

INTELLECTUAL PROPERTY MONETIZATION

Project report submitted in partial fulfillment of the
requirement for the degree of Bachelor of Technology

in

**Computer Science and Engineering/Information
Technology**

By

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Under the supervision of

Prof. Dr. Vivek Kumar Sehgal

to



Department of Computer Science & Engineering and
Information Technology

**Jaypee University of Information Technology
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Candidate's Declaration

I hereby declare that the work presented in this report entitled **“INTELLECTUAL PROPERTY MONETIZATION”** in partial fulfillment of the requirements for the award of the degree of **Bachelor of Technology in Computer Science and Engineering/Information Technology** submitted in the department of Computer Science & Engineering and Information Technology, Jaypee University of Information Technology Waknaghat is an authentic record of my own work carried out over a period from July 2022 to May 2023 under the supervision of **Prof. Dr. Vivek Kumar Sehgal, Professor and Head, Fellow IEI, SM-IEEE, SM-ACM** .

The matter embodied in the report has not been submitted for the award of any other degree or diploma.

(Student Signature)

Piyush Sharma, 191229.

This is to certify that the above statement made by the candidate is true to the best of my knowledge.

(Supervisor Signature)

Supervisor Name: Prof. Dr. Vivek Kumar Sehgal

Designation: Professor and Head, Fellow IEI, SM-IEEE, SM-ACM

Department name: Computer science & engineering and information technology.

Dated: 10-05-2023

ACKNOWLEDGEMENT

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CERTIFICATE OF TRAINING



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TO WHOMSOEVER IT MAY CONCERN

This is to certify that Mr. Piyush Sharma is working as a Trainee Research Analyst with our organization since Feb, 2023 to till date.

During internship with GreyB, Piyush has worked on multiple Patent Monetization Projects but due to confidentiality issues we are unable to disclose project details.

This document is confirming his successful training completion with us.

Yours sincerely,

A handwritten signature in black ink, appearing to read "Pooja Sehgal".

Pooja Sehgal
Sr. Manager HR

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LIST OF ACRONYMS AND ABBREVIATIONS

1. SEP- Standard Essential Patent
2. 3GPP- 3rd Generation Partnership Project
3. DIA- Detailed Infringement Analysis
4. eVTOL- Electronic Vertical Take-Off and Landing
5. ARIB- Association of Radio Industries and Businesses
6. ATIS- Alliance for Telecommunications Industry Solutions
7. CCSA- China Communications Standards Association
8. ETSI- European Telecommunications Standards Institute
9. TSDSI- Telecommunications Standards Development Society of India
10. TTA- Telecommunications Technology Association
11. TTC- Telecommunication Technology Committee
12. IP- Intellectual Property

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CHAPTER 1

PROFILE OF COMPANY

1.1 Introduction

The United States Department of Commerce is home to the United States Patent and Trademark Office (USPTO or Office). The USPTO's responsibilities include trademark registration and the granting of patents to protect inventions. Regarding their discoveries, company goods, and service identifications, it supports the interests of companies and inventors. Additionally, it provides guidance and support to the President of the USA, the Minister of Commerce, the Department of Commerce's bureaus and offices, as well as other government departments, on all local and international elements of "intellectual property." The Office fosters the nation's industrial and technical advancement as well as the economy through the preservation, categorization, and dissemination of patent information.

The USPTO is responsible for performing a variety of tasks related to patents, including examining applications, granting patents on inventions when applicants are eligible, publishing and disseminating patent information, documenting patent assignments, maintaining search files for both domestic and foreign patents, and maintaining a search room open to the public for the purpose of looking up issued patents and records. Public copies of patents and official documents are made available by the office. In order to clarify this, it publishes the Handbook of Patent Examining Procedure and offers training to practitioners. Similar tasks are carried out in relation to trademarks. The USPTO aspires to maintain the technical lead of the United States, which is essential to both present and future competitiveness, by promoting technological advancement and safeguarding intellectual achievements. Additionally, the USPTO disseminates patent and copyright information that aids in the global development and exchange of innovative technologies as well as the knowledge of intellectual property protection.

Professional services are offered by GreyB, which has offices in Singapore and India (Mohali and Gurgaon). The company employs both off-site and onsite ways of operation in order to assist other businesses in maximising the value of their inventions and intellectual property (IP). Just a few of the many types of clients that GreyB services include law firms, businesses, software development organisations, R&D divisions, internal IP workplaces, patent committees, patent attorneys, IP investment houses, venture capital firms, venture capitalists, and research organisations.

GreyB employs a number of product consulting experts with training and expertise in data gathering, technology management, and efficient patent development, management, and revenue. These professionals are crucial for efficiently applying their skills to provide product management consulting services. The company also offers a range of product management consulting services. The expertise of these consultants is essential for the effective development, management, and monetization of intellectual property assets, particularly in the area of new technology investment banking.

1.2 Necessity

When an applicant, or their representative, interacts with a patent office over a patent or a patent application, this is referred to as patent prosecution. Pre-grant prosecution, which entails negotiating with a patent office for the issuance of a patent, and post-grant prosecution, which deals with matters including post-grant modification and objection, are the two broad categories into which patent prosecution can be divided. Applications submitted to the U.S. Patent and Trademark Office are given to an examining group in charge of the technical area relating to the invention for review. Applications are reviewed by the examiner to those who have been allocated in the examining group in the order that they have been filed. Except as authorised by the rules, or upon the Commissioner's direction to hurry up the operation of the Office, or upon verifiable showings that, in the Commissioner's view, will justify advancing

them, applications will not be advanced out of turn for inspection or for further action. In order to ascertain whether the concept is novel and nonobvious, the application is examined for compliance with legal requirements and searched against prior foreign patents held by the Patent and Trademark Office, United States patents, and available literature. The examiner makes a choice based on the research and the discovery of the search. The applicant must restrict the request to one of the claimed innovations if there are two or more inventions included in the application and the Office determines that a single patent cannot be awarded for all of them. The other invention may be the focus of a different application, which, if submitted while the first application is still ongoing, would be eligible to benefit from the first application's filing date. The examiner may make a requirement that the application be limited to a single invention a further action.

1.3 Objectives

With several exclusions, the law states that only the inventor may submit a patent application. The patent would be void if it were granted if someone other than the inventor applied for it. Criminal sanctions would also apply to the applicant in this situation who makes a fraudulent claim to being the inventor. If the inventor has passed away, legal representatives, such as the executor or administrator of the estate, may submit the application. A guardian may submit the patent application if the inventor is crazy. A joint inventor or, in the absence of a joint inventor, a person with a property interest in the invention, may submit an application on behalf of a non-signing inventor if the inventor declines to file for a patent or cannot be located. When two or more people create an idea together, they file a patent application as joint inventors.

One who merely contributes money is not considered a co-inventor and cannot be added to the application as an inventor. It is feasible to fix a simple error like incorrectly leaving out an inventor or incorrectly designating someone as an

inventor. It is against the law for officers and staff members of the USPTO to apply for patents or to acquire any rights or interests in patents, directly or indirectly, other than by inheritance or bequest.

The Patent and Trademark Office grants the inventor a property right when it issues a patent for an innovation. A new patent is valid for 20 years from the filing date in the United States or, in rare circumstances, from the filing date of a previous connected application, provided that maintenance costs are paid. Only the United States, its territory, and its possessions are applicable to US patent awards.

The legislation and the grant itself use the phrase "the right to exclude others from making, using, offering for sale, or selling" the invention in the United States or "importing" it into the country to describe the privilege granted by the patent grant. The right to exclude others from manufacturing, using, offering for sale, selling, or importing the invention is what is given, not the right to do any of those things.

1.4 Theme

A general written explanation of the creation and at least one "embodiment" of it, as well as a set of "claims" written in a certain manner that precisely explain the applicant's perception of the invention's distinctive characteristics, are often included in patent applications. The patent office compares these claims against the prior art before granting a patent in order to set the invention apart from the pre-existing prior art. To aid in understanding the invention, most patent applications in the majority of countries also often contain (and in some cases, are obliged to include) a drawing or series of drawings. The main steps in the prosecution of a patent application that results in grant are search and examination.

1.5 Organization

1.5.1 About GreyB

GreyB is a provider of professional services with locations in Singapore and India (Mohali and Gurgaon). In order to help other businesses, maximise the value of their invention and intellectual property (IP), the company uses both off-site and onsite methods of operation. Legal firms, companies, software development companies, R&D divisions, internal IP offices, patent committees, patent attorneys, IP investment houses, venture capital firms, investment firms, and research organisations are just a few of the different categories of clients that GreyB supports.

There are several product consulting professionals at GreyB that are knowledgeable and experienced in data collection, technology management, and effective intellectual property development, management, and monetization. When it comes to effectively using their experience to deliver product management consulting services, these experts are essential. The business also provides several consulting services in the area of product management. These consultants' collective knowledge and experience, especially in the field of new technology investment banking, is crucial for the efficient creation, administration, and monetization of intellectual property assets.

1.5.2 Goal

GreyB is an expert at supporting its clients by offering specialised research and patent evaluations. The company uses its knowledge of the academic and commercial worlds to help clients assess and reduce the risks associated with their research investment. The researchers on the GreyB team have backgrounds in a variety of sectors and are highly prepared.

In addition to information technology, electrical and mechanical industrial equipment, material sciences, metal alloys, software development, advanced technologies, consumer goods, bioengineering, medical devices, chemical

material science, petroleum and gas, chemistry, medical equipment, healthcare, industrial manufacturing, and microelectronics, the company also excels in these areas.

1.5.3 Team Work at GreyB

The GreyB team has a user experience and a task-delivery process which makes it easy to optimize the execution of data contact. It aims more to explain the company objectives / queries underlying will appraisal, customized specifically to the product kit, also included reviews. All of this mix of consumer engagement, project-based reach of analytical testing and product efficiency allows company to deliver competitive customer services.

1.5.4 Work Culture at GreyB

The firm operates through licensed intellectual property lawyers, software creation marketing personnel, patent law companies (EPO, USPTO protocols), corporate IP, development and product designers, patent departments, code transition departments, compliance consultants, stakeholders and IP traders.

CHAPTER 2

INTELLECTUAL PROPERTY

2.1 Definition

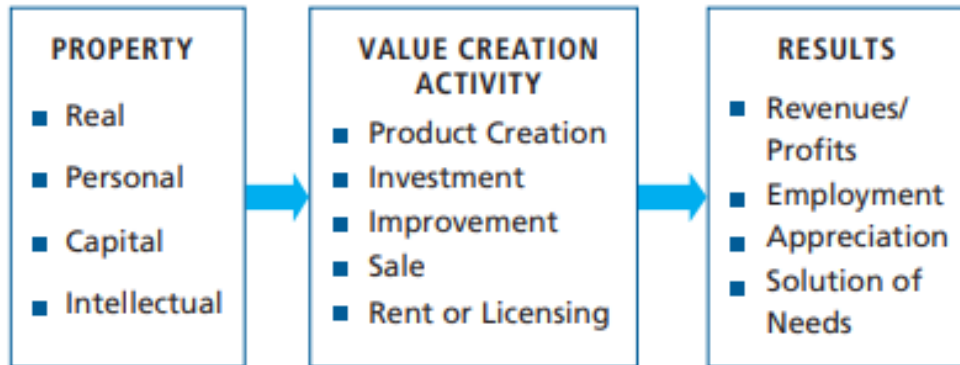


Fig. 2.1 Intellectual Property

Patents, trademarks, copyrights, design rights, and other intangible creations are all included in the category of intellectual property (IP), which also includes a variety of other intangible assets. These assets lack physical actuality and mostly come from artistic works.

The ability of intellectual property to make further earnings through acquisition and use sets it distinct from other assets. IP is acknowledged as a resource that generates returns in a variety of ways. IP relies on human experience, knowledge, and intelligence instead of having a quantitative nature like physical goods do. The presence of diverse intellectual property rights results from the regulation of each type of IP by particular laws and regulations. Manufacturing, business, and trademark improvements are the main topics of intellectual property. Inventions, concept licences, licenced trademarks, and trade secrets are all included. The different kinds of IP are:

2.2 Types

1. **Patent:** It protects the invention which is novel, non-obvious and has some industrial applicability.
2. **Design:** It upholds the exterior look of an item.
3. **Copyright:** It preserves the creation of a concept, such as video, publishing or recording cultural, creative or literary content.
4. **Trade Secret:** This prevents the industrially valued data of the institution which is kept private besides particular purposes.
5. **Trademark:** It is a word, sign or some symbol legally attached, or established for use of signifying an organisation.

2.2.1 Patent

A patent is a piece of legal documentation that gives the owner the sole authority to manage how their invention is used within a specific geographic area and term, as stated in the patent claims. The ability to prevent anyone from producing, owning, or offering the invention for sale without the patent holder's consent is one of these exclusive rights.

Consider the patents issued for ground-breaking innovations like a smartphone battery with endless life, a vaccine to ward against Covid-19, or a cutting-edge substance that can purify tainted water. In each instance, a patent guarantees that the inventor has the sole right to economically use their idea and guards against unauthorised use or exploitation by third parties.

Patents encourage innovation by establishing exclusive rights that let innovators profit from their hard work and investment. This system stimulates development

and improvement in a variety of human endeavours, including science, technology, and engineering.

2.2.1.1 Purpose of Granting Patents

In order to get a patent, inventors must submit a thorough description of their invention to the patent office, which is then made available to the public. The goal of this disclosure obligation is to guarantee their safety and the preservation of their work. It is a key component of the patent system since it encourages the sharing of important scientific and technical knowledge in exchange for legal protection with the ultimate goal of promoting advancement.

A patent can be viewed as a privilege given to the inventor or creator, giving them the only authority to bar others from furthering, making use of, manufacturing, or commercialising their discovery. Patentable innovations might be procedures or final products that provide fresh and practical answers to issues. After a patent is approved, it is given legal protection for a period of 20 years starting from that day. Unless the patent owner regularly collects licencing payments or the patent is judged expired, at which point it is no longer considered valid, this period may be extended up to twenty years. This includes new approaches to doing tasks, distinctive product designs, or technology developments that improve the performance of already-existing items.

The patent system acts as a tool for motivating inventors by giving them the drive and exclusive rights to protect their creations. It not only promotes innovation but also makes it easier for people to share knowledge for the benefit of society as a whole.

2.2.1.2 The Value of a Patent

In addition to preventing others from copying your product's idea, applying for a patent gives you the opportunity to commercialize your creation and earn money by licensing the intellectual property rights to others. This indicates that you can benefit legitimately from your patents.

2.2.1.3 Reasons for Patent

According to patent organisations, a patent covers five main reasons:

- a) To maintain the status of being the original inventor.
- b) To make the innovation, after it has been created, publicly known.
- b) To put aside the money required for research and development.
- d) Making and selling the invention.
- e) To design and enhance improvements over earlier patents.

2.2.1.4 Legal Requirement for Patentability

There are a number of prerequisites that must be met in order to receive a patent for an invention. Among these requirements are originality, usefulness, and non-obviousness. Other legal requirements must also be addressed in addition to this, including the necessity for disclosure enablement, among others.

1. Novelty

Novelty is a crucial factor in determining whether a patent will be granted and is important to the criteria for patentability. For an innovation to qualify for patent protection, it must be brand-new. It shouldn't have been communicated to anyone or made public before the patent application was submitted. It is vital to keep in mind that while many countries, including the United States, just require that the invention be unique, several large nations require that it be novel at the time the patent application is submitted. A similar invention's uniqueness can be thrown out the window, making it unprotectable, if it has already been disclosed or published. An innovation cannot be protected by a patent if it lacks originality. But it's important to note that the notion of novelty varies by jurisdiction.

Even small changes might be deemed novel, therefore an innovation need not be ground-breaking to qualify as novel. The bar for novelty is strict in many nations, which implies the invention must be completely unique. According to this criteria, any disclosure made anywhere in the globe is acceptable prior art

for the same patent application. Legal precedent can also be derived from the actual inventor's deeds. Therefore, the innovator must hold back on disclosing their innovation to the general public before applying for a patent. In some nations, getting a valid innovation patent may be less likely if useful and inventive technology is introduced before the patent application.

In nations like the United States, the inventor can satisfy the demands for uniqueness by submitting a patent application within a year of making the invention public knowledge or putting it up for sale. The inventor's own disclosure cannot be used against the patent application as previous art during a certain time frame thanks to this one-year grace period. It does not imply, however, that an innovator must make their invention known to the public. A valid patent application may eventually be submitted in a nation with a longer grace period.

It is clear that different countries have varied standards for novelty, official records, and previous art. Before submitting a patent application, it is essential to carefully review and comprehend the relevant rules and regulations to ensure compliance.

2. Utility or Industrial Applicability

A certain degree of commercial application is required for an invention to be granted a patent. Technically, this is frequently referred to as infrastructure or commercial use, even if the two names have different connotations. If the innovation cannot be used to demonstrate its functioning, a patent may not be granted. In some places, ethical factors might also be taken into account, which might result in the denial of patent rights.

The patentability requirements for utility do not need an invention to show superiority over currently available goods or processes. The only focus of the usefulness requirement is on carrying out the tasks that the inventor describes in the patent.

When the patent claims follow a specified format, the requirement of industrial applicability is met. An instance will help to illustrate this. Let's say that during the patent examination, the examiner discovers that the innovation stated by the patent applicant can be used in an industrial setting by rearranging the patent claims.

In essence, an invention need not be commercially beneficial to meet the necessary requirements or requirement for usefulness. Imagine that an inventor has found a brand-new variety of diamond. It is discovered that the special characteristics of this particular diamond prevent water from freezing on its surface. The creator concludes that this invention can be used in the plumbing sector to stop pipes from freezing during cold weather. However, it would be too expensive to use the diamond-infused pipes on a regular basis. Diamonds in water pipes would not, therefore, satisfy the utility criteria.

3. Inventive Move / Not common step

Non-obviousness is the last but most important criteria for acquiring a patent. It is significant to note that this criterion is regarded as an indicator of creative step in many nations. A person with ordinary skill in the relevant field must not have seen the innovative component of the invention. In plainer terms, it indicates that an ordinary individual working in the field shouldn't get to the same invention as a result of the combination of known facts. Each nation has a different requirement's time frame. However, it is normally determined at the time of invention or at the time of application by the applicant.

2.2.2 Trade mark

A trademark is a unique symbol or design that distinguishes a company's products or services from those of other businesses on the market. It could be viewed as a mark that distinguishes a company's goods or services from comparable ones provided by other businesses.

A trademark might be a logo or a particular sign. It serves as a way of visually identifying and displaying a specific business or brand.

When a trademark is registered, the owner is given the legal right to protect their name or symbol, preventing unauthorised use by others. Owners of trademarks are able to secure their brand identities thanks to this legal protection. Typically, trademark registrations are valid for ten years and can be renewed on a regular basis. Intellectual property includes trademark registration, which grants the trademark owner legal rights and protections.

What is the benefit in registering a trademark?

When a trademark is not licenced, the business cannot rely on the civil law's protection to protect the trademark against imitation or abuse. The corporate body does, however, acquire legal authority over the registered trademark if a trademark is licenced. For a business, trademarks are important since they are utilised to safeguard profit margins. They may be licenced for a set charge or assigned to foreign organisations like franchisors. This gives third parties the ability to utilise the trademark to aid the business's fundraising initiatives.

It is important to note that trademark registration is not required in Singapore.

2.2.3 Copyright

Copyright is a type of intellectual property that primarily relates to artistic creations. A copyrighted work's author is frequently referred to as the copyright holder. Photographs, sculptures, poems, essays, plays, dances, and more are examples of works that can be protected by copyright. Technology-related elements such as software code, technical specifications, and related documentation may also be covered by copyright protection.

Copyright is fundamentally different from intellectual property (IP) in that it is exempt from regulatory agency clearance. Contrarily, IP rights must be properly registered and awarded by the appropriate governmental body. Anyone is able to file a patent or trademark litigation in a courtroom. It is crucial to remember

that patent applications are frequently written by professionals with specialised understanding in the industry, such as patent officers and patent attorneys.

Important aspects of copyright to remember are:

- Exclusive rights are granted by copyright to the author of an original work, usually for a predetermined period of time.
- Although ideas or information are not specifically protected by copyright, the way those ideas are expressed or presented is.

2.2.3.1 Benefits of Copyrights

The expression and dissemination of creative works, such as literary and artistic works, are protected by copyright. It includes a range of artistic endeavours, such as written literature, computer algorithms (in the form of source code), and other kinds of creative expression.

The exact expression or material form in which such ideas are communicated is what is protected by copyright rather than the actual ideas or ideologies themselves. This means that the copyright holder has the sole right to reproduce, distribute, and display their work and that the actual words, drawings, or other tangible representations of an idea may be protected under copyright law.

2.2.3.2 Things not comprised in copyright

Specific matters not really protected by copyright shall involve: processes, theories, techniques or innovation and development.

2.2.4 Rights for Industrialized Design

Another type of intellectual property protection that covers the aesthetic design of non-functional things is the design right. It covers the general positioning and composition of the 3D model, colour, pattern, and shape that give an object its sculptural or aesthetic meaning. The design can take the shape of a 2D or 3D template that is used to produce items, manufactured goods, or works of art.

Design rights cover non-purely functional things' aesthetic appearance. It encompasses the creation of a structure, arrangement or configuration of a design or colour, or a combination of both, in a 3D representation that communicates a structural meaning. A component, architectural material, handcrafted object, or other item may be manufactured using a 2D or 3D representation of the architectural design.

2.2.5 Trade Secret

A trade secret is any method, system, process, arrangement, gadget, technique, or body of information that gives a business an advantage over customers or competitors but is not commonly recognised or readily available.

If kept hidden, trade secrets can last for a very long time and continue to be safeguarded. A trade secret may persist indefinitely, surviving until it is revealed to the public or is otherwise made public.

Trade secrets include a variety of unpublished information kinds, such as techniques, tools, devices, groups, or sequences of information that are not widely used or immediately recognisable. Their worth is derived from their secrecy and the advantage they give the company that owns them over competitors.

CHAPTER 3

PATENTS

3.1 Types of Patents:

1. A **utility patent** can be obtained for the development of a useful method, apparatus, manufactured good, or material composition. Examples of patents for utility include optical connections, pharmaceuticals, and electronics.

2. A **design patent** may be given to someone who creates a brand-new, unique, and appealing look for a manufactured item. A few examples of design patents include the creation of a running shoe, a bicycle suit, and the creation of the Avengers character designs.

3. A **plant patent** can be obtained for a brand-new, unique type of plant that can reproduce asexually and was created by a person.

While a utility patent frequently describes how a product functions and is used, a design patent protects the object's outside appearance. Further usability and design patents may be sought for an item if it is novel in terms of its utility or appealing design.

A provisional application is a straightforward patent filing that merely includes the broad strokes of an invention. A non-provisional filing is a whole application for a patent that includes claims, drawings, and specifications. It could be necessary to submit a non-provisional application within one year after the preliminary file date.

3.2 What a Patents look like?

The structure of a patent application typically includes the following elements:

- **Applicant:** This section contains the names of the individuals or entities seeking to secure the patent rights.

- **Inventor:** This section lists the name or names of the inventor or inventors who created the invention.
- **Description:** This section provides a detailed description of the invention and helps clarify the patent claims.
- **Claims:** This section includes the statements that define the scope of the protection granted by the patent law.
- **Citations and references:** This section lists any relevant prior art or references cited in the patent application.

US006849223B2

(12) **United States Patent**
Dean et al.

(10) **Patent No.:** US 6,849,223 B2
(45) **Date of Patent:** Feb. 1, 2005

Title

(54) **FABRICATION OF A POLYMERIC PROSTHETIC IMPLANT**

(75) **Inventors:** David Dean, Shaker Heights, OH (US); Malcolm Cooke, Richfield, OH (US)

(73) **Assignee:** Case Western Reserve University, Cleveland, OH (US)

(*) **Notice:** Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 372 days.

(21) **Appl. No.:** 10/127,019
(22) **Filed:** Apr. 19, 2002

(65) **Prior Publication Data**
US 2002/0171178 A1 Nov. 21, 2002

Related U.S. Application Data
(60) Provisional application No. 60/284,803, filed on Apr. 19, 2001.

(51) **Int. Cl.** B29C 35/08
(52) **U.S. Cl.** 264/400; 264/401; 264/482; 264/494; 156/272.8; 156/273.5; 156/275.5; 156/298; 156/303.1; 156/379.8

(58) **Field of Search** 264/400, 401, 264/482, 494; 156/272.8, 273.5, 275.5, 298, 303.1, 379.8

(56) **References Cited**
U.S. PATENT DOCUMENTS
4996,010 A * 2/1991 Modrek 264/401

(10) **Patent No.:** US 6,849,223 B2
(45) **Date of Patent:** Feb. 1, 2005

Patent Number and Issued Date

Inventors

Assignee

Filing Date

Field of Search

References Cited

OTHER PUBLICATIONS
International Search Report dated Aug. 30, 2002.
* cited by examiner

ABSTRACT
Processes for fabricating a customized, three-dimensional, bioerodable, polymeric prosthetic implant are provided. In a highly preferred embodiment, the prosthetic implant has a porous network. The method employs a stereolithography process. The solution comprising chains of one or more monomers, a photoinitiator, and a highly preferred monomer, the solution comprises poly(propylene) fumarate (PPF) and a solvent for controlling the viscosity of the solution. During the fabrication process, the solution is placed in a container in the stereolithography instrument. The mold platen for supporting the mold is positioned above the solution. Successive layers of the solution are exposed to UV light energy to produce a pattern of cross-linked and non-cross-linked polymeric regions corresponding to a cross-sectional image of the three-dimensional CAD image.

15 Claims, 5 Drawing Sheets

29

Fig. 3.1 Parts of a U.S Patent

3.3 Patent Laws

A provisional application is a straightforward patent filing that merely includes the broad strokes of an invention. A non-provisional filing is a whole application for a patent that includes claims, drawings, and specifications. It could be necessary to submit a non-provisional application within one year after the preliminary file date.

3.4 Patent Analysis and File Wrapper

A patent file wrapper is a folder that collects all the papers related to a specific patent application and contains a comprehensive record of proceedings at the United States Patent and Trademark Office (USPTO) from the initial filing to the granted patent. It includes every communication that takes place between the inventor/attorney and the patent office.

According to patent law, any individual who invents or develops a unique and useful method, system, product, or composition of matter, or an improvement thereof, may be granted a patent, provided it meets the requirements of the law. The term "method" refers to a process or system, typically involving industrial or technological methods. "Machine" and "manufacture" are self-explanatory, while "composition of matter" applies to chemical compounds and mixtures. These categories cover virtually everything created by humans, except for the methods of production.

The statute requires that the subject matter must be "useful" or "practical." This means that the subject matter must have a practical purpose or use, and a computer that does not work for its stated function would not be considered useful and therefore not eligible for a patent. Definitions of the legislation even by judiciary further established the boundaries including its sphere of subject-matter that may be copyrighted, and moreover it is being claimed that only the rules of physics, observable processes and theoretical theories really aren't protectable.

The patent will never be secured on the grounds of a specific concept or recommendation. This same patent application on a new computer, production, etc., as it has been said, and not just on the idea or proposal of a new device. A detailed explanation of the specific computer and perhaps other subject-matter from which a patent is obtained is needed.

3.4.1 How to perform file wrapper analysis?

As per the PTO, the "file wrapper" is just the directory where only records for either a given program is stored and preserved. It provides a full documentation of the litigation of the PTO after the registration of the preliminary patent petition in favor of the patent granted.' A patent file wrapper includes all correspondence with the applicant (or his attorney) with the PTO.

It contains certain step taken by the Company, the order for approval, the pledge and also the document, as well as the details of the patent investigator's consultation.

The importance of the file wrapper cannot be overstated. According to the PTO, it contains the official information on the prosecution of a patent case in the United States Patent and Trademark Office, which is more than just the actual documents. The court record, which determines the nature of the asserted invention and the rights of the patent owner, is crucial for the existence of the patent. The concept of file wrapper estoppel points out how the scope of the patent may be limited by the details in the file wrapper.

To access the file wrapper, a search must be performed on the patent in question. For example, the patent number US8644875B2 can be searched to perform a file wrapper analysis.

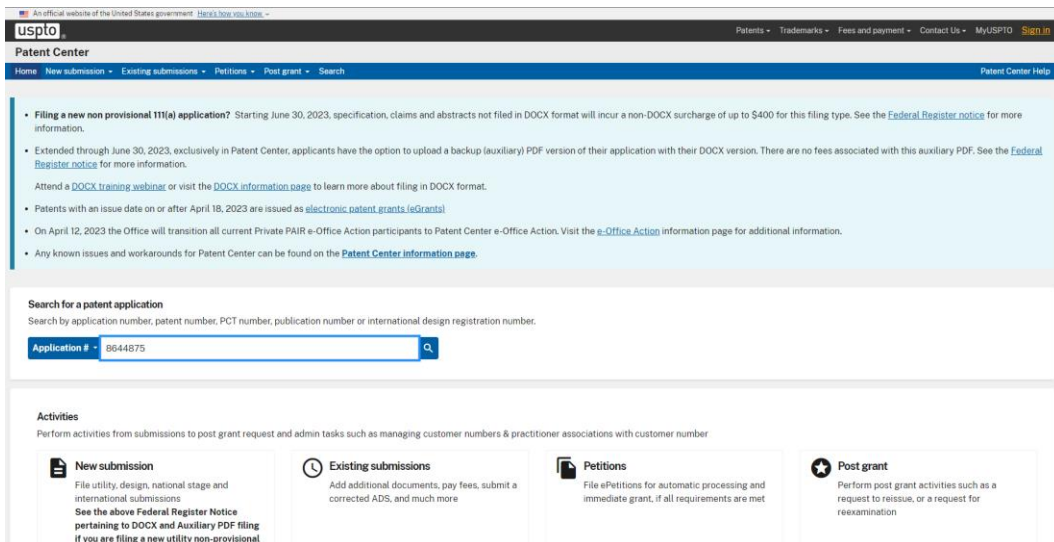


Fig 3.2 Patent Centre search screen for searching patent US8644875B2

After filling the patent number, we are taken to USPTO record.

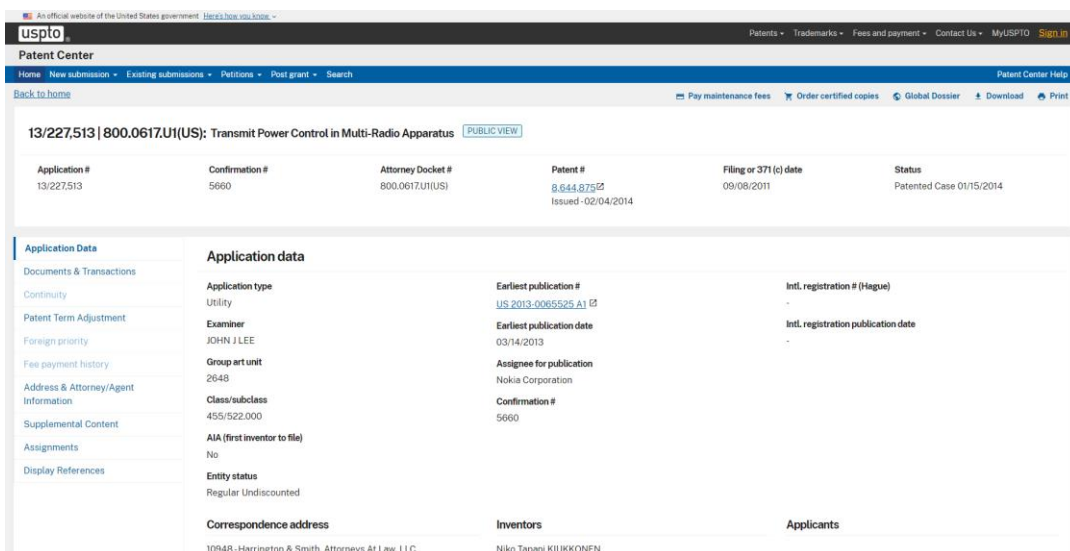


Fig. 3.3 Application data tab for patent US8644875B2

One searches the fees tab for further details. If we choose the "fees" tab, a new window relating to the USPTO Maintenance database emerges. Copy the patent application number, then type it into the search box. The following image depicts the next page that has been opened:

13/227.513 | 800.0617.U1(US): Transmit Power Control in Multi-Radio Apparatus [PUBLIC VIEW]

Application #	Confirmation #	Attorney Docket #	Patent #	Filing or 371 (c) date	Status
13/227.513	5660	800.0617.U1(US)	8,644,875B2 Issued - 02/04/2014	09/08/2011	Patented Case 01/15/2014

10 Assignments found

Assignment 1

Reel/frame	Date recorded	Pages
027329/0588	11/16/2011	6

Conveyance
ASSIGNMENT OF ASSIGNORS INTEREST (SEE DOCUMENT FOR DETAILS). [PDF]

Assignors	Execution date	Correspondent
KUKKONEN, NIKO, JAPAN ONG, ENGHWEIE MARIN, JANNE	10/07/2011 10/07/2011 10/14/2011	HARRY SMITH HARRINGTON & SMITH ATTORNEYS AT LAW, LLC 4 RESEARCH DRIVE, SUITE 202

Assignee
NOKIA CORPORATION
KEILALADENTIE 4
ESPOO, FINLAND FIN-02150

Assignment 2

Fig. 3.4 Assignments tab for patent US8644875B2

Let's now click on the "Get Bibliographic Data" button. By using this button, we ask for information on the upcoming submission window's date and the associated charge.

It is now studied under the Patents Term Adjustment tab.

13/227.513 | 800.0617.U1(US): Transmit Power Control in Multi-Radio Apparatus [PUBLIC VIEW]

Application #	Confirmation #	Attorney Docket #	Patent #	Filing or 371 (c) date	Status
13/227.513	5660	800.0617.U1(US)	8,644,875B2 Issued - 02/04/2014	09/08/2011	Patented Case 01/15/2014

Patent Term Adjustment

A Delays	B Delays	C Delays	Overlapping Days	Non-Overlapping USPTO Delays	PTO Manual Adjustments	Applicant Delays	Total patent Term Adjustments
251 days	0	0	0	251 days	0	0	↑ 251 days

Patent term adjustment history

Showing 1 to 10 of 45 entries

Number	Date	Contents Description	PTO (Days)	APPL (Days)	Start
50.5	02/04/2014	PTA 36 Months		0	0.5
50	02/04/2014	Patent Issue Date Used in PTA Calculation		0	0
49	01/10/2014	Dispatch to FDC		0	0
48	01/09/2014	Application is Considered Ready for Issue		0	0
47	12/24/2013	Issue Fee Payment Verified		0	0

Fig. 3.5 Patent term adjustment tab for patent US8644875B2

Let's examine the Display References tab now. This page displays all of the filled-out patent's references.

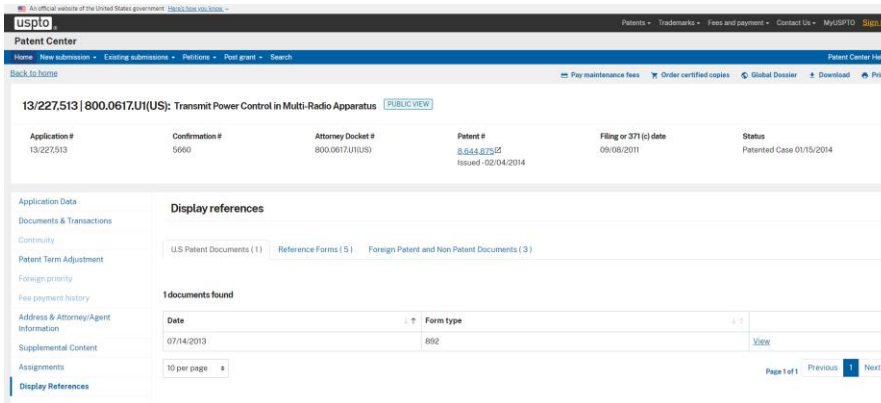


Fig. 3.6 Display References tab for patent US8644875B2

Let's investigate the most crucial tab, Image File Wrapper. We may learn about every office activity made in this tab.

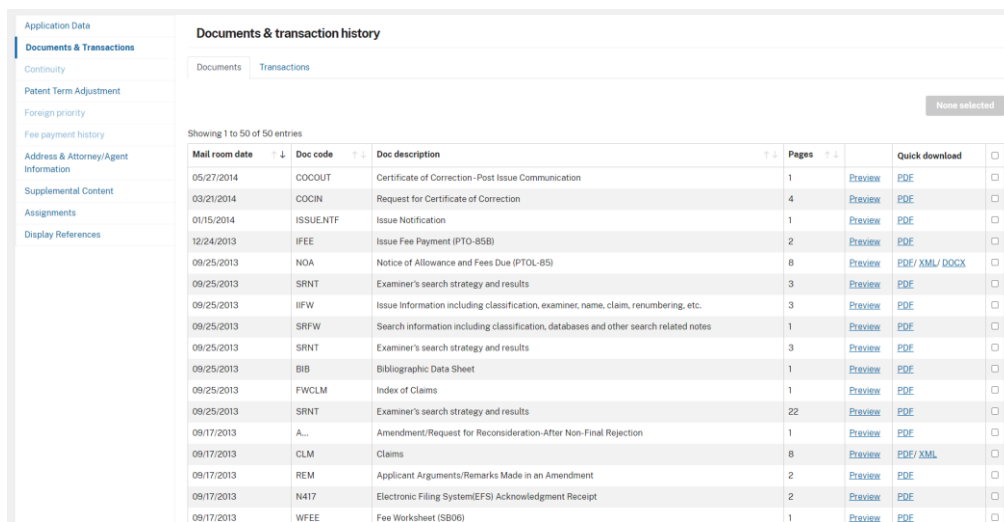


Fig 3.7 Patent US8644875B2's Documents & Transactions tab

Consumers have access to copies of court documents

CHAPTER 4

TYPES OF SEARCHES

4.1 Types of Searches

1. Prior -Art Search
2. Landscape Analysis
3. Infringement Analysis

4.1.1 Prior-Art Search

Everything that was afterwards recorded and may have contributed to the creation of an alleged "invention"

The innovation is valid and may only be patented since it differs from the previous art and is not an evident derivation of the prior art, i.e. there was human intelligence involved in its production.

Prior-Art Search is the process of locating pertinent Prior-Art references in a certain context. It might contain:

- Check the patent / non-patent database
- General quest on the Internet for news stories, posts, forums and other resources
- Identification and consultation of specialists in the sector
- Virtual examination of the 'still-to-be-digitized' collection

4.1.2 Landscape Analysis

1. Patent landscaping is only a subcategory of infringement research that also entails a thorough examination and search of patent-related records. These records concern the area of patent technology.

2. The detailed explanation of the equipment is organised around the member of the organisation. These divisions are made in accordance with the analysis's goal. In this type of search, all records pertaining to the patent are examined and categorised to enable customers to get the most out of the available database of patent information.

4.1.3 Infringement Analysis

Determining that a product or procedure violates a patent requires expert research. Patents can use infringement research to establish whether a product or method violates intellectual property rights.

In this regard, copyright analysis aids companies that are connected to a product or method in determining if a service or tool violates intellectual property rights. A critical stage in the development or modification of a product or series of goods is the detection of a violation.

CHAPTER 5

INFRINGEMENT ANALYSIS

5.1 What is Infringement Search

In the field of patentable innovation, it is a command of an unlawful conduct. Use of the innovation by a third party without the patent owner's consent is a patent infringement. The patent holder may provide a licence to the other party in exchange for authorization. Different jurisdictions define patent infringement differently. However, selling, using, proposing to sell, or creating an already patented version of the creation is the basic concept of patent infringement. Most of the country consider this conduct to be a patent infringement if it uses the patented innovation for profit or has a profit motive.

5.2 Objective of Infringement Analysis

There are many various forms of analysis that can employ infringement search, for example.

- Modification of the claim throughout the legal action
- Recognition of unauthorised usage of the patented innovation
- Opportunities for Licencing (Licensing-IN & Licensing-OUT)
- Patent Trimming and Monetization

5.3 Approach to Investigating Patent Infringement Searches

Searches for infringements don't always provide the right response. Some people could come across as pleasant.

The method for looking for patent violations is as follows:

1. The widest defence of the patent is the first stage in the investigation of a patent infringement. The most restricted component of the argument must be chosen after the widest one. Find the most stringent priority claim item first,

please. The innovative section of the application for a patent might be chosen if it is impossible to pinpoint the argument's most restrictive component.

The selection of an inventive portion of the invention claim or its most demanding portion has a purpose. We shall expeditiously find patent infringements by selecting the components of the aforementioned assertions. We have to spend more time on the most restricted component of the assertion or the novelty of the patent claim since spending more time on the tremendous issue of the claim is a waste of effort because such apparent elements will still be worked out. Some of the claimed elements take less time to test when the exclusivity of the formula's limiting factor is confirmed. Here, it is important to point out that there are instances in which the medicine does not include the limiting components. In these situations, we should move on to another issue and neglect the first. Note that that's not always the case.

Undoubtedly, there are some lengthy patents. How to deal with these kinds of lengthy patents is the current problem. For your information, a number of Chinese patents have grown thus lengthy as a result of inadequate justifications.

The following approach is taken to cope with such lengthy patents:

The claims must be divided into groups under the smaller provisions. These clauses can be further broken down into the argument's parts. The work-flow of the patent application must be examined. It will be accomplished by weighing all of the patent application choices in practical situations.

Then, with the support of arguments derived from the description of part of a patent, we will support the aspects of our argument in order to gain an improved understanding of the patent.

The history of the patent case may also be used to extrapolate a claim's authorization. This stage does get better.

My limited experience in this industry led me to provide the following advice. Additionally, there are situations when it is impossible to locate a claim's patent specification. In these circumstances, a short Google search will be conducted. When merely looking at a fraction, more care must be taken to conduct the

search in the context of patent discovery. If you have experience working in the industry, you can even look at earlier patents in the same field of invention to see how some of those arguments were addressed in those patents.

Undoubtedly, we are not finished here. Instead, we should go through the far less-known process of re-reading the statements.

As we complete one phase, we must go on to the next. The following step enables one to ascertain each of the argument's constituent parts.

Additionally, we have reached a stage where even the meaning or connection of words might be ambiguous. Think of how the term "computer equipment" may be mentioned in the patent. However, because the phrase is so wide, it is difficult to comprehend precisely what the patent's inventor intended to limit to that word. The purpose of the components in these statements must then be specified.

To describe the distance, we shall go through the terms of the patent. We shall discuss the history of the patent filing cover when we are still unsure about the reach. You could be asking yourself at this point whether it's not necessary to evaluate the file wrapper's history and whether it's sufficient to merely limit patent searches. Yes, we do need to connect with a file wrapper in situations when there is some uncertainty about the distance.

Let me use this example to help you understand the idea:

A month ago, I utilised SEP to operate. By reading through the patent claims, I generally tend to gain a quick summary of the invention. And this was a unique situation. The accusation's wording was ambiguous. The argument's words frequently made little to no sense, and some of them were even impossible to understand. But in the end, I read the patent's specification. The information provided in the patent summary was frequently ambiguous.

This indicates that one must examine the patent's file wrapper in order to define the character of the claim item because simply reading the majority of patent claims and their definitions is never sufficient.

Following the dissemination of the patent claims, the following action is taken:

3. Keep in mind all possible applications for the product before choosing the ones with the largest market shares.

If you decide to stop looking for a component after this, it will be a good thing. It's also wise to become aware of workable design implementations. The entire procedure will unquestionably assist the clients in utilising his innovation to the fullest.

Take a look at an illustration and assume the patent requirements pertain to the imaging system. You're going to look up camera equipment when you hear the word imaging system. However, there are also a lot of possibilities to uncover this claim component in products. Robots, computers, automobiles, diagnostic tools, and a number of other items may fall under the heading of imaging equipment. You would be surprised to learn that the search will be so nimble that we discover subcategories of cameras that might include alarms, security cameras, DSLRs, etc. It is assumed that if the patent conflicts with one or more of the items mentioned above, it will also conflict with the remaining items at issue. If we don't take into account all of the patent's possible applications, we will be able to limit the customer's ability to profit from the innovation.

4. Classification of its most available literature (product literature)

When I've finished studying the invention, I've begun generating Google searches to look for products. But we need to look for counterfeit items in a much more rational way. Even the smallest number of the documentation's important phrases won't be sufficient.

Despite all of this, we may still conduct some inquiry by posing a few further questions, such as: What could be the product that is infringing the innovation?

What possible advantages may technology offer if the maker doesn't make use of it?

When and how will the relevant information be found? Would there ever be a situation where the business would reveal it to its customers?

There may be a chance that verifying the product will make it simpler to find overlaps.

Would it be essential to check YouTube or even new tech review websites to see the true information?

This makes me more aware of the situation I have to deal with in the future. This brings to mind an incident from a while back when I was discussing drug mapping with my direct boss. In this instance, it must be established that the daily sounds and texts are part of the same document (a correspondence thread). Additionally, it was our responsibility to demonstrate that the communication method (such as sound or print) is specific to the programme in question.

In that instance, I can remember why I didn't reach for the product documentation right away given that I knew which lead was the most pertinent. This aided in identifying the innovation's operational environment. Mixing the sequence of events with the invention clearly paid dividends in the long run.

5. Use of search functions such as proximity operators

We'll be conducting some online research during the ensuing cycle of the search. We must choose a discover string related to the innovation in order to locate the component. It's possible that DocFetCher is what makes scanning possible. This technique aids in locating the element. Any specified record may be scanned and examined using this approach, which also employs proximity operators.

I could definitely recall from my point of view the instance of the research done on a project by John Coworker. John recently entered the competition. He also interacted with the company in some way. On a 3GPP proposal, he worked.

Ron made the decision to learn more regarding the 5 G concept. He made the decision to take into account the fact that 5 G makes use of an IP infrastructure. John is therefore definitely kind 5 G Near (the internet Protocol). By the way, that's how you find out on Google Patents.

Sadly, John was discouraged by his failure to find the desired outcome of his search. He attempted to discuss this with his tutor, who advised him to experiment with various search string combinations. For instance, although he had used NEAR, he might have used AROUND.

The advice from his mentor made his day better since it allowed him to get the necessary information for this string change.

similar to the momentary updates I find useful when searching on Google. I'm using some of the following Google search operators:

Related operator: This user's credentials may be used to locate regional websites.

The entire process of searching could aid in locating alternative businesses in a pertinent field.

The *..* operator is another option. This allegedly use a range of numbers.

For example, we'll use the above search term with the *..* Operator to find a few smartphones footage throughout 2015 and 2019, but not from any other years.

Smartphones with video 2015–2019

It might assist you in finding information within a constrained time frame. The term "filetype" limits an individual file type's effects. While "ext:" and other search phrases are additionally utilised on occasion in this context.

such as the Microsoft PowerPoint file format.

This could make it easier for us to find reliable information. Whether at least 42 keywords have been found on each webpage is a crucial supposition.

6. Generate tentative mapping

And after I've shown that practically all of the assertion's constituent parts can be found in the data, I'll try to map it out to confirm the resemblance. A claim piece or a sequence of events that were followed by an argument may be skipped after we have made a mental comparison. When preparing a mapping that shows

a side-by-side comparison of the claim component with the item, as shown in the figure, this is when.

We must prepare a temporary mapping until it is clear if any aspect of the argument eliminates the medicine. To test the infringement, this kind of mapping is required. We are inclined to forget the point of the argument when there exists a mental comparison. But this is the time when we will start to genuinely recognise the worth of a mapping work.

That by itself enables you to draw the conclusion that every single claim component overlaps, and it may also help their mentor analyse overlaps, thereby making it much simpler to begin putting together proof of Using (EOU) charts if necessary.

Assuring that every component of the claim's argument overlaps is helpful. This will also motivate the professor to investigate the infraction, which is usually best done when there isn't enough time to compile the Evidence of Use (EoU) charts. The preceding may be an instance for mapping performed tentatively:

Claim	Product literature	Comments
<p>a storage system for storing information accessible by the blade server system via the middle plane;</p>	<p>The ***** Storage Blade delivers direct attached storage for c-Class servers, with support for up to twelve hot plug small form factor (SFF) SAS hard disk drives or SAS/SATA SSDs or SATA Midline hard disk drives . The enclosure backplane provides a PCI Express connection to the adjacent c-Class server blade and enables high performance storage access without any additional cables. The ***** Storage Blade features an onboard Smart Array ***** controller with 1 GB flash-backed write cache, for increased performance and data protection.</p> <p>Source: nameoftheinfringer.com</p>	<p>***** - Name of actual product hidden to not reveal confidential information.</p>

Table 5.2.1 Tentative Mapping

In addition to highlighting the language's basic commonalities using colours, we can also use notes to make it easier for the reader to visualise the information.

The following follows from the aforementioned strategy:

Each person has a unique approach for handling an issue. What occurred that worked for me probably wouldn't work for others. As I already indicated, although some inquiries look like they would be lovely to answer, others make you feel like you need to do them right now. You probably won't revolutionise the status quo, and now that we've exhausted our own options, we're trying to take a number of actions to improve things.

Growing each of us is unique and appears to take a certain strategy to resolving the problem. It is extremely possible that that's what occurred, as what works for one person may not work for another. However, certain searches may be quite attractive while the majority of queries leave the searcher perplexed. It should be noted that this issue has not been rectified, but we might have a respectable strategy and be working to improve its allure.

CHAPTER 6

PROJECTS WORKED ON

Since it is corporate policy to keep customers and many project specifics confidential, I will attempt to summarize the projects I worked on while keeping in mind this policy.

The projects I worked on are listed below:

1. 5G Study
2. 5G Infringement Study
3. Invalidation Search
4. Internal tool development
5. Article writing for company's website

6.1 5G study

6.1.1 Objective of the project:

This project is for a client that requests a count of the number of companies whose patents have been certified 5G standard essential (SEPs).

6.1.2 What is Standard Essential Patent (SEP)

SEPs, or standard-essential patents, cover patents that specify that they adhere to the current technological norms. The production of technological requirements by designated standards organizations enables applicants to report and grant patent licenses. The unanswered patent claims are in line with the demands that every business has.

6.1.3 What is 3GPP

Seven common partnership organisations focused on telecommunications infrastructure make up the 3rd Generation Partnership Project (3GPP). The mentioned 3GPP delegates are:

- ARIB
- ATIS
- CCSA
- ETSI
- TSDSI
- TTA
- TTC

The Corporate Partners are these seven organisations. They offer colleagues a reliable setting for the creation of technical reports and standards that represent 3GPP technology.

Conclusion

I used similar approach with 5G patents. Numerous patents need to be evaluated for this project. So, in order to examine more patents in a shorter amount of time, we had to become more strategic in our analysis of these patents.

During my first training, I was required to create a preliminary mapping for each patent, and discussions concerning my knowledge of the patent and the mapping were held with my mentor. The main goal of the patent analysis was to determine if the provided invention is a standards essential for 5G technology or not.

6.25G Infringement Study

6.2.1 Objective of the Project

The client for this project gave us a list of specific firms that it wished to target. The customer requested that we demonstrate product and patent overlap for the listed firms.

6.2.2 Project Responsibility

The customer has a significant patent portfolio, maybe numbering over 40,000 patents. Their portfolio contains patents for many technologies. I was in charge of filing the 5G technological patent.

6.2.3 Strategy Involved

As I previously noted, the client's portfolio contains a sizable number of 5G patents. Out of hundreds of patents, I had to choose 8 patents. To complete it in a shorter amount of time, I required a plan of action. So the following is the approach I took:

- Patents having priority dates earlier than the most recent revision of the 5G standard were chosen. For that, we employed in-house software.
- We selected a few of the most discussed 5G domains and screened the remaining patents based on keywords associated with these 5G domains.
- Next, we determined whether or not those patents were standard necessary. We were left with a relatively limited number of patents using typical essential patent criteria.
- Then we choose the patents with the most inclusive claims.
- From hundreds of patents, we chose 8 in this manner.
- Based on the items' sales, pick products from the targeted firms.
- Cross-reference these goods with the patents.

6.2.4 Work done in the Project

The work that was completed on the project is listed below:

- a) Mapping of patents with 5G standards.
- b) Preparing Tech Charts.
- c) Preparing Detailed Infringement Analysis (DIA) report.

6.2.4.1 Mapping of patents with 5G standards

We must demonstrate that the client's patents are SEPs in order to demonstrate product overlap with the targeted entities. The reports above section explains how we demonstrate that a patent is SEP. By designating a patent as a SEP, we can readily demonstrate how the offered 5G device infringes on the patents. A vital element in this undertaking is proving that the invention is SEP.

6.2.4.2 Preparing Tech Charts

We create tech graphs for the goods and patents in this stage. Another critical phase for the undertaking is the creation of a tech chart.

What is a tech chart?

It is a document that provides a basic degree of mapping between standards and patents. In this instance, tech charts feature a fundamental level of patent mapping to 5G standards.

Contents of tech chart:

- Overview of the patent
- What is disclosed in 5G standards
- Text from 5G standards

Creating a technology chart is essentially a middle stage that demonstrates product overlap. We make sure that the provided patent does not overlap with the standards by creating a tech chart.

6.2.4.3 Preparing DIA (Detailed Infringement Analysis)

In this manner, we demonstrate a patent-protected product's violation. We receive an interim report from the DIA report. It is not my role in this project to produce the Evidence for Use and Claims Chart using the DIA report. The

Evidence of Consumption and Infringement Chart is a piece of documentation that one brings to a lawyer's office to demonstrate product infringement.

6.3 Invalidation Search

A patent search type used to assess the validity of an existing patent is an invalidation search, also known as a validity search or invalidity search. Finding previous art that was overlooked during the first patent prosecution process and may invalidate the patent is the goal of an invalidation search.

In order to ascertain whether any previous art can be used to invalidate the claims of the existing patent, a patent analyst will do a thorough search of the prior art, including published patent applications, granted patents, and non-patent literature. In order to decide if the novelty or non-obviousness of the disputed patent's claims could be contested, the patent analyst would assess the significance and influence of the relevant previous art.

Companies or individuals who are considering releasing a new good or service that would violate a patent already in force frequently undertake invalidation searches. They can find out if the current patent is valid and whether there are any potential market entry restrictions by doing an invalidation search. A party that is contesting the validity of a patent owned by another party may also undertake an invalidity search as a part of a patent lawsuit.

6.3.1 Search Subject: A granted Patent

For a set amount of time, typically 20 years from the date of filing, a granted patent gives an inventor or business the only authority to produce, use, and sell an invention. A issued patent is the government's formal acknowledgement that an invention is new, inventive, and valuable.

After receiving a patent, the owner has the right to sue anyone who violates the patent's terms. When a patented innovation is used, produced, sold, or imported without the patent holder's consent, there has been an act of infringement.

A thorough search is conducted to find any previous art that could render a given patent invalid in an invalidation search for a granted patent. Prior art is any

knowledge that was previously known to the general public and that was potentially relevant to the invention's patentability at the time the patent application was filed. Finding previous art that was overlooked during the assessment of the patent application and that could invalidate the granted patent is the aim of an invalidation search.

E.g., Patent Number (EP....) + may be a specific Claim 1

Key-Features: Key Novelty Aspects Derived From Clauses of the Claim

6.3.2 Search Strategy:

Finding previous art that could render one or more of the granted patent's claims invalid is the main objective of an invalidation search for a granted patent. Any publicly accessible information that existed before the patent's filing date, such as active patents, published patent applications, scientific and technical literature, conference proceedings, and other publicly accessible resources, can be considered prior art.

In order to identify the key elements of the invention, the search approach sometimes requires a close analysis of the patent's claims. After the critical components have been established, the investigation is focused on finding prior art that reveals each of the crucial elements, either alone or collectively. The results of the investigation are analysed to see if the key elements of the invention have already been made known by earlier works, which would invalidate the patent.

It's critical to realise which an invalidation search is not limited to the prior art which was cited during the review of the patent application. Any previous art discovered during the search might be used to challenge the validity of the patent. Therefore, search queries should be exhaustive and cover all relevant technological domains, legal frameworks, and linguistics. Furthermore, the search should be carried out by qualified patent searchers who are knowledgeable about patent law and have the ability to spot any issues that might jeopardize the patent's validity.

6.3.3 Search Report Structure

An invalidation search report frequently includes the components listed below:

1. The search parameters utilised, including the keywords and search strings, patent classification codes, and databases searched, are described in this section.
2. Results of the search are summarised in this part, together with the number of papers discovered, the significance of each item, and any other pertinent data.
3. Analysis: The search results are analysed in this section, and each document's relevancy and potential influence are assessed.
4. Conclusions: The key findings of the search report are outlined in this section, along with any pertinent prior art that could be used to invalidate the patent that has been granted.
5. Recommendations: Based on the search findings, this section makes suggestions for additional action, such as whether to initiate an invalidation proceeding or alter the patent claims to avert probable invalidity difficulties.

The overall goal of the structure of an invalidation search report is to give customers the information they need to make informed decisions about their intellectual property strategy by giving a clear and concise review of the pertinent prior art and potential invalidity concerns related to a granted patent.

6.3.3.1 About the Search

- List of Objective
- Key-Features identified & Corresponding Relevance Criteria
- Term Sets and Search Strategies Used & Corresponding Log
- Databases and Any Other Information Source Used

6.3.3.2 List of Relevant Documents

- Patent Numbers/ Literature Title
- Publication and Other Important Dates

- Mapping/Analysis Details (Textual/Visual) **6.3.3.2 List of Relevant Documents**
- Legal Status and Expiry Dates (FTO Searches/ State-of-the-Art searches)
- Sequence/Structure Details
- Trends and Charts (State-of-the-Art/ Landscape Studies)
-

6.3.3.3 Additional Details That can be added depending on the Search Type

- Legal Status and Expiry Dates (FTO Searches/ State-of-the-Art searches)
- Sequence/Structure Details

Trends and Charts (State-of-the-Art/ Landscape Studies)

6.4 Internal tool development

6.4.1 Objective of the project

During the training phase the already existing tool called Grey Parrot was available for the use but the tool could only search for the patents and other standards related to only 3GPP so I was given the responsibility to upgrade the tool so that it can also search keywords inside the WLAN standards provided by the Wi-Fi alliance.

6.4.2 Project Responsibility

I was provided with the already existing code for the Grey Parrot and then asked to upgrade its capabilities.

6.4.3 Strategy involved

Following is the strategy used in this product:

- Standards understanding
- Prepare tech charts
- Prepare DIA (Detailed Infringement Analysis)
- Prepare Evidence of Use and the Claim Charts

6.4.4 Work done in the project

The project required extensive work to be completed. The work completed on the project is listed below:

Standard and specification understanding Understanding

We must first completely comprehend the patent. By reading through the claims in the patent and using claim enabling with the patent description, the invention

may be understood. The file wrapper examination is then carried out. Finding the patent's new and limiting elements is what it entails.

Prepare Tech Charts

We create tech diagrams for the goods and patents in this stage. Another critical phase for the project is the creation of a tech chart.

What is a tech chart?

It is a specific kind of document that offers a fundamental level of mapping from patent to product. Tech charts in this case offer a basic degree of patent matching to business XYZ's online advertising platform.

Contents of tech chart:

- Overview of the patent
- Basic level of mapping

Creating a technology chart is essentially a middle stage that demonstrates product overlap. By creating a tech chart, we make sure that the product and the granted patent do not overlap.

Preparing Evidence of Use and Claim Charts

Since this is the product of the patent, this portion of the endeavour is quite important. This is the proof that the client must provide to the courthouse in order to prove that another firm violated his patent.

Let's first define proof of usage and claim charts before moving further with the procedure.

We need to comprehend the product in order to prepare the proof of usage and claim charts. The product under this project is a platform for online advertising (like LinkedIn Ads). We first needed to comprehend how these internet advertising networks functioned. Going over product literature could be part of this. After learning how the internet advertising network operates, we attempt to demonstrate product overlap.

For this, we make highly precise mappings between the subject patents and the desired product using DIA reports. As part of the process of creating claim charts and proof of usage, we also conducted several actual tests. Actually, our goal was to comprehend how a platform for internet advertising behaves. We examined the advertisements produced by the platform in question under particular circumstances. The patents set these precise criteria.

6.5 Article writing for company's website

In addition to the projects I have worked on during my training, I have also taken the opportunity to share my experiences. These experiences will be compiled into an article to be featured on the company's website. Here are some of the articles I have shared with the company:



Navigating Standard Essential Patent Searches: The Importance of Source Code Review

Oftentimes, information regarding patent claims is not found in the documented files of standards. As a result, we need to shift our focus to the source codes available in the standards to determine if the information provided in the code aligns with the patent claim. This can be a crucial step in identifying potential patent infringement and ensuring that all necessary steps are taken to avoid legal disputes. Therefore, it is important to thoroughly review the source codes in addition to the documented files to ensure comprehensive understanding and analysis of patent claims.

To efficiently check source codes for a SEP search, it's essential to start with the patent and identify the relevant standards and their associated source code files. Carefully review the file wrapper during the file history analysis, as it can provide crucial information that can save time in the search process. Furthermore, if a draught is present, it can provide helpful information that will hasten the search process. SEP searches can be challenging, but with the correct strategy and equipment, they can be completed quickly and successfully.

Many patents make reference to procedures that are outlined in codes that create standards. For instance, the Codec for Enhanced Voice Services (EVS) and ANSI C code are defined in 3GPP Technical Specification (TS) 26.442. The TS includes files that contain code defining the working process of audio encoder and decoder in 3G, LTE, and 5G.

Checking source codes for a Standard Essential Patent (SEP) can be a time-consuming and tedious process, but it's essential to determine whether a patent is an SEP or not for a company. Recently, while conducting a SEP study, I came across a problem where I had to determine whether a patent was an SEP or not. The patent described a method for controlling the decoding of data to generate an audio signal based on determining bit errors within the data. The only way to determine whether the patent was an SEP or not was to go through the source code given in the TS26.422 and read each line of the source code to understand

what the code was talking about and how it overlapped with the claims of the patent. This was a long and tiring process as there were 230 files of code with over 10,000 lines of code overall.

However, during the file history analysis of the patent, I found that the examiner had raised a rejection citing a draft from the 3GPP. Another company that was not the assignee of the patent had suggested a line of code in a 3GPP meeting for the process regarding the detection of bit errors in the data by the decoder.

```
/* safety check in case of bit errors */
FOR ( I = 0; i < 3; i++ )
{
    IF( index [i] < 0 )
    {
        ....
    }
}

However these lines of code do not disclose the features of amended independent Claims
```

Snapshot of the argument of applicant to the rejection in file wrapper.

After reading the draft, I was able to find the exact file where the program for the detection of bit errors by the decoder was written.

```
void lsf_allocate_fx(
iiff -rwBu CR26442-0010/part01/c-code/lib_com/mslvq_com_fx.c CR26442-0010/part02/c-
ode/lib_com/mslvq_com_fx.c
--- CR26442-0010/part01/c-code/lib_com/mslvq_com_fx.c 2015-06-30 22:08:45.000000000
+0200
+++ CR26442-0010/part02/c-code/lib_com/mslvq_com_fx.c 2015-06-30 22:08:33.000000000
-----
```

Portion from the draft

Once I had the source code file, the next step was to understand and overlap the line of codes written only in that specific file. Finally, I was able to overlap the whole claim with the line of codes and give a verdict that the patent was an SEP.

CHAPTER 7

CONCLUSION

7.1 Conclusion

I learned useful skills and a thorough grasp of the crucial role that GreyB Services plays in intellectual property, notably in the patent sector, during my industrial training at the company. I've benefited greatly from the exposure to the technical parts of this profession that the GreyB team gave me. I feel prepared to enter the field and tackle the rigours of a full-time position thanks to this professional knowledge, and I have no worries about my lack of experience.

My career has been greatly helped by the industrial training I had at GreyB Research Pvt Ltd., which also gave me a thorough grounding in the business world. It has given me a platform to successfully use my technical and analytical abilities.

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