CHAPTER – II
PATENTING

2.0 Introduction

A patent is defined as a grant by the sovereign or state to an inventor or to the assignee giving exclusive rights to make use, exercise an invention for a limited period in exchange for disclosing it in a patent specification. Patents reveal solutions to technical problems and they represent an inexhaustible source of information. More than 80% of all technical knowledge is described in patent literature. There are over 30 million patents in the world today and each year an average of one million new specifications is filed. This makes patents the largest single body of technological information available anywhere. Patents represent a resource for both legal (ownership, inventors, reassignments, claims etc.,) and technology rich prior-art (background, specifications etc.). Patents are accompanied by detailed textual descriptions of the inventions, and often by drawings of electrical, mechanical or chemical (Markush) structures.

A patent in an exclusive right granted by a country to the owner of an invention to make, use, manufacture and market the invention, provided the invention satisfies certain conditions stipulated in the law. Exclusivity of right implies that no one else can make, use, manufacture or market the invention without the consent of the patent holder. This right is available only for a limited period of time. However, the use or exploitation of a patent may be affected by other laws of the country which has awarded the patent.

These laws may relate to health, safety, food, security etc. Further, existing patents in similar area may also come in the way. A patent in the law is a property right and hence, it can be gifted, inherited, assigned, sold or licensed. As the right is conferred by the State, it can be revoked by the State under very special circumstances even if the patent has been sold or licensed or manufactured or marketed in the meantime. The patent right is territorial in nature and inventors/their assignees will have to file separate patent applications in countries of their interest, along with necessary fees, for obtaining patents in those countries. The patent system is designed to encourage inventions that are useful to society by granting inventors absolute right to make profit from their inventions. On the contrary patents cannot protect each and every person who conceives an invention. Hence, an invention must fulfill certain criteria to be patentable.

Patentability refers to the substantive conditions that must be met for a patent to be held valid. As patent laws are different in different countries, the patentability criteria also
vary from country to country. The invention must satisfy the requirements under the context of a national or multinational body of law to be granted a patent.

There are some common elements of patentability, viz, novelty, utility and non-obviousness, which are interpreted differently in different legislatures and judiciary systems of different countries.

- **Novelty**- requires an invention to be new in order to be patented. It must not be known to anywhere in the world.

- **Utility or Industrial application**- The invention should be useful. If something is useless or harmful then that lacks patentability.

- **Non-obviousness or Inventive step**- the invention should be different from what a common person can do.

- **Non exclusion by law**- the invention should have not been excluded by law from the patentability list.

### 2.1 Need for Patents

It is clearly realized that in recent days, intensity and complexity of technology competition has led to emergence of new ways of extracting information required for better decision-making in different organizational levels.

Following are the factors that justify the need for patents in research areas:

- Patents are excellent source of technical and legal information.

- More than 80 per cent of information in patents is not published elsewhere.

- Patents are commercially exploited; substantial benefits to the inventors or their assignees are gained. Patents give enforceable exclusive legal rights to the inventors for a limited period of time to reap monetary benefits out of the invention.

- The rights awarded to the inventors are enforceable against anybody within the jurisdiction of the Government.

### 2.1.1 Importance of Patents

Patent literature is more useful to researchers working in Research and Development (R&D) institutes, public undertaking organisations, private industrial organisations, business houses, marketing and production units including planners, patent attorneys, research scholars, inventors and licensors, etc. The intellectual content of patent literature helps in developing innovative concepts and also protects the current invention. It is a good tool for technology transfer too. Patents are filed in countries where the inventor wants to protect his invention. A patent is the only source of information which is scientific, technical, and legal. Due to globalisation, during the past few years the use of patent literature is rampart and it is
considered as one of the prime sources for scientific development and mapping research activity. It is with this assumption that a detailed study of patent literature in respect to its importance, need, role in science and technological development, is gaining its momentum. Such studies will provide better understanding of patent literature in general. Patent information has a special place in chemical industries and R&D organisations as it provides nascent (reported for the first time) details about an invention. It also provides solution to technical problems. Due to these special features, patent literature is used extensively in Science and Technology (Forero-Pinda, C. 2006)\textsuperscript{1}

2.1.2 Importance of Patents in Personal Care

Patents are filed in all areas of applied science and technology, and inventions range from simple mechanisms to complex chemical compounds. Research is an inventing process, new developments are constantly reported and users need to get the information about new practices through the literature published by the researcher. Patent literature plays an important role in disseminating the nascent ideas to users and hence it is a unique source of delivering information in cosmetics, skin care, hair care, household care, perfumery etc., (Harhoff, D., & Hall, B.H. 2002)\textsuperscript{2} Further, patents identify the unfamiliar technical areas where one can apply concepts for finding solution to a problem. The patent literature assists in indicating growth of different technical fields and trends among them. Patents help in tagging the inventors and the investors to develop new products. Thus, patent has immense value to R&D users, scientists and researchers. Identification of trends in research discipline is the main focus. Patents are very useful to research students, engineers, planners, economist, R&D managers, innovators, business and marketing personalities, patent attorneys, etc. The statistical analysis of patent filings among selected countries was studied in order to find quantitative trends in chemical sciences. The overall analysis of patent filing has indicated that there is an increase in all the areas of knowledge and the chemical industries are also in leading position and the patent filing trend is found progressive.

An invention may satisfy the condition of novelty, inventiveness and usefulness but it may not qualify for a patent under the following situations:

i. An invention which is frivolous or which claims anything obviously contrary to well established natural laws.

ii. An invention the primary or intended use or commercial exploitation of which could be contrary to public order or morality or which causes serious prejudice to human, animal or plant life or health or to the environment.

iii. The mere discovery of scientific principle or the formulation of an abstract theory or discovery of any living thing or non-living substance occurring in nature.
iv. The mere discovery of any new property or new use for a known substance or of the mere use of a known process, machine or apparatus unless such known process results in a new product or employs at least one new reactant.

v. A substance obtained by mere admixture resulting only in the aggregation of the properties of the components thereof or a process for producing such substance.

vi. The mere arrangement or re-arrangement or duplication of known devices each functioning independently of one another in a known way.

vii. A method of agriculture or horticulture.

viii. Any process for medicinal, surgical, curative, prophylactic, diagnostic, therapeutic or other treatment of human beings or any process for a similar treatment of animals to render them free of disease or to increase their economic value or that of their products.

ix. Plants and animals in whole or any part thereof other than microorganisms but including seeds, varieties and species and essentially biological processes for production or propagation of plants and animals.

x. Mathematical or business method or a computer program per se algorithms.

xi. A literary, dramatic, musical or artistic work or any other aesthetic creation whatsoever including cinematographic works and television productions.

xii. A mere scheme or rule or method of performing mental act or method of playing game.

xiii. A presentation of information.

xiv. Topography of integrated circuits.

xv. An invention which, in effect, is traditional knowledge or which is an aggregation or duplication of known properties of traditionally known component or components.

xvi. Inventions relating to atomic energy.

Normally, non-patentable matter can be verified. However, it is advisable to cross check from patent agent or patent attorney. In case, if invention falls under above list, it will not be required to pursue patentable analysis and/or patenting invention, otherwise, can proceed for patentable analysis and patenting invention.

The patentable analysis can be done, if familiar with prior art search or by patent agent. If the outcome of analysis is favorable to invention for patenting, patent application can be filed in India.

2.2 Patent Legislation

2.2.1 Patent Administration

The patent office, under the Department of Industrial Policy & Promotion, Ministry of Commerce & Industry, performs the statutory duties in connection with the grant of patents for new inventions and registration of industrial designs. Patent Offices are located at Kolkata, Mumbai, Chennai and Delhi to deal with the applications for patents originating within their respective territorial jurisdictions.

Patent Information System (PIS) located at Nagpur maintains a comprehensive collection of patent specifications and patent related literature, on a worldwide basis and provides technological information contained in patent or patent related literature through search services and patent document supply services.

Intellectual Property Training Institute (IPTI) located at Nagpur provides training to the officials of IP offices and other users of the system who are working in the field of Intellectual Property Rights.

2.2.2 Patent International Treaties

India is a member-state of World Intellectual Property Organisation (WIPO), an International Organisation, responsible for the promotion of the protection of intellectual property throughout the world. India is a member of the following International Organisations and Treaties in respect of patents.

a) World Trade Organization (WTO) with effect from 01-01-1995.

2.2.2.1 Patent and Its Role of General Agreement on Trade and Tariff (GATT)

It was under GATT, the biggest advancement in international trade liberalization have come into existence through multilateral trade negotiations. The role of GATT is to provide a stable and predictable international trade system.. The objective of India signing the GATT agreement is to export indigenous products and in turn purchase oil, industrial raw materials, machines, new technology and other things that are domestically needed. During 1950s and 1960s, continuous reductions of tariffs led to high rate of world trade growth. Thus, in the
GATT era, trade liberalization helped in trade growth consistently instead of growth in production.

Patents are one of the key outputs of the science and technology system and an important link between research & development and the marketplace. Patents are only one of many kinds of Intellectual Property Rights (IPRs) and are of great economic importance when they result in new products or new processes for making existing products better or even entirely new industries. They give the owner an exclusive right to exploit those new products or processes for a maximum of 20 years. The quantitative analysis of the grant or application of patents may provide significant insights about the inventiveness of a nation and its key performers of research and development.

The Indian patenting activity grew amidst changes taking place in its domestic and global economic policy environment. The post-1991 economic policies of the Government of India marked a new phase in its development strategy. It aimed at increasing the role of the private sector, redirecting scarce public sector resources to areas where the private sector is unlikely to enter and opening up the economy to trade and foreign investment. The twin objectives of the reforms were to promote competition by eliminating protection, and to simultaneously increase the ability of producers to meet such competition by removing policy barriers and distortions. This phase is overlapped with the culmination of the ongoing trade negotiations under General Agreement on Tariffs and Trade (GATT) leading to the conclusion of the agreement on trade related aspects of the intellectual property rights (TRIPS) and the setting up of the World Trade Organization on 1st January 1995.

At the same time, the Government of India has launched a national campaign for creating awareness about patents and intellectual property rights (IPR) in the country. Several initiatives were taken to modernize the administration of the process of granting of patents by the national patent office, bringing about changes in its patent laws and strengthening management of intellectual property rights at the micro-organizational level in government R&D organizations, universities and industries. The government Research and Development (R &D) institutes, universities, non-profit organizations and in-house R&D units in public or private sector industries are the major players in performing research and development in the national science and technology system. To summarize the analysis of Indian patent output indicates that the spurt in growth of patenting is directly attributable to the Indian industry’s growing inventiveness and competitiveness. From the Government sector, the Council of Scientific and Industrial Research has greatly contributed to the patenting activity both within India as well as abroad. The Indian industry has expanded its base across countries and has
sought protection of its inventions in countries synonymous with their commercial interests. The academic sector has also oriented its thrust towards patenting. However, joint patenting activity needs to be encouraged between institutions of different sector viz. industry, government or universities. Areas of chemistry, chemical technology and related areas, and drugs and pharmaceuticals continue to be the areas of strong Indian patenting activity. There is a recognizable growth of Indian patenting activity in newer areas like food products and technology, micro-organism and genetic engineering, and information and communication technologies. Collaboration with foreign companies appears to have accelerated patenting in some of these areas.

2.2.2 Patent and Its Role of WIPO in the Indian Context

World Intellectual Property Organisation (WIPO) is to promote international cooperation with respect to creation, dissemination, use and protection of works of the human mind for economic, social, cultural progress of all mankind. It enhances a worldwide balance of the creation i.e., by protecting moral, material interests of the creators and providing access to the socio-economic and cultural benefits to others. WIPO promotes protection of intellectual property and bring out cooperation among the union. In addition to these, WIPO sets norms, standards and execute legal technical assistance, registration activities for intellectual property protection to member countries. It is the WIPO which is responsible for the formation of Patent Co-operation Treaty (PCT).

2.3 Types of Patent Applications

   a) Ordinary Application

   b) Application for patent of addition (granted for improvement or modification of the already patented invention, for an unexpired term of the main patent).

   c) Divisional application (in case of plurality of inventions disclosed in the main application).

   d) Convention application, claiming priority date on the basis of filing in Convention Countries.


2.4 Patentability Assessment

   The concept of patentability is very vague in the paraphernalia of legal concepts. The patent application may be rejected for several unforeseen reasons. It is therefore, very important to conduct a patentability assessment before filing a patent. This reduces the risk of rejection and saves money and time. Patentability assessment is basically evaluating the patentability criteria (Duty, J.F. 2009)³. Many professional patent attorneys prepare
Patentability Report (PR) to formalize the process or study. A patentability assessment ensures that the patent will not be rejected because of patentability criteria.

2.4.1 Importance of Patentability Assessment

Patenting is an expensive activity. If a patent application is rejected then it causes a waste of huge amount of time and money. It is quite important to assess the patentability of the invention before filing a patent application. If a patent application is rejected, in some cases it may lead to extremely miserable situations.

2.4.2 Patentability Assessment Components

When a patent is submitted, a patent examiner does the patentability assessment of the invention. The following aspects are examined while doing patentability assessment.

- Do an assessment of Novelty of the invention.
- Assessment of Inventiveness.
- Assessment of Usefulness according to the patent law.
- Assessing non-exclusion by law.
- Assess the prior art before the invention. Study the patents and articles published by other parties which are capable of challenging the invention’s patentability.
- Assess the language and style of patent drafting to ensure that it goes as per the law
- Examine other criteria such as sufficient disclosure etc.

(a) Novelty assessment:

The test of novelty considers what is the gap between the invention and the prior art. The novelty requirement in modern patent law is generally based on an assessment of the prior art of the universe, that is anywhere in the world. The novelty is broken if the claims are found in previous publications or any form of public knowledge. However, as it is seen above, the novelty is defined differently in the legal system of different countries. For example, the US laws are not so strict on novelty. It requires “complete disclosure in a single publication” to destroy novelty. In other cases, the novelty may be considered more strictly, for example, the novelty is broken even though “the disclosure have not been made explicitly but just considered implicit in prior writing.” The assessment is to be done depending on country where the patent is to be filed.

(b) Inventiveness Assessment:

- Evaluate if a person with average intelligence and skill in the art could have discovered the invention. This process involves the following three factors:
  - The scope and content of the prior art to which the invention pertains.
  - The difference between the prior art and the claims at issue.
  - The level of ordinary skill in the pertinent art.
2.4.3 Criteria for Assessment of Other Issues

There are some issues which are controversial and debatable in law. The law neither rejects them nor allows as such. There are arguments in favor of and against their patentability. In such cases law becomes stricter to assess those criteria. One has to be very careful to assess the patentability if the subject matter falls into any of these controversial areas.

- Inventions related to human genome.
- Patenting business methods.
- Patenting computer software.
- Patenting pharmaceutical inventions.
- Controversies between invention and discovery.

2.4.4 Preliminary Analysis of Patentability Assessment

It is always good to do the assessment by an experienced professional body or a patent attorney. On the contrary, before going to a paid service, a preliminary analysis should be done which gives basic knowledge and confidence and reduces dependability.

2.4.5 Methods of Testing Patentability

Patentability searches are quite common. One has to scan the old patents and prior art to determine whether a specific invention is within the scope of patentable subject matter, useful, novel, and unobvious. Doing a patent search helps to learn about the product and compare the results of invention with that of others.

Patent searching can be done in various ways, such as going through the patents available in the patent offices, direct searching the patent sites on the internet, using software tools for a sophisticated searching etc. A patent search performed by a skilled searcher is definitely more reliable and faster than an unskilled. As they are skilled in the art, they can do the job much faster. However, their service is available only at a price. It is important to check their experience, skill and the database they use before hiring their service. If patent attorney is searching only through internet/computerized tools, they may fail to search the patents before 1965, as patents before 1965 are not computerized yet.

2.5 Phases of Patent Process

Phases in the patent process involve five stages. For searching a patent document with all its history and relevant details for it is imperative to understand these phases.

Phase–I: The inventor or a company has an idea for a new technology. A prior-art search is completed to make sure the technology passes the tests of novelty, usefulness and non-obviousness.
Phase-2: The patent applications are filed and a filing date and application numbers (also called a serial number in the U.S or a filing number elsewhere) are assigned. Depending upon the intent of the inventor there are many options for filing a patent application. Patent filing can be through a Patent Co-operation Treaty (PCT) mode at one of the receiving offices or it can be for a particular country only.

Phase-3: The applications are reviewed by the examiner who cites reasons to accept or reject the application. The applicant shows evidence in support. This is called prosecution. Prior to November 29, 2000, in the U.S. patent applications were held in secrecy until they were granted (slow publishing countries). In some other countries the application was published (fast publishing countries).

Phase-4: If the application is successful, the invention is patented and a patent number is assigned.

Phase-5: Often a patent is reexamined, opposed or infringed upon by company; therefore, the legal status of a patent may change. Depending upon the mode of filing the patent application and the country’s procedure the time required to complete these various phases vary from one place to another place.

2.6 Patents as Open Access Source of Information

The publication and accessibility to the new technical and scientific developments are crucial for scientific dialogue and plays a key role in promoting the innovation and the transfer of scientific knowledge. Many studies have indicated the importance of the open access to the scientific literature as a key tool to bring together people and ideas in a way that catalyses science and innovation. Open access is defined as the practice of providing free of charge access to scientific literature for anyone via the internet (Boettiger, S., & Burk, D.L.2004).4

From this point of view, the patent literature also plays a central role because the patenting process is also seen as an effective way of disseminating knowledge in open access mode.

A patent is essentially an agreement between a government and an inventor where the inventor agrees to publish the invention for the world to see (and thereby stimulate research and development) in return for a time-limited exclusive right on the invention.

Therefore, a key aspect in the patenting process is the requirement of making the invention known to the public, so improvement of the technology may occur. This is achieved by publishing the patent application and making it available to the general public. In most countries in the world where the patent application is published and made available to the general public 18 months after filing the request to get the patent.

The public availability of the patent literature is guaranteed through the many free resources for searching and consulting granted patents and published applications, like for

2.7 Specificities of the Patent Documents

When considering the encoding of patent documents, one should bear in mind that the information contained on these documents, which is of a very detailed and applied technical type, is written in a highly standardized format. When considering the bibliographic data, it should be taken into account that the patent document citations have also its own peculiarities. For example, in contrast with other scientific documents like articles or scientific papers, the title of a patent may be more of a descriptive title rather than a formal title, making this bibliographic element a non-defining element when encoding the bibliographic information associated to a patent document.

Therefore, much of the bibliographic references to patent documents do not include only common bibliographic elements like title or author, but other patent specific elements, like the name of the issuing authority, an application number, a publication number or a kind code.

2.8 Patent Information: Encoding - Quantitatively & Qualitatively

Patent documents are one of the largest public data sources in the world. Over 70 million patent documents have been published till date. They are also an unique source of information according to the estimations of the WIPO (World Intellectual Property Organization), about two-thirds of the technical information revealed in patents is never been published elsewhere (Jana, T et al. 2012)$^5$.

Further, patent documents also have gained increasing technical and strategic importance - approximately 25% of all scientific or technical publications produced each year originate in patent offices around the world most of which can be searched as any other kind of literature in databases. During the last 10 years the number of patent filings has been constantly bigger than the published scientific and technical journal articles. This gives a clear indication about the importance of the patent literature as a source of documentation.

Having studied patenting, the next chapter of our thesis reviews the literature and summarizes the important source of information.
References


