

Study Note: This module should take around 5 hours to study. If you have less time, you could conveniently break your study after audio segment 4.

Module 7: Patents

Objectives

After completing the study of this module you should be able to:

1. Describe in 100 words the purpose of a patent.
2. List the generally recognised conditions for patentability.
3. Enumerate the exclusive rights conferred by a patent.
4. State who is responsible for taking the initiative to enforce a patent.
5. Explain why a patent is required in any country before you can sue an infringer in that country.
6. Describe the procedures undergone when a patent application is filed nationally, regionally or via PCT.

Introduction

Patents are one of the oldest forms of intellectual property protection and, as with all forms of protection for intellectual property, the aim of a patent system is to encourage economic and technological development by rewarding intellectual creativity. This module will explain to you: the purpose of a patent, the benefits of obtaining a patent, what sorts of things may be patented and what the term of protection is for a valid patent. Also explained will be the nature of the international patent system.

Patents

What is a patent?

Let's begin by exploring what a patent is. Issued, upon application, by a government office (commonly the Patent Office), a patent is a document which describes an invention and creates a legal situation in which the invention can normally only be exploited with the authorization of the owner of the patent. In other words a patent protects an invention, and grants to the owner the exclusive rights to use his/her invention for a limited period of time. And an invention may be defined as a new solution to a technical problem.

Example of inventions: band aid, electric iron, safety pin, ball point pen, telephone, etc.

Now, let's listen to the next audio segment, which explains the purpose and history of patent protection.

Audio segment 1: *Can you tell me what the purpose of a patent is?*

The purpose of a patent is to provide a form of protection for technological advances. The theory is that patent protection will provide a reward not only for the creation of an invention, but also for the development of an invention to the point at which it is technologically feasible and marketable, and that this type of an incentive would promote additional creativity and encourage companies to continue their development of new technology to the point at which it is marketable, useful to the public and desirable for the public good.

Audio segment 2: *When did the system of patenting start?*

It was developed over several centuries. There were patents back in the 1700s. The system has evolved in the intervening years and we now have a very modern system. We are still developing the international system to make it even more modern and to keep it abreast of technological change and the changing economic system.



Self-Assessment Question

SAQ 1: What is the main purpose of a patent?

Type your answer here:

[Click here for answer](#)

SAQ 1 Answer:

The purpose of a patent is to provide protection for technological advances (inventions). It provides an award for the disclosure of the creation of something new as well as for the further development, or refinement, of existing technologies. In short, through patents, progress in changing technologies finds incentive to improve.

Now listen to the next audio segment to find out how a patent offers protection and how various sorts of things can not be protected.

Audio segment 3: *What sort of things can be patented?*

By international agreement, patents are available for any inventions, whether processes or products, in all areas of technology. A chemical compound can be patented. A machine, of course, can be patented. Processes for developing or making things can be patented. However, there are things that cannot be patented, and are usually excluded from the scope of patentability. Human genes, for instance, cannot be patented. Things that already exist in nature, with very few exceptions, cannot be patented. A perpetual motion machine, which goes against the laws of nature, cannot be patented unless someone can show it working. Then, of course, the old rules are set aside and something new is created. Some inventions may be excluded from the scope of patentability for public order or morality grounds.

Patents are intended for breakthroughs in technology, but they are also intended for small technological increments, so the developments occurring in a given area of technology that are patentable may be great developments, like the invention of penicillin, or very small improvements, such as a new lever on a machine that enables it to work just a little faster. These types of thing can be patented.

So a patent protects new and useful inventions. You have heard some of the types of inventions that can be protected by a patent and also some of the common exceptions. To be patentable, an invention must also meet certain criteria relating to **novelty** and other features. The Agreement on Trade Related Aspects of Intellectual Property Rights (TRIPS Agreement) provides three criteria and conditions for an invention to be patentable.

Listen to the audio, which lists the three conditions for patentability.

Audio segment 4: *You have mentioned some of them. But what, in short, are the characteristics that an invention has to have to be patentable?*



There are several characteristics that a patent office will look at to determine whether the invention is patentable. At the outset, there has to be a patent application on file. In most cases that patent application is examined by a technical expert to ensure that it meets the substantive criteria for patentability.

The first of those criteria is that it has to be **new (novel)**, meaning that the invention must never have been made before, carried out before or used before.

The second criterion is that there must have been an **inventive step**. In other words, it must represent a sufficient advance in relation to the state of the art before it was made to be considered worth patenting.

The term "non-obvious" is also used: if it were obvious to a person of ordinary skill in the field concerned, it would not progress to the stage qualifying for patent protection.

The third criterion is that it needs to be **industrially applicable**. It has to be susceptible of use in some way. This is a very broad criterion. Almost anything can be used, even if it's in the research stage, but, as I mentioned, that does not apply to a perpetual motion machine, because it simply will not work.

In summary therefore, in order to be patentable, an invention must be **new**, involve an **inventive step**, and be capable of **industrial application**.

Micro-Implantable Pump

The Micro Implantable Pump (MIP) is part of a family of piezo-actuated silicon micropumps developed by Debiotech for drug delivery application. Despite its dimensions (16x12x1.86 mm.), this technical device contain 17 inventions, which are covered by 44 patents.



List of inventions (titles):

- 1) Pumping chamber with stopper
- 2) Volume isolated from pumping chamber
- 3) Non-return valve with connecting members
- 4) Valve including membrane which defines upstream and downstream compartments
- 5) Etching method for obtaining one cavity
- 6) Curved valve pushed in closed position in the absence of external influence
- 7) Open valve in absence of second layer
- 8) A valve equipped with a position detector
- 9) Movable wall with double-stoppers
- 10) Self-priming micropump
- 11) Component glass connection including a gold layer
- 12) Metal component connection characterized by a single fixation step
- 13) Filter for micropump
- 14) Differential adhesion
- 15) Metal foil
- 16) Integrated intermediate piece
- 17) Thick valve

Number of patents:

44 patent granted to protect these inventions.

A courtesy of Debiotech, Lausanne, Switzerland.

Self-Assessment Question

SAQ 2 How is an 'inventive step' recognised?

Type your answer here:

[Click here for answer](#)

SAQ 2 Answer:

An inventive step is necessary to be granted a patent. However, the invention must be enough of an advancement to be considered 'non-obvious' by a person having ordinary skill in the art. If it would be obvious to a person having ordinary skill in the given art over the state of technology before the invention, then it is not considered patentable.

Self-Assessment Question

SAQ 3: How is 'industrial application' determined?

Type your answer here:

[Click here for answer](#)

SAQ 3 Answer:

In order to be applied and determined patentable under “industrial application”, the invention must be able to be used on a certain scale in practice. The example of a perpetual motion machine was given by the speaker and explained that it cannot be patented (as is the case in most EU countries, purely because it will not work).

In many countries an invention is regarded as a new solution to a technological problem. The protection provided under patent law does not necessarily require that the invention be represented in a physical embodiment. Moreover it must not fall into any categories of exceptions or exclusions found within the applicable national law.

There are some general guidelines regarding the types of things that may or may not be patented that were discussed in **Audio Segment 3**. Which were the noted exceptions mentioned in that audio segment? Listen again if you cannot remember.

The exceptions mentioned in the audio were:

Things that exist in nature, which are discovered and not invented. One could not, for example, "patent" the discovery of a new planet.

Machines that defy the laws of nature, such as a perpetual motion machine.

Other common exclusions under national laws, and the TRIPS Agreement, are:

Scientific theories or mathematical methods.

Schemes, rules or methods, such as those for doing business, performing purely mental acts or playing games.

Methods of medical treatment for humans or animals or diagnostics methods (but the products used in the diagnosis could be patented)

Plants and animals other than micro-organisms, and essentially biological processes for the production of plants other than non-biological and microbiological processes.

In order to obtain a patent, an applicant must first file an application for a patent. Depending on the applicable law(s), the Patent Office may examine the application to determine whether the criteria, listed above, have been satisfied, before deciding whether to issue a patent. As mentioned above there may be excluded categories, which could cause the patent application to fail. Examples of such categories can be found in several national legislation.

The application for patent must also comply with some other formalities. As a general rule, a patent will be granted to the first person to file a patent application. This is called the 'first-to-file' system. That is why the filing date of an application for patent is very important.

An Office may also examine the application to determine whether it sufficiently discloses the invention such that someone skilled in the area or field with which the invention is concerned could make or use the invention. Providing an adequate written description to enable someone to practice the invention is generally what the patent applicant must give in exchange for receiving the benefits conferred by a patent.

The Paris Convention for the Protection of Industrial Property (1883), which is the oldest Convention administered by WIPO dealing with industrial property, has provided for '**the right of priority**'. This right means that, on the basis of a regular first application filed in one of the Contracting States, the applicant may, within a period of 12 months, apply for protection in any of the

other Contracting States. These later applications will then be regarded as if they had been filed on the same day as the first application. In other words, these later applications will have priority over applications which may have been filed during the same period of time by other persons for the same invention.

You may be asking what benefits a patent confers, particularly if the invention has to be disclosed. In general the answer is that for the period of protection the patent holder may exclude others from making, using, offering for sale, selling, and importing the invention claimed in the patent. However, the patent owner has the right to assign (sell) or to license the patent. In other words, the patent owner may if he/she so wishes, transfer his/her exclusive rights to another person through the conclusion of licensing contracts.

Listen to the next audio clip for more on this subject.

Audio segment 5: *Can you then summarize the advantages of taking out a patent?*

The advantages of taking out a patent are very specifically and technically the fact that the owner of a patent can exclude all others in the territory covered by the patent from making, using, selling, offering for sale or importing the invention. That does not necessarily give the inventor or the owner of the patent the right to use the invention, if for instance such use would be illegal – as the use of a gambling machine would once have been – but the owner of the patent can prevent others from marketing and profiting from the invention for a period of years.

The term of a patent is typically 20 years from the date on which the application is filed, and what that does is give the developer of the technology the right to have it to himself for a certain number of years in exchange for full disclosure to the public of how to use it. When the patent rights expire, the technology becomes public property, and the public is free to use it for their own good.

You mentioned 20 years. Is that the same for every country in the world?

Yes. It is now provided by international treaty that the term has to be at least 20 years from the filing date of the patent application.

There are certain situations where the exclusive rights of a patent owner can be used without his/her authorization.

In certain cases, in fact, the use of the patented invention may be authorized to a third party either by the competent court or by a Patent Office (depending on the law of the country) through a regime called compulsory licensing. As provided under the Paris Convention and the TRIPS Agreement, the regime of compulsory licensing prevents the abuses which might result from the exclusive rights conferred by a patent. This regime may also be applied in case of non-use of the patented invention within a prescribed period (generally four years from the filing date of application for patent, or three years from the issue of patent).

As provided under the TRIPS Agreement (Article 31), a number of conditions and circumstances must be respected before granting a compulsory license to a third party.

Self-Assessment Question

SAQ 4: Who is authorized to exclude all others from making, using, selling, offering for sale or importing an invention?

Type your answer here:

[Click here for answer](#)

SAQ 4 Answer:

The owner of the patent can exclude others from making, using, selling, offering for sale or importing the patented invention and can also exclude commercialization. This exclusion is only applicable in the countries where the invention is protected by a patent.

In one sense a patent is a deal between the public and the patent holder. With the grant of a patent, which is premised upon satisfying all the conditions for patentability as discussed above, the patent holder receives the right to prevent anyone else from practicing the invention claimed in the patent. In exchange, the government, by requiring compliance with the conditions for patentability and giving patent protection for a fixed term, ensures that the information regarding the invention is publicly disclosed, and the invention itself is available for anyone's use after the expiration of the patent. This period is typically 20 years, measured from the date of filing of the patent application.

In all the countries in which a patent holder chooses to patent the claimed invention, the issue of **enforcement** would become important after the grant has been issued. Enforcement of patents is a large subject, for which this course can merely point out the guiding principles involved.

To begin with, it is the patent holder that must seize the initiative in the face of potential infringement. Detection of potential or actual infringements, and bringing these to the infringer's attention rests exclusively with the patent holder.

In a majority of situations, a polite letter giving notice of the existence of the patent is sent. Carrying the implication that a lawsuit might follow, such letters often prove very successful, leading to either a suppression of infringement or a conclusion of a successful **licensing** arrangement.

There are, however, cases in which no mutually advantageous negotiated solution can be found, even after lengthy attempts. During the course of an infringement action, in the pre-trial phase, negotiations may still take place, often through use of a conciliator or arbitrator. Interestingly, settlements often include the earlier-mentioned license.

As was said before, the issue of enforcement is deep and complex; you may want to pursue this subject further within the context of the domestic law of the country where you are situated.

In order to have protection in lots of different countries, a patent is required in each of them. So you may wonder if it is possible to obtain a worldwide patent. Listen to the audio to find the answer.

Audio segment 6: *Is it possible to get a worldwide patent?*

In the current state of the international patent system, no. There is no one patent that covers every country in the world, or even a large number of the countries of the world. The patent system is still a territorial system; in order to be protected in a particular country, you have to be granted a patent in that country. Now, with the globalization of the world economy, the world is moving towards a more international system: we have the Patent Cooperation Treaty, which provides for the filing of a single international application that can become a multitude of national applications, not actual patents but applications, and they are then examined in each of the countries designated.

There are certain regional systems, like that of the European Patent Organization, under which a single examination, if successful, results in a bundle of national patents. There has been some discussion in Europe about having a single European patent – one that would cover all the countries of the European Union, although there are great difficulties with that, as you can imagine. There is still no such thing as a single world patent, nor are there any plans for one, because there are a great many difficulties with that too, but discussions are going on to find ways of bringing down the cost of obtaining patent protection worldwide. Among other things there is the cost of all the examinations of the same invention that have to be conducted in different countries under present arrangements, the cost of translation and the cost of maintaining a patent, as to keep a patent in force one generally has to pay an annual fee, which can be quite substantial.

And you would pay that annual fee in every country in which you wanted the patent to operate?

That's right. If you have patents in ten countries, you have to pay the maintenance fees in each of those ten countries, because if ever you failed to pay in one of them, your patent would lapse and you would lose your patent protection.

In that country?

That's right.

The short answer therefore is "no". However, there is an international agreement administered by WIPO called the Patent Cooperation Treaty (PCT), for the filing, searching, publication and examination of international applications. The PCT makes it easier to obtain patents in the Contracting States by providing for the filing of one international application, which may be subsequently **prosecuted** in the different designated national or regional Offices of States party to the PCT. (A subsequent module on the **WIPO International Registration Systems** covers the PCT and two other international agreements in more depth). However, even under the PCT, the granting of patents is left to those designated Offices.

You will learn more about this treaty in the WIPO Treaties module of this course.

Finally it is worth mentioning that patent protection is only one way to protect an invention. Listen to the audio to find out another means of protection.

Audio segment 7: *Are there any other ways of protecting an invention if you don't want to take out a patent, for whatever reason?*

The patent is the most effective way of protecting an invention, but, as I said before, patent rights are granted in return for the inventor's full disclosure of the technology to the public. Another effective way of obtaining protection is to keep the technology secret, and to rely on what we refer to as trade secrets, to keep information concerning the invention confidential. The difficulty of that method is that, once the product is put on the market and can be dismantled, the secrets can be learned merely by looking at the product, and the trade secret protection is lost. With a patent, it doesn't matter whether someone else knows how to make your product, indeed they will know simply from reading your patent application. So, no matter how public the information is, if you have a patent you will be protected. Trade secret protection is still available, however, and is very suitable in particular, for what is referred to as the know-how, namely the technical expertise required to use a given technology in the most effective way. And very often, the technology itself will not be protected by patents, because it forms part of the expertise of people who are skilled in the art, and keeping the know-how as a trade secret is a way of protecting your technology.

Self-Assessment Question

SAQ 5: Give an example of 'trade secret protection' and what it protects?

Type your answer here:

[Click here for answer](#)

SAQ 5 Answer:

The speaker discussed how some trade secrets are maintained. For example, Coca-Cola® has done this for over 100 years and as long as it continues to successfully maintain the secrecy of its formula, then the intellectual property protection will endure even longer than would a patent. Trade secrets protect the know-how and technical expertise, for example, to use particular information in the most useful ways.

Summary

This module has introduced the patent area of intellectual property. Patents are one of the oldest forms of intellectual property protection and, as with all forms of protection for intellectual property, the aim of a patent system is to encourage economic development by rewarding intellectual creativity. This module explained that the aim of a patent is to encourage economic and technological development by giving reward to intellectual creativity.

Under patent protection, both new creations and the further development of existing ones are covered. A breakthrough in science like the invention of penicillin is as equally important and protected as a new lever on a machine invented to make the machine run faster. Patents protect inventions and in general, an invention may be defined as a new solution to a technical problem. The solution is the 'idea' and protection under patent law does not require that the invention be represented in a physical embodiment. However, there are things that cannot be patented. These include; things discovered in nature and machines that defy the laws of nature, such as a perpetual motion machine. Other exclusions, which are commonly set out within the applicable law, are scientific theories and mathematical methods; schemes, rules and methods for doing business; and methods of treatment for human or animals or diagnostic methods.

Once a patent application is on file, there are two general approaches: in some countries it is reviewed only as to formalities, while other jurisdictions also examine the application substantively by a technical expert to ensure that it meets the requirements of patentability. Characteristics that an invention must have are:

- it must be new or novel;
- it must involve an inventive step,
- it must be capable of industrial application.

In short, a patent is a deal between the public and the inventor. The state, by giving protection for a fixed term ensures that the inventor gets rewarded. After expiration, which is typically 20 years after the date of filing of the application of the patent, the invention becomes available for anyone's use. The enforcement of one's patent is a large subject, and it is the patent holder that must negotiate or litigate the infringement of their rights. Since there is no such thing as worldwide protection, an inventor must pay filing fees and maintenance fees to each country where he or she wishes to be protected.

Legislative Texts:

- Paris Convention for the Protection of Industrial Property
- Patent Cooperation Treaty (PCT)
- Agreement on Trade Related Aspects of Intellectual Property Rights (TRIPS Agreement)