

## CHAPTER 1

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# THE U.S. PATENT SYSTEM

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### 1.1. WHAT IS A PATENT?

Let us start with the U.S. Patent Office's definition of a patent:

*A patent for an invention is the grant of a property right to the inventor, issued by the United States Patent and Trademark Office. Generally, the term of a new patent is 20 years from the date on which the application for the patent was filed in the United States. . . . U.S. patent grants are effective only within the United States, U.S. territories, and U.S. possessions.*

*The right conferred by the patent grant is . . . the right to exclude others from making, using, offering for sale, or selling the invention in the United States or importing the invention into the United States. What is granted is not the right to make, use, offer for sale, sell or import, but the right to exclude others from making, using, offering for sale, selling or importing the invention.*

A patent is essentially a bargain or agreement, between the inventor and the government. The essence of the agreement is that the inventor discloses his secret (invention) to the public and the federal government authorizes him

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*How to Invent and Protect Your Invention: A Guide to Patents for Scientists and Engineers*,  
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to stop others from exploiting the invention for a limited time. The rationale for this agreement is that scientific progress is promoted by providing a strong incentive to both invent and disclose one's invention. This is accomplished by the government's guarantee to the inventor (or his designated commercialization partners) of the right to limit others from making, using, or selling the invention for the life of the patent. The end result is that the inventor has a better chance to derive a profit from the invention. This is distinguished from an inventor having a guarantee that she will profit from the invention, a guarantee that is not provided by a patent.

This equivalence can be expressed by the equation

$$P = I + D + F$$

where P is patent protection, I is invention, D is public disclosure of the invention, and F represents fees to the government. A patent provides increased opportunity for its owner to receive a financial return from the invention by granting a right to limit others from exploiting the invention.

The patent system exists to encourage individuals to divulge secret ideas that will promote scientific progress. Unlike physical goods (tangible assets), ideas (intangible assets) can theoretically be reproduced an infinite number of times at no cost, which means that even if one person has the idea, all other people could conceivably have it as well. For example, if one person gives a dollar bill to another, the second person is one dollar richer, while the first is one dollar poorer. However, if one person gives an idea to another, the second person is one idea richer, but the first person is not any poorer.

Unlike ideas, physical possessions are limited by the material used and the human or machine effort needed to make the items. When one expends intellectual energy, physical hard work, or financial resources to obtain a physical possession, like a home or a flat screen TV, he alone is the owner of that item. He can exclude others from using his home or TV based on personal property laws. Intellectual property, such as an idea about an invention that can be made or a process for manufacturing, is similar in that one can limit (by law) another's use, but is dissimilar as it is not limited by physical material or equipment and labor to manufacture. If an inventor puts intellectual energy, hard work, and physical resources into developing a new idea, he has no means (aside from patent law) to prevent others from making his product or using his process, after it has been used or disclosed. Thus, the inventor's instinct is to protect his idea by hiding it from others. He will attempt to prevent others from knowing how he made the product or how his process works. In such a situation, secretively protecting one's invention is perfectly logical. However, if the product or process is kept secret, anyone who wants to make the same product or use the same process must develop it on his

own. In some cases, this could be done through careful observation or reverse engineering. But regardless of the means of obtaining this knowledge, others must expend additional effort and energy to gain possession of knowledge that is already in existence.

Patent rights circumvent this wasteful process of inventing, keeping one's invention secret and forcing others to expend energy "inventing" something that has, in fact, already been invented. Patent law is just one form of intellectual property, along with copyright, trademark, and many others.

As stated by U.S. law, the goal of patents is purely utilitarian: having people share the secrets of their inventive ideas in exchange for the right to prevent others from copying or using their invention for a limited time. Put another way, patent law encourages inventors to divulge a secret in exchange for short-term "exclusivity" to use their invention. Of course, there are other results of patent law, such as financially rewarding inventive activity, giving inventors recognition for their accomplishments and giving inventors control over the product of their hard work. These considerations are secondary and are not explicitly recognized by the authorizing U.S. law for patents.

Patents and inventions should not be confused. For example, an inventor owns a patent for a product. When the inventor sells his invention, he is selling the physical product, not the idea behind it. When the inventor sells the patent, he sells the right to make the invention or to use his idea. The invention can be great; but if the patent is poorly written (constructed), it will be of little value. However, if a patent is broadly constructed, even a mediocre invention can become a valuable patent.

A patent is evidenced by a legal document, the issued letters patent, usually written by a patent attorney who by definition has both technical and legal training. The patent attorney is generally skilled in communicating technical matters in an appropriate manner to meet legal requirements and to ensure technical precision. The patent attorney, with the help of the inventor, translates the results of scientific and/or engineering research into legally enforceable property. The words of the patent adequately and precisely define the property rights claimed. At times, patent attorneys are accused of writing in *legalese*. Patent writing can be perceived by an inventor as being peculiar. Inventors and attorneys need to exercise extra care in ensuring effective communication. Communicating across multiple cultures and disciplines, such as law and science or business and science, can be a daunting task. Those who do it well increase their career potential.

Patents contain specifications that teach, along with claims that define that which is novel, useful, and unobvious and thus what one is prohibited from using without authorization. Specifications teach others how to make or use the invention, whereas claims prohibit them from making, using, or selling

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the invention. These words and concepts will be explained in greater detail in later chapters.

Physically, a patent is printed in an impressive document adorned by a gold seal, a red ribbon, and signatures and is given to the owner of the patent for safe keeping (Figure 1.1). Time will tell whether this document is worth millions of dollars and will revolutionize an industry, or a worthless sheet of paper collecting dust on a shelf.



FIGURE 1.1. The facsimile of a U.S. patent. Please see color insert.

## 1.2. WHY SHOULD YOU FILE A PATENT?

A patent gives an inventor control over the use of his invention. The owner of the patent has the *right to exclude others* from profiting from the invention. In other words, the patent is a *negative right*, a right to stop others from making, selling, using, or importing a product or service that is based on the invention. In contrast, a *positive right* gives one the affirmative ability to take an action; for example, patent holders have the positive right to sue those that infringe their patents. It is important to understand that the granting of a patent does not give the patent holder the right to make, use, sell, or import the thing he invented, nor does it guarantee that the inventor is free and clear to do those things. A patent holder may be blocked from making products from his invention because the invention is based in part on another's patent (often referred to as a blocking or dominating patent) that she does not have authorization to make or use. In addition, a product may be limited by laws that prohibit the manufacture or use of such a product (certain weapons or illegal drugs) or by administrative regulations that may limit how an invention can be used, such as a new pharmaceutical that is limited in its uses by the Food and Drug Administration (FDA).

Although the patent confers only an exclusionary right, it can be a formidable weapon against an intruder (infringer) who invades the patent holder's domain. A patent gives the inventor the right to sue infringers, those who use the invention without the patent owner's permission. If the infringer is found to have made, used, or sold a product or service that is based on the patented invention, then she will likely have to pay the actual damages the patent owner has incurred to compensate the patent owner for lost value, and may be enjoined (prohibited) from using the invention. Thus a patent allows one to limit the use of an invention to those who are specifically authorized or licensed.

So why is it important to be able to stop others from making, using, selling, or importing an invention? Having the exclusive ability to engage in these activities means that the inventor can successfully limit those who would otherwise try to make money off of his invention and he can charge them for the right to use his invention. Provided that he is not blocked by other patents or regulations, an inventor can also refuse to share his patent rights with others, meaning that (for a short time) he is the only one that can sell products based on his invention. As discussed in Section 1.1, patents protect inventors who want to share their ideas with others by guaranteeing that inventors maintain ownership of the very ideas they want to share. Because a patent can be freely discussed with the public, patent holders have greater ability to promote their new inventions. Patent-holding inventors can advertise their inventions in trade publications, discuss how their inventions work with potential buyers

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and licensees, and transfer certain rights to use their inventions with a legally binding contract (i.e., the license agreement). Additional reasons to file a patent application may include discouraging competitors, getting royalty payments from those that make or sell your invention, escaping royalty payments by proving you actually own the invention, and for advertising purposes (such as the ability to use the phrase “patent pending”).

An additional purpose for pursuing a patent is to gain an understanding of a competitor’s latest developments by encouraging the competitor to object to your patent application if they have developed the same. If multiple parties attempt to patent the same invention, the Patent and Trademark Office (PTO) might automatically initiate a “derivation proceeding” to see if one inventor stole the idea for the invention from another, which will bring out more details about the competitor’s invention. Similarly, filing a patent infringement suit can force a competitor to disclose information about his technology.