

Review Article

PATENT: A JOURNEY FROM IDEA TO PATENT

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ABSTRACT

Indian patent system is strengthened by stringent rules which have been amended from time to time. Patent system encourages for invention and disclosure to the public so that other can benefit from that invention. The patent has a significant role in ayurveda, yoga, siddha, unani, dental as well as medical sciences. Difficulties arise due to a complex system of patent which acts as a barrier for inventors. Further, the situation is complicated by the lack of knowledge regarding the procedure of filing and search patent application. This paper attempts to simplify these difficulties and answer various queries arising in mind of an inventor.

Key words: Patent, Patentable invention, Patent application, Invention, Patent search.

INTRODUCTION

A patent is a legal right granted to an inventor which excludes others from using or making a particular invention. The right is granted for a period of 20 years from the date of submission of the application in most countries. With this right, the inventor makes the description and implementation of the invention publically rather than keeping it secret. In the era of evidence-based medicine research and innovation is a practical phenomenon but not every research is patentable. In this paper, the author has concentrated on the patent system as a whole. [1] First of all for an invention to be patentable it should be

New or **Novel** – it means invention should never be disclosed, before the date of patent application filling via any form of publication anywhere in the world with respect to the invention and it should not form a component of the global state of the art i.e. Information appearing in magazines, technical journals, newspapers, books as well as oral description in a conference /seminar.

Involve an inventive step "inventive step" means an invention involves technical advance in comparison to the existing knowledge or have an economic significance or both and it should be non-obvious to someone having good knowledge and experience of the subject and who is already skilled in the art i.e. skilled in the subject matter for which patent application has been filled.

Usefulness- an invention which is devoid of utility no valid patent can be granted for that i.e. for the grant of the patent an invention must possess utility. The patent specification should enlist different applications and methods of practicing them.

Be capable of industrial application - An invention must be capable of being used or made in some kind of industry i.e. the invention must take the form of an apparatus or device practically, a product such as some new material or means of operation or an industrial process. [2, 3]. Non patentable inventions are listed in (table no.1)

Table 1: Non patentable inventions

Type of invention	Example
-frivolous invention claiming anything obviously contrary to well established natural laws	-different types of perpetual motion machines
-intended use or exploitation of any invention which would be contrary to public order or which causes serious prejudice to an animal, human or environment or to the plant life	-a procedure for manufacturing of brown sugar
-the mere discovery of a scientific principal or formulation of an abstract theory	-Raman effect and Theory of Relativity [4]
-the mere discovery of a new form of an already known substance without resulting in improvement of the known efficacy of that substance or the mere discovery of any new property or novel use of an already known substance or the mere use of the already known procedure, apparatus or machine unless such a known process results in a new product	-mixtures of isomers, esters, complexes, polymorphs, particle size, isomers, pure form, combinations and other derivatives of already known substance shall be same substance unless they differ in properties significantly with regard to efficacy
-mere arrangement or duplication of a device's features which function independently of one another in the already known way	-exception putting torch bulbs around an umbrella and operate them by a battery, this arrangement is patentable as bulbs and the umbrella perform their functions independently
-a method of agriculture or horticulture	- method of terrace farming
-inventions which are related to atomic energy	-self explanatory
-the discovery of any non-living thing or living substance existing in	-self explanatory

nature

- mathematical or a computer program per se or algorithms
- animals and plants in whole or any part thereof other than microorganisms but including varieties, seeds, and species
- a presentation of information, Topography of integrated circuits;
- a method of playing games, a method of performing a mental act
- duplication of known component or components, an invention which is
- a traditional knowledge [2]
- a scientific theory or mathematical method, an aesthetic creation, dramatic or artistic work, a discovery, literary[3]

-any process which is used for medical, surgical, curative, prophylactic, diagnostic or other treatment of human beings, or any process used for a similar treatment of animals to render them free of disease

- a new surgical technique for hand surgery for removing contractions
- in dentistry methods for the removal of dental plaque from tooth surface or preventing the formation of plaque
- methods to help discontinue smoking, methods of treatment of withdrawal symptoms
- methods of abortion, termination of pregnancy or induction of labor
- method of diagnosis which is practiced on the animal or human body
- exception weight reduction methods such as suppression of appetite for purely cosmetic reasons are patentable.
- exception in vitro diagnosis performed on samples removed from the body or blood are patentable [2, 5]

The requirement of a patent agent

An Indian patent agent is an individual who is qualified in engineering or science degree and who has qualified the Indian patent agent examination as well as is registered with the Indian patent office. The patent is a techno-legal document, therefore, drafting a patent application for an invention is a dedicated job

requiring both technical (field of the invention) as well as legal (Indian patent act) understanding which is appropriately done by a patent agent thus providing maximum possible protection for the invention. The patent application only as a technical document which does not have legal understanding may make application devoid of proper protection coverage with previous efforts taken for research and development useless.[6,7]

Table 2: Types of a patent application [3, 8]

Ordinary Application	an application for patent which is filed without reference to any other application and which contains no claim for priority made under any convention
International/PCT Application	an international application filed in compliance with the Patent Co-operation Treaty (PCT)
Convention Application	an application filed in the Indian Patent Office within a period of 12 months from the date on which a similar application was filled in the convention country
Application for Addition	an application made by the applicant for an improvement or modifications of an invention disclosed or described in the complete specification filed
Divisional Application	a divisional application is an application which is divided out of parent application

There are various types of patent applications as shown in (table no. 2) A patent application can be filed by –The first and true inventor, his or her assignee and legal representative of a deceased person who immediately was entitled to make such application before his or her death. [3]

Filing of the patent application

The patent application has to be written in a specific way prior to filing in Indian patent office. Application for patent protection can be filled at several stages -1.initial ideation stage (prior to disclosing in a speaking or to a group of people and prior to publishing the invention and securing the date for invention), 2.after publication of the invention and displaying it in public without proper confidentiality measures and 3.intermediate phases of research.

If the filing of patent applications is delayed researchers performing research work in the same field of the invention may file the patent application (*in India it is first to file system*) thus losing the chance for the inventor to get patent first. The provisional application should be filled in the early phase. In case the invention has to be disclosed before patent application in the form of discussion with technical assistants, partners, patent professionals, supervisors etc. then Nondisclosure agreement (NDA) should be signed by all parties to protect the confidentiality of invention. As per section 39 of patent act 1970, an Indian resident can either file a patent for the same invention in India and wait for 6 weeks or can apply in a

foreign country after obtaining Foreign Filing Permission (FFP) from the Controller of patents within 3 weeks. [9, 10, 11]

Modes of filling of patent application and processing

Patent Application can be filled online (through e-filing [12] as well as offline (in hard copies to the patent offices located at Delhi, Kolkata, Mumbai, and Chennai). For the process of patent filing, different forms (Form-1, Form-2, Form-3, and Form-5) have to be submitted to the patent office. For offline application, 10% additional fee is to be paid. The patent application has to be written in a specified manner before filing in Indian patent office. The patent application is published after one and a half year from the date of first filing. [13] Next step would be filing a request for examination in form-18 and as per amended act request for expedited examination in form-18A has been incorporated [13, 14] and the controller assigns the patent application to a patent examiner to scrutinize invention to verify the invention matter if patentable or not. The inventor has to analyze the first examination report (FER) submitted by the examiner to respond along with proper reasoning about his invention for being patentable. [13] Otherwise the application is published in the patent gazettes issued by the patent office. The said published application is open for public examination and opposition. A patent shall be granted if no opposition is found and the grant will be notified in the Patent Journal.

Documents required for filing a patent (Table no. 3)

1. Application Form (Form 1),
2. Specification (Provisional/Complete) (Form 2),
3. Drawings (if any),
4. Abstract of the invention in duplicate.
5. Information & undertaking enlisting the number, date of filing & current status of each foreign patent application in duplicate (Form 3).
6. If any priority date is claimed then Priority document in convention application when directed by the Controller.
7. Declaration of inventor-ship where complete specification follows provisional specification or in case of a convention/PCT national phase application (Form 5).
8. Power of attorney (in case of filed through Patent Agent).
9. Fee (to be paid in cash /by demand draft /by cheque).

(Note: The demand draft or cheque must be payable to the "Controller of Patents"). [3, 13]

Form 1- Application for Grant of Patent - this form includes name and address of the inventor(s), name and address of the applicant(s), information corresponding to prior patent applications relating to the current invention, which has been filed by any authorized entity, and some declarations, among other information.

Form 2- A patent specifications entails the information of the invention for which the patent protection is required. The patent specification can be provisional or a complete patent specification depending on the type of patent application (provisional or complete) filed.

Provisional specification: A provisional specification discloses an incomplete invention or inventions which require time for completion further. Its Purpose is to claim the priority date (the date on which the patent application either with the provisional specification or with the complete specification is filed at the patent office. [13] Provisional specification before the filing of the complete specification (for which 12 months of time is provided) helps in securing date of application and a decision is taken whether or not to proceed with costly and time-consuming patent application procedure. Filing a complete specification later does not replace the provisional specification from records. Contents of Provisional Specification are the title of the invention, description of the invention which contains the field of the invention along with a background as well as object and statement of the invention. Patent office provides the filing date and patent application number to the provisional specification. The patent application is thought to have

been discarded in case of not filing the complete specification within 12 months from the filing date of the provisional specification. [2]

Complete specification: complete specification is a document which includes an abstract (detailed description of the invention). It is prepared in such a way that one can understand the technical problem and solution along with its usefulness along with the drawings as well as claims (a claim is defined as the statement of technical facts expressed in legal terms thus defining the scope of the invention). The description of prior art is also included in the complete specification. [13, 15]

Form 3-Statement and Undertaking (Under Section 8) this form undertakes that inventor will be keeping the patent office informed in writing the details regarding corresponding applications for patents filed outside India. Form 3 is used to provide information/actions concerned with patent applications which are filed in other countries for the current invention.

Form 5-Declaration as to Inventorship by the inventors using the current patent application.

Form 9-Request for Publication - After 18 months from the priority date (filing of the first patent application for the current subject matter), the patent specification will be published by the patent office. But the patent rights start from the date of publication of the patent application (enforceable only after the grant of the patent).

Form 18- Request for Examination of Patent Application. Form 18 A- has been incorporated for expedited examination of the patent application. [16] This form can be filed by inventor within 48 months from the priority date. The patent application will not be considered by the patent office for examination unless this form is filed. Therefore to expedite the patenting process filing of form 18A is advised at an early stage. [13]

Cost of getting patent

There are two fundamentals for the cost of getting patent/filing patent in India: 1. The Government fees (for Forms, requests, and renewals) and professional fee (for patent professional, patent agent/attorney). Both government and professional charges are different for a company and individual inventor as well as patent application fees is different on the basis of a number of claims and pages in the specification. Filing patent without help from a patent agent can cost much lesser as fees paid is only the government fees for patent filing and prosecution. [17, 11].

Table 3: Different forms to be filled for patent application.

Form no.	Title	Patent Office Fee for e-filing only			Patent office fee for physical filling		
1	Application for the grant of a patent	applicant – natural/ start up	applicant other than natural person	others than small entity	Applicant – natural/ start up	applicant other than natural person	others than small entity
2	Provisional/complete Specification	1600	4000	8000	1750	4400	8800
3	Statement and undertaking under section 8	no fees	no fees	no fees	no fees	no fees	no fees
5	Declaration to as Inventorship	no fees	no fees	no fees	no fees	no fees	no fees
9	Request for publication	2500	6250	12500	2750	6900	13750
18	Request for Examination	4000	10000	20000	4400	11000	22000
18A	Request for expedited examination	8000	25000	60000	not allowed	not allowed	not allowed

A fee of 160/400/800/180/440/880/sheet, based on the type of applicant, is applicable for each sheet exceeding 30 sheets in a patent specification. Further, a fee of INR 320/800/1600/350/880/1750/claim, based on the type of applicant, is applicable for each claim exceeding 10 claims in the patent specification. [12, 15]

WITHDRAWAL OF PATENT APPLICATION

The applicant can withdraw the application before the grant of the patent at least 3 months before the first publication which will be 18 months from the date of filing or date of priority whichever is earlier.

The application withdrawn after the date of publication cannot be refilled as it is already laid open for public inspection. However, application withdrawn before the publication can be refilled provided it is not opened to public otherwise. [15] if an application for which request for examination (RFE) has been filed is withdrawn before issuance of the FER, 90% of the fee paid for the RFE or request for expedited examination may be refunded, upon a request made by the applicant in Form-29. [14]

International patent

A patent application can be filed simultaneously in different countries by filing in all of the countries separately in which patent is desired (for some countries, regional patents are available)

The Patent Cooperation Treaty (PCT)

It is an international treaty with more than 145 Contracting States administered by the World Intellectual Property Organization (WIPO). It provides a single "international" patent application simultaneously for patent protection in a large number of countries instead of filing several separate national or regional patent applications i.e. a single application –in a single language – in a single country called the international application with the effect of filing simultaneously in different countries. [18]

Table 4: Importance of Patent.

- A treasure-house of scientific inventions locates budding areas and technologies as well as an important source of technical and scientific literature.
- It avoids replication and prevent re-invention and encourages for further discoveries by inventors [18,19]
- When a patent is granted the invention becomes the property of the inventor, which can be bought, sold, rented or hired
- Patents are intended to induce invention by conferring monopoly rights .when, medical device manufacturers, drug companies and others in the healthcare industry obtain patents they charge additional prices that exceed marginal cost. This benefit encourages private actors to invest in creating and disclosing devices, drugs, and other inventions.
- At the end the public benefits in return from these monopoly rights [20]
- A patent is an exclusive right granted by the government for a limited period of time. no one can use, make or market the invention without the consent of the patent holder. However, after the expiry of the term of the patent, a patented invention becomes free for public use and as a consequence of ceasing effect due to non-payment of renewal fee [6,21]
- Patent rights are territorial • Only valid in the country or region of the grant[22]

As per section 53 of Indian patent act 1970, the term of every patent is 20 years from the date of filing. In case of International applications filed under the Patent Cooperation Treaty the term of the patent, is 20 years from the international filing date accorded under the Patent Cooperation Treaty. In case renewal fee is not paid within the prescribed period a patent shall cease to have an effect and the subject matter shall not be entitled to any protection covered by the said patent. [3] Importance of patent is described in (table no. 4).

For maintenance of a patent for its full term the patentee has to pay the renewal fee or Maintenance fee (Sec 53 of the Indian Patent Act) every year. Renewal fee should be paid before the commencement of every succeeding year i.e. before the end of the 2nd year from the date of the patent in respect of 3rd year. The renewal fee is extendable by 6 months by requesting an extension of time. [21]

As per amended Rule 93 a patent renewal certificate will be issued upon receiving the prescribed renewal fee in respect of a patent and such payment has to be entered by the Controller in the register of patents along with payment date. [12]

The patent which is lapsed on the grounds of non-payment of renewal/maintenance fee can be restored within 18 months from the date of a lapse by submitting Form – 15 along with prescribed fees (INR 2400/6000/12000 for natural persons/small entity/other than a small entity) respectively. There should be provided substantial evidence to support the unintentional nature of the nonpayment of the renewal/maintenance fee. [16,23] Importance of patent is described in (Table no. 4)

Indian patent search engine

The patent search engine is a structure based search which is an interface which provides pre-defined Indexed fields for searching in the patent database. All Keywords are case-insensitive. Full details including complete specification, Patent e-register & original documents are accessible for Patent Applications filed 01/01/1995 onwards. Data of Patents which have been granted is obtainable since 1912. It contains details about application date, title, abstract, complete specification, application number, patent number [in case of granted patent], applicant name, inventor name, inventor country, inventor address, filing office, pct application number, pct publication number etc. [25]

Print screen view of INPASS



Patent Search in India

Conducting a patent search is necessary before filing a patent application. Nowadays, InPASS is the Indian patent office database used to conduct an advanced patent search in India. InPASS is an updated version of previously used IPAIRS. InPASS allows a full-text search of all Indian patents as well as patent applications. Is also allows a person to conduct a patent search using Wild Cards and Boolean Operators. In the InPASS four menu tabs namely **Patent Search**, **Patent E-register**, **Application Status**, and **Help** are provided.

In the '**Patent Search**' tab, there are two check boxes used for searching parameters mentioned below for granted patents or applications published.

Keyword Search

For keyword search collect all the keywords which are relevant to the invention. This search can only be used in – title, abstract, and description.

Applicant Name Search

By entering the name of the applicant against the relevant row Applicant's name can be searched. The result will display the title of all inventions published or granted in the name entered. Inventor Name Search: you can also search the inventor name in the relevant row Similar to the applicant name search, and the result display.

Patent E-register

This tab discloses the legal status of the patent, date next renewal date and bibliographic data of patent.

Application Status

Application Status' tab, allows checking the status of the patent application. It provides the details of application such as application number, applicant number, filing date, priority date, the title of the invention, publication date. [26]

Searching patent documents is a part of a prior art search. After filing a patent application and formal examination, the patent office

carries out a search of the prior art. [27] which is searching for all relevant technological and publically known information at the time of patent application filing or at the time of the priority filing. This encompasses collection and compilation of information relevant to the invention which is publically disclosed prior to the specified date by diverse National and International Patent Offices. These offices are Indian Patent Office (IPO), Japanese Patent Office (JPO), Chinese Patent Office (SIPO), United States Patent and trademark office (USPTO), European Patent Office (EPO), Korean Intellectual Property Office (KIPO), world intellectual property organization (WIPO) etc.(table no. 5)

Table5: Details of the Patent search database

Patent system	Country /PLACE	Database	Applications	Ref
IPO The patent system in India	Delhi, Mumbai, Kolkata and Chennai	Indian patent database INPAIRS	to check published patent applications, application status, patent agent register, patent fees.	
INPAIRS Version 2	maintained by Government of India	Indian patent database INPAIRS	information on published applications and application status. and access to PCT	
INPASS	india.	InPASS is an updated version of IPAIRS 27A	it allows a full-text search of all Indian patents and Patent applications	
KIPO	(IP) related issues in South Korea	The Korean Intellectual Property Rights Information Service (KIPRIS)	translate the Korean patent abstracts and links to major national and foreign online patent databases	
EKASWA A, B and C Database – databases available in CDROM and Web MCPaIRS (Molecular Connections Patent Information Retrieval System) – EPO	Ekaswa A, B, C contains patent applications filed in India from January 1995 to June 2007. states of European Patent Convention (EPC).	Technology Information, Fore casting and Assessment Council (TIFAC) INPAT (Indian Patent Database) Patent literature databases i.e. PatBase, Thomson Innovation, Questel Orbit, STN, SciFinder and Non-Patent Literature databases ESPACENET database at the EPO.	information on patent title, applicant(s) name(s), inventor(s) name(s), patent number, application number, application date, publication date, IPC code patent title, applicant(s) name(s), inventor(s) name (s), patent number, application number, application date, publication date, IPC code provide translated versions of patents and provides information on the legal status and important reminders for the entire patent application process	[27]
SIPO	people's Republic of China	The database has Chinese Patent Machine Translation System (CPMT)	Information about published, granted And unexamined Chinese and PCT patent	

Indian patent office disseminates a patent electronic gazette every week which is freely and easily available in form of Pdf year wise as well as monthly and weekly on the official website of patent India. It contains details of patent applications filed by the applicants in Indian patent office and published after a period of 18 months of application filling. [28]

A patent can be **amended** before and after the grant. **Before the grant** -A request for amendment can be filed on Form-13. [16] The request should describe the nature of the proposed amendment (highlighted in the copy annexed). The amendment can be allowed by way of correction, explanation or disclaimer. Amendment cannot be allowed if the amended claims do not comply with the scope of a claim of the specification before the amendment (Section 59). [3] The amended pages have to be filed by the applicant in duplicate along with appropriately canceled original pages.

If the application for amendment is made after the grant of a patent, the nature of the amendment proposed should be published in the official journal as opposition may arise by any interested person and

then the controller shall give notice to the inventor. Before the decision, he shall give an opportunity to be heard to both the parties, if the amendments are allowed it should be notified in the official journal. [29]

Patent infringement

Patent infringement means others have entered a banned space limited to one of the claims in the patent (fig.1). A patent owner has the right for excluding others from using the invention which is patented. The basic legal test for infringement of a patent is whether a patented product uses each element of a granted claim in the patent or not. If a product is made which do not contain at least one of the claimed elements of the competitor's patent, then there exists no infringement. Let's suppose that patented product is "X" and competitor's product is "Y", and "p", "q", "r" and "s" indicate the components of a patented claim. Case one Product "X" has features covered by a claim having components "p + q + r + s." Product "Y" has features covered by components "p + q + r". Here case product "Y" does not infringe "X", as it excludes "s" element of the claim of the patent covering product "X". Case two Product "X" has features

covered by a claim having components “p + q + r + s.” Product “Y” has features covered by components “p + q + r + s + t.” Here product “Y” would infringe product “X”, because along with an additional element “t.” “Y” has all characters covered by product “X,” patent.[30]

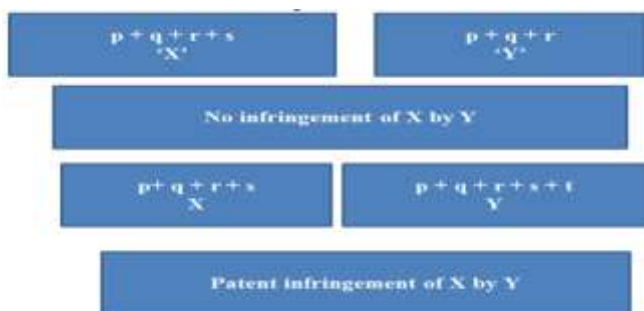


Figure 1: Patent infringement .

Patent opposition

There are two types of patent oppositions (Table no. 6).

Table 6: Difference between pre-grant and post-grant opposition [23, 31]

Pregrant	Postgrant
Any person can file in writing to the controller	Any interested person can file a notice of opposition to the controller
When an application for a patent has been published but a patent has not been granted	any time after the grant of the patent but before the expiry of a time period of twelve months from the date of publication of patent grant in the Patent Office Journal
As per Section 25(1) of the Patent (Amendment) Act 2005 Opposition ensures granting of only good patents	As per section 25(2)The Patent (Amendment) Act 2005 The opposition of patent after grant stage ensures wrongful grant of the patents
there is no solution against an order of the controller there is no fee stipulated	the remedy is available only through the courts the post-grant opposition is a costly procedure
its mechanism is faster	Its mechanism is time-consuming

CONCLUSION

Patenting an invention provides a wide variety of advantages. This paper entails a complete journey of a patent from innovation/idea to the grant which includes several features like patentability criteria, non-patentable inventions, types of patents. It uncovers procedure for filing a patent, various databases as well as conducting a patent search in India. Various other conditions associated with a patent system like patent amendments, infringement, the opposition are also discussed in the paper.

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