ROLES AND RESPONSIBILITIES OF A PATENT RESEARCH ANALYST

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

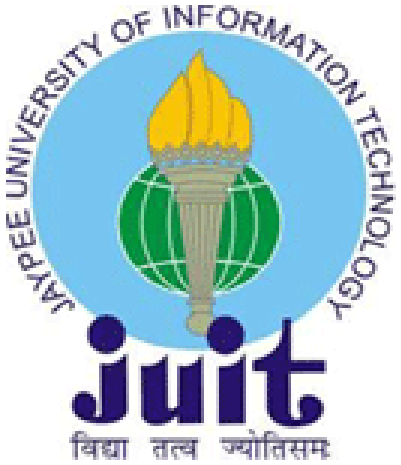
By

Sameer Varshney (191826)

UNDER THE SUPERVISION OF

Dr. Ashok Kumar Nadda

SUBMITTED TO



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DECLARATION

I hereby declare that this project has been done by me under the supervision of **Dr. Ashok Kumar Nadda, Assistant Professor, BT&BI**, Jaypee University of Information Technology. I also declare that neither this project nor any part of this project has been submitted elsewhere for award of any degree or diploma.

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This is to certify that the work which is being presented in the project report **Roles and Responsibilities of a Patent Research Analyst** in partial fulfilment of the requirements for the award of the degree of B.Tech in Biotechnology and submitted to the Department of Biotechnology And Bioinformatics , Jaypee University of Information Technology, Waknaghat is an authentic record of work carried out by Sameer Varshney during the period from July 2022 to December 2022 under the supervision of Dr. Ashok Kumar Nadda, Department of Biotechnology And Bioinformatics, Jaypee University of Information Technology, Waknaghat.

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Till now, his performance has been satisfactory.We wish him all the best for future endeavors.

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1.Company Profile

TT Consultants is a well-respected company that offers top-notch services in Intellectual Property and Innovation Support to clients worldwide. We have been certified with ISO 27001 and ISO 9001:2008 and are committed to helping our clients achieve their goals and overcome any obstacles they may encounter. Our extensive experience in delivering excellent patent prosecution services and patent litigation support, including Patentability Searches, Invalidity/Validity Searches, and Patent Drafting, has earned us a solid reputation. Furthermore, we are professionals at offering businesses, solicitors, law firms, universities, and research organisations all over the world cost-effective legal support services including Patent Analytics, Technology Transfer and Licencing, and other legal services. Our main objective is to create a comprehensive platform for the patent search cycle of technological innovation.

TT Consultants, which combines an international patent search agency with an international patent analytics organisation, employs the top professionals from all around the world. As one of the best IP businesses in India, we have been providing patent services to a growing clientele of satisfied clients worldwide for the past eight years. In order to provide our clients with high-quality solutions that meet their demands and stay current with the times, we continuously incorporate new systems and tools.

2. Introduction to Assigned Work

- **Intellectual Property**

  The term "intellectual property" (IP) refers to intangible works produced by the human mind that are protected by certain laws. This covers a wide spectrum of innovations, literary and artistic accomplishments, as well as commercially exploited symbols, names, and designs. Intellectual property rights (IPRs) provide legal protection for these intangible assets, enabling inventors and innovators to maintain ownership and make money from their creations.

- **IPR (Intellectual Property Right)**

  The term "intellectual property" pertains to the legal rights granted to creators and innovators to safeguard their unique ideas and creations. These rights include patents, copyrights, trademarks, and trade secrets, which empower

creators and innovators to regulate the use and profit from their work. Intellectual property is essential for promoting innovation and creativity because it encourages individuals and organisations to invest money in the development of innovative goods and concepts. In addition, it helps prevent intellectual property theft and unauthorised use, which can result in losses of money and harm to a company's reputation.

Creators and innovators need to apply for protection and meet specific criteria, such as demonstrating that their work is novel and innovative for patents or original and imaginative for copyrights, to acquire intellectual property rights.

There are different types of intellectual property rights, including patents, copyrights, trademarks, and trade secrets. Patents protect inventions such as new machines or processes by granting the inventor exclusive rights to produce and sell the invention for a specified period. Copyrights, on the other hand, safeguard original works of authorship such as books, music, and films by providing the creator exclusive rights to replicate, distribute, and display the work. Trademarks safeguard brand names, logos, and slogans, and allow businesses to differentiate their goods and services from those of their competitors. Lastly, trade secrets safeguard confidential business information, such as customer lists and manufacturing processes, and prohibit competitors from using or disclosing that information. Intellectual property rights are important because they encourage innovation and creativity by providing incentives for creators and inventors to invest time and resources into developing new ideas and products. They also help to promote economic growth and competition by allowing individuals and businesses to profit from their work and preventing others from unfairly using or profiting from that work. However, there are also debates around the balance between protecting intellectual property and ensuring access to knowledge and innovation for the greater public good.

- **Types of IPR**
  - **Copyright:**

    A type of intellectual property protection known as copyright gives the only authority to use and manage an original work to its creator. This holds true for a variety of artistic creations, such as music, movies, images, and software. Nobody else is allowed to use, reproduce, or change it without permission; only the copyright owner has the only right to copy, distribute, display, perform, and create derivative works based on their work. A work is immediately protected by copyright after it is created, and this protection is good for a specific amount of time that varies by country and type of work. Owners of copyrights might choose to sue those who infringe on their rights or give others permission to use their works in exchange for payment. Copyright protection is restricted, for example, by the idea of "fair use." allows limited use of copyrighted material for specific purposes without permission. It's also important to note that copyright protection only extends to the original expression of ideas, not the ideas themselves or factual information.
  - **Patent:** Patent protection is a legal mechanism that grants inventors exclusive control and financial benefits over their newly created inventions for a specified period. This safeguard covers new and useful machines, processes, compositions of matter, and improvements to existing inventions. To acquire a patent, the inventor must submit a comprehensive application to the relevant patent office, like the USPTO, outlining the invention, including any necessary drawings or diagrams. The patent office assesses the application for novelty, usefulness, and non-obviousness, among other patentability criteria. If the application is approved, the inventor can sell, use, and manufacture the invention for approximately 20 years from the filing date, during which no one else can use or sell the invention without the inventor's permission. Once the patent term ends, the invention becomes publicly available and open for use without the inventor's consent. Not all inventions qualify for patent protection, and the process can be both time-consuming and costly. It's also essential to note that patents are territorial, meaning that a patent granted in one country does not protect the invention in other countries.

    Typically, patents have a lifespan of 20 years from the application filing date, although exceptions exist. For example, utility patents filed after June 8, 1995,

have a 20-year term from the filing date, while design patents have a 15-year term from the grant date. Moreover, in some situations, such as delays caused by the patent office or regulatory agencies, the patent term may be extended.

- **Trademark:**

  Trademark protection is a legal mechanism designed to safeguard intellectual property by providing exclusive rights to the owner to use a specific word, phrase, symbol, or design as a means to differentiate their goods or services from others in the market. This can take the form of a brand name, logo, or any other distinctive identifier. To obtain trademark protection, the owner must submit a trademark application to the relevant trademark office, such as the USPTO, containing a detailed description of the mark and the goods or services it will represent. The application is then reviewed by the trademark office to ensure that the mark is unique and does not infringe on any existing trademarks.

  If the application is approved, the owner is granted a trademark registration that confers exclusive rights to use the mark in connection with the goods or services specified in the registration. No one else can use a similar mark in a way that could create confusion or weaken the uniqueness of the registered mark. Trademark protection usually lasts for ten years from the date of registration and can be renewed indefinitely as long as the mark remains in use and renewal fees are paid. It's important to note that trademark protection is limited to the country where the trademark is registered, and owners must apply for separate registrations in each country where protection is desired. Trademarks are valuable to businesses because they establish brand identity and recognition, provide a competitive advantage, prevent confusion among consumers, and protect against infringement by competitors.

- **Geographic Indications:** Geographic indications (GIs) are a form of intellectual property designed to protect goods that come from a specific geographical region. This protection is based on the idea that the quality, reputation, or other characteristic of the product is largely associated with its geographic origin. The goal of GIs is to safeguard the names of products linked to a particular region, ensuring that only products that meet specific standards and come from that region can use that name.

GIs can be used to protect a variety of products, including agricultural goods, foodstuffs, wine and spirits, handicrafts, and industrial products. Some well-known examples of GIs include Champagne, Roquefort cheese, and Darjeeling tea. To obtain protection for a GI, producers of the product must submit an application to the relevant government agency or authorized body, such as the European Union Intellectual Property Office. The application must show that the product has a specific geographic origin and that its quality or reputation is connected to that origin. Once a GI is registered, only producers who meet the specified criteria and come from the designated region can use the GI on their products. Is are important because they help to protect the cultural and economic heritage of a region, and can provide economic benefits for local producers by distinguishing their products from similar products made elsewhere. They also help to ensure that consumers can trust that the products they are buying are of a certain quality and come from a specific geographic region.

The lifespan of a GI can vary depending on the jurisdiction and the type of product. In some cases, GIs may be protected indefinitely, while in other cases, protection may need to be renewed periodically. It is important to note that GIs are territorial, meaning that protection only applies within the jurisdiction where the GI is registered. To obtain protection in other countries, producers must apply for registration in each jurisdiction where they wish to sell their products.

- **Trade secret:** The trade-secrets are the confidential and valuable information that is kept secret by its owner to gain a competitive advantage over others. This type of intellectual property can include formulas, designs, processes, techniques, or other proprietary information. For a piece of information to qualify as a trade secret, it must not be generally known to the public and must have commercial value. Examples of trade secrets include Coca-Cola's recipe, Google's algorithm, and customer lists.

  Unlike patents, trademarks, and copyrights, trade secrets do not require registration with a government agency. Instead, the owner must take reasonable measures to keep the information confidential and prevent unauthorized access or disclosure. This can involve executing non-disclosure agreements with employees and limiting access to confidential information.

The lifespan of a trade secret is indefinite as long as the information remains a secret and provides a competitive advantage to the owner. Once the information becomes public or widely known, it loses its status as a trade secret and is no longer protected as intellectual property.

Businesses use trade secrets to protect their sensitive information and gain an advantage over competitors without disclosing their innovations to the public. Trade secrets are especially useful for inventions or innovations that are challenging or impossible to patent, such as business methods or customer lists.

3. Patents

A patent is a legal document granted by a government that gives the holder exclusive rights to prevent others from making, using, selling, or importing an invention for a limited period. In other words, a patent gives inventors the right to protect their inventions and prevent others from profiting from them without permission.

The life of a patent varies depending on the type of patent and the country in which it is granted. In general, utility patents, which cover new and useful processes, machines, and compositions of matter, are granted for a period of 20 years from the filing date of the patent application. Design patents, which cover new and original ornamental designs for articles of

manufacture, are granted for a period of 15 years from the date of grant.

During the life of a patent, the patent holder has the exclusive right to prevent others from making, using, selling, or importing the invention without permission. After the patent expires, anyone can use the invention without permission from the patent holder.date, though this may vary depending on the jurisdiction and type of invention. Once the patent term ends, the invention becomes public property and can be used freely by anyone.

Advantages Patents provide several advantages to inventors, businesses, and society. Some of the key advantages of patents include:

- **Exclusivity**: The possession of a patent provides its proprietor with sole entitlement to their invention, thereby inhibiting others from duplicating, utilizing, or marketing the invention without authorization. This monopoly can furnish inventors and companies with an edge over competitors and enable them to derive financial gain from their inventive work.
- **Incentivize innovation**: The availability of patents creates a compelling motivation for inventors to create novel technologies and products, as it enables them to generate profits from their ideas. This can spur innovation and result in the development of innovative and practical products that can have a positive impact on society.
- **Licensing opportunities**: Licensing patents to others is a common practice that allows the patent owner to earn extra income and enables others to leverage the invention. In addition to generating revenue, licensing can foster the emergence of new industries and technologies built around the patented invention.
- **Legal protection**: Patents provide legal protection for inventors and businesses by allowing them to take legal action against those who infringe on their exclusive rights. This can help prevent others from stealing their ideas and profiting from their innovation.
- **Disclosure of information**: To obtain a patent, inventors must disclose details of their invention in a publicly available patent application. This can help spread knowledge and information about new technologies and products, which can further drive innovation and benefit society.

In general, patents are crucial in fostering innovation and safeguarding the interests of inventors and companies. They stimulate the creation of novel technologies and products that

can have a positive impact on society, while also enabling inventors to reap the rewards of their creativity and efforts.

Disadvantages: While patents offer many benefits, there are also some disadvantages associated with them. Some of the key disadvantages of patents include:

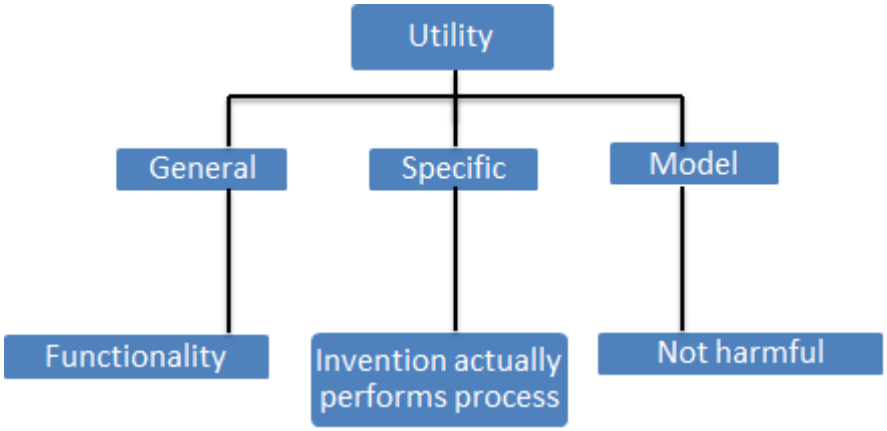
- **Cost**: Acquiring a patent can be a time-consuming and costly endeavor that necessitates substantial resources and legal know-how. This can pose a challenge for inventors and small businesses that have restricted budgets and wish to safeguard their intellectual property.
- **Limited duration**: While patents offer inventors a legal monopoly on their invention, the limited duration of patent protection can be seen as a disadvantage. Once a patent expires, anyone can use the invention without the inventor's permission. This can lead to increased competition and decreased profits for the inventor.
- **Disclosure of information**: To obtain a patent, inventors must disclose details of their invention in a publicly available patent application. While this can help spread knowledge and information about new technologies and products, it can also make it easier for competitors to reverse engineer the invention or design around the patent.
- **Potential for infringement**: The exclusivity of an inventor's rights to their inventions is not guaranteed by patents. Enforcement can be difficult and expensive, particularly in international markets, and may require significant legal resources.
- **Potential for abuse**: Some critics argue that patents can be used to stifle competition and innovation, particularly in cases where broad patents are granted that cover a wide range of technologies or products. This can limit the ability of others to develop similar technologies or products, which can have a negative impact on consumers and society as a whole.

Overall, while patents can provide significant benefits to inventors and businesses, they also have some drawbacks and limitations that must be carefully considered.

I. Types of Patents

- **Utility patent:** A utility patent is a type of patent that protects new and useful processes, machines, articles of manufacture, and compositions of matter. In other words, a utility patent covers the functional aspects of an invention, rather than its aesthetic or ornamental design. To be granted a utility patent, an invention must meet

certain criteria, including novelty, non-obviousness, and usefulness. The patent holder has the exclusive right to prevent others from making, using, selling, or importing the invention without permission for a period of 20 years from the date of filing the patent application. Utility patents are often used to protect inventions in fields such as technology, medicine, and engineering, and are a key tool for inventors and companies looking to monetize their innovations.



- **Design Patents:** A design patent is a form of patent that safeguards an object's distinctive ornamental design or outward appearance. Unlike utility patents, which protect the function or operation of an invention, design patents protect the visual appearance of an invention. Design patents provide exclusive rights to the inventor to prevent others from making, using, selling, or importing an article of manufacture that has a substantially similar design without permission for a period of 15 years from the date of grant. The design patent protects the overall visual appearance of the article, including the shape, configuration, pattern, and ornamentation. To be granted a design patent, the inventor must submit a detailed drawing or illustration of the design along with the patent application. The drawing must clearly depict the design and show all the necessary features that distinguish the design from prior designs. Design patents can be an effective way for inventors and businesses to protect the visual appearance of their products and prevent others from copying or imitating their designs. However, design patents do not protect the function or operation of the invention and may be more vulnerable to infringement or design-around efforts.

- **Plant Patent:** A plant patent is a type of patent granted to inventors who have created

or discovered a new and distinct variety of asexually reproduced plant. Plant patents protect the right of the inventor to exclude others from asexually reproducing, selling, or using the protected plant without permission for a period of 20 years from the filing date of the patent application. To be granted a plant patent, the inventor must demonstrate that the new plant variety is novel, non-obvious, and distinct from existing varieties. The inventor must also provide a detailed description of the plant, including its characteristics and qualities, as well as any necessary drawings or photographs. Plant patents can be an effective way for breeders and horticulturists to protect new and unique plant varieties and ensure that they can benefit financially from their discoveries. However, the process of obtaining a plant patent can be lengthy and expensive, and may require significant legal and scientific expertise. In addition, the scope of plant patents is limited to asexually reproduced plants, and does not extend to sexually reproduced plants or plant varieties produced through genetic modification.

II. Criteria for Patentability

- **Novelty**: To qualify for patent protection, an innovation must meet the fundamental requirement of novelty, which demands freshness and uniqueness. In order to ensure that the innovation hasn't already been made public knowledge or made available to the general public before the patent application was filed, novelty is crucial for patents. This category includes all forms of public disclosure, including those made by publishing, sale, use, or any other means. The invention must also be new in compared to the prior art, which is all information about the subject technology that was known to the public as of the patent application filing date. This requirement proves that the invention is actually original and has never been known or disclosed, which is essential to obtaining patent protection. If the novelty requirement isn't met, third parties may contest the invention on the grounds that it was known or understood prior to the filing date of the patent application.
- **Inventive steps and non obviousness**: Requirements of inventive step and non-obviousness are fundamental in obtaining a patent, as they ensure that an invention involves more than just novelty but also involves creative thinking beyond what is apparent to a person skilled in the relevant technology field. Meeting these requirements requires an invention to go beyond being a minor variation or combination of existing knowledge or techniques. In evaluating whether an invention meets these criteria, the

differences between the claimed invention and the prior art must be analyzed to determine whether a skilled person in the field would have considered . This analysis involves evaluating whether the invention provides a technical solution or improvement to a problem that was previously unknown or unresolved and whether the prior art suggested any motivation to modify or develop the invention in the claimed manner. These requirements prevent the patent system from being misused by those seeking to monopolize minor or insignificant improvements or modifications of existing technologies.

- **Utility**: One essential component of patent law is the requirement for utility, which specifies that for an invention to qualify for patent protection, it must have a practical and beneficial application. This implies that the invention should provide a concrete advantage, rather than being purely hypothetical or speculative. The inventor must demonstrate that the invention has a distinct and legitimate use or purpose that can address an actual problem or produce a tangible benefit in order to satisfy the utility requirement. For example, a new chemical compound can be considered useful if it has the potential to treat a specific medical condition or produce a novel industrial material with unique characteristics. Similarly, a new machine or device can be deemed useful if it can perform a valuable function or improve the efficiency or efficacy of an existing process. The utility requirement plays a crucial role in ensuring that patents are granted only for inventions with practical value and the potential to foster technological progress and economic development. It also helps to prevent the issuance of frivolous or speculative patents that may impede innovation by restricting access to valuable technology.

III. Non Patentable Items

- Laws of nature
- Abstract ideas
- Mental process
- Printed matter
- Computing software
- Process of doing business.

IV. Applications Contains

- Title
- Abstract
- Field of invention
- Background
- Summary
- Brief description of drawing
- Detailed description of drawing
- Claim
- Drawings

V. Citations: Citation refers to the process of referring to and acknowledging prior art or existing patents that are relevant to the invention being claimed in a patent application. Citations can be made by the applicant or examiner during the patent examination process to demonstrate that the claimed invention is novel, non-obvious, and has utility in light of the prior art.

Backward Citation: Reference to the prior art in patents
Forward citations: Reference of invention done in that field after the patent is issued. Mainly useful for patent search.

VI. Important Dates in Patent Application

- **Invention date:** When an invention or work was done.
- **Filling date:** The date of filling application with the required complete information.
- **Priority date:** The term "priority date" refers to the earliest filing date of a patent application, regardless of the country in which it was filed.
- **Issue date:** The grant date refers to the date when the patent office issues the patent.
- **Expiration date:** The date when a patent life ends.
- **Publication date:** Patent information is made available to the public 18 months after the priority date.

4. Modulars descriptions of the job

Different Types of Searching

- **Novelty search:** A novelty search, also known as a prior art search or a patentability search, is conducted to determine whether an invention is new and qualified for patent protection. Finding any prior art that would have predicted or made the invention in a patent application obvious is the major goal of this search. Typically, the novelty search is performed before filing a patent application and involves searching publicly available sources of information such as scientific literature, patents, and patent applications to identify any relevant prior art related to the invention. The results of the novelty search can help the inventor or applicant to assess the potential patentability of the invention and guide the formulation of the claims made in the patent application. Additionally, the search can be useful in identifying infringement risks and can inform strategic decisions on how to protect and commercialize the invention. Keep in mind that the novelty search is only one stage of the patent application process, and that the patent examiner will ultimately determine whether an invention qualifies for patent protection based on the claims made in the patent application and the relevant prior art.
- **Validity search:** A validity search, also called an invalidity search, aims to determine the validity and enforceability of an existing patent by locating prior art that could potentially invalidate some or all of its claims. Typically, these searches are conducted when a party intends to challenge the patent's validity in court or in a post-grant review proceeding before the patent office. In some cases, these searches may require a more extensive review of the prior art than the original patent examination or a review of new technologies, research, or other developments. The results of a validity search can be instrumental in developing a legal strategy for either challenging the patent's validity or defending against such a challenge. If the search uncovers strong prior art that could invalidate the patent claims, the challenger may decide to pursue a legal challenge to the patent's validity. Conversely, if the search does not uncover any strong prior art, the patent holder may have greater confidence in the validity and enforceability of their patent. Validity searches can be complex and time-consuming, and may require specialized expertise in patent law and prior art analysis. Patent attorneys or patent search professionals are often hired to conduct validity searches and provide guidance on the results.

- **Infringement search:** A patent infringement occurs when a prohibited conduct involving a patented innovation is carried out without the patent owner's permission. In order to be considered unlawful, use must frequently be done for financial gain. The claims included in a granted patent define the extent of the protection offered by the patent. It's important to note that the legal action for infringement can only be taken in the countries where the patent is valid, as patents have territorial limitations. The product of the patent infringement party infringes on one or more patent claims. The company's product that infringes on the applicable patent's claims must be identified. Search criteria focused on products that were sold after the pertinent patent was granted.
- **FTO search:** A search on issued or pending patents is done to see whether a product violates any of the claims of those patents. Additionally, it might include out-of-date artistic creations that act as a safeguard to permit the use of the thing or method in publications and patents.
- **State of art search:** In this process, the focus is on searching for the latest developments or advancements in the field. One reads the patents for particular technology. It is done to provide the organization's or company's research some direction. It looks through each and every patent for a particular technology**.**
- **Key Points of Searching**
  - Patents are only valid in countries where they have been applied for and granted.
  - Patent laws vary by country, which could result in some patents not being granted in certain places.
  - Failure to make required payments may result in a patent no longer being in effect.
  - Patents have a limited lifespan and will expire, so checking their expiration dates is crucial.
  - Some countries have exceptions for specific activities like research or clinical trials.
  - The scope of patent claims may differ between countries, so it's important to examine the claims to understand their extent.

An FTO opinion from an attorney involves identifying relevant IP rights, including their jurisdictions and expiration dates, and analysing the validity of issued claims. This assessment may involve determining whether there is prior art that was not identified during the patent examination process and could render the claims invalid. In certain countries, a patent could also be challenged if the inventor was not correctly identified.

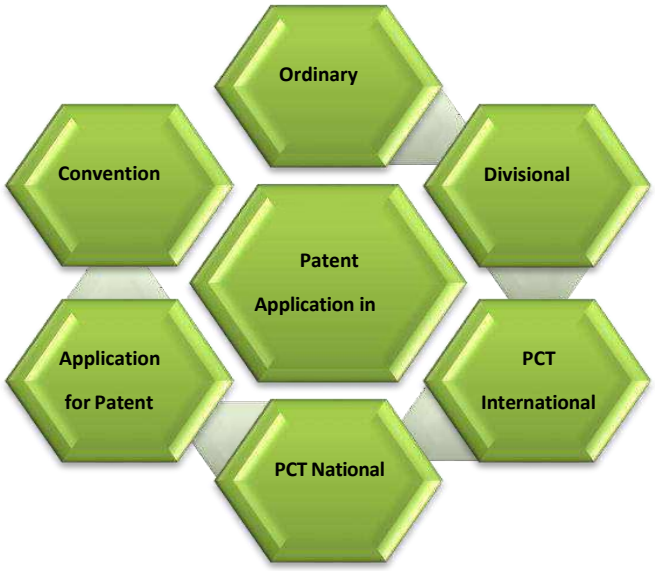
5. Detailed description of individual module

5.1 Types of Patent Applications

- **Ordinary Application:** An ordinary patent application is the initial application for a patent submitted to the Patent Office that doesn't claim priority from any previous application or refer to any other application being processed by the Patent Office at present.
- **Convention application:** A convention application is a type of patent application filed in a foreign country that claims priority to an earlier-filed patent application in the applicant's home country. The convention application is based on the same invention as the earlier application and must be filed within 12 months of the earlier application's filing date. By filing a convention application, the applicant can take advantage of the priority date of the earlier application, which means that the convention application will be treated as if it was filed on the same date as the earlier application. This can be advantageous because it establishes an earlier filing date, which can be critical in determining the novelty and non-obviousness of the invention.
- **PCT-International Application:** The Patent Cooperation Treaty (PCT) facilitates filing patent applications in multiple countries concurrently through an international agreement. It's crucial to understand that there is no "world patent," and the PCT application doesn't grant an international patent. Instead, it provides a more efficient and streamlined process for patent application in multiple countries.
- **PCT-National Phase Application:** The PCT application moves to the national phase after the international phase, requiring the applicant to file a national application in each desired country for patent protection. Within 30-31 months (depending on the applicable laws), starting from the earlier of the international filing date or priority date, the applicant must enter the national phase in up to 138 countries. If the national phase is not entered within the given timeframe, the International Application will lose its effect in the designated or elected States.
- **Application for Patent of Addition:** Patent of addition is the application made for the 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:** To create a divisional application, an existing patent application can be "divided". A divisional application is typically filed when the examiner objects that the claims in the complete specification relate to more than one invention or when the applicant chooses to do so. The divisional application must include subject matter from its parent application and retains its original filing and priority date. This type of application is helpful when a unity of invention objection arises, as it allows the second invention to be protected separately as a divisional application.



5.2 Claims: It describes the variety of defences the patent provides. Obtaining claims with the fewest restrictions possible that distinguish an invention from prior ones is preferable. Fewer restrictions can result in greater rejection because there is less novelty.

5.3 Types of Claims

- **Independent claims:** A self-contained and standalone claim is known as an independent claim, and it is generally wider in scope than the dependent claims that come after it.

- **Dependent claims**: A dependent claim is subordinate to a parent claim and builds upon

it by incorporating all its limitations while also adding additional features. For instance, "The hammer of claim 1, further comprising a nail claw extending from the head and separated by a gap." This type of claim aids in covering different embodiments of the invention but has a narrower scope compared to the parent claim. It cannot exclude any feature from the parent claim, but it can introduce new elements to it.

- **Multiple dependent claim**: A claim that references two or more other claims and only relies on them in the alternative is called a multiple- dependent claim. For instance, "The hammer of claim 2 or claim 3, further comprising a neoprene layer over the handle." It's worth noting that multiple-dependent claims cannot serve as the basis for any other multiple-dependent claims and may incur higher filing fees.

5.4 Patent Cooperation Treaty (PCT)

There are different options for seeking international patent protection, including:

- Filing separate patent applications in each country where protection is sought. This approach can be costly and time-consuming due to the need for extensive documentation.
- Applying under the provisions of the Paris Convention for the Protection of Industrial Property, which offers a 12-month grace period and priority date, among other features. Submitting a PCT application, which allows the inventor to delay the filing of separate national patent applications for up to 30-31 months. The PCT application also offers the option of a preliminary examination and a prior art search report, depending on the inventor's preferences.

5.4.1 PCT

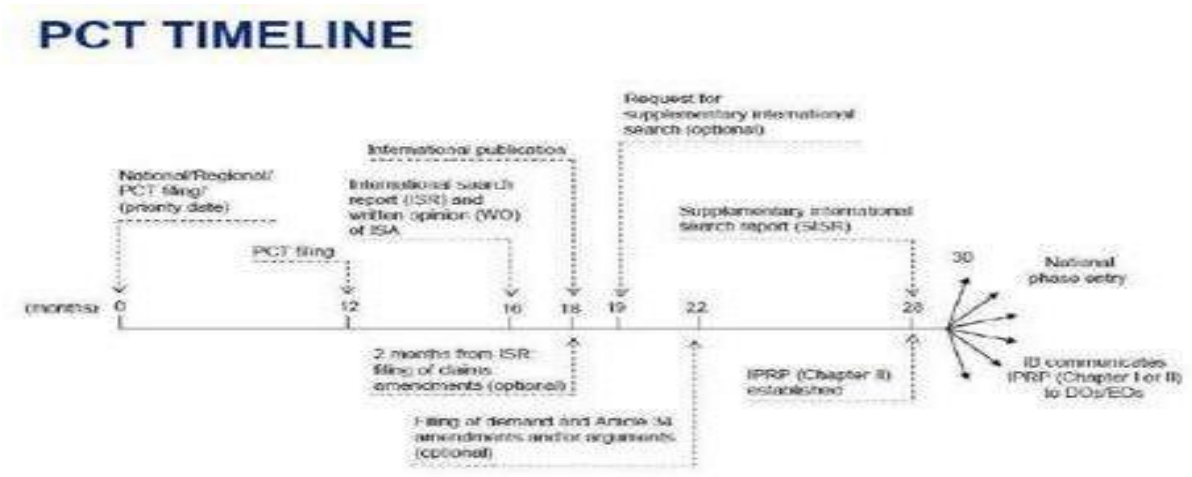
The Patent Cooperation Treaty (PCT) is a treaty in international patent law that offers a standardized process for submitting patent applications to safeguard inventions across its contracting states. Any patent application submitted under the PCT is referred to as a PCT application.

Steps:

- The PCT application process involves submitting one application to a Receiving Office in one language.
- An International Searching Authority (ISA) conducts a search and provides a written opinion on the patentability of the invention.
- Optional preliminary examination can be conducted by an International Preliminary

Examination Authority (IPEA).

- The application is then examined by national or regional authorities before being granted.
- The PCT has member states that form the International Patent Cooperation Union, which includes regional patent offices such as the EPO and ARIPO.
- Any individual who is a resident or national of a PCT contracting state can file a PCT application, and patent protection is provided in the designated states listed in the application.



5.5 Classification Based Searching

Advantages

- Concept-based searching is possible with it, making it more comprehensive than text-based searching.
- It is not dependent on the syntax of a particular language, which makes it more reliable.
- Changes in terminology do not affect its performance.
- It can be applied to patent documents that lack full-text claims and descriptions.
- It provides more comprehensive outcomes than text-based searching.

Disadvantage

The classification system can be complex, and understanding its rules requires a significant amount of study.

5.5.1 Different types of classification

- **International patent Classification (IPC):** More than 100 countries utilise the International Patent Classification (IPC) to categorise patent content consistently. This hierarchical structure was established by the Strasbourg Agreement in 1971 and is updated regularly by a committee of experts. The updated version of the classification system is IPC-8/IPC R. Each patent document is designated with both core and advanced classifications. The core classifications are updated every three years from the issue date, while the advanced classifications are revised every three months. In 2011, the IPC R classification was eliminated as part of a reform.

Format of IPC

Sections:

- A – Human Necessities
- B – Performing Operations
- C – Chemistry; Metallurgy
- D – Textiles; Paper
- E – Fixed Constructions
- F – Mechanical; Lighting; Heating; Weapons
- G – Physics
- H – Electricity

Classes: Two digits numbers

Subclasses: One alphabet

Main groups: One-to-three-digit numbers

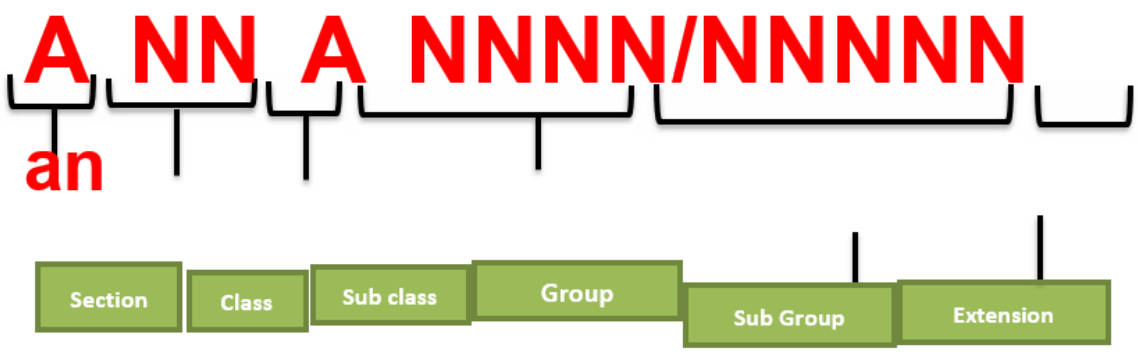
Subgroup: Two- or three-digit numbers

- **European patent Classification (ECLA):** ECLA, which stands for "European Classification of Patents", is an expansion of IPC and is issued by the European Patent Office (EPO). Like IPC, ECLA is organized into eight sections with classes, sub-classes, groups, and subgroups. It contains around 135,000 classification entries.

  Features:

  - **Highly skilled personnel:** The relevance of the ECLA system is maintained by a small group of highly trained individuals within the EPO examining corps, who are responsible for assigning ECLA classes.
  - **Narrow class definition:** The sub groups are also further categories**.**

Format of ECLA

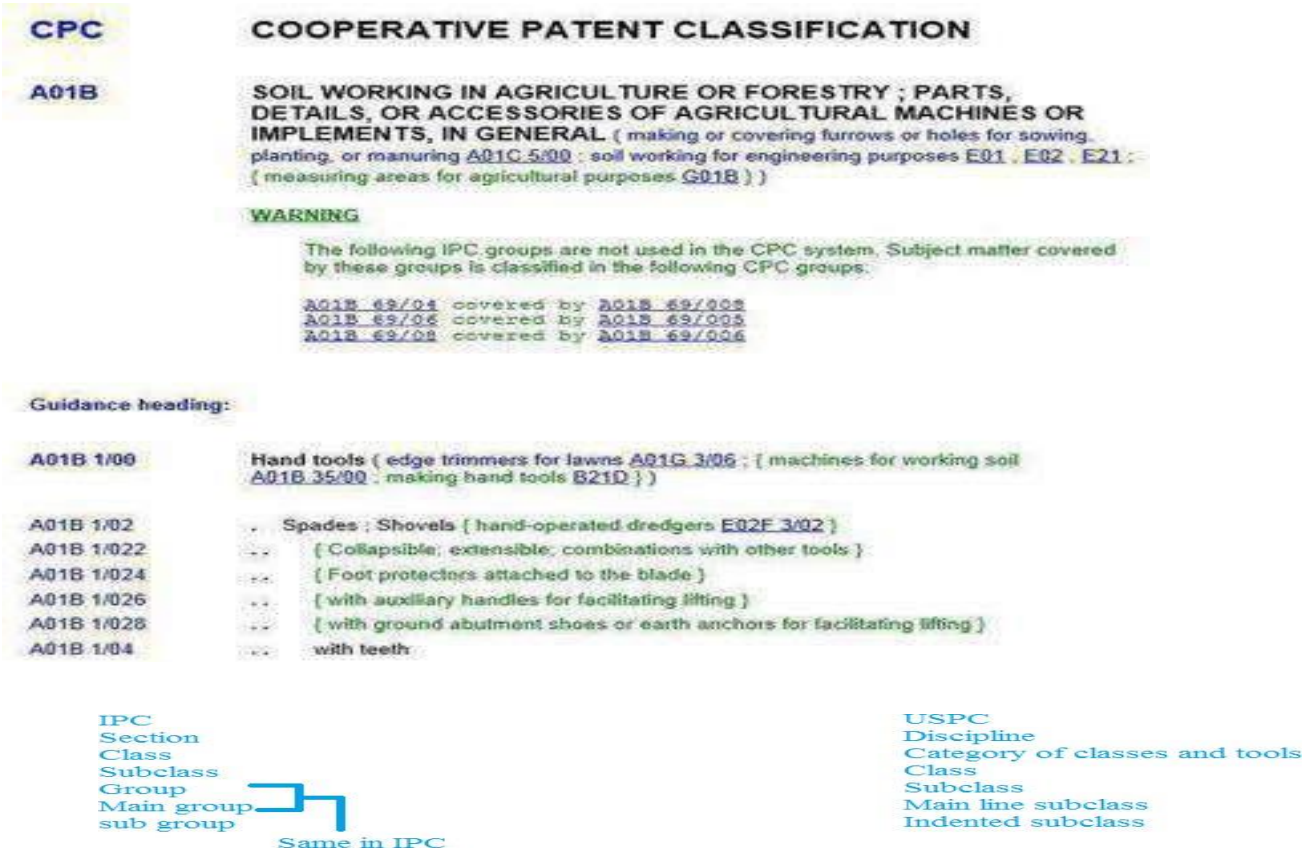


- **Cooperative-Patent Classification (CPC):** The integration of a common classification system is a joint effort between the USPTO and EPO. This system is mainly based on ECLA, but has been modified to comply with WIPO's IPC. The CPC is a result of this collaboration, aiming to harmonize the best practices of both organizations and promote international compatibility in patent research.

Objectives to launch CPC

i) Improvement in patent searching.

ii) Resources Sharing.



From the above figure we can say that USPC has more hierarchy than IPC.

6. Basics of US Patent Laws

- 35 USC 101: Invention must be useful
- 35 USC 102: Invention must be novel
- 35 USC 103: Invention must be non-obvious
- 35 USC 112: Invention must be fully disclosed

- **35 USC 101:** As long as they satisfy the requirements and standards outlined in the Act, anyone who creates a new and useful process, machine, manufacturing, or composition of matter, or an improvement thereof, is eligible to apply for a patent under 35 U.S.C. 101. On the other hand, the 101 judicial exceptions provide a list of specified subjects that are excluded from examination. Not all recent, helpful discoveries and advancements are shielded by a patent.. The 35 U.S.C. 101 standards must be met for an invention or discovery's subject matter in order to be eligible for a patent on "any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof." The definition of "process" in 35 U.S.C. 100 encompasses any new application of an established method, device, production,

composition of matter, or material.

- **35 USC 102**: The requirements that must be met, including the need of novelty, for an invention to be qualified for patent protection are listed in the "Conditions for Patentability" section of the US Code. This section is divided into subsections, each of which describes a particular type of prior art that may be used to demonstrate the non-novelty of an invention, such as prior descriptions in patent applications, publications of the invention, or sales of the invention that occurred more than a year prior to the filing of the patent application.
- **35 USC 103**: According to 35 U.S.C. 103, an invention must not be obvious to be eligible for a patent. The invention must be unique and not easily obvious to a person of ordinary skill in the pertinent field in light of the previous art in order to satisfy this condition. The most important sentence in this section is 103(a), which states that an invention cannot be protected by a patent if, at the time of invention, a person with ordinary competence in the relevant field could see that its subject matter differed from the prior art. It's also critical to keep in mind that the creation process cannot be used to challenge the patentability of the invention.
- **35 USC 112**: The requirements for the format and content of the claims and specification of a patent application are laid out in 35 U.S.C. 112. The first sentence of this section introduces three legal concepts: the written description requirement, the enabling requirement, and the best mode requirement. The written description must provide a complete and exact explanation of the invention, enabling any skilled person to make and use it. The best mode requirement requires the inventor to reveal the preferred mode of carrying out the invention. The specification must conclude with one or more claims that particularly and distinctly claim the subject matter that the applicant considers to be the invention. Claims may be written in independent or dependent form, with dependent claims referring to a claim previously set forth and specifying a further limitation. Multiple dependent claims can refer to more than one previous claim, but only in the alternative. An element in a claim for a combination can be expressed as a means or step for performing a specified function, without the need to specify supporting structure, material, or acts, and such claim shall be interpreted to cover the corresponding structure, material, or acts described in the specification and their equivalents. The second paragraph limits the ability of claims to be too open-ended or unclear.

7. Project Undertaken

7.1 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.

7.1.1 Obstacles Faced by the Searcher

When examining patentability, time is frequently an issue. A short search, usually lasting between 4 and 20 hours, is typically conducted to determine patentability. They tend to be brief, so it is crucial to comprehend the invention disclosure's primary novel idea before searching for it. By doing this, a searcher will be able to quickly browse through a vast collection of search results in search of prior art that seems pertinent to the core idea. The searcher can evaluate whether the relevant work has any extra search features after locating it. In addition to related art, certain patentability searchers might also be charged with finding less significant publications that might provide "alternative embodiment" ideas that will be integrated into the drafting of the patent specification. Alternative embodiments are changes made to an invention's non-essential or non-novel characteristics that show how the invention might be altered to work in different situations or with products that are already on the market. For example, a tool for hanging curtains could be invented that

would work whether the user was hanging drapes, valances, curtains, or blinds. Alternatively, a cleverly constructed jacket that has an inner pocket for an MP3 player would work whether the inner pocket was sewn into the fabric of the jacket or was removable.

Searches for patentability do not always need looking at alternate embodiments. The main takeaway is that searchers must always discuss the search's main goal with a patent lawyer and tailor the search's focus (as well as the kinds of results it produces) to the requester's requirements.

7.1.2 Searching Patent Documents

As part of a patentability search, significant patent collections are routinely searched, including at least those from the United States (US), Europe (EP), the Patent Cooperation Treaty (WO/PCT), and Japan (JP). It makes sense to include these collections in any patentability search, no matter how brief, even if any previously published document can be used against a patent application. Most patent examiners from large patent offices will go straight to these collections. Shorter patentability investigations typically have a price cap, therefore it's crucial to find a patent search engine that will offer the basic coverage needed. There will be some coverage for several premium and free tools in significant US and international databases. Searching Non-Patent Literature.

7.1.3 Case Study Patentability Search

- At initially, our client gave us very limited details about their invention. They never disclose the entirety of their work, but they assist us in finding the appropriate citation when we search many databases.
- Now let us suppose, the client has given us this much information regarding their invention.
- A chickpea protein concentration, from legume plant, which is debittered and used as meat or cheese analogy in different food products. The protein extraction steps comprise suspension, precipitation, and filtration.

- The debittering of protein were achieved by treating slurry with fumaric acid, under the acidic condition, while precipitation of protein was done with the help of alkaline agent like NaOH or KOH.

Search begins

The first stage in the process is realising the novelty of the disclosure. A patent analyst must be able to understand the invention after reading the context and disclosure description. They must discuss the novelty with the creator if they are unable to find it for their quest to progress as the inventor intended. Therefore, it is crucial to understand the disclosure. The quest itself then begins.

Our disclosure is novel in that, upon receiving a user request for retransmission, the system indicates the error in the message, which, according to the inventor, was not present in prior art.

Steps of searching

NOTE : generally we break the client information into key features, so that it will help us tobreak the whole invention into parts. The splitting of disclosure make invention more clearto understand.

Key Features according to Client's Disclosure

KF 1.	The legume is selected from the group consisting of: chickpeas, green peas, yellowpeas, lentils, peanuts, trefoil, soybeans, pinto beans and any combination thereof tomake a protein concentrate
KF 1.1	The said food product is a meat and cheese analog
KF 1.2	The food material is chickpea flour or legume flour is essentially devoid of bitterness is selected from the group consisting of beverages, snacks, bars, sportsfood, and medical food.
KF 2	A method for manufacturing a legume protein concentrate, wherein a debitteringprocess of chickpea protein concentrate is achieved by using fumaric acid.
KF 3	The method of extracting the proteins from the product comprises a step ofalkalization to a pH value of between 8 and 10.
KF 3.1	The step of subjecting the product to alkaline conditions comprises the use ofNaOH or KOH.
KF 4	The proteins are concentrated by a process selected from the group consisting of:membrane distillation, Nano filtration, ultrafiltration, diafiltration, and evaporation

Relevant Citations: WO2018011786A1 **(Mapped according to key features)**

Application/Patent no.	WO2018011786A1
Title	Chickpea protein concentrate
Assignee	YISSUM RES DEV CO OF HEBREW UNIV JERUSALEM LTD

Description

The present invention relates to palatable chickpea protein concentrates, in particular to concentrates obtained by a process including a debittering step, methods for manufacturing of the protein concentrates, and food products comprising the protein concentrates.

The present invention provides palatable chickpea protein concentrates, food products comprising the protein concentrates and methods of manufacturing thereof. In particular the present invention provides debittered chickpea high-protein concentrates. **The present invention provides in some embodiments chickpea based meat and cheese substitutes having structures, textures and flavors that resemble animal meat or cheese.** The present invention further provides in some embodiments methods for manufacturing debittered chickpea protein concentrates.

The present invention is based in part on the unexpected finding that producing chickpea protein concentrate by a method comprising a step of debittering with fumaric acid, provide a palatable, high quality protein concentrate useful as a source material for a variety of food products. The methods ofthe invention comprise a debittering step with fumaric acid, separating the precipitated protein, and protein extraction in alkaline conditions.

The present invention provides chickpea based protein concentrate, suitable as a source material for the preparation of a variety of food products. The present invention further provides methods of manufacturing palatable chickpea based protein concentrate. The protein concentrates disclosed herein are **suitable for preparing meat substitutes having textures and flavors similar to meat.** The protein concentrates disclosed herein are also suitable for preparing milk alternatives, protein shakes, sports nutrition, energy bars, snacks and medical food. The methods of manufacturing protein concentrate as described herein include acidification of a chickpea material using fumaric acid. **The methods further comprise an alkalization step to a pH value of between 7.5 and 10. The method of preparing protein concentrate in some embodiments further comprises a step of membrane distillation procedure.** Advantageously, the present invention provides methods of manufacturing chickpea protein concentrates with higher yields and reduced level of bitterness. The present invention further provides in some embodiments, methods of manufacturing protein extracts from other legumes.

According to some embodiments, **step (iii) comprises alkalization to a pH value of between 7.5 and 10.According to certain embodiments, step (iii) comprises alkalization to pH 9. According to certain embodiments, step (iii) comprises alkalization to pH 8.**

According to some embodiments, subjecting **the product to alkaline conditions comprises the use of NaOH or KOH.**

The chickpea protein products provided herein may be prepared for human or animal consumption. They may be cooked, partially cooked, or frozen either in uncooked, partially cooked, or cooked state. Cooking may include frying either as sauteing or as deep-frying, baking, smoking, steaming, and combinations thereof. According to some embodiments**, the chickpea protein products are used in**

cooked meals, including but not limited to soups, noodles, burritos, chilis, sandwiches, lasagnas, pasta sauces, stews, kebabs, pizza toppings, and meat sticks. According to some embodiments, the chickpea protein products are mixed with other protein products, including but not limited to other plant-derived products and/or animal meat.

Queries

	Queries	Database	No. of Hits
1.	(("CHICKPEA" OR "CHICK PEA" OR "GRAM PEA" OR "CICER ARIETINUM" OR "BENGAL GRAM" OR GARBANZO OR "EGYPTIAN PEA" OR CICER) 8D (PROTEIN) 8D (CONCENTRAT+ OR EXTRACT+ OR SUPPLEMENT+ OR ADDITIV+ OR FLOUR+ OR PRODUCT+OR FOOD????))/TI/AB/CLMS AND(("FUMARIC ACID" OR "C4H4OH" OR "TRANS-BUTENEDIOIC ACID") P ((REMOV+ OR EXTRACT+ OR DISCARD+OR TREAT+ OR SEPARAT+ ORELIMINAT+ OR WASH+ OR WITHDRAW+) 10D (BITTER+ OR TART+ OR TANG+ OR SOUR+ OR SAPONIN+ OR PHYTIC) 15D (PROTEIN)))/TI/AB/CLMS/TX AND ((A23J-03/227 OR A23L27/26))/IPC/CPC	ORBIT	**203/408**
2.	((MEAT OR PORK OR BEEF OR CHEESEOR LAMB) 9D (PROTEIN) 12D (ANALOG?? OR ANALOUGE ORSUPPLEMENT+ OR SUBSTITUT+))/TI/AB/CLMS/TX AND D(ACID+) 10D (FUMARIC OR OR "C4H4OH" OR "TRANS-BUTENEDIOIC ACID") AND ((ALKALI????) P ("KOH" OR "NAOH" OR "POTTASIUM HYDROXIDE" OR "SODIUM HYDROXIDE")) AND ((DISTILLATION??	ORBIT	**236/663**

	OR "NANOFILTRATION" OR "ULTRAFILTRATION" OR "DIAFILTRATION" OR "EVAPORATION") P (FILTER+ OR SEPARAT+ OR EXTRACT+ OR PRECIPIT+ OR CONCENTRAT+ OR TREAT+ OR WASH+)) TI/AB/CLMS/ AND (A23J-03/140 OR A23L-11/000)		

NPL Queries

S. no.	Queries	Database
1	(CHICKPEA OR "GRAM PEA" OR GARBANZO) (PROTEIN) (CONCENTRATE) ("FOOD PRODUCT") (MEAT OR CHEESE) (ANALOG OR SUBSTITUTE)	GOOGLE, GOOGLE SCHOLAR, IEEE EXPLORE, SCIENCE DIRECT
2	(METHOD OR STEP OR PROCEDURE OR TECHNIQUE OR PROCESS) (LEGUME OR "LENTIL") (PROTEIN) ("FUMARIC ACID") (DEBITTER OR DETOXIC) (FILTERATION) (PHYTIC OR SAPONIN) (""NaOH OR "KaOH")	GOOGLE, GOOGLE SCHOLAR, IEEE EXPLORE, SCIENCE DIRECT

PC Classification

Classification	Definition
A23L-02/726	Meat flavors
A23J-03/227	Meat like texture food
A23J-03/014	Vegetable proteins
A23L-01/100	Pulses, i.e. Fruits of leguminous plants, for production of fodder or food; Products from legumes; Preparation or treatment thereof, e.g. Treatment with phosphates

Keywords

Additive	Distillation	Lentil	Separate
Alkaline	Egyptian Pea	Meat	Sodium Hydroxide
Analog	Eliminate	Method	Sour
Beef	Evaporation	Nanofiltration	Step
Bengal Gram	Extract	"NaOH"	Substitute
Bitter	"Fabaceae"	Phytic	Supplement
"C4H4OH"	Filter	Pork	System
Cheese	Flour	Potassium Hydroxide	Tang
Chickpea	Food	Precipitate	Tart
Cicer	"Fumaric Acid"	Procedure	Technique
"Cicer Arietinum"	Garbanzo	Process	Technology
Concentrate	Gram Pea	Product	Trans-Butenedioic Acid;
De-bitter	Isolate	Protein	Treat
Detoxify	"KOH"	Purify	Ultrafiltration
"Diafiltration"	Lamb	Remove	Wash
Discard	Legume	"Saponin"	Withdraw

7.2 Invalidation search

A validation/invalidation search aims to find patents or other publicly available prior art that may render a granted patent invalid. This type of search produces a search report, a claims mapping diagram, and a list of prior art citations. The search results can be used to demonstrate that a party has taken reasonable steps to ensure a patent's validity or to challenge the validity of a patent that is being asserted against them.

A client performs a patent validity/patent invalidity search because he is concerned that his product would infringe on a certain patent. An applicant for a patent should view these searches as essential from a business standpoint. If a company is worried that their product or process might infringe on a patented item from another company A patent invalidation search is a search for prior usage or documents that could restrict the claims of a patent granted and invalidate it. The search's objective is to discover previous art or historical usage that limit how the issued invention can be used. Qualified professionals execute an exhaustive search procedure known as an invalidation search in order to successfully invalidate patents. Careful investigation is performed to determine whether the claims of a particular invention are valid or invalid when compared to the previous art available at the time of filing.

7.2.1 Obstacles Faced by the Searcher

When examining patentability, time is frequently an issue. A short search, usually lasting between 4 and 20 hours, is typically conducted to determine patentability. They tend to be brief, so it is crucial to comprehend the invention disclosure's primary novel idea before searching for it. By doing this, a searcher will be able to quickly browse through a vast collection of search results in search of prior art that seems pertinent to the core idea. The searcher can evaluate whether the relevant work has any extra search features after locating it. In addition to related art, certain patentability searchers might also be charged with finding less significant publications that might provide "alternative embodiment" ideas that will be integrated into the drafting of the patent specification. Alternative embodiments are changes made to an invention's non-essential or non-novel characteristics that show how the invention might be altered to work in different situations or with products that are already on the market. For example, a tool for hanging curtains could be invented that would work whether the user was hanging drapes, valances, curtains, or blinds. Alternatively, a cleverly constructed jacket that has an inner pocket for an MP3 player

would work whether the inner pocket was sewn into the fabric of the jacket or was removable.

Searches for patentability do not always need looking at alternate embodiments. The main takeaway is that searchers must always discuss the search's main goal with a patent lawyer and tailor the search's focus (as well as the kinds of results it produces) to the requester's requirements.

7.2.2 Searching Patent Documents

As part of a patentability search, significant patent collections are routinely searched, including at least those from the United States (US), Europe (EP), the Patent Cooperation Treaty (WO/PCT), and Japan (JP). It makes sense to include these collections in any patentability search, no matter how brief, even if any previously published document can be used against a patent application. Most patent examiners from large patent offices will go straight to these collections. Shorter patentability investigations typically have a price cap, therefore it's crucial to find a patent search engine that will offer the basic coverage needed. There will be some coverage for several premium and free tools in significant US and international databases. Searching Non-Patent Literature.

7.2.3 Case study Invalidation Search

Subject Patent No.: US7178020

NOTE: The above-mentioned Patent US 7178020 having priority date 2007-08-03 was given by our Client, so that we can invalidate the claim number 15 and 18, which help our client to sue the assignee/company in case of invalidation and it will help our client to hold the market with their new invention.

Search begins

The search begins with understanding the claim of the patent (in this case claim no. 15 and 18). Patent analyst must understand the claim by reading the full patent. If he/she is not able to get it then he/she must discuss the claim with the inventor otherwise the search will not be in the direction in which the inventor wants it to be. So, understanding the patent is must. After this the real search begins.

However, this is the case of searching prior art, before 3 August 2017, so that we can invalidate the claims of the particular patent.

Steps of searching

Key Features according to Client's Disclosure

KF 1.	A test device for detecting the presence or quantifying the concentration of ananalyte in a biological fluid,
KF 1.1	A test device for detecting the presence or quantifying the concentration of ananalyte in a biological fluid, comprising:
KF 1.2	A housing defining a sample port and a detection window in a surface of thehousing;
KF 2	A test strip disposed within the housing, at least a portion of the test strip beingassociated with the detection window; and
KF 3	A test well-disposed within the housing between the sample port and the test strip;
KF 3.1	The test well defines a flow path to the test strip and includes a magnetic stirrer anda conjugate, the conjugate comprising a first antibody specific for a first epitope on the analyte and a signal entity; and
KF 4	The test strip comprises a first end zone, a second end zone, and a trapping zone between the end zones, the trapping zone having irreversibly boundthereon a second antibody specific for a second epitope on the analyte.
KF 3.1	The test strip further comprises a control zone
KF 4	The control zone is present between the first end zone and the second end zone. The control zone having irreversibly bound thereon the first epitope.

Relevant Citations: US6673628B2 (Mapped according to key features)

Application/Patent no.	US6673628B2
Title	Analytical test device and method
Assignee	Spectral Diagnostics Inc
Inventor	Freitag Helmut E; Shi Qinwei; Harrington Charles A
Priority Date	1998-08-06
Family Members	**Link to INPADOC Family Members**

Abstract

An analytical test device is described for the immune chromatographic determination of the presence of oneor more analytes in fluid samples. The device is configured such that the sample is allowed to enter the detection zone simultaneously from many different directions, eliminating stagnation of the flow of the sample. By selection of the porous substrate, the device also allows for the separation of red blood cells from plasma, providing a rapid test for one or more analytes in a sample of whole blood. The device of the present invention may measure more than one analyte simultaneously from a single sample, either by havingmultiple immune chromatographic pathways fed by a single sample, or multiple analytes detected in the same pathway by way of multiple capture antibodies.

detection zone simultaneously from many different directions, eliminating stagnation of the flow of the sample. By selection of the porous substrate, the device also allows for the separation of red blood cells from plasma, providing a rapid test for one or more analytes in a sample of whole blood. The device of the present invention may measure more than one analyte simultaneously from a single sample, either by havingmultiple immune chromatographic pathways fed by a single sample, or multiple analytes detected in the same pathway by way of multiple capture antibodies.

Relevant Text

Claims

1. An analytical test device for determining the presence of at least one analyte in a fluid sample,said device comprising:

(i) a dry porous carrier;

(ii) **at least one detection zone** covering at least a segment of an area of said carrier, the sample being permitted to enter into said detection zone from a plurality of different directions;

(iii) **at least one capture zone channel having an entrance end which is in operative communication with the detection zone** to permit sample to flow from the detection zone into the capture zone channel, the distances between all points where the sample is permitted to enter the detection zone and said entranceend being essentially the same.

Description

The solution to these problems as explained herein is that, according to a first aspect of **the present invention, the sample is allowed to enter into the detection zone simultaneously from many differentdirections and the detection zone is designed in a way that the resulting flow from the different directions all points to the entrance of the capture zone channel** and all distances from entering the detection zone to said entrance are essentially the same.

This invention alleviates many of the problems aforesaid by providing a device which may be small enoughto be hand held, although not necessarily so, and provides for rapid and efficient flow of the fluid to be analyzed. Although its presently preferred utility is for the analysis of whole blood to diagnose for the presence of cardiac analytes, it may be adapted to test for the presence of other components in a fluid suchas a body fluid carrying an antigen which will form a complex with an antibody which may thereafter be detected, for example in a sandwich assay with another antibody.

The device according to a first aspect of this invention effects several improvements of the earlier devices,

i.e. it provides a solution to the problems as explained herein is that **the sample is allowed to enter into the detection zone simultaneously from many different directions and the detection zone is designedin a way that the resulting flow from the different directions all point to the entrance of the capture**

zone channel and all distances from entering the detection zone to said entrance are essentially the same.Rapid and efficient flow of the fluid to be analyzed can be achieved by configuring the porous channels so that there is little or no opportunity for stagnation and so that the fluid enters a detection zone from a samplecirculation channel from a multitude of points. The detection zone is designed so that the resulting frontof the fluid moves in the direction of the entrance end of the capture zone.

The sample then flows until the sample delivery channel drains of its predetermined volume, and theanalysis is performed. As mentioned above, an optional observation window at the junction of the sample delivery channel and the sample circulation channel may be provided to) indicate to the operator that adequate sample has been added to the device to conduct the test, as when the sample delivery channel has filled completely with blood and the sample is channeled to the sample circulation channel, theobservation window will indicate the presence of the sample.

A major feature of the device of this invention is that the plasma stream which flows through the detection zone 3 and capture zone channel 6 reaches the capture antibody line 7 There is little or nolabelled antibody/antigen trapped in the detection zone 3 as in the prior art constructions. Instead thereis rapid and efficient capillary flow of the fluid from the detection zone 3 to the capture channel zone 6. The capture antibody 7 reacts with and concentrates the labelled antibody/analyte complex to form the detectableproduct with maximum efficiency. One advantageous result of this novel configuration is that the size of thediagnostic device can be reduced to a minimum.

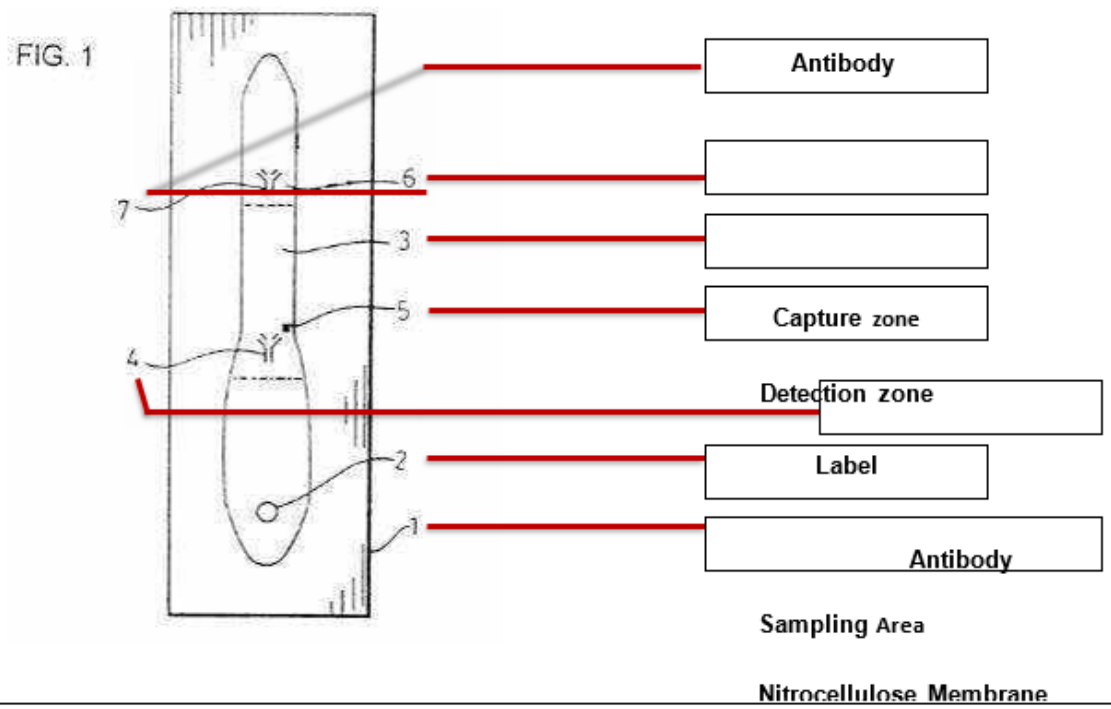
The detection zone 3 contains a mobile reactive reagent, for example a detection antibody 4 for troponin I in a plasma carrier. The antibody 4 is labelled with a label 5 such as gold.

The devices of the invention can be configured with multiple channels to have more than one channelincluding the test channel and/or a negative and positive control channel. Multiple channels may eachhave more than one capture line. The designs will be readily apparent to the skilled artisan.

FIG. 38A also shows a test end indicator window43 and a corresponding strip of reagent on the membranejust upstream from this window. The fluid dissolves and carries this reagent into view of window 43 toindicate the test is finished. Procedures for fixing antibodies to substrates such as nitrocellulose are known and usable in producing the devices of this invention. Nitrocellulose is an avid binder for proteins. Hence, the immobilecapture antibody need only be applied into the capture zone in a predetermined area. The labelled detector antibody may be movably affixed to the membrane by first saturating the detector zone with anotherprotein such as bovine serum albumin. Alternate locations for the detector antibodies are noted above. As depicted in FIGS. 38A-38B, a cavity 100 is provided at the junction between the sample delivery channel and the sample circulation channel to contain a bead or other form of reagents such as lyophilizedlabeled detector antibody, which will dissolve in the fluid to be analyzed as it passes through this region of

the device. FIG. 38A also shows a test end indicator window43 and a corresponding strip of reagent

on the membrane just upstream from this window. The fluid dissolves and carries this reagent into view of window 43 to indicate the test is finished.



Queries

	(("CAPTURE ZONE") AND ("DETECTION ZONE") AND (SAMPLE OR ANALYT+) 10D (WINDOW?? OR CHAMBER?))/CLMS/TI/AB AND (Y10S-436/807 OR G01N-33/54366)/IPC/CPC AND PRDS <= 2007-08-03		
2.	((MACHINE? OR GADGET? OR DEVICE OR SYSTEM OR APPARATUS OR TOOLOR KIT OR INSTRUMENT+ OR PAD+ OR UNIT??) 10D (DETECT+ OR SENS+ OR QUANTIF+ OR EXAMIN+ OR CALCULAT+ OR MEASUR+ OR ANALY+ OR ESTIMAT+ OR IDENTIF+ OR CAPTUR+) 15D (ANALYT??? OR ANTIBOD+ OR EPITOP+ OR ANTIGEN??))TI/AB/CLMS AND (((TEST) 2W (STRIP???? OR BAND)) P ((ZONE?) 3D (CONTROL OR TEST)))TI/AB/CLMS/TX AND (G01N-33/558 OR G01N-21/8483)/IPC/CPC AND PRDS <= 2007-08-03	ORBIT	**176/776**

	(("CAPTURE ZONE") AND ("DETECTION ZONE") AND (SAMPLE OR ANALYT+) 10D (WINDOW?? OR CHAMBER?))/CLMS/TI/AB AND (Y10S-436/807 OR G01N-33/54366)/IPC/CPC AND PRDS <= 2007-08-03		
2.	((MACHINE? OR GADGET? OR DEVICE OR SYSTEM OR APPARATUS OR TOOLOR KIT OR INSTRUMENT+ OR PAD+ OR UNIT??) 10D (DETECT+ OR SENS+ OR QUANTIF+ OR EXAMIN+ OR CALCULAT+ OR MEASUR+ OR ANALY+ OR ESTIMAT+ OR IDENTIF+ OR CAPTUR+) 15D (ANALYT??? OR ANTIBOD+ OR EPITOP+ OR ANTIGEN??))TI/AB/CLMS AND (((TEST) 2W (STRIP???? OR BAND)) P ((ZONE?) 3D (CONTROL OR TEST))) TI/AB/CLMS/TX AND (G01N-33/558 OR G01N-21/8483)/IPC/CPC AND PRDS <= 2007-08-03	ORBIT	**176/776**

NPL Queries

S.no.	Queries	Database
1	(DEVICE) (BIOLOGICAL FLUID) (TEST STRIP) (CONTROL ZONE) (HOUSING) (WINDOW) (DETECT ANTIBODY) (TRAPPING ZONE)	GOOGLE, GOOGLE SCHOLAR, IEEE EXPLORE, SCIENCE DIRECT
2	("BIOMEDICAL DEVICE") (DETECT OR SENSE OR EXAMINE OR QUANTIFY OR CALCULATE) (ANALYTE OR ANTIGEN OR ANTIBODY) ("DETECTION ZONE") ("CONTROL ZONE") ("TEST STRIP") (CHAMBER OR WINDOW)	GOOGLE, GOOGLE SCHOLAR, IEEE EXPLORE, SCIENCE DIRECT

IPC Classification

Classification	Definition
Y10S-436/807	Apparatus included in process claim, e.g. physical support structures
G01N-33/558	Immunoassay; Bio specific binding assay; Materials therefor using diffusion or migration of antigen or antibody
G01N-33/54366	Apparatus specially adapted for solid-phase testing
G01N-21/8483	Investigating reagent band

US Classification

Classification	Definition
436/514	Involving diffusion or migration of antigen or antibody:
436/164	Chemistry: analytical and immunological testing; optical result

Keywords

Assay	Estimate	Mechanism	Sample	Well
Biomedical	Examine	Medical	Sense	Window
Calculate	Fluid	Method	Step	Zone
Capture	Gadget	Negative	Strip	
Chamber	Identify	Pad	System	

Assay	Estimate	Mechanism	Sample	Well
Biomedical	Examine	Medical	Sense	Window
Calculate	Fluid	Method	Step	Zone
Capture	Gadget	Negative	Strip	
Chamber	Identify	Pad	System	

7.3 Case Study (Infringement search using Artificial Intelligence)

7.3.1 Traditional Method:

- An infringement search is a process of conducting a search to determine whether a particular product, technology, or process infringes upon an existing patent or intellectual property (IP) right. It is also known as a freedom-to-operate (FTO) search, as it helps a company or an individual to determine whether their planned product or process would be free from infringement claims by third-party patents.
- An infringement search involves a comprehensive analysis of existing patents, patent applications, and other forms of intellectual property rights, to identify any potential issues that may arise during the product development or commercialization process. It helps to identify potential legal risks and liabilities that could result from the launch of a product or process that infringes upon someone else's IP rights.
- Infringement searches are often conducted by patent attorneys or intellectual property professionals with experience in patent analysis and intellectual property law. They use a variety of resources and tools, such as patent databases, to conduct a thorough analysis

of existing patents and determine the potential infringement risks of a product or process.

- Patent attorneys perform infringement searches to help their clients determine whether their product, process, or technology infringes on an existing patent or intellectual property right. Infringement searches involve a comprehensive analysis of existing patents and patent applications to identify any potential issues that may arise during the product development or commercialization process.

Here are the steps that a patent attorney typically follows when performing an infringement search:

- **Determine the scope of the search**: The first step is to determine the scope of the search, which depends on the nature of the product, process, or technology. The patent attorney must understand the product or technology and its intended use, as well as the relevant industry and market. Based on this information, the attorney can determine the appropriate search parameters and the databases to be searched.
- **Identify relevant patents**: Once the scope of the search has been determined, the patent attorney searches various patent databases, including the United States Patent and Trademark Office (USPTO), the European Patent Office (EPO), and the World Intellectual Property Organization (WIPO). The attorney uses keywords and classification codes to identify relevant patents and patent applications.
- **Analyse the claims**: After identifying relevant patents, the patent attorney analyses the claims in the patents to determine whether the product or technology being searched infringes on any of the patent claims. Claims are the legally enforceable part of a patent, and they define the boundaries of what is protected. The attorney compares the claims of the relevant patents to the product or technology being searched to determine whether there is infringement.
- **Assess validity**: In addition to analysing the claims, the patent attorney assesses the validity of the relevant patents. A patent may be invalid if it lacks novelty or non-obviousness or if it fails to meet other legal requirements. If the patent is invalid, it cannot be enforced against the product or technology being searched.
- **Prepare a report**: After completing the analysis, the patent attorney prepares a report summarizing the findings of the infringement search. The report includes a list of the relevant patents, an analysis of the claims and validity of the patents, and a conclusion

regarding whether the product or technology being searched infringes on any of the patents.

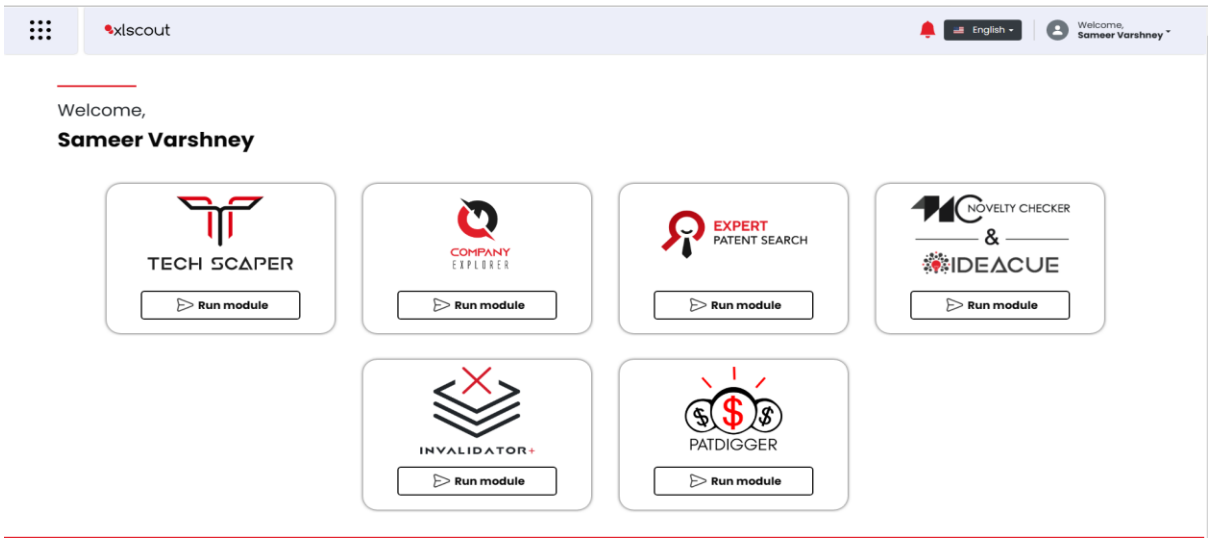
- **Provide recommendations**: The patent attorney may provide recommendations to the client based on the findings of the infringement search. If infringement is found, the attorney may recommend that the client modify the product or technology to avoid infringement or that the client obtain a license from the patent owner. If no infringement is found, the attorney may recommend that the client proceed with the product or technology as planned.

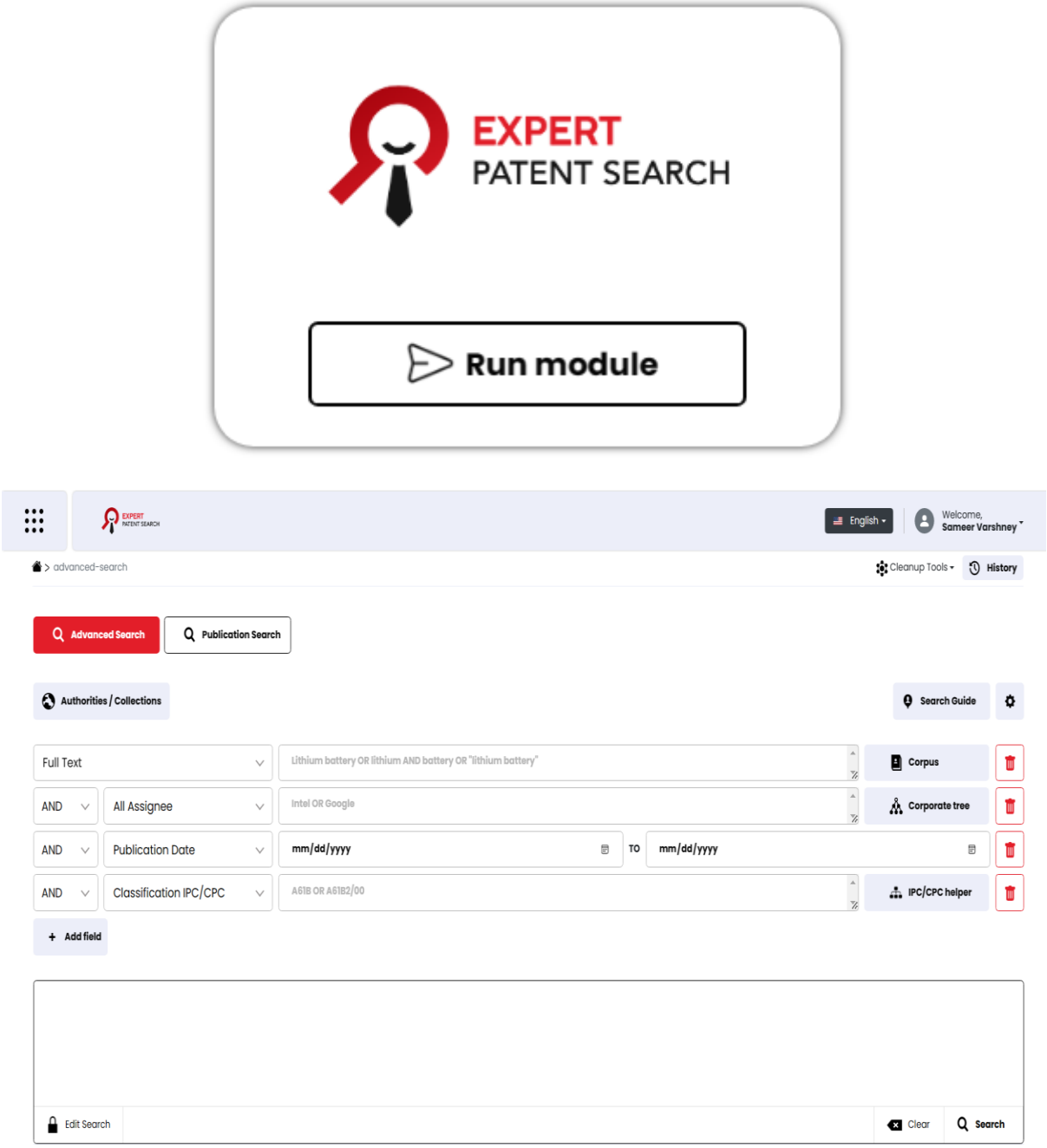
Performing an infringement search involves a comprehensive analysis of existing patents and patent applications to determine whether a product, process, or technology infringes on any existing patent claims. Patent attorneys use various resources and tools to conduct the search, and they provide their clients with a report summarizing the results and recommendations regarding how to proceed.

7.3.2 Use of Artificial Intelligence in infringement search

To conduct an infringement search with the aid of artificial intelligence, our team has devised several techniques that utilize the principles of prompt engineering. These techniques were subsequently integrated with XLSCOUT, which is a subsidiary of TT Consultants. Through this integration, XLSCOUT software is now able to efficiently perform infringement searches using AI methods developed by our team.

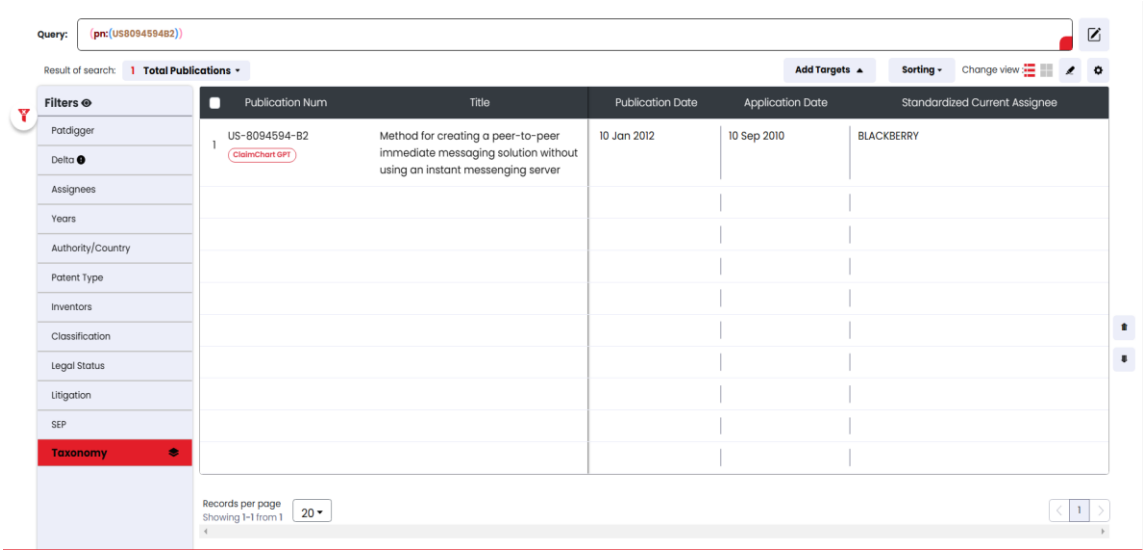
7.3.3 Steps for performing search using AI:



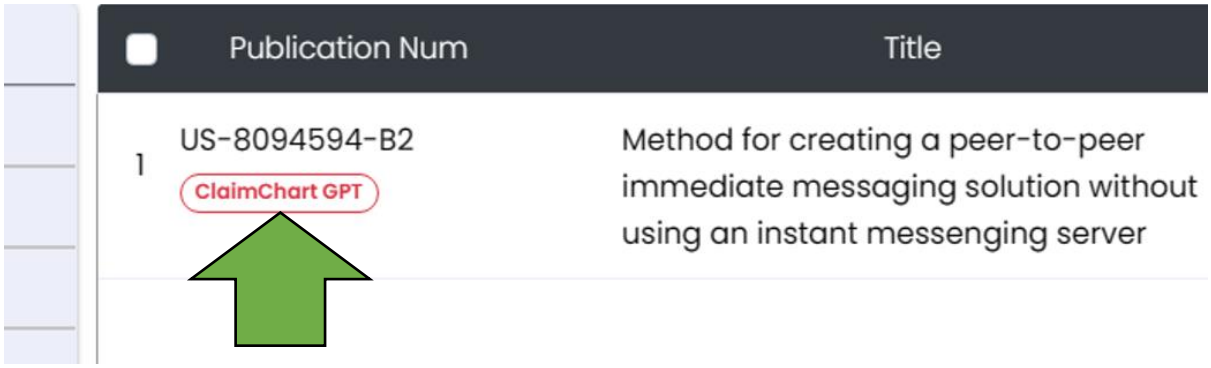


- To begin the process of conducting an infringement search, the first step is to determine the specific patent number that will be the subject of the search. Once this number has been identified, it should be entered into the publication search section of the XLSCOUT tool, which will be used to conduct the search. This tool is designed to facilitate the process of searching for patent infringements, and by entering the patent number into the search section, it will enable the user to generate a list of relevant publications that could potentially be infringing on the identified patent.

- Once the patent number has been entered into the publication search section of the XLSCOUT tool, a detailed page will be generated containing all the relevant information associated with the patent. This information includes the publication number, title, publication date, application date, and standardized current assignee of the entered patent. By providing this information, the detail page allows the user to gain a comprehensive understanding of the patent and its associated details, which can be used to inform the subsequent steps of the infringement search process. Having access to this level of detail is critical in conducting a thorough search for any potential infringements on the identified patent.

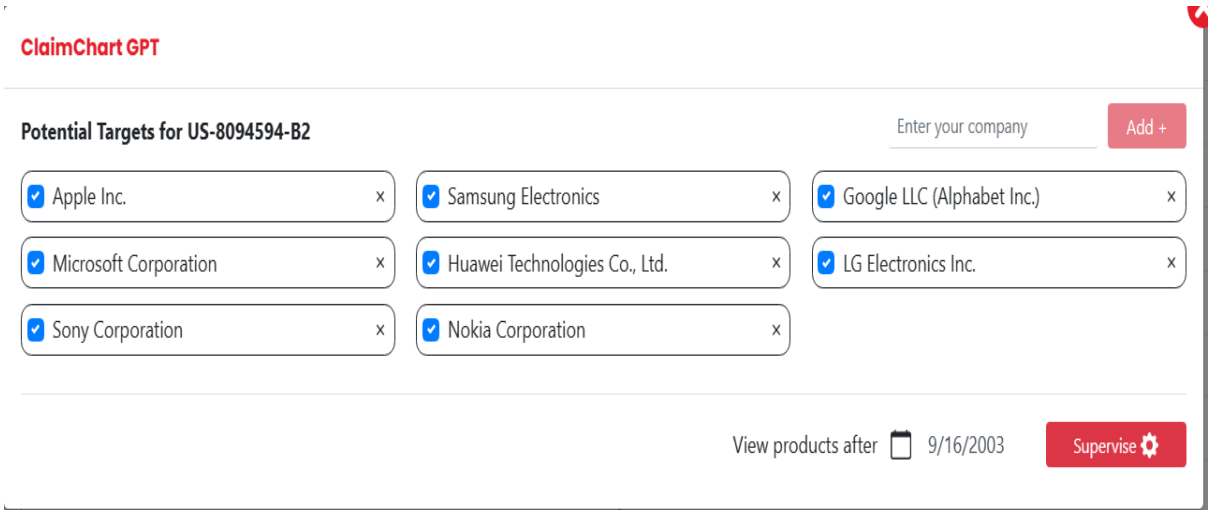


- Once the user has reviewed the details of the identified patent on the detail page, the next step in the infringement search process is to click on the "Claim Chart GPT" option that is located below the publication number on the page. This option allows the user to generate a claim chart, which is a useful tool for analysing potential infringements on the identified patent. The claim chart provides a detailed comparison between the claims outlined in the patent and the claims made by other publications that may be infringing on the patent. By examining these claims side-by-side, the user can gain a better understanding of any potential infringements and can use this information to inform the next steps of the search process.



- Once the user has clicked on the "Claim Chart GPT" option, a new tab will open containing the top potential targets that may be infringing on the identified patent. These targets are typically companies whose products or services could be similar to those described in the patent, making them more likely to be infringing. It is important to note that these potential targets are generated based on the information available in the XLSCOUT tool, and may not necessarily represent all possible infringing companies.

  The user has the option to modify the list of potential targets based on their own knowledge or research, and can do so by adding or removing companies as necessary. Once the user is satisfied with the list of potential targets, they can click on the "Next" button to proceed to the next step in the infringement search process. This step typically involves a more detailed analysis of the products or services offered by the potential targets to determine if they are infringing on the identified patent. By following these steps, the user can conduct a thorough and effective infringement search to protect their intellectual property rights.

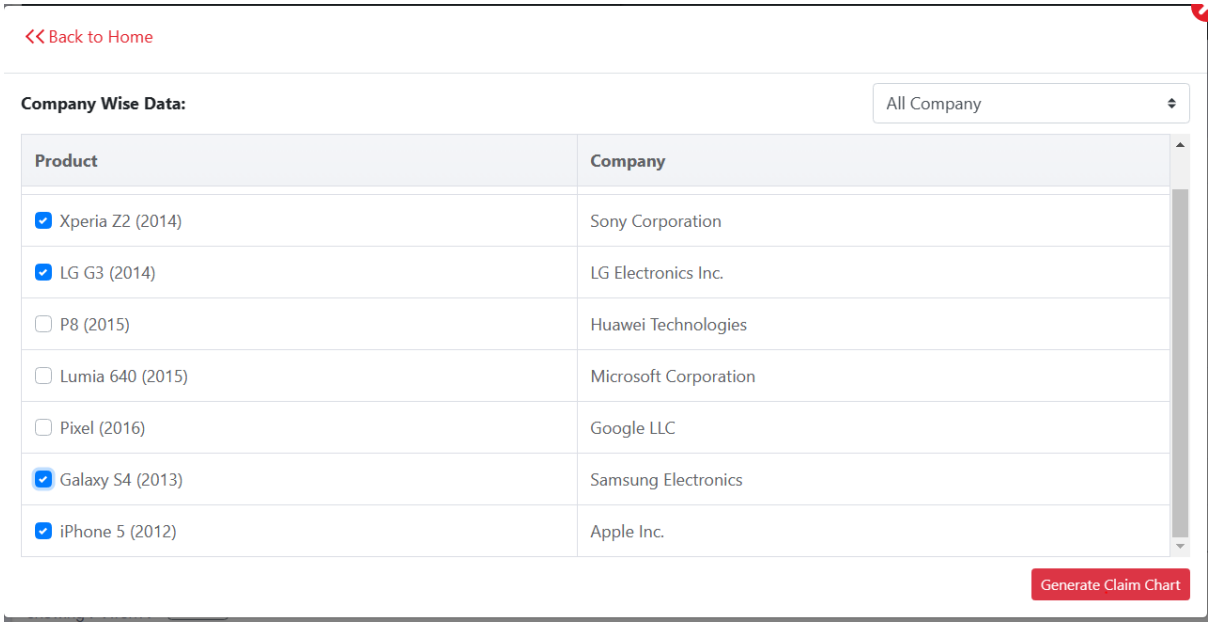


- Once the user has clicked the "Next" button, a new tab will open which contains a list of all the potential products or services offered by the selected companies that may be infringing on the identified patent. This list is generated based on the information available in the XLSCOUT tool, and may not necessarily include all possible infringing products or services.

  The user can then review the list of potential products or services and select the ones that they wish to analyse further. This selection can be based on factors such as the similarity of the product to the description outlined in the patent, or the likelihood of the product infringing based on other available information.

  Once the user has selected the desired products or services, they can click on the "Generate Claim Chart" button. This will create a claim chart that compares the claims outlined in the identified patent with the claims made by the selected products or services. By examining this comparison, the user can determine if there is any potential infringement and can take appropriate action to protect their intellectual property rights.

  Overall, the process of generating a claim chart is an essential step in the infringement search process, as it enables the user to identify potential infringing products or services and take appropriate action to protect their intellectual property.



- Once the user has generated the claim chart by clicking on the "Generate Claim Chart" button, a detailed report will be generated containing information about the products or services selected for analysis, as well as their relationship to the identified patent. This report is typically sent to the user's email address for easy access and reference.

  The report provides a full-fledged detail claim chart, which compares the claims outlined in the identified patent with the claims made by the selected products or services. The report includes all relevant details about the products, including their description, features, and potential similarities to the patent. This information can be used by the user to determine if there is any potential infringement and to take appropriate action to protect their intellectual property rights.

  Overall, the report provides a comprehensive and detailed overview of the products or services that may be infringing on the identified patent. By examining this information, the user can make informed decisions about how to proceed in protecting their intellectual property and ensuring that their rights are upheld.

Input Patent Details: US-8094594-B2

Publication No.: US-8094594-B2
Application No.: US-87965710-A
Prioity No.: US-50336603-P
Title: Method for creating a peer-to-peer immediate messaging solution without using an instant messenging server
Publication Date: 20120110
Application Date: 20100910
Priority Date: 20030916
Assignee: BLACKBERRY LIMITED
Inventor(s): LAZARIDIS MIHAL, KLASSEN GERHARD DIETRICH, WORMALD CHRISTOPHER R, SCOTT SHERRYL LEE LORRAINE

Abstract:
A messaging method in a system including a wireless network, a routing server, and a plurality of mobile stations. A first mobile station has first communications applications and a first PIN and a second mobile station has second communications applications and a second PIN. The method includes sending an invitation including the first PIN from the first mobile station to the second mobile station using one of the first communications applications, and sending an acceptance including the second PIN from the second mobile station to the first mobile station using one of the second communications applications. The method further includes creating first messages including the second PIN and sending them to the second mobile station through the wireless network, and creating second messages including the first PIN and sending them to the first mobile station through the wireless network. The routing server routes the messages based on the PINS.

Independent Claims/ Key Features:
The claim elements are:
A method of enabling messages to be exchanged between a first smart phone and a second smart phone operating in a wireless network using a communications application,
the first smart phone having a first Personal Identification Number (PIN) and the second smart phone having a second PIN,
the method comprising the first smart phone sending a Short Messaging System (SMS) invitation message to the second smart phone over a network connection,
the SMS invitation message including the first PIN,
the first smart phone receiving an acceptance message delivered by a routing server,
the acceptance message including the second PIN,
the first smart phone creating at least one first message using the communications application,
the at least one first message including the second PIN, and
the first smart phone sending the at least one first message to the second smart phone through the wireless network using the routing server,
the routing server routing the at least one first message based on the second PIN.

Product Name: LG G3 (2014)

sno	claim_elements	product_specification	explanation	hyperlink
1	A method of enabling messages to be exchanged between a first smart phone and a second smart phone operating in a wireless network using a communications application	LG G3 supports messaging through wireless networks using communication applications	LG G3 allows messages to be exchanged between two smart phones using communication applications over a wireless network	https://www.lg.com/us/cell-phones/lg-D851-t-mobile-g3
2	the first smart phone having a first Personal Identification Number (PIN) and the second smart phone having a second PIN	LG G3 supports Personal Identification Number (PIN) for user authentication	LG G3 devices can have unique PINs for users, allowing for authentication	https://www.lg.com/us/cell-phones/lg-D851-t-mobile-g3
3	the method comprising the first smart phone sending a Short Messaging System (SMS) invitation message to the second smart phone over a network connection	LG G3 supports SMS messaging over a network connection	Using LG G3, users can send SMS invitation messages to other smart phones over a network connection	https://www.lg.com/us/cell-phones/lg-D851-t-mobile-g3
4	the SMS invitation message including the first PIN	LG G3 allows users to include PIN in SMS messages	LG G3 supports sending SMS invitation messages containing the sender's PIN for authentication purposes	https://www.lg.com/us/cell-phones/lg-D851-t-mobile-g3
5	the first smart phone receiving an acceptance message delivered by a routing server	LG G3 supports receiving messages delivered by a routing server	LG G3 can receive acceptance messages from other smart phones, which are delivered by a routing server	https://www.lg.com/us/cell-phones/lg-D851-t-mobile-g3
6	the acceptance message including the second PIN	LG G3 supports including PIN in acceptance messages	LG G3 allows users to include their PIN in the acceptance message for authentication purposes	https://www.lg.com/us/cell-phones/lg-D851-t-mobile-g3
7	the first smart phone creating at least one first message using the communications application	LG G3 supports creating messages using communication applications	LG G3 users can create messages using various communication applications installed on the device	https://www.lg.com/us/cell-phones/lg-D851-t-mobile-g3
8	the at least one first message including the second PIN	LG G3 supports including PINs in messages	LG G3 allows users to include the recipient's PIN in the message for authentication purposes	https://www.lg.com/us/cell-phones/lg-D851-t-mobile-g3
9	the first smart phone sending the at least one first message to the second smart phone through the wireless network using the routing server	LG G3 supports sending messages through wireless networks using routing servers	LG G3 users can send messages to other smart phones through wireless networks, with the messages being routed by a routing server	https://www.lg.com/us/cell-phones/lg-D851-t-mobile-g3
10	the routing server routing the at least one first message based on the second PIN	Not directly applicable	This claim element relates to the routing server's functionality, which is not a part of the LG G3 device itself	https://www.lg.com/us/cell-phones/lg-D851-t-mobile-g3

Product Name: iPhone 5 (2012)

sno	claim_elements	product_specification	explanation	hyperlink
1	A method of enabling messages to be exchanged between a first smart phone and a second smart phone operating in a wireless network using a communications application	iMessage application on iPhone 5	iPhone 5 uses iMessage as a communications application to enable messages to be exchanged between two iPhones operating in a wireless network.	https://support.apple.com/en-us/HT207006
2	the first smart phone having a first Personal Identification Number (PIN) and the second smart phone having a second PIN	Apple ID used for iMessage	iPhone 5 uses Apple ID as a unique identifier for iMessage, similar to the concept of PIN.	https://support.apple.com/en-us/HT202304
3	the method comprising the first smart phone sending a Short Messaging System (SMS) invitation message to the second smart phone over a network connection	iMessage invitation via SMS	iPhone 5 can send an SMS invitation message to another iPhone to initiate an iMessage conversation.	https://support.apple.com/en-us/HT201287
4	the SMS invitation message including the first PIN	iMessage invitation containing Apple ID	The SMS invitation message sent from iPhone 5 includes the sender's Apple ID, which serves as the first PIN.	https://support.apple.com/en-us/HT201287
5	the first smart phone receiving an acceptance message delivered by a routing server	iMessage acceptance message	iPhone 5 can receive an acceptance message via iMessage from the second smart phone, delivered by Apple's iMessage server.	https://support.apple.com/en-us/HT202493
6	the acceptance message including the second PIN	iMessage acceptance message containing Apple ID	The acceptance message received by iPhone 5 includes the second smart phone's Apple ID, which serves as the second PIN.	https://support.apple.com/en-us/HT202493
7	the first smart phone creating at least one first message using the communications application	Creating an iMessage	iPhone 5 can create messages using the iMessage application.	https://support.apple.com/en-us/HT207006
8	the at least one first message including the second PIN	iMessage containing recipient's Apple ID	iPhone 5's iMessage includes the recipient's Apple ID, which serves as the second PIN.	https://support.apple.com/en-us/HT207006
9	the first smart phone sending the at least one first message to the second smart phone through the wireless network using the routing server	Sending iMessage via Apple's server	iPhone 5 sends the iMessage to the second smart phone through the wireless network using Apple's iMessage server.	https://support.apple.com/en-us/HT207006
10	the routing server routing the at least one first message based on the second PIN	Apple's iMessage server routing messages based on Apple ID	Apple's iMessage server routes messages between iPhone 5 devices based on their Apple IDs, which serve as PINs	https://support.apple.com/en-us/HT202493

7.3.4 Benefits:

- Reduce time to perform infringement search
- Reduces any type of human error.

8. Practical Applications

- Protecting inventions: Patents are a key form of IP protection for inventions, including new products, processes, and technologies. Patents enable inventors and companies to prevent others from making, using, selling, or importing their inventions without permission.
- Safeguarding creative works: Copyrights protect creative works such as books, music, and art, by giving authors and creators the exclusive right to use and control their works. Copyrights enable creators to earn income from their works and prevent others from profiting from their creations without permission.
- Building and protecting brands: Trademarks are used to protect brands and logos, giving companies the exclusive right to use their trademarks in connection with their goods and services. Trademarks help to build brand recognition and loyalty, and can also be used to prevent others from using similar marks that could cause confusion among consumers.
- Securing trade secrets: Trade secrets are confidential business information that give companies a competitive advantage, such as formulas, processes, and customer lists. Protecting trade secrets through contracts and other means can help companies to safeguard their valuable information.
- Licensing and monetizing IP: IP can be licensed to others, allowing them to use and benefit from the IP in exchange for compensation. Licensing and other forms of IP monetization can be an important source of revenue for inventors and companies.
- Enforcing IP rights: IP rights can be enforced through legal means, such as lawsuits and injunctions, to prevent others from infringing on those rights. Enforcement of IP rights is important to protect the investments of inventors and companies and to promote innovation and creativity.

9. Conclusion

In conclusion, intellectual property (IP) plays a critical role in the innovation economy, providing inventors and companies with the legal protection and financial incentives they need to invest in research and development. As new technologies and industries emerge, the importance of IP is only likely to increase, making it more important than ever to have skilled professionals who can navigate the complex landscape of IP law and policy.

One such professional is the patent research analyst, who plays a vital role in helping inventors and companies to identify and protect their IP. Patent research analysts are trained in the art of patent searching, using a variety of tools and techniques to identify relevant prior art and assess the patentability of an invention. They also help to prepare and file patent applications, working closely with inventors and attorneys to ensure that the application meets the legal and technical requirements for patentability.

The role of the patent research analyst has become increasingly important in recent years, as the pace of technological innovation has accelerated and the global patent landscape has become more complex. In particular, the rise of artificial intelligence and machine learning has created new challenges and opportunities for patent research analysts, who must stay up-to-date on the latest tools and techniques for searching and analyzing patent data.

Despite these challenges, the field of patent research offers many opportunities for those with a passion for innovation and a strong technical background. Patent research analysts can work in a variety of settings, including law firms, corporate legal departments, and patent search firms. They can also specialize in a variety of technical fields, from biotechnology and pharmaceuticals to software and electronics.

Overall, the role of the patent research analyst is essential to the innovation economy, helping inventors and companies to protect their IP and promote innovation and creativity. As new technologies and industries continue to emerge, the demand for skilled patent research analysts is only likely to grow, making this an exciting and rewarding career path for those with a passion for innovation and a strong technical background.

References

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- http://www.wipo.int/portal/en/index.html
- http://www.uspto.gov/
- http://www.epo.org/
- http://www.orbit.com/
- Orbit user guide
- Xlscout