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Patents - Understanding the Facts

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Abstract

Patent is a well known term but, there is still uncertainty existing about the Patent system. Patents are a form of intellectual property (IP) that represent an invention, or it can be considered as one of the intangible assets which grants an exclusive right for exploitation of an invention for a limited period of time. There are few misconceptions existing around the patent terminology which is leading to a number of ineffective patents and more precisely, the importance of patents is less known even in academic and industry sectors. Patents are key to innovation which can lead in strategic management of economy. Big corporates are major players in the market who are reaping maximum benefits of the patent's portfolio whereas, small scale entities even though they are striving to drive towards innovation, they are failing to protect their intellectual property in form of patents. Even if they are succeeding in protecting such ideas in form of inventions, still they are unable to benefit to maximum, due to lack of proper management of their IP portfolio.

Keywords: Intellectual Property, innovation, intangible assets, Patents, Patent Law, Novelty, inventive step, IP management, non-patentable, scope of protection, Patent Portfolio

1. Introduction

Intellectual Property defines the intangible assets arisen out of one's intellect. There are different forms of intellectual property like Copyright, Trademarks, Trade Dress, Patents, Trade Secrets, Utility Models, Industrial Designs, Geographical Indications, Traditional Knowledge and Cultural Expressions. Among these assets, Patents involve inventions in form of both product and process. Patent is an exclusive property right granted to the inventor (s) by the respective sovereign body for a limited period.

Patents are still an unresolved subject for most of the educational institutions, startups and small, medium scale sectors. There is an unfilled knowledge gap between these sectors where research and innovation are not inclined towards a proper protection which could increase the value of business to these sectors. Even academic institutions can reap the benefits of research and innovation through reformed IPR policies which is a backdrop in the developing countries. Patents are believed to be a costly affair but aftermath of filing of patents, which can pave way to profits and value addition to the business can be devised through IP management strategies. A business entity should be open to innovation that involves IPR management.

It is essential for an inventor and the applicant to know the patent terminology and the Patent Law practiced in respective jurisdiction to acquire effective patents which drive towards innovation. This chapter can state the myths and facts and how to fill existing knowledge gap to attain a sustainable innovation.

2. Understanding patent terminology

There are few patent terminologies to be well understood by an inventor and the applicant of the patent to reap maximum benefits from such inventions. Patent is granted to both product and process.

2.1 Patentability criteria

There are three important criteria to be met by each invention to be qualified as a patent.

2.1.1 Novelty

Novelty defines that the product or process to be new and unknown to public before the filing of the patent application. This criterion prevents the prior art from being patented again. Prior art includes already existing patent applications, granted patents or non-patent literature like journals, research papers, books which disclose the use of technology that is similar to your invention. If your invention is publicly disclosed in technical conferences/seminars or exhibitions, or publicly demonstrated and used before filing the patent, then such invention is not considered as novel. Few countries like U.S.A, India provide a grace period of 12 months from such date of public disclosure to file a patent for such invention.

2.1.2 Inventive step/non-obviousness

The invention shall not be obvious or apparent to a person ordinary skilled in the field relating to the invention (PHOSITA- person having ordinary skill in the art). Basically, the invention shall contain an inventive step over the prior art and such improvement should not be mere improvement or general re-arrangement of components/features of the invention. Illustrations [1] which are considered as obvious are:

- Mere arrangement or rearrangement of known prior art elements according to known methods to yield predictable results.
- Substitution of a known alternative of an element to obtain predictable results.
- Use of known alternative technique to improve similar devices (methods, or products) in the same way.
- Use of known element or method from a finite number of identified, predictable solutions, with a reasonable expectation of success.
- Known method in one field of technology which may prompt variations of it for use in either the same field or a different field based on design incentives or other market forces, if such variations are predictable to one of ordinary skill in the art.
- Teachings, or suggestions, or motivation in the prior art that would have led one of ordinary skill to modify the prior art reference to arrive at the claimed invention.

2.1.3 Industrial use

Patents in the form of product or process should be able to solve an existing problem or it can be an innovative solution than the existing solutions to a problem and such invention should be used on industrial scale to reach the public.

Myth: Any invention with the above three patentability criteria can be qualified as patent.

Fact: Apart from the above three patentability criteria your invention should not fall under non-inventions criteria.

2.1.4 The non- inventions recognized globally

- Discoveries are non-patentable:

The discovery of laws or principles of nature or science, or any living or non-living material is not patentable subject matter [2].

Reason: since they are already existing in nature and discovering is to uncover something or revelation of existing systems whereas, inventing is to create something unpredictable from available systems.

- Scientific theories are non-patentable:

Scientific theories are non-patentable, regardless of how radical or revolutionary their insights may be since, they are theory. Patents are granted to a product or process which incorporates such theory to bring out innovative solution to an existing problem [2].

- Inventions Contrary to public order or security and morality are non-patentable:

Inventions that cause serious prejudice to human, animal or plant life or health or to the environment are non- patentable since, an invention should be able to solve a problem existing in the public sector but not to create harm to the welfare of public. Examples: a process for cloning human beings; an invention that involves the use of human embryos for industrial or commercial purposes [2].

- Methods for treatment of the human or animal body are non-patentable:

Treatment of humans or animals by surgery, therapy and diagnostic methods are not capable of industrial application, and it is against the policy of practice of medical professionals to restrict other medical practitioners from use of such method of treatment [2].

- Mathematical methods or algorithms are non-patentable:

Mathematical methods are considered a part of theory and solving the problem using such mathematical methods is considered to be a mere mental skill [2].

- Method of playing games is non-patentable:

Playing games is considered as act of mental skill and it can vary from person to person in playing a similar game even when they are pre-defined set of rules since

there is always a probability of ways depending on the choice of the player (s) made during each stage of game and such act does not involve technology development and such method or tactics does not have industrial applicability [2].

- Business methods or strategies, or business models are non-patentable:

Business methods or strategies or business models are the methods used for a particular business sector and such methods gain competitive advantage over the competitors in same technology. Such methods or tactics cannot be industrially applicable for every business sector working in same technology [2].

- Presentations of information is non- patentable:

A presentation of information defined solely by the content of the information is not patentable since such representation is non-technical in nature and such works are considered as copyright of such creator [2].

- Esthetic creations are non-patentable:

Esthetic creations relate to an article (e.g., a painting or sculpture) having aspects of art and such works are not technical in nature. Such works do not qualify inventive step I and industrial application rather, the appreciation of such works is essentially subjective in nature.

- Traditional knowledge is non- patentable:

This type of knowledge is passed through generation and it belongs to community from generations, and it has been practiced through generations and such knowledge does not qualify novelty requirement for a patent [2].

Examples: agriculture methods, food production, traditional medicine, land management, ecological management, natural resource management and the like.

- Topography of Integrated circuits is non- patentable:

The topography does not fall under patent protection since it involves the arrangement of known electrical elements which are arranged in layers over a substrate which is generally made of semi-conducting material. The mere arrangement of known elements in different layers does not constitute an inventive step. A separate law is enforced to safeguard such designs or topography or layouts of the Integrated circuits [2].

2.2 Who can file the patent?

- The person who claims to be first and true inventor of an invention.
- The person being an assignee to such person who claims to be the true inventor of the invention.
- Any legal representative of the assignee or inventor who is entitled to make such an application [3].

Myth: Inventor is always an assignee of a patent.

Fact: Inventor may or may not be an assignee of a patent.

The Inventor can be an individual who involved in developing the invention whereas an assignee is a person or entity who is willing to take responsibility in legal implication of filing process and further maintaining such application after the grant.

If the inventor is a researcher, or professor, or employee then the employer of such inventor i.e., the research institute, or the university, or the company will be the assignee and applicant of such patent application.

2.3 Types of patent application

2.3.1 Ordinary application

- **Provisional Application:**

A Provisional Patent Application is generally filed when your invention is still in progress and filing such provisional application will acquire a priority date. The Provisional application will not be published nor examined.

- **Non-Provisional Application:**

Non-Provisional Application to be filed within 12 months from the date of filing of the provisional specification to keep the patent application in active state and such non-provisional application comprises of the detailed description which gives sufficient disclosure of the invention. Non-provisional application will be further published in respective national patent journal and examined further on request of the applicant.

- **Patent of Addition or Continuation-In-Part application:**

The applicant can file a patent of addition (or Continuation-In-Part application) [4] if there is a modification or improvement of the invention which has already been applied for or patented. A patent of addition can only be granted after the grant of the parent patent.

- **Divisional Application:**

Divisional application is filed if the applicant wishes to divide an application to furnish two or more applications, if the parent application claims for more than one invention. The priority date for such divisional application is similar to that of the parent application.

2.3.2 International application

- **Convention Application**

A convention application is filed for claiming a priority date based on the same or substantially similar application filed in any of the convention countries. The applicant is required to file an application in their national country Patent Office within a year from the date of the initial filing of a similar application in the convention country [5].

- **PCT International Application**

A PCT Application is an international application to streamline patent application process in all the member countries which are signatories to PCT with a

single PCT international application. It is governed by the Patent Corporation Treaty and can be validated in 152 member countries.

- PCT National Phase Application

A national phase application is filed in each of the country wherein the protection is sought. The national phase application must be filed within 31 months from the priority date or the international filing date, whichever is earlier [5].

Myth: PCT international application represent a universal or international patent.

Fact: A PCT application does not itself result in the grant of a patent and the grant of patent is a prerogative of each national or regional authority where the applicant decides to protect such invention.

2.4 Legal status of a patent application or a patent

Patent application and Patent are two different terms with different legal terminology. A patent application represents the filed application, and it is called as patent application until it is granted or rejected whereas, a Patent represents a granted patent application and which is renewed and maintained periodically upto to its term of 20 years.

2.4.1 Status for patent application

- Patent Application filed (Patent Pending): it determines filing of provisional or non-provisional application.
- Patent Application Published (Patent Pending): it indicates the publication of non-provisional application.
- Patent Application in examination (Patent Pending): the patent application will be examined o request by the applicant in order to put it for grant.
- Patent application in opposition (Patent Pending): this can be a pre-grant opposition applied by a third party to challenge the validity of such patent application.
- Patent Application is withdrawn: this indicates that the applicant has withdrawn the patent application from the process of grant.

2.4.2 Status for patent

- Patent Grant: determines that the patent application has been granted.
- Patent in opposition (post grant opposition): determines that the validity of such patent is challenged by an interested third party.
- Patent Lapsed: determines that the patent has been lapsed or ceased due to non- renewal of patent. Renewal of patent is mandatory to maintain the patent for the term of 20 years and renewal is paid annually.

- **Patent Expired:** determines that the term of patent has expired, and it falls under public domain.
- **Patent Revoked:** determines the revocation of patent due to non-working of such invention.

Myth: A patent application cannot be monetized until a grant is issued.

Fact: All types of patent application before grant including provisional patent applications can be licensed, sold. Although, the applicant cannot sue for infringement if such status of such patent application is pending [4].

2.5 Stages of patent filing and prosecution

2.5.1 Prior art search and filing of the patent application

The preliminary stage is to do a prior art search to value the novelty and inventiveness of the invention in comparison to the existing prior art and filing a patent application claiming the novelty and inventive features of the invention over the existing prior art.

2.5.2 Publication of the patent application

After the non-provisional patent application is filed by the applicant the respective patent authority will publish such application in the respective patent journal to disclose to the public. The applicant will be provided exclusive right of monetization of such invention over a limited period in exchange of disclosure of such invention to the public.

Myth: My competitors do not know about my patent application until the grant.

Fact: the patent application will be published and disclosed to public before initiating the examination process to put the application in order of grant.

2.5.3 Examination of the patent application

On request of examination from the applicant or any other interested party the patent office will proceed to examine the application to evaluate the patentability criteria and prepare an examination report stating any objection for validity of such invention.

2.5.4 Grant or dismissal of the patent application

If the objections are complied by the applicant the application will be granted else dismissed.

2.5.5 Opposition proceedings

Opposition is allowed by a third party to challenge the validity of an invention and such opposition is allowed before and after the grant of patent.

2.5.6 Infringement proceedings

If the patentee rights are exploited by a third party without the consent from the patentee, then the patentee can sue such third party for infringement of patent to claim damages for such wrongful commercial gain by the third party.

2.5.7 Working of patent or compulsory licensing

The patent granted should be worked to meet the public requirement. If such patent is not working for a certain period of time any interested third party or the government can claim compulsory licensing of such patent, wherein the third party to provide sufficient evidence stating attempts to acquire license for such invention.

2.5.8 Revocation or surrender of patent

Revocation of patent will be imposed by the governing authority if such invention is not working or not able to meet the public requirement.

2.5.9 Expiry of a patent

At the end of 20 years term, the invention protected as patent will be fall under public domain and anyone are free to use such invention even for commercial gain.

2.6 Term of the patent

All jurisdictions provide the patent a term of 20 years from the actual date of filing an application for a patent or the actual date of filing an international application under the PCT. The actual date of filing can be up to a year after the earliest priority date (In European and U.S jurisdictions).

3. Patent opposition

An opposition proceeding is an administrative process accessible under the patent law of many jurisdictions which allows any interested third parties to formally challenge the validity of a pending patent application (“pre-grant opposition”), or the granted patent (“post-grant opposition”), and such opposition can be accessed within a certain time period as defined by the respective jurisdiction. The grounds to oppose such patent application or granted patent are [6, 7]:

- Lack of novelty, lack of inventive step or such invention is not industrially applicable.
- The invention formed with a part of the prior public knowledge or the prior public use or traditional knowledge of any community.
- Invention anticipated with regard to traditional knowledge of any community, anywhere in the world.
- Ineligibility of invention (*as discussed in Section 2.1.4*)
- Wrongfully obtaining the invention.
- Insufficiency of description of the invention.
- Nondisclosure/ wrong mention of source of biological material.
- Failure to disclose information or furnishing false information relating to foreign applications filed by the applicant for the same or substantially the same.

4. Patent infringement

Patent infringement is the wrongful act committed by the infringer with respect to the exclusive rights granted to a patent holder for a patented invention. The definition of patent infringement may vary by jurisdiction, but it typically includes using for commercial gain or selling the patented invention.

Myth: If X is granted a patent, then he can claim damages against an infringer anywhere across the world.

Fact: Patents are territorial (they are effective in the country where they are granted only) and infringement is only possible in a country where a patent is in force. For example, if a patent is granted in the United States, then anyone in the United States is prohibited from making, using, selling or importing the patented item, while people in other countries may be free to exploit the patented invention in their country.

Myth: X can claim damages for patent infringement for a pending application.

Fact: X can claim damages for such patent infringement only after the grant of such patent.

4.1 What constitutes a patent infringement?

Assume Product B looks and operates like Product A, wherein Product A uses a patented invention. This does not necessarily determine that Product B is infringing the patent used in Product A. It is entirely possible that the second product uses a totally different technology to accomplish the same thing as the first product.

So, if the product or service uses all of the elements of at least one independent claim in the patent, then that constitutes an infringement.

4.2 Types of patent infringement

4.2.1 Direct infringement

Direct infringement is determined in terms of producing, utilizing, selling (or attempting to sell), or importing a protected idea or invention without obtaining authorization from the rightful owner of such patent.

Case law of direct infringement: *LabCorp v. Metabolite, Inc.* [8]: In 1999, Metabolite took legal action against LabCorp for infringement of a patent covering a diagnostic test. The claims of Metabolite's patent include the correlation between levels of homocysteine and vitamins B6 and B12. A jury ordered LabCorp to pay \$4.7 million in damages and the choice was upheld by a federal court, which further stated that doctors were '*directly infringing*' Metabolite's patents each time such a test is ordered and interpreted.'

4.2.2 Indirect infringement

There are actually two types of indirect infringement.

- Contributory infringement, which refers to the purchasing or importing of materials that are patented, which are intended to be used as part of another patented item.
- Infringement by inducement, which refers to any activity performed by a third party that causes someone to directly infringe on a patent. Even if one of those parties is not aware of the original patent, they can still be found responsible [9].

4.2.3 Willful and literal infringement

Willful infringement involves the concept of intention. Literal infringement refers to incidents involving the exact copy of a patented item being used, sold, or imported.

4.2.4 Doctrine of equivalents infringement

If the infringing product performs the same function and yields the same results of the patented product, then it is considered as doctrine of equivalent infringement.

Case law: Graver Tank & Manufacturing Co. v. Linde Air Products Co., (1950) [10]- In this case, the Court explained that the doctrine of equivalents applies if two elements are interchangeable and a person with ordinary skill in the art would have known that the elements were interchangeable at the time of infringement.

5. Assignment and licensing of patent

Assignment of patent is transfer of ownership of the patent technology. The assignor can be the first inventor or first applicant of such patent and assignee will be the first applicant of patent application or any interested party who is capable to work such patented technology. Assignment of the patent or patent application commonly occur between the employee and the employer; student or professor and the university; or between two different corporate bodies. Such assignment depends on the respective IP policy of the respective organization.

Licensing is leasing your exclusive rights to make, sell, use to another interested party (licensee) for a limited period of time while retaining the actual patent ownership to the licensor. The types of licensing of patents or patent application are:

5.1 Exclusive license

In an Exclusive License, the licensee cannot license the patent to anyone else. It is exclusively granted to such licensee and the licensee cannot further license it to anybody else. The licensee holds the ownership of the patent for the term of the license only.

5.2 Non-exclusive license

In the non-exclusive license of the patent, the patent can be leased to more than one party, and all of them can maintain control over such patented technology to monetize the claimed product or process in such patent or patent application.

5.3 Sub licenses

Assume that the licensee needs third party contribution like requirement of work force, or certain machinery or raw materials to monetize the patented product, then the licensee can agree to sub-licensing with different organizations for the making of the product as claimed in the patent.

5.4 Cross-licensing

Assume, that two organization have their own patented technology which complement each other, then both the organizations can negotiate in terms of

cross-licensing of their patented technology. Cross-licensing is required when the invention of one organization requires the support of other products or patented technology owned by the other organization to bring out the efficient product into the market.

6. Working of a patent and compulsory licensing of a patent

The granted patent or a patent application which represents an invention should be worked or at least such patented invention to be licensed to meet the public requirement.

The non-working of the patent can pave a way for possibility of compulsory license where, an interested third party can claim a license and the governing body can allow such license without the consent of the patent holder. The royalty for such compulsory license will be estimated and awarded by the governing body itself towards the patent holder.

Landmark case of compulsory license in India is *Bayer v Natco*- India's first ever compulsory license was granted by the Patent Office on 9 March 2012 to Hyderabad-based Natco Pharma for the production of a generic version of Bayer's Nexavar, an anti-cancer agent used in the treatment of liver and kidney cancer.

7. Patent portfolio

Patent Portfolio represents the group of patent applications (which are filed and pending) and patents (which are granted and active) that belong to a single entity. The patent portfolio can contain hundreds, sometimes thousands, of patents.

The patent portfolio must be valued and analyzed periodically wherein, valuation of patents can be established, and decisions can be made on such patents in terms of licensing, cross-licensing or merger and acquisitions (M&A), or technology transfer.

The Patent portfolio should be managed through IP audits which can determine the legal status of the existing patent applications and granted patents and through valuation of each application the entity can decide to maintain the most valued patents through renewals and discard such application or patents with low value either through sale or patent pooling.

Myth: Patent Portfolio with enormous number of patent applications and granted patents increase the worth of such holding entity.

Fact: The worth of patent portfolio does not depend on the number of patent application or patents, but the working of such patents determines the actual worth of the entire portfolio.

Patenting is the strategy to uplift the innovation and innovation is accomplished when such patented technology is actually practiced on industrial scale to benefit the public on large scale. If the applicant or the patentee is not capable of working the patented product or process, the best method is knowledge transfer through licensing deals to such qualified licensee or assignment (transfer of ownership) of the patent to any interested party who are capable to bring the patent technology into market to benefit the public.

The educational institutions always encounter the issue with monetization of their patent technology due to lack of sufficient infrastructure, work force, or finance as compared to industrial standards. The technology transfer is one sort of public private partnership between the educational institutions and the private sector like industries where the technology is transferred to industrial sector in

return of some royalty through licensing and some other incentives like funding for research, or establishing collaborative or joint research, exchange of personnel, establishing research incubators or technology parks, training of students according to industrial norms and so on.

8. Conclusion

Patents are technology related intangible assets that drive the innovation of the technology sector. IP is a part of Innovation and patents drive such innovation. Patent terminology should be well understood by the inventors and the applicants. The Patents laws are well established in almost all jurisdictions and the corporate sector should be aware of the law to reap maximum benefits. Even, the educational institutions should be thorough with the patent system since it is the source of research. The educational institutions with standard IP policy and structure patent portfolio can involve with technology transfer agreements with corporates to reap maximum benefits for their research and even, corporates with no research department can get into such partnerships with the educational institutions to bring the invention into market to meet the public requirements.

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