

themselves to show ingenuity. It is thus not possible to hide vital information regarding an invention in a patent.

The right resulting from a patent

The owner of a patent has the exclusive right, privilege and liberty of making, constructing, using and selling the invention in the country where the patent has been granted. The right is enforceable for a maximum period of time, generally 20 years. At the expiration of the patent, the protection terminates and the invention can be freely used by others.

A patent allows fixing concretely on paper the real object of the invention and to confirm its ownership, which may be vital for the selling of the invention or the concession of manufacturing licences providing incomes. It also allows protecting the core technology developed by a company or an individual against the competition. As a result, the patent owner may hold a strong position on the market and may get a higher return on the time and money investments that have been required to develop the invention. For a company, a patent also promotes its degree of notoriety as commercial partners, investors and shareholders may see in it evidence of the high level of competence, specialization and technical capacity amid the company. It may help collecting funds, finding commercial partners and increasing the commercial value of the company. By also patenting important developments around the technological core, a company enlarges its field of exclusivity. A patent provides a better negotiating position to its owner with respect to other patentees whose rights could be infringed by the commercialization of the invention.

The form and content of a patent

A patent takes the form of a document that can be compared to a technico-legal type of contract because it discloses all the technical elements and details of the invention and because it defines the specific object of the protection granted to the invention, its scope and its limits.

A patent generally contains the title of the invention, an indication of the technical field relating to the invention, an account of the state of the prior art, a description of the invention, illustrations (drawings, plans, graphics), and at least one claim defining the essential features of the invention and determining the scope of protection granted by the patent.

In return for the exclusive rights granted by a patent, the patent applicant must fully disclose all necessary and useful information to produce and make it work, with enough details on the internal and external elements of the invention so that people having common knowledge and skills in the field may implement it without having

Patentability criteria

To obtain a patent, it is of course necessary to have developed an invention. But all the inventions are not necessarily patentable. Certain conditions apply.

First, the invention must exceed the stage of a simple idea. It is the embodiment of the idea which possibly constitutes patentable subject matter. It is however not necessary to have build a prototype of the invention. But the invention must have a sufficiently definite form at the conceptual level.

The invention must have a utilitarian or functional nature, for example by providing a solution to a technical / technological problem. Furthermore, the invention must work and be reproducible.

The invention must also be new and not obvious with respect to the state of the technique or the art known on a worldwide scale. To be new, the invention must not have been publicly disclosed. Thus, an offer for selling it, or its exhibition during a tradeshow or the publication of an article, may ruin its novelty. Exceptionally, only some countries like Canada, United States and Mexico grant a one year grace period from the moment where an invention no longer satisfies the novelty criterion to file a patent application without affecting the validity of the eventual patent.

The invention must be more than a simple discovery and must not be obvious for persons having average skills in the field. A certain inventive faculty, even involving a mere scintilla of ingenuity, must be shown to arrive at the invention.

The inventive subject matter must not be part of those excluded by law or case law such as, for example, scientific principles, medical treatment methods, professional skills, mathematical computations and higher life forms.

The requirements regarding patentability of inventions which lead to issuance of patents vary from one country to another so that what may be patentable in one country may be not in another one.

Ownership

Only the inventors of an invention or its rightful owners (for example, an employer or an individual to whom the rights on the invention has been assigned) may obtain valid patents for the invention. An individual who would have seen an invention of another cannot obtain a valid patent in a country without the consent of the other even

if the invention has not been patented in the country in question.

The owner of a patent has the right to decide who can, and who cannot, use the patented invention during the term of the protection. He/she can, through a licence, allow others to use the invention under commonly agreed conditions. He/she may also sell his/her right in the invention to another, who will become at his/her turn the owner of the patent.

Steps

Patents are issued by national patent offices, or by regional offices representing several countries, for example the European Patent Office (EPO). To obtain patents, it is necessary to request it before each of the concerned offices by filing patent applications. The Patent Cooperation Treaty (PCT) managed by the World Intellectual Property Organization (WIPO) allows the filing of an international application which has the same effect as national applications which would have been filed in all the signatory countries (142 as of January 14, 2010). However, there is currently no international or worldwide patent. It is thus necessary, at the end of the international procedures, to prosecute the steps at the national or regional level in each of the countries or regions where the invention shall be patented.

The obtaining of patents in different countries thus involves to prepare patent applications satisfying the requirements of form and content typical to each of the countries, and to prosecute the respective examination procedures in each of the countries until issuance of the patents. With a very few exceptions, the applications must be written in the official languages of the countries where they are filed.

Before initiating these steps, it is highly recommended to carry out a preliminary patentability search directed on the existing patents (considered as prior art to the invention). The results of such a search generally allow reducing the risk that a relevant patent be opposed by an examiner during the examination procedures of the applications, which would have the possible effect of preventing the obtaining of patents for the invention. The results also allow assessing the state of the patented art in the field and to better define the inventive subject matter to be claimed in the applications, which may likely improve the degree of protection for the invention.

Procedures

When a patent application is filed directly in a country, an examiner carries out his/her own prior art search before delivering a decision as the acceptability of the application. If he/she considers that the application contains formal defects or that the claimed invention is not patentable, the examiner issues an office action

reporting the nature of each of his/her objections. The applicant must then prepare and file a written response within the time period granted by the examiner in order that the examination of the application continues. In his/her response, the applicant may bring corrections that he/she deems appropriate in the application provided that these corrections do not constitute a prohibited addition of subject matter, and may submit an argumentation in support of the patentability of the invention if he/she considers that the objections raised by the examiner are unwarranted. For lack of responding to an office action, the application is considered to be abandoned and the procedures are then terminated. Subsequent to a response, the examiner may come back again and issue a new office action if he/she deems it necessary, in which case a new response must be prepared and filed. The cycle goes on until the examiner is satisfied with the submitted responses and allows the application, or that he/she issues a final office action rejecting the application. In the event where an application is rejected, the applicant may appeal from the examiner's decision if he/she considers that the examiner is mistaken. In the case where the application is allowed, a regulatory fee must be paid for the issuance of the patent. Regulatory fees for maintaining the application or the patent in force are generally required by the national patent offices, in most cases each year (hence their name of annuities).

When an application is filed under the international procedures (PCT), an examiner also carries out his/her own prior art search and issues an international preliminary search report along with a first written opinion. The search report lists the most relevant prior art references found by the examiner with respect to the invention claimed in the application. The references are classified under certain categories representing their degree of relevance with respect to the patentability of the invention. The written opinion provides the examiner's comments regarding the references listed in the search report. The applicant may then opt to formally request a formal examination of the application at an international level and respond to the written opinion, before prosecuting the procedures at national levels in each country where the invention must be protected. At the end of the international procedures, the PCT application must be transformed in national or regional applications in all the countries where patents are sought. The national offices are not bound to respect the possible decision issued by an examiner during the international procedures. Nevertheless, when a favorable decision is issued at the international level, the national procedures are often reduced to simple formality issues. In the case where patent protection in several countries is sought, the PCT system may highly reduce the fees and simplify the procedures.

Conventional priority

In most countries, a patent for an invention will be granted to the first person or company who requests it, provided that he/she has not usurped the invention from another. It means that by not patenting an invention, a company or an inventor runs the risk that a third party developing later an identical or equivalent invention patents it and legitimately excludes the company or the inventor from the market, limits the activities of the company or the inventor or asks for payment of royalties for using the invention.

The filing of a patent application thus establishes a priority right over any other applicant who would subsequently file an application for the same invention. This priority right is acknowledged on a worldwide scale (Paris Convention) with the exception of certain rare countries. As a result of this priority right, an applicant may file a first application in a country and benefit from a 12 month grace period after the filing of the first application in order to file applications for the invention in other countries while preserving his/her priority right provided that the priority is claimed. The subsequent applications are then considered so to speak as if they were filed on the same (priority) date as the first application.

Strategy of protection

It is generally prohibitive in terms of profitability to patent an invention everywhere in the world. It is thus necessary to properly appraise in which countries the invention deserves to be patented. A possible strategy is to patent the invention in countries where it is the most likely to be manufactured taking into account the necessary technology, the production costs and the possible competitors. Another strategy consists in patenting the invention in the countries representing the largest sale or use market. It is also desirable to consider the geographical situation of the commercial partners who will help defending the rights granted by the patents in case of infringement.

The PCT system presents many advantages when an invention must be protected in several countries. It permits in particular to postpone the decision relative to the countries where patents will be requested for a period of 2½ years from the filing of the first application for the invention, and provides a provisional protection of the invention during this period in more than 140 countries. It also permits to overcome potential objections with respect to the patent application before a single international authority rather than before each national authority. These characteristics permit to defer certain costs while providing various savings.

Publications

Patent applications for an invention remain secret during an 18 month period calculated from the filing of the first application for the invention. Afterward, the applications are automatically published (except in the United States under certain conditions) and the public may then inspect them. An applicant may request early publication of an application if he/she wants to. Only the express withdrawal of an application, made in time, permits to evade its publication.

It is said that an application is pending when it is in force (has not been abandoned) and as long as the patent has not been granted.

Costs and time limits

It takes generally around 6 weeks to have the results of a patentability search, including an opinion in this respect. Costs in the order of 2000 \$ to 3000 \$ depending on the field of the invention are to be expected for this step.

The preparation of a regular patent application takes generally from 1 to 2 months, depending on the amount of information and the extent of the documents to be processed, the number of figures required to illustrate the invention, the extent of the text to describe it, and the number of claims to be drawn up to protect it. The costs to be expected are directly related to these factors and are seldom lower to 4500 \$ for an application of a few pages with some simple figures and a few claims only. Translation costs apply when a protection is requested in foreign countries whose official language is different from that in which the application has been drafted. These costs may be higher, in particular for highly technical patent applications.

The costs for filing the applications fairly vary from country to country, depending on whether a foreign agent is involved or not, and depending on the amount of the various official fees to be paid before the intellectual property offices. In Canada, the minimum costs to be expected for the filing of an application are around 1000 \$ while the costs amount to around 4000 \$ for a US or a PCT application.

The costs to be expected during the examination procedures also fairly vary from country to country, depending on the degrees of intervention required to have the applications allowed and the official fees to be paid for the issuance of the patents. These costs may amount to 2000 \$ or more in Canada, and 5000 \$ or more in the United States. It is thus necessary to plan a sufficient budget to succeed through the examination procedures and obtain a patent in each country. The examination procedures may spread out over several years, and a patent is rarely obtained in less than two years. Certain countries require that the applicant file a

request for examination and pay an official fee in order that the application is examined. In Canada, the examination request can be filed during the 5 years following the filing of the application. In the United States, the examination request is made at the filing of the application.

Costs for maintaining the applications and patents in force in the form of payments of official fees to the patent offices must also be expected. These fees are generally paid periodically (for example, each year, each 5 years, from the second year from the filing of the application, after issuance of the patent...) so as to maintain the application or patent in force.

Infringement

The right resulting from a patent is confirmed only when it is issued. It is thus not possible to sue an infringer while the application is pending and the patent has not been confirmed yet. The patent owner may however claim a reasonable compensation retroactively for any damages that he/she may have sustained during the period preceding the issuance of the patent since the application has been published.

Informal or provisional applications

If it is absolutely necessary to disclose the invention, for example to a potential investor or commercial partner, before filing a patent application, then the disclosure should at least be made under a confidentiality agreement. However, such an agreement has its limitations and does not offer a protection level similar to the filing of a patent application.

Certain countries like Canada and the United States allow the filing of a first patent application which may not satisfy all the formal requirements of a regular application. Such an application allows establishing a priority right on the invention on the same basis as a regular application provided that the invention is fully and clearly disclosed in it. This type of application thus does not replace a patent application in due form, and does not allow evading the usual formalities to obtain patents. It however allows to proceed quickly to the filing of an application when, for example, the invention must be soon disclosed to a third party and not enough time remains for preparing and filing a regular application. It also allows protecting temporarily an invention for a one year period at possibly modest costs in comparison with a regular application. Because such an application is not subjected to a thorough study before its filing, there are risks that the disclosure of the invention be incomplete or insufficient, which could prove fatal for obtaining patents afterwards. It is thus important to weight up the pros and cons and to act with high caution with respect to such kind of application.

Other available resources

Numerous additional information on patents and the other types of intellectual property are available for reference on the websites of the Canadian Intellectual Property Office (CIPO), the United States patent and trademark Office (USPTO) and the World Intellectual Property Organization (WIPO) at the following addresses:

CIPO	http://cipo.gc.ca
USPTO	http://www.uspto.gov
WIPO	http://www.wipo.int

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