent to Amazon.com was criticized by few writers on the ground of it being "unplanned mutation". Here an injunction was granted to Barnes & Noble for not using the said feature. This case clearly reflects drawbacks that can arise in case a business patent is protected in countries which are still developing their technologies. The Delhi High Court recently passed an order of interim injunction against YouTube and its parent company Google against the business practice of Youtube of earning profits at the expense of a rightful copyright owner. YouTube is facing quite a few legal battles for its business plan for copyright infringement. The recent being a suit filed by Tseries in the Delhi High Court. The Delhi High Court issued notice and summons against YouTube and Google, Inc and passed an interim order restraining them from reproducing, adapting, distributing, communicating, transmitting, disseminating or displaying on their websites or otherwise infringing in any manner any audio visual works in which the Super Cassettes Industries (hereinafter referred as SCIL) owns exclusive, valid and subsisting copyright. The business model of YouTube allows, encourages and profits from use of copyrighted work uploaded on the website without obtaining any license or permission from the rightful copyright owners and without paying them any royalty. The profits from this business model, which is based on copyright infringement, are enormous. The arguments on the basis of which the injunction order was passed were: YouTube and Google profit at SCIL's expense by showing SCIL's songs for free to the public, while displaying advertising on the screen and collecting revenue from the advertisers based on the number of hits on the site. SCIL's revenue comes from manufacturing and selling DVDs, CDs and audio cassettes of its copyrighted music and

from royalties collected by licensing the copyrighted music to hotels, restaurants, television companies, radio stations, telecom operators and internet websites. YouTube LLC and its parent, Google Inc., have on their website YouTube.com been showing videos of SCIL's copyrighted songs without SCIL's license or permission. It will be interesting to see what defense YouTube takes when the case comes up for hearing in February next year. The grounds which might be highlighted by YouTube to avoid copyright infringement during the hearing are as follows: Whenever a user uploads any videos on YouTube the following message appears to avoid copyright infringement "Do not upload any TV shows, music videos, music concerts, or commercials without permission unless they consist entirely of content you created yourself [28].

Please refer to our Copyright Tips page for some guidelines and links to help you determine whether your video infringes someone else's copyright." Moreover nearly 3, 00,000 to 5, 00,000 videos are uploaded daily on YouTube. Giving regard to the number of videos that are being uploaded everyday it is not technically possible for the website to make such filters that would restrict uploading of copyright protected material. However the other side of the story is that, Google has in the past objected to provisions in India's Information Technology Act 2000 which make intermediaries such as ISPs (Internet service providers), website hosting companies, search engines, e-mail services, and social networks, liable for their users' content. Ironically, many other Internet operations such as MySpace, TorrentSpy, DailyMotion and Break.com have set up filtering systems to block copyrighted material. Google is a \$158 Billion company with arguably the most advanced search technology in the world. The argument that they cannot block pirated content because of technological or financial reasons is laughable. With the passing of this restraining order, the onus appears to now be on Google and YouTube to prevent users from uploading T-Series content. The other thing is - if this becomes a permanent injunction, then it sets a precedent in India which will impact other video sharing sites, including Rediff's. We need to wait and watch for the decision of the Delhi High Court as its decision might change the total scenario of IP Law. Section 3(k) of Indian Patent Act was again discussed by Intellectual Property Appellate Board in *Yahoo v. Controller and Rediff* [29] and *Accenture Global Service GmbH, Switzerland v. Assistant Controller of Patents and Designs, New Delhi and Another* [30]. During the recent visit of Indian Prime Minister to USA, one of the issues that figured prominently in talk agenda was IP related issues. American business community especially those from pharmaceutical industry had been lobbying with their government to pressurize India to bring Indian Patent Act and its provisions in aligned with global systems so that their investments can be legally protected. As of late India has been looking for increased investment both in infrastructure projects and technology they chose as a way to get their concerns addressed. With above backdrop, it is natural to look for areas in IP domain where Indian Patent Act and its provisions deviate from those of other countries. One issue on which Indian Patent Act differs from many others especially USA is non-patentability of Business Method Patents in Indian Patent Act.

## 5. CONCLUSION

India is one of the fastest growing economies among China, Brazil, Russia, South Africa and Mexico. It is expected to be the third largest economy of the world after US and China by 2035. As a cost effective and labour intensive economy, India has benefited immensely from outsourcing of work from developed countries and has maintained a reasonably good manufacturing and export oriented industrial framework. Innovation and new invention will play a crucial role in making India one of the most attractive destinations for investments and business [31]. With the help of advancement in science and technology the world today has turned up into a high-tech global village. However, such advancement of science and technology can never be static and requires constant evolution. Despite, countries have been

found to have deviated from this basic premise and sought to grant patents on inventions which are not hardcore technical in a strict sense. Few countries have justified this position with adding the requirement of some kind of technical aspects to a business method invention though there is no universal rule is prevailing in this regard. It is pertinent to note here that India should consider that business methods *per se* are not patentable.

## REFERENCES

- [1] Watal Jayashree, Intellectual Property Rights in the WTO and Developing Countries, Oxford University Press, New Delhi, 2001, p. 1.
- [2] Blackstone's Commentaries, Vol. II, C.21, S.2.
- [3] Dr.Jayanta Lahiri,Lectures on Intellectual Property Laws, 2009,p.101.
- [4] David Bainbridge,D.Intellectual Property,1991,p.5.
- [5] Myneni, S. R , Law of Intellectual Property,2007, p.369.
- [6] Bently, Lionel and Sherman, Brad , Intellectual Property Law, 2004, pp. 327-329.
- [7] Ryder, D. Rodney , Intellectual Property Law- Concept to Commercialization, 2005, p.37.
- [8] Wadhehra, B.L (2007), Law Relating to Intellectual Property, 2007, p. 6.
- [9] Shiva, Vandana, Patents; Myth and Reality,2001, pp.14-18.
- [10] *Sri Gajalakshmi Ginning Factory Ltd. v. CIT* (1952) 22 ITR 502 (Mad).
- [11] Basic Principles of Patent Law, "*Paper-I Basic Principles & acquisition of Intellectual Property Rights*",Bangalore: CIPRA National Law School of India University, p.27.
- [12] *Raj Prakash v. Mangat Ram Choudhury* AIR 1978 Del 1.
- [13] *Bishwanath Prasad Radhey Shyam v. Hindustan Metal Industries* AIR 1982 SC 1444.
- [14] 1985 RPC 159 CA.
- [15] Available at <http://www.acip.gov.au/library/bsreport.pdf>. Last visited on 03.04.2020.
- [16] *Ex parte Abraham*, 1869 C.D. 59.
- [17] 53 F. 818, 819 (S.D.N.Y.), *aff'd* at 59 F. 139 (2<sup>nd</sup> Cir. 1883).
- [18] 160 F.147 (2d Cir. 1908).
- [19] *In re Schrader*, 22 F.3d 290 (Fed. Cir. 1994).
- [20] Available at <http://www.mondaq.com/india/x/366752/Patent/Business+Method>.Last visited on 04.04.2020.
- [21] 149 F.3d 1368 (Fed. Cir. 1998).
- [22] 172 F.3d 1352, 1353 (Fed. Cir. 1999).
- [23] 149 F.3d 1368 (Fed. Cir., 1998).
- [24] 172 F.3d 1352 (Fed. Cir., 1999).
- [25] 545 F.3d 943, 88 U.S.P.Q.2d 1385 (2008).
- [26] Sec.3(k) of the Patents Act,1970 .
- [27] *Amazon.com Inc. v. Barnsandnoble.com*, 53 USPQ 2d 1115 (W.D. Wa. Dec. 1, 1999)
- [28] Available at <http://www.legalserviceindia.com/article/1124-YouTube-case.html>.Last visited on 07.04.2020.
- [29] OA/22/2010/PT/CH decided on 8 Decemeber,2011.
- [30] (2012) 28(Del).Miscellaneous Petition No.118/2012 in OA/22/2009/PT/DEL decided on 28 December 2012.
- [31] Invitation of Views on the draft National IPT Strategy as prepared by the Sectoral Innovation Council on IPR, Available at <http://dipp.nic.in>.Last visited on 08.04.2020.

- [32] Khushi Ram, Rajani Rajan, Krishna Rao Chintada, Ashok Arige and Dr. Ramesh Chakka, An Insight on The Patent Term Adjustment Provisions in Various Countries. International Journal of Intellectual Property Rights, 9(1), 2018, pp. 01–11
- [33] M. Pratheeban and Dr. S. Balasubramanian, Applying Tree Structure in Patent Mining Using IPC Classification, International Journal of Computer Engineering and Technology (IJCET), Volume 5, Issue 3, March (2014), pp. 64-72
- [34] Manoj Kumar Kar, Impact of Patent Regime on SME Sector-Engineering Area. International Journal of Intellectual Property Rights, 7(1), 2016, pp.11–31.
- [35] Ishne, Indian Regulatory Framework, Public Morality and Medical Treatment Patenting. International Journal of Intellectual Property Rights, 9(1), 2018, pp.12–21
- [36] Dr. Smita Sahu and Ritika Sharma, Isolated Gene Patenting: Ethical Implications or Future Promises, Looking Ahead, International Journal of Intellectual Property Rights (IJIPR), Volume 5, Issue 1, January - June (2014), pp. 18-21
- [37] Purwa Rathi, Machine Borne Inventions & Ownership: A Patenting Perspective. International Journal of Intellectual Property Rights, 10(2), 2019, pp. 15– 20.