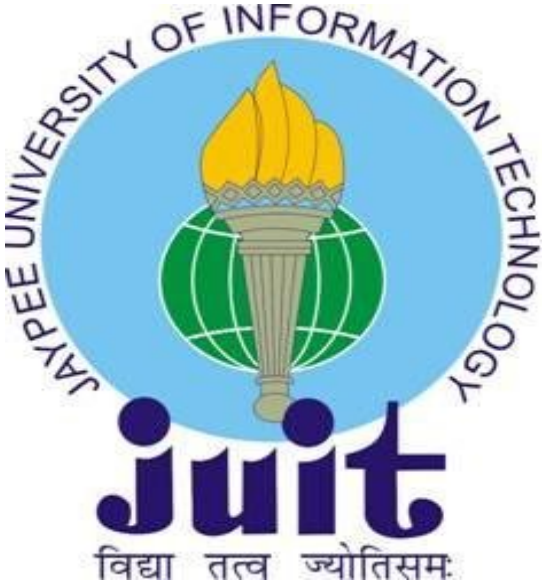
Training progress report

Dissertation submitted in fulfillment of the requirements for the Degree of Bachelor Of Technology



By

Madhur Goel
121074

Submitted to
Prof. Dr. T.S. Lamba

Under the guidance of
Mr. Khemraj
Mr. Harvinder Singh

Department of Electronics & Communication Engineering

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT
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ACKNOWLEDGEMENT

Before I start my End-semester Training Report, I wish to express my gratitude to the people who helped me & guided me during training. It is with pleasure to say that I find myself writing down these lines to express a sincere thanks to various people to help me along the way in completing my training successfully. I would like to thank all of them for their enthusiasm and support.

I would like to thank my training mentors Mr. Harvinder Singh (Client Account Manager), Mr. Khemraj, Mr. Aman Bhardwaj, Ms. Anshika Bansal and Mr. Gagandeep Sharma for their constant support and guidance throughout the training. They have been a constant source of help for understanding the training.

My thanks and appreciation also goes to my colleagues, friends and classmates who have always willingly helped out with their abilities.

DECLARATION

I hereby declare that this internship project report, which is being submitted in partial fulfillment of the Under-Graduate Degree is the result of work carried out by me, under the guidance of Mr. Harvinder Singh (Client Account Manager), Talwar and Talwar Consultants Pvt. Ltd., Mohali.

Madhur Goel

(Patent Research Analyst Trainee)

(Talwar and Talwar Consultants)

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CHAPTER 1
INTRODUCTION

1.1 INTELLECTUAL PROPERTY

Intellectual property (IP) is a legal concept, which refers to creations of the mind, for which exclusive rights are recognized.

1.2 IPR (INTELLECTUAL PROPERTY RIGHT)

These are an exclusive set of rules protecting products of human intelligence and creation. IPR are rights granted to creators and owners of works that result from human intellectual creativity. These works can be in the industrial, scientific, literary and artistic domains, which can be in the form of invention, a manuscript, a suite of software or business name.

1.2.1 TYPES OF IPR

- **Copyright :** Copyright is a legal concept, enacted by most governments, that grants the creator of an original work exclusive rights to its use and distribution, usually for a limited time, with the intention of enabling the creator of intellectual wealth (e.g. the photographer of a photograph or the author of a book) to receive compensation for their work and be able to financially support themselves. It provides protection to authors (composers/writers). It is obtained automatically and there is no need for registration. Validity of copyright is for the lifetime of authors, plus 50 years after their death.
- **Patent:** A patent is a set of exclusive rights granted by a sovereign state to an inventor or assignee for a limited period of time in exchange for detailed public disclosure of an invention. An invention is a solution to a specific technological problem and is a product or a process. Validity is for 20 years.
- **Trademark:** A trademark is a recognizable sign, design or expression, which identifies products or services of a particular source from those of others. The trademark owner can be an individual, business organization, or any legal entity. A trademark may be located on a package, a label, and a voucher or on the product itself. For the sake of corporate identity trademarks are also being

displayed on company buildings. Trademarks are used to claim exclusive properties of products or services. The usage of trademarks by its owner can cause legal issues if this usage makes them guilty of false advertising or if the trademark is offensive.

- **Geographic Indications:** It points to certain goods specific to the geographical area based on the soil etc. on which it is produced. It points to specific region of production that determines the quality of the product.
- **Trade secret:** They are a formula, practice, process, design, instrument, pattern, or compilation of information, which is not generally known, or reasonably ascertainable, by which a business can obtain an economic advantage over competitors or customers. In some jurisdictions, such secrets are referred to as "confidential information", but are generally not referred to as "classified information" in the United States, since that refers to government secrets protected by a different set of laws and practices. It has been theorized that the doctrine of trade secrets should protect competitively valuable, personal information of company executives, in a concept known as “executive trade secrets”. e.g. the coca-cola formula and the colonel’s secret blend.

Fig: 1.1

1.3 PATENTS

Patent refers to an exclusive rights granted to anyone who invents any new, useful and non-obvious process, and machine, article of manufacture or composition of matter or any new and useful improvement thereof. It is granted to an invention that may be a product or process that provides a new way of doing things or a better solution to a technical problem. Its validity is for 20 years from the date of grant.

Advantages

- It keeps other out of the market
- Restricts the competitors
- Generates revenues from license or sale
- Gives your product credibility

Disadvantages

- Cost issue
- Liability

1.3.1 TYPES OF PATENT

- **Utility patent:** It includes process, machine, composition of matter, which is improvement of an existing idea. It lasts for 20 years from the date of application.
- **Design Patent:** It has an aesthetic value only and should not be functional like design of chair, wallpaper, shoes, and jewelry. Its validity is for 14 years.
- **Plant Patent:** It includes only those plants, which are asexually reproduced. Its validity is for 20 years from the date of filling.

1.4 CRITERIA FOR PATENTABILITY

- **Novelty:** Novelty is a patentability requirement. An invention is not new and therefore not patentable if the public knew it before the date of filing of the patent application, or before its date of priority if the priority of an earlier patent application is claimed. The purpose of the novelty requirement is to

prevent the prior art from being patented again. The invention should be new and should not have been seen before.

- **Inventive step and non-obviousness:** The inventive step and non-obviousness reflect a same general patentability requirement present in most patent laws, according to which an invention should be sufficiently inventive — i.e., non-obvious — in order to be patented. In other words, "[the] non-obviousness principle asks whether the invention is an adequate distance beyond or above the state of the art."
- **Utility:** the invention should have some industrial utility. It must satisfy some requirements of the humans.

1.5 NON-PATENTABLE THINGS

- Laws of nature
- Abstract ideas
- Mental process
- Printed matter
- Computer software
- Method of doing business

1.6 PARTS OF APPLICATION

- Title
- Abstract
- Field of invention
- Background
- Summary
- Brief description of drawing
- Detailed description of drawing
- Claims
- Drawing

1.7 CITATIONS

Records used in patent to refer earlier prior art.

1.7.1 BACKWARD CITATIONS

Reference of prior art in patents

1.7.2 FORWARD CITATIONS

Reference of invention done in that field after the patent is issued; this is mainly useful for patent search.

1.8 IMPORTANT DATES IN PATENT APPLICATION

- **Invention date**: When an invention was completed**.**
- **Filling date:** The date of filling application with completed information required.
- **Priority date:** The first date of filling of application anywhere in the world.
- **Issue date:** Grant date the date on which the patent is issued from patent office.
- **Expiration date:** The date when a patent term ends.
- **Publication date:** The date on which patent information is made available to public 18 months after priority date

CHAPTER - 2
MODULAR DESCRIPTION OF THE JOB

2.1 TYPES OF PATENT APPLICATIONS

- **Ordinary Application:** The first application for patent filed in the Patent Office without claiming priority from any application or without any reference to any other application under process in the Patent office is called an ordinary application.
- **Convention application:** When an applicant files a patent application, claiming a priority date based on the same or substantially similar application filed in one or more of the convention countries, it is called a convention application. To get a convention status, an applicant should file the application before any of the patent offices within **12 months** from the date of first application in the convention country.
- **PCT- International Application:** The Patent Cooperation Treaty or PCT is an international agreement for filing patent applications. However, there is nothing called as a 'world patent'. The PCT application does not provide for the grant of an international patent, it simply provides a streamlined process for the patent application process in many countries at the same time.
- **PCT - National Phase Application:** The PCT-national phase must follow the international phase. The applicant must individually 'enter into the national phase'. I.e. file a National phase application in each county he wishes to enter. The applicant can enter the national phase in up to 138 countries within 30-31 months (depends on the laws of the designated countries) from the international filing date or priority date (whichever is earlier). If the applicant does not enter the national phase within the prescribed time limit, the International Application loses its effect in the designated or elected States.
- **Application for Patent of Addition:** Patent of addition is an application made for a patent in respect of any improvement or modification of an invention described or disclosed in the complete specification already applied for or has a patent.

  In order to be patentable an improvement, should be something more than a mere workshop improvement and must independently satisfy the test of

invention. The major benefit is the exemption of renewal fee so long as the main patent is renewed. A patent of addition lapses with the cessation of the main patent.

- **Divisional Application:** A divisional application is one, which has been "divided" from an existing application. The applicant, at any time before the grant of a patent can file a further application, if he so desires or if an objection is raised by the examiner on the ground that the claims disclosed in the complete specification relates to more than one invention. A divisional application can only contain subject matter in the application from which it is divided (its parent), but retains the filing and priority date of that parent. A divisional application is useful if a unity of invention objection is issued, in which case the second invention can be protected as a divisional application.

2.2 CLAIMS

It is the extent of the protection conferred by a patent or the protection sought in a patent application. It defines the scope of protection granted by the patent. It is more valuable to obtain claims that include the minimal set of limitations that differentiate an invention over what came before. Fewer limitations can increase rejection due to lack of novelty.

2.2.1 TYPES OF CLAIMS

- **Independent claims:** An independent claim stands alone and is self-contained. It is always broader than the dependent claims that follow.
- **Dependent claims:** It is dependent on parent claim and makes a reference back to the parent claim. It allows the applicant to include all the limitation of the parent claim. E.g. The hammer of claim1, further including a nail claw extending from the head and separated by a gap.

  It helps to cover the invention and various embodiments of the invention. It is narrower in scope than parent claim. It can add features to parent claim but cannot delete any feature from it.
- **Multiple dependent claim:** It is a dependent claim, which refers to more than one other claim and must refer to such other claims in the alternative only. E.g. a

hammer according to claims 2 or 3 further comprising a neoprene layer over the handle.

A multiple dependent claim cannot serve as basis for any other multiple dependent claims. They have high filling fees.

2.3 PATENT COOPERATION TREATY (PCT)

Approaches to international patent protection:

- Apply in each country separately in which patent is sought. Cost is very high, documentation probe etc.
- Apply in accordance with the “Paris Convention for protection of industrial property”. It provides a 12 months delay, priority date etc. are main features.
- File a PCT application. It provides an inventor a 30/31 months delay; preliminary examination option and prior art search report depending upon the inventor’s wish in which he sought to get patent.

2.3.1 PCT

It is an international patent law treaty, which provides a unified procedure for filing patent applications to protect inventions in each of its contracting states. A patent application filed under PCT is called PCT application.

Steps:

- A single filing of PCT application is made with RO (Receiving Office) in one language.
- Search is performed by International Searching Authority (ISA) plus written opinion regarding the patentability of the invention, which is the subject of the application.
- Preliminary examination is done by International Preliminary Examination Authority (IPEA) but it is optional.
- After this national regional authorities examine the application
- Then the final issuance of application.

2.4 PATENT CLASSIFICATION SYSTEM

It is a way to arrange documents in a patent office so that they can quickly find a document, which is identical to the invention.

For this, International Patent Classification (IPC) is agreed internationally.

USPC (United States Patent Classification) is fixed by USPTO.

ECLA (European Classification) is adopted by the European Patent Office (EPO).

The logic behind classification is to ease patent search and retrieving.

2.4.1 CLASSIFICATION BASED SEARCHING

2.4.1.1 Advantages

- More complete results than text searching.
- Independent of the language syntax.
- Independent of changes in terminology.
- Concept search.
- Available for patent documents where no full text of claims/description is available.

2.4.1.2 Disadvantage

- Complex structure of classifications.
- It requires study of classification rules.

2.4.2 DIFFERENT TYPES OF CLASSIFICATION

- International patent Classification (IPC)
- European patent Classification (ECLA)
- Cooperative Patent Classification (CPC)
- US Patent Classification

2.5 DIFFERENT TYPES OF SEARCHING

2.5.1 NOVELTY SEARCH

These search have no date constraints on the prior art. It helps the inventor to determine if his invention can be patented or not. All prior date is searched and is given to the inventor.

2.5.2 VALIDITY SEARCH

The idea is to find prior art that is relevant to the validity of the CLAIMS of the subject patent. Not the general ide, not the entire patent but each claim. Thus it allows the claims to be disallowed on the grounds that someone came up with the invention before the patent in question was filed. Filing date is very important to prove that he/she was the first person to come up with the invention. NOTE we do not cite any prior art that has already been referenced by the subject patent. Relevant art does not have to be in the claims of other patents. It can be in the description also. Independent claims are the targets in validity search.

2.5.3 INFRINGEMENT SEARCH

Patent infringement is the commission of a prohibited act with respect to patented invention without permission from the patent holder. In many countries, the use is to be commercial to constitute infringement. The extent of protection provided by the patent is defined in the claims of the granted patent. Patents are territorial and infringement is only possible in a country where patent is in force. The infringing party’s product falls within one or more of the claims of the patent. In this we have to find the product of the company’s, which infringes the claims of the subject patent. Search ids focused on the products, which are introduced in the market after the subject patent has been granted.

2.5.4 FTO SEARCH

It is a search done on issued patents or on pending patents to determine if a product infringes any of the claims of the issued or pending patents. It may also include expired art that acts as a safe harbour permitting the product or process to be used on patents in publications.

2.5.5 STATE OF THE ART SEARCH

In this what is currently being developed in the field is searched. Patents on specific technology are read. It is done to provide direction to the research being done in the company or organization. Each and every patent on given technology is searched.

CHAPTER - 3
DIFFERENT TYPES OF SEARCHING

3.1 NOVELTY SEARCH

These search have no date constraints on the prior art. It helps the inventor to determine if his invention can be patented or not. All prior date is searched and is given to the inventor. It is based on the sole criteria of novelty and non-obviousness. Novelty/ patentability search helps to evaluate a particular invention and provides an insight into the already existing technologies. It is important to conduct patentability searches before filing a patent application, while drafting the claims of a patent and during the invention review cycle.

A patentability search is designed to tell you the likelihood of obtaining a patent on your idea. Although the law does not require that you do a patentability search before filing a patent application, however often a search is the right first step in the patent process.

Time is often an obstacle with patentability searches. A patentability search is often a short search ranging from anywhere between 4 hours and 20 hours. Because they are short in nature, it is important to understand the main novel idea of the invention disclosure to be searched. By doing so, a searcher will be able to quickly scan a large set of search results looking for prior art that appears relevant to the main idea. Upon finding the relevant art, the searcher can then determine if the art has additional search features of interest.

In addition to finding related art, some patentability searchers may also be tasked with identifying less relevant documents that could contain "alternative embodiment" ideas that will be included in the drafting of the patent specification. Alternative embodiments are changes made to an invention's non-essential or non-novel parts, but that show how the invention could be adapted to work in different situations or with existing products. For example, an invention for a curtain-hanging device could work whether the user

was hanging curtains, drapes, or valances, and it might also work for hanging blinds. Or, as another example, a novel design for a jacket that holds an MP3 player in an inner pocket would work whether the inner pocket was detachable, or sewn into the jacket fabric.

Alternative embodiment searching may not be necessary in all patentability searching. The bottom lines is that searchers should always discuss the main goal of the search with a patent attorney, and tailor the focus of the search (and what kind of results are returned by the search) to the requester's specifications.

A patentability search will usually include a search in major patent collections, normally encompassing at least the United States (US), European (EP), Patent Cooperation Treaty (WO/PCT) and Japanese (JP) collections. Although any prior published document can be used against a patent application, most patent examiners from major patent offices will go straight to these collections, so it makes sense to include them in any patentability search, no matter how cursory. The patent search tool should be selected so as to gain necessary basic coverage, but pricing is usually a constraint with shorter patentability investigations. Many commercial and free tools will have some coverage in US and major foreign country databases.

3.2 VALIDITY SEARCH

The idea is to find prior art that is relevant to the validity of the CLAIMS of the subject patent. Not the general ide, not the entire patent but each claim. Thus it allows the claims to be disallowed on the grounds that someone came up with the invention before the patent in question was filed. Filing date is very important to prove that he/she was the first person to come up with the invention. NOTE: we do not cite any prior art that has already been referenced by the subject patent. Relevant art does not have to be in the claims of other patents. It can be in the description also. Independent claims are the targets in validity search.

A validity search also helps with the valuation of a patent. If the searcher discovers closely related prior art that may cast doubt on the validity of the subject patent, the

patent may be considered "weak." On the other hand, if the search does not discover these other documents, the subject patent may be considered "strong." This kind of investigation plays in important role when licensing agreements or other royalties are being negotiated between the subject patent holder and a 3rd party interested in practicing its claimed subject matter.

One important consideration during a validity search is claim interpretation. Because validity searches are performed on patents that have already been examined and allowed, a broad interpretation of the allowed claims is necessary to find further relevant art. It is absolutely essential for the searcher to give the selected claims the broadest reasonable interpretation. Furthermore, this interpretation must be discussed and clarified with the search requester. Even if such art does not seem to constitute a direct challenge to the claims, it may still form the basis for a legal argument against validity. Successfully defining the scope of a validity search usually requires a strong understanding of the current state of the technology field, as well as some creativity when identify analogous technologies that may also fit into the claim limitations. A step in the specific shows an example of dividing a claim into its particular limitations; this activity can help the user in his or her quest to achieve the broadest possible interpretation. It must be stressed, however, that the interpretation of the claims should also be discussed with the search requester (a patent attorney), and agreed-upon prior to the start of the search. As in all patent searching, the searcher should get as much direction as possible from an attorney, and the task of interpreting any claims should fall directly to an attorney.

Another consideration in validity searching is determining the search cut-off date; ideally, the searcher and search recipient should agree upon this very important date. Put simply, the search cut-off date should be determined to encompass any prior art that might defeat the subject patent's validity. This date is dependent on the national laws in the issuing country from which the subject patent originates. There are a number of legal concerns that dictate what cut-off date should be used for a validity search; however, in all cases, a qualified attorney must determine this date.

A validity search should encompass the entire body of potential prior art that could have been used to reject the original patent application. (However, due to the legal complexities involved in what material can be used to reject patent claims, a patent attorney should always determine the “search cut-off date”.) To meet these requirements, search tools selected for a validity search should have extended, reliable coverage in US and major non-US full text collections, as well as a complete worldwide bibliographic and family collection from at least one of the two major sources, the EPO’s INPADOC/DOCDB file and the Derwent World Patents Index. Most commercial patent search tools, along with the free USPTO EAST system in Alexandria, VA, will fit these criteria, although users should bear in mind that the more comprehensive the coverage is, the better the search will be. Free tools such as the EPO’s esp@cenet or Google Patents should probably not be used as primary sources, but can serve as useful supplementary sources of information, such as for free patent PDF downloading.

3.3 INFRINGEMENT SEARCH

Patent infringement is the commission of a prohibited act with respect to patented invention without permission from the patent holder. In many countries, the use is to be commercial to constitute infringement. The extent of protection provided by the patent is defined in the claims of the granted patent. Patents are territorial and infringement is only possible in a country where patent is in force. The infringing party’s product falls within one or more of the claims of the patent. In this we have to find the product of the company’s, which infringes the claims of the subject patent. Search ids focused on the products, which are introduced in the market after the subject patent has been granted.

An infringement search primarily requires the searcher to analyze the claims of enforceable (or “live” or “in-force”) patents, and published applications that may proceed to grant. The goal of the search is to uncover patents with claims that could represent an infringement risk to a new product, and the search should take place before the product is released to market. Infringement searches may also cover expired patent art, and sometimes non-patent sources such as product literature.

In addition to finding possible legal obstacles, infringement searches may offer some positive results. Infringement searches can sometimes be extended to include expired art, where searchers may find “safe harbor” (Freedom-to-Operate) patents which show material that has entered into the public domain. Finding expired art during the search process may allow an inventor to create, change, and/or tweak current processes of the invention to “design around” possible cases of infringement.

The biggest obstacle for preparing an infringement search strategy is the need to understand and predict all potential generic claim language that a new product might infringe upon. To cover the necessary ground, a searcher must be able to identify technology areas and/or applications, which are equivalent or analogous to the product being searched. To illustrate this point, take the following example. A product disclosure states:

"A bag closure clip including a pair of opposing T-shaped clip members held in pivotal engagement by a U-shaped metal spring. Each clip member includes a jaw, a handle, and a fulcrum. As the handles are squeezed toward each other, the jaws open to allow a bag, such as for snack food or cereal, to be inserted between the jaws. When the handles are released, the spring forces the jaws toward each other to grip the bag and hold it closed."

A quick search of the US classification system shows that US Class 24 defines subclasses for various embodiments of clips, clasps, buckles, and fasteners. This is an obvious place where patents having claims that the disclosed bag closure clip may infringe upon could be found. However, this is not the only place the searcher should look. Other classes may be applicable, such as Class 132, which includes subclasses for squeeze-open clips for hair, etc.; Class 223 includes clothespins; Class 439 includes jumper cables; and Class 606 includes surgical clamps. All could potentially have devices that claim the structural elements of the disclosure.

It is also necessary to carefully evaluate the claimed material to determine whether it could possibly encompass the proposed product of interest, especially when there are any vague limitations within the claims. For example, an infringement search could be

conducted on a product that has the feature of “a radio frequency identification (RFID) tag.” If a patent document is found that is related to the search subject matter, and claims an “inventory item marker,” at first glance the searcher may not think that the claim is relevant to the search. However, after reading more of the document, it might become clear that the “item marker” could be an RFID tag, as seen in the embodiments described in the specification. Thus, the claim could be interpreted as possibly including the feature of interest. (This example is used here to show how claim language should always be given its broadest possible interpretation, and any final decisions should be left to the search recipient. In general, when there is any doubt about whether a claim could possibly encompass the search subject matter, that patent should be included in the search results.)

Non-patent sources are usually not primary sources for an infringement search. However, this type of search can include non-patent sources, especially product literature, as a means of identifying potential competitors in the market. Examining the patent holdings of close competitors is an important strategy in infringement searching, since the patented material from companies with similar products will be highly relevant to the search. Another consideration is that due to the lag between the filing and publication of a patent application, product literature may show the existence of a similar new product before its related patent applications are published.

3.4 FTO SEARCH

It is a search done on issued patents or on pending patents to determine if a product infringes any of the claims of the issued or pending patents. It may also include expired art that acts as a safe harbour permitting the product or process to be used on patents in publications.

Freedom to operate", abbreviated "FTO", is usually used to mean determining whether a particular action, such as testing or commercializing a product, can be done without infringing valid intellectual property rights of others.

Since IP rights are specific to different jurisdictions, a "freedom to operate" analysis should relate to particular countries or regions where you want to operate. If you want to commercialize a new variety of lentil seed in your own country, for example, you might have complete freedom to operate if there are no patents, plant variety rights, trademarks or other IP rights covering the seed, the process used to make it or the way you wish to market it or in your country.

However, you might not have the same freedom to operate if you want to export the seed to another country, where patents or other IP rights may have been issued covering the plant genotype, methods, etc.

If you discover a patent application or patent in the database that seems to relate to the action for which you are seeking FTO, you can't immediately conclude that there isn't FTO, because for a variety of reasons the matter claimed in the patent could be available to use. For example:

- Patents may not have been applied for in many countries; the claimed matter is protected only where there is a patent.
- Patents may not have been granted in some of the countries where applications were made; laws about what is patentable vary between countries.
- Patents that were issued may not still be in force if the patentee has not made regular payments due.
- Patents are a limited monopoly and they do expire (check expiration dates!).
- Some countries have exemptions for certain actions (for example, Germany is enacting a research exemption, and New Zealand has an exemption for certain types of clinical trials).
- Patents that were issued in different countries may have broader or narrower claims---so it is really important to look at the claims to see what they read on.

If you ask an attorney to render an FTO opinion, that might consist of finding such IP rights, issue jurisdictions, expiry dates and so on, and also assessing how the issued claims are to be construed and whether or not the issued claims might be invalid.

Most commonly, claims in a particular patent could be invalid because there is prior art, perhaps a publication or a public presentation about the matter claimed in the patent, that the patent examination process didn't find. In some countries a patent could be vulnerable to challenge because an inventor wasn't properly named.

CHAPTER - 4
PROJECT UNDERTAKEN

4.1 PATENTABILITY SEARCH

A patentability search involves searching the prior art, which includes published patent applications, issued patents, and any other published documents, with the aim of determining whether filing your patent application makes sense. If you find prior art that describes your invention completely or renders it obvious, you probably shouldn't bother trying to **patent** your invention. A patentability search is sometimes called a prior art search or simply just a patent search.

Before filing an application, it is advantageous to perform a preliminary patentability search. Doing so will provide an idea of the closest related prior art, and allow the patent claims to be drafted "around" this previous art, so that the novelty of the invention will be more obvious to the examiner.

In addition to being used as a preliminary research tool, a patentability search can aid in the preparation of an application. The search will help define an appropriate breadth for the claims of a future patent application as well as act as an aid in finding which aspects of the technology to focus an application on.

4.1.1 OBSTACLES FACING THE SEARCHER

Time is often an obstacle with patentability searches. A patentability search is often a short search ranging from anywhere between 4 hours and 20 hours. Because they are short in nature, it is important to understand the main novel idea of the invention disclosure to be searched. By doing so, a searcher will be able to quickly scan a large set of search results looking for prior art that appears relevant to the main idea. Upon finding the relevant art, the searcher can then determine if the art has additional search features of interest.

In addition to finding related art, some patentability searchers may also be tasked with identifying less relevant documents that could contain "alternative embodiment" ideas

that will be included in the drafting of the patent specification. Alternative embodiments are changes made to an invention's non-essential or non-novel parts, but that show how the invention could be adapted to work in different situations or with existing products. For example, an invention for a curtain-hanging device could work whether the user was hanging curtains, drapes, or valances, and it might also work for hanging blinds. Or, as another example, a novel design for a jacket that holds an MP3 player in an inner pocket would work whether the inner pocket was detachable, or sewn into the jacket fabric.

Alternative embodiment searching may not be necessary in all patentability searching. The bottom line is that searchers should always discuss the main goal of the search with a patent attorney, and tailors the focus of the search (and what kind of results are returned by the search) to the requester's specifications.

4.1.2 SEARCHING PATENT DOCUMENTS

A patentability search will usually include a search in major patent collections, normally encompassing at least the United States (US), European (EP), Patent Cooperation Treaty (WO/PCT) and Japanese (JP) collections. Although any prior published document can be used against a patent application, most patent examiners from major patent offices will go straight to these collections, so it makes sense to include them in any patentability search, no matter how cursory. The patent search tool should be selected so as to gain necessary basic coverage, but pricing is usually a constraint with shorter patentability investigations. Many commercial and free tools will have some coverage in US and major foreign country databases.

4.1.3 SEARCHING NON-PATENT LITERATURE

A patentability search will also include a non-patent literature search. Major non-patent literature sources encompassing many technical subject areas include, but are not limited to:

- Engineering Village (subscription)
- Scopus (subscription)
- Google Scholar (free)

- Google (free)
- IEEE explore (subscription)
- Science direct (free)
- Wikipedia (free)
- Pubmed(subscription)

4.1.4 SPECIFIC SEARCH STRATEGIES

These search strategies are examples of specific best practices that can be applied during the course of a patentability search. These are steps to be taken in addition to accepted search practices that apply to all searches.

- Always discuss the general search focus with the search requester. Determine whether there is a need to search for documents, which may describe alternative embodiments, or if a straight forward search for only the most relevant art is needed.
- Ask the search recipient if potential claims have been drafted for the patent application. If so, the searcher should discuss whether a search on all of the claimed features is needed, just as the examiner would perform upon receiving the application. (Sometimes patentability searches are performed to determine whether further research is viable before proceeding, and thus initial claims are not always available.)
- Always perform a search on the inventor name to get an idea of the person's core research interests. Collaborators and heavily cited colleagues are possible influences/sources of similar art.

4.1.5 A TYPICAL SEARCH SEQUENCE

The following search sequence is a generic progression of search steps that could be applicable to many prior art investigations.

1. Understand the search. This usually requires reading of one or more technical publications in the field of search where familiarity is lacking. If the person who requested the search does not have any recommendations, a web search on the general search topic is usually good place to start for identifying these resources.

Performing an entity search on any known authors or applicants can also help to orient the searcher and identify some useful references as a starting point.

2. Full-text search to quantify the scope of the art. Where the scope is broad, research the topic to narrow the scope with more specific search terms. For example, in a chemical engineering reactor search, is the topic a fluidized bed reactor or a packed bed reactor? If a packed bed reactor, what other terms are typically used for the reactor type and specific media used therein? Use an industry standard resource to become familiar with the terms of art (in this case, Perry's Handbook would be a good choice).
3. Identify related patent documents to determine more specific terms related to art in the field. (To continue the reactor example, a document may disclose silica as a type of inert media used in a packed bed reactor. However, silica is merely one species of inert media used in this type of reactor. Identify the other species and consider including them as additional keywords to broaden the search when appropriate.)
4. Narrow the search body with the most relevant classes and subclasses from the appropriate classification area(s) of interest. Patentability searches that encompass US art will benefit from a US class search in that collection, while at least IPC and/or ECLA classes should be used to adequately cover collections from other patent issuing authorities. A healthy discussion with a USPTO Examiner is also sometimes beneficial to determine important US subclasses that may otherwise be overlooked.
5. Search all relevant art within each chosen subclass. Review each central reference for additional keywords and structural features that can be used to massage the body of the full-text searching in (3).
6. Iterate (4) and (5) to identify additional references.
7. After exhausting (6), examine key central references for classes and subclasses not originally considered and repeat with respect to each new subclass.
8. Return to the full-text searching body and search the art for more recently identified keywords. If the search engine permits it, exclude search strings or subclasses, which were already fully reviewed.
9. Search the remaining body of art using keywords found from central references, client notes, Examiner suggestions, etc.

10. Perform a forward and backward citation search on each centrally relevant reference found during the search. Examine any relevant document discovered by this process to ascertain why it was not discovered during the text/class search. Perform additional search iterations to cover any newly identified classes or keyword terms.

4.2 INVALIDATION SEARCH

A validation/invalidation search seeks to uncover patents or other published prior art that may render a granted patent invalid. The search results consist of a search report, a claims mapping chart, and citation of prior art. The results of the search are used to invalidate a patent involved in infringement litigation or to support due diligence and ascertain the validity of a patent.

A client who is concerned about his product infringing a particular patent conducts a patent validity/patent invalidity search. These searches are important to a patentee from a commercial point of view.

Whenever a company is concerned of its product infringing another company's patented product/process or another company alleges infringement of a patent, a patent invalidation search can be performed to invalidate the claims of the granted patent. Patent Invalidation Search is performed to identify documents or prior use that may reduce the claims of a granted patent, thus invalidating it. The aim of the search is to uncover prior art or prior use, which limits the scope of the granted patent. The invalidation search is a comprehensive search carried out by expert professionals to successfully invalidate patents. Detailed research is conducted to determine whether the claims of a particular patent are valid or invalid when analyzed and compared to the prior art available on the date of filing.

4.2.1 OBSTACLES FACING THE SEARCHER

One important consideration during a validity search is claim interpretation. Because validity searches are performed on patents that have already been examined and allowed, a broad interpretation of the allowed claims is necessary to find further relevant art. It is absolutely essential for the searcher to give the selected claims the broadest reasonable interpretation. Furthermore, this interpretation must be discussed and clarified with the search requester. Even if such art does not seem to constitute a direct challenge to the claims, it may still form the basis for a legal argument against validity. Successfully defining the scope of a validity search usually requires a strong understanding of the current state of the technology field, as well as some creativity when identify analogous technologies that may also fit into the claim limitations. A step in the specific shows an example of dividing a claim into its particular limitations; this activity can help the user in his or her quest to achieve the broadest possible interpretation. It must be stressed, however, that the interpretation of the claims should also be discussed with the search requester (a patent attorney), and agreed-upon prior to the start of the search. As in all patent searching, the searcher should get as much direction as possible from an attorney, and the task of interpreting any claims should fall directly to an attorney.

Another consideration in validity searching is determining the search cut-off date; ideally, the searcher and search recipient should agree upon this very important date. Put simply, the search cut-off date should be determined to encompass any prior art that might defeat the subject patent's validity. This date is dependent on the national laws in the issuing country from which the subject patent originates. There are a number of legal concerns that dictate what cut-off date should be used for a validity search; however, in all cases, a qualified attorney must determine this date.

Sometimes the term "critical date" is used to refer to this search cut-off date; however, in patent law, the phrase critical date has a distinct meaning, and it does not always correlate to the search-cutoff date that a patent attorney may request.

Oftentimes, the search requester will designate a search cut-off date of 3 to 5 years after the filing date of the patent to be searched. This is especially useful in certain emerging technologies, where searchers may find highly relevant references published after the

filing date of an early seminal patent under validity investigation. Tracing their origins back to an early obscure conference proceeding or other hidden source can form the basis for a legal argument against validity. However, searchers should also bear in mind that the number of publications for a quickly moving technology might skyrocket after a certain seminal publication in the technology's history, meaning that a post-filing-date search could swamp the searcher with too many useless references. When this happens, searchers should consult with the search requester to determine whether it is appropriate to move the search cut-off date back to an earlier date.

A special obstacle can arise when Internet publications are found containing information that appears relevant to a validity investigation. Any publicly available information can be used to make a case against validity, but there is a need to prove that the information was in fact available before the effective filing date of the patent document. One way to do this is to use Internet archiving services, which have been crawling the web and making date-stamped copies of web pages. The most well-known of these is the Internet Archive (also called the Wayback Machine), available here. This service will not index some pages, for example, those pages that are marked with a robots.txt file to discourage web crawlers, or "orphan" pages that are not linked by any other web pages on the net. Still, there is a chance that technical information publicly available on the web can be date-stamped using this resource.

Another useful tool in a validity search is the patent's prosecution history (also sometimes called a "file history"). A prosecution history is a record of all correspondence between a patent applicant and the patent office that examined the application. It may contain a search report filed by the examiner, which can be a helpful starting-off point for the searcher. It will also often contain a reasoned statement written by the Examiner considering the prior art found during the search, and explicitly describing the novel claim limitations that allowed the patent to issue in consideration of past inventions (in the US, this document is called the Reason for Allowance). Because it states exactly which claim limitations were not found in the prior art, this document is sometimes helpful to determine the focus of validity investigations, although the exact search strategies and claim interpretations should always be controlled by a qualified patent attorney.

Locating the prosecution history can be a tricky business. In the US, some newer patent prosecution histories may be accessed online via the USPTO Public PAIR service. A prosecution history for a newer document may be available as an Image File Wrapper (or IFW), meaning it is fully available online in PDF format; older documents may need to be ordered from a prosecution history service, where employees physically retrieve the records and make copies. Similarly, the EP maintains a system for accessing prosecution histories online, at the EPO's Register Plus service; although not all EP prosecution histories are available this way. The situation gets even trickier when a prosecution history is needed from other patenting authorities. Some patent office's allow physical inspection of their prosecution histories, but do not allow them to be copied. In addition, some patent offices may destroy their records due to lack of storage space. The age and issuing authority associated with a patent document may determine whether or not this valuable resource can be found

4.2.2 SEARCHING PATENT DOCUMENTS

A validity search should encompass the entire body of potential prior art that could have been used to reject the original patent application. (However, due to the legal complexities involved in what material can be used to reject patent claims, a patent attorney should always determine the "search cut-off date".) To meet these requirements, search tools selected for a validity search should have extended, reliable coverage in US and major non-US full text collections, as well as a complete worldwide bibliographic and family collection from at least one of the two major sources, the EPO's INPADOC/DOCDB file and the Derwent World Patents Index. Most commercial patent search tools, along with the free USPTO EAST system in Alexandria, VA, will fit these criteria, although users should bear in mind that the more comprehensive the coverage is, the better the search will be. Free tools such as the EPO's esp@cenet or Google Patents should probably not be used as primary sources, but can serve as useful supplementary sources of information, such as for free patent PDF downloading.

For validity searching in older technologies, specifically the mechanical arts, it is very advisable for searchers to select a data source with a complete collection of US full text

patent data. In the mechanical arts, it is possible for a current idea to actually appear in the patent literature far earlier than 1976, the date at which many US full text collections begin in electronic sources. Micro Patent PatentWeb, Thomson Innovation, LexisNexis TotalPatent, and Google Patent Search are examples of sources, which provide complete US full text back file data.

Citation searching is a valuable tool during any search effort, but because a validity search always starts with an issued patent, there should always be the examiner cites an initial investigation into the patent. The searcher should attempt to get an idea of the closest art found during the initial search, to understand which claim limitations the examiner discovered, and which were not found, allowing the patent to issue. (The patent file history should also be consulted, whenever possible, to gain an understanding of the reasons for allowance. For US patents, this can be done using Public PAIR, and for EP patents, using the EPO's Register Plus service.)

The essential features in any full text patent search tool to be used for validity searching should include:

- Highest quality data possible
- As much back file data as possible
- Efficient citation search features
- The ability to limit the search by date using publication, application or priority date

4.2.3 SEARCHING NON-PATENT LITERATURE

A validity search must also include a non-patent literature search, encompassing any document published before the search cut-off date. (Due to the legal complexities involved in what material can be used to reject patent claims, a patent attorney should always determine this date.) Recommended non-patent literature sources for various technical disciplines can be found in their respective best practices articles. Both large compendiums of information and smaller resources such as individual journals, books, and even web pages can be sources of relevant prior art during this type of in-depth investigation.

Validity searches by nature are intended to be more extensive and in-depth than the search, which was performed by the examiner who issued the patent. For that reason, validity investigations often require searchers to consult obscure, unusual, and remote sources of potential prior art. Failing any positive hits from major online sources, it is not unusual for searchers in the most pressing legal cases to utilize major libraries, such as the Library of Congress (US) or the National Library of Medicine (US), to conduct investigations manually. Failing the ability to go to a nationally recognized source, searchers might consider gaining access to university libraries in their area

Major non-patent literature sources encompassing many technical subject areas include, but are not limited to:

- Engineering Village (subscription)
- Scopus (subscription)
- Google Scholar (free)
- Google (free)
- IEEE explore (subscription)
- Science direct (free)
- Wikipedia (free)
- Pubmed(subscription)

4.2.4 SPECIFIC SEARCH STRATEGIES

These search strategies are examples of specific best practices that can be applied during the course of an infringement search. These are steps to be taken in addition to accepted general search practices that apply to all searches..

- **Develop the search features by making each limitation of the claims its own feature.** Through discussion with the search recipient, identify the various limitations which are likely to be the most difficult to find in the prior art. (Usually, the searcher must ensure that every limitation of the selected claims is included in the search features. However, the purpose of breaking the claim into its component features is that it will be easier to find pieces of the claim, rather than the entire claim in entirety.) Because examiners can combine multiple patent references to prove non-obviousness, a validity searcher must look for individual “pieces” of a claimed invention rather than focusing on the whole.

- **Agree on and clarify the broadest reasonable interpretation of claim limitations with the search recipient.** Claims in a validity search should always be given the broadest reasonable interpretation; a patent attorney should always be consulted during this process. This step is crucial for searchers to fully understand what to include and exclude in the search results.
- **Identify keywords from the claims of the patent.** A patent drafter acts as a lexicographer for the patents she drafts. She can pick words she wants to use and lay stress on specific words. The reverse is also true; she may avoid words she considers less important. A neat way to start an invalidity search is to pick keywords based on the patent drafter's focus. Generally, a patent drafter would use important keywords in the claims and use them repeatedly with due antecedent basis applied. A searcher can tap this resource and pick out words that have antecedent basis applied to them. This will ensure that the searcher begins the search on the right track, making the initial searches highly focused.
- **Establish a search cut-off date with the person requesting the search.** Due to a number of legal complexities involved in determining what constitutes prior art and can be used to challenge validity, **this date should always be determined by a patent attorney.** A common range will be 3-5 years after the filing date of the subject patent.
- **If possible, review the file history of the subject patent.** The patent prosecution is a tool that can provide some extra help and useful clues to the validity searcher. Firstly, the examiner's original search report, including the field of search and relevant results found by the search, is often contained in the prosecution history. Secondly, the prosecution history can provide some answers these two questions: why did the examiner allow the patent application? What material was the examiner unable to find in the prior art? Ideally, in the US, the patent prosecution history will contain a copy of a special document known as the examiner's Reason for Allowance, outlining why the application was allowed to issue as a patent. However, it is common for this information to be missing from the prosecution history. When this occurs, searchers should review the other documents within the prosecution history (documents with names such as Applicant's Remarks, Claim Objections, and/or Amendments to the Claims) to find additional clues.

Searchers should note that **any conclusions drawn from examining the file history should be discussed with a patent attorney before they are used to direct the search.**

Scanned US prosecution histories can be found via the USPTO Public PAIR website (http://portal.uspto.gov/external/portal/pair), while EP file histories are available from the EPO's Register Plus service (https://register.epoline.org/espacenet/regviewer?lng=en). For non-US or EP patent documents, the file history may need to be ordered via proxy from the issuing patent office, if the search time budget allows. Certain offices will not even allow photocopies to be made of their file histories, and in extreme cases this may require the searcher (or a proxy) to visit the original copy and make notes by hand to summarize the examiner's decision.

- **When reporting the results of a validity search, consider using a feature matrix to note key subject areas addressed by each reference.** Always relate the results to the claimed subject matter.
- **When reporting your search results, do not offer any opinion about the validity of the patent in question.** Searchers should remember that their job is to find references that **may** be relevant to a particular validity case. However, searchers should always refrain from producing any written interpretation of the results that they find. All interpretation should be left to the patent attorney, and a discussion of the search deliverables should always take place before the search is complete.

4.2.5 A TYPICAL SEARCH SEQUENCE

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4.3 Practical Application

1. A patent gives the inventor the right to stop others from manufacturing, copying, selling or importing the patented goods without permission of the patent holder
2. The patent holder has exclusive commercial rights to use the invention.
3. The patent holder can utilize the invention for his/her own purpose.
4. The patent holder can license the patent to others for us. Licensing provides revenue to business by collecting royalties from the users.
5. The patent holder can sell the patent any price they believe to be suitable.
6. The patent provides protection for a predetermined period (20 years) which keeps your competitors at bay.
7. Patents are partially responsible for advancements in medical science, biotechnology, drug chemistry, computers etc.
8. A patent reward inventors with the aforementioned advantages and hence, creates bigger and better discoveries.

4.4 Conclusion

After completing the internship, I came to know about the importance of patents in the technological world. A lot of money is spent by companies all over the world on intellectual property. It is the only way, which is used to protect the rights of the people's intellectual property. To get a patent you require a strong idea, which should be novel, non-obvious and should have a utility in the life of the people. It should be useful to mankind and should not harm any life and the sentiments of people. The inventor gets the protection over claims, which are there in the patent. The rights are on the claims. The date criteria is very important for the researcher as it changes with the change for the type of search. For patentability search we give the patents and NPL till date. In invalidation we give patents and NPL before the priority or effective filing date of subject patent. In case of infringement we give the products, which are introduced, in the market after the priority or effective filing date of subject patent. Patents can also be given if the client asks for it.

During the training I came across a lot of new technologies. I did pharmacy, Biotechnology well as mechanical projects.

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