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Patents 101



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What are patents and why do they exist?

The word patent comes from the Latin "*patere*," which means to "*stand wide open*." It's linked to the "*apparent*" and began to be used in Middle English in the form of "*letters patent*," or "*open letter*," or more specifically "*open to public inspection*," which forms the backbone of what today's patents are all about: the idea that an inventor lays bare his claims about an invention, so that he or she is granted a right in law to exclude others from making the said invention for a limited period in time.

It was in 1790 that President George Washington signed a bill that confirmed this right in law and in the same year the first US patent was granted to Samuel Hopkins of Vermont, for an improvement in the making of potash.

The patent itself was reviewed by Thomas Jefferson and eventually signed by the Attorney General and President Washington himself. That being said, other forms of patenting had existed prior to this in many other countries, all with various different approaches - and which has formed the precursor to the highly-fragmented national approach to granting patent that afterwards evolved.

Who patents and when?

There is a reason why patents sit at the top of the IP (Intellectual Property) value stack. Obtaining them is a very subjective procedure and it depends on the examiner.

This means you should only apply for patents if your invention is new and you have the time and money for the application process. It's also why freedom to operate and patentability searches are so important.

And of course, the expense does not end after application, either. You will have to pay ongoing renewal fees and be prepared to pay for the cost of legal action should you need to defend a patent.

Why is this relevant to R&D?

This is important to R&D because knowledge in the area of IPR (Intellectual Property Rights) allows R&D teams to identify what is going to be the best protection for their inventions - a consideration that needs to happen right at the ideation stage. If, for instance, your idea relies on processes that cannot be easily reversed engineered, you may opt to keep this a trade secret instead. If not, you have to protect the investment you have put into your R&D - as in, why should others be able to benefit from the work you have done.

Before a product development cycle, when you are formulating different ideas, it is important that R&D teams can answer and communicate answers to some of the following questions in order for the organization to pursue the right IP strategy, such as:

- *"Does my idea contain something abstract?"*
- *"Is it a naturally occurring phenomenon?"*
- *"Would my invention provide a solution to a technical problem?"*
- *"If it may fall under the excluded criteria, does my idea provide something more? Or does the excluded criteria form the substance of the idea?"*

In most cases, a patent invalidation would be because of the patent subject matter. You should assess whether your idea or invention would be susceptible to a similar problem. By doing this, you are likely to eliminate the hurdles that may appear further down the R&D lifecycle. If an idea cannot be patented, you are equipped to find ways around this challenge at the early stages of development. This will save time and money, hopefully increasing returns on your investment.

Once you can answer these questions, you can undertake more definitive research, such as reviewing any patents relating to your area of interest, for which you can use patent search tools. A key thing to look out for in an early search for example, is, if you come across a patent that was invalidated, look at the court's or patent examiner's decision to see why. So, patent information is vital right the way through the innovation process.

The Life of a Patent

In this section, I will discuss a patent's journey from application to expiry. This journey will not be the same for all patents and will often vary between jurisdiction, however, the journey I will describe will be the most common one that is followed.

What is the application procedure?

There are numerous different options that you might pursue for making an application. In many cases, organizations patent in their home territories first which means filing with their local patent office. Example of these include the United States Patent and Trademark Office (USPTO) for the US, Japan Patent Office (JPO), State Intellectual Property Office for China (SIPO) and Korean Intellectual Property Office (KIPO).

International application process

There's also the option to follow an international application process, which is also referred to as the PCT (Patent Co-operation Treaty) procedure. The PCT is a strategic option and is often wrongly used only to delay decisions that then don't get taken later anyway. However, it makes for a good example here as we can dive into the mechanics of an application process that is geared towards a more international IP strategy.

The PCT provides a unified international procedure for filing patents in all of the participating jurisdictions. It contains a long series of steps and it can be as many as five years before a patent could be granted.

The first step that takes place is the filing of the PCT application at a national or regional patent office - or in some cases directly with the World Intellectual Property Office (WIPO). If it is an entirely original application, by which we mean it is not a continuation of another application, then it's likely the patent will obtain a priority date that's the same as the filing date. The priority date is important as it establishes what's known as the "*effective date of filing*" for determining novelty, an inventive step or non-obviousness. It means that if the same patent is filed in other countries, all of these country-level patents will be assigned with this same priority date.

After 12 months, the application will be filed with the international PCT receiving office (RO). There then follows what's known as an international phase, during which time the International Searching Authority (ISA), a body that will search patents and prior art to determine whether the invention is patentable and prepares its findings in an International Search Report (ISR). After 18 months, the patent is published to the world. After around thirty months have elapsed, the national phase begins, as patent granted only at national level, or, in the case of Europe it can be via the European Patent Office (EPO).

This chunk of extra time allows for applicants to research further whether they are likely to be granted patents at national level, as well as being able to further investigate commercial viability of the invention. It is not necessary to wait thirty months; indeed it is possible to request early entry into the national phase, but thirty months is the typical timeframe, especially as often, during this time, extra searches will be conducted. The applicant will then pursue national offices for the granting of the patent.

What happens after a patent is granted?

If the patent meets all the conditions of the local jurisdiction, the jurisdiction will grant the patent subject to payment of any applicable additional fees. Once these fees are paid, the patent is issued and can be enforced. Most jurisdictions will request ongoing renewal fees (called maintenance fees in the US) at certain points in order to keep the protection afforded by the patent active.

Now, provided that the renewal fees are paid, most patents in most jurisdictions will be in force for a period of twenty years from the earliest filing date. There are variation to this, however. Local laws, the different ways in which portfolios might be managed, and other events during a patent's lifetime are all factors that mean that it is not uncommon for the expiry date of patents to run over the twenty year lifespan.

What does this mean for patent searching?

First of all, it means that when conducting patent searches, one might want to refine searches according to the status of different patents, such as whether a patent is in force or not; or to discover whether patents have been left to lapse and determine the reasons why an organization might no longer be protecting a specific technology. Depending on what type of question you are looking to answer, you might want to include or exclude patents that have different legal statuses - all of these factors have a bearing on how you might interpret the results returned by a search.

We also mentioned the fragmented and national nature of the way in which patents are granted, meaning that a single invention is often associated with numerous identical patents around the the world. For this reason, the idea of a patent family was introduced so that patent analysts can rapidly identify patents that relate to a single invention around the world. This prevents distortion within the analysis.

The most common family grouping that's used is the INPADOC system. INPADOC stands for International Patent Documentation and refers to a publically accessible database that is maintained by the EPO. This means researchers can determine the rate of innovation in terms of single inventions, rather than just looking at the number of single patents, which suggests more about the scope of coverage a company might seek, more than it does about innovation rate. It's important to choose the right metric to reach the right conclusion about the data returned, which is something that can often be selected in patent search databases.

Patent Terminology

In this section, I am going to give a brief glossary of some of the common terms that are used within the area of patents:

- Abstract - An introductory paragraph in a patent that provides a concise summary of the invention.
- Assignee - The assignee is the organization or entity that holds the rights conferred by a patent.
- Claims - The claims explain the extent, or the scope, of the protection conferred by a patent, or the protection sought in a patent application.
- CPC - Co-operative classification - a classification system for patents, jointly developed by the European Patent Office (EPO) and the United States Patent and Trademark Office (USPTO). The CPC is a more specific and detailed version of the International Patent Classification (IPC) system.
- Description - A full explanation of the invention. It will often include background information on the invention, how it is made, and its intended uses.
- EPO - European Patent Office
- Filing date - The date when a patent application is first accepted at a patent office.
- FTO - As WIPO describes: "*A Freedom to Operate (FTO) analysis invariably begins by searching patent literature for issued or pending patents, and obtaining a legal opinion as to whether a product, process or service may be considered to infringe any patent(s) owned by others.*" It may also be called a clearance search or non-infringement search and the search analysis essentially constitutes a risk assessment. The key distinction between a patentability search and a FTO search is that an FTO search only includes patents. An inventor may have freedom to operate in an area, but this doesn't mean that he or she can patent there.
- Granted - This is when an application becomes a granted patent, meaning that the patent is in force.
- INPADOC - International Patent Documentation - this refers to a publicly accessible database that is maintained by the EPO and is one system used for identifying patent families.
- IPC - International Patent Classification - established by the Strasbourg Agreement 1971, this represents a series of identification codes that allow patent offices to classify patents and utility models into specifically defined technology areas.
- ISA - International Searching Authority - A body that will search patents and prior art to determine whether an invention is patentable.
- ISR - International Search Report - The report produced by the ISA (International Searching Authority) on whether an invention is patentable.
- JPO - Japan Patent Office
- KIPO - Korean Intellectual Property Office
- Novelty - For a concept to be classified as an invention, it must be completely new with no evidence that it has ever been described before.

- Patent - A legal right conferred by a government, or governing body, to a patent owner that prohibits all others from using a specified invention for commercial purposes without the prior consent of the owner.
- Patent family - A patent family refers to a patent that has been filed in several jurisdictions in order to protect a single invention in multiple countries. The original document filed is known as the priority document, and it is then extended to other patent offices. This then becomes the patent family.
- Patentability - For an invention to be patentable, it must be novel, involve an inventive step and be capable of industrial application. It should not involve any subject matter that is specifically excluded, such as a mathematical model or biological process. Any public facing information could hinder plans to patent a particular item. This means that patentability searches will include websites, scientific journals, industry publications, and general media, as well as taking into account patents.
- PCT - Patent Co-operation Treaty - The PCT provides a unified international procedure for filing patents in all the participating jurisdictions around the world.
- Priority date - A priority date is achieved when you are the first to file a specific invention within a country. The filing date is considered the "*priority date*". Once filed you are entitled to claim priority for a period of twelve months. Therefore when you apply for protection in other member countries during those twelve months, the filing date of your first application is considered to have "*priority*" over other applications filed after that date.
- Publication date - The date on which a patent application is published and enters the public domain for the first time.
- RO - Receiving Office - a national patent office or intergovernmental organization which receives and processes international patent applications.
- SIPO - State Intellectual Property Office, which was also commonly known as the Chinese Patent Office and has been superseded by CNIPA.
- Title - A patent title should convey to the user of patent documents a first impression of the main content of the invention.
- USPTO - United States Patent and Trademark Office
- Utility Model - Used in select jurisdictions such as Australia, China, France, Germany, Italy, Japan and South Korea (among others), the idea of Utility model patent is to cover an incremental improvement to a product, process or machine in those cases where such an improvement does not warrant a full patent.
- WIPO - World Intellectual Property Organization - a self-funded UN agency with 189 member states and provides a global forum for intellectual property services, policy, information and cooperation.

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