

18.2: Patents

Learning Objectives

By the end of this section, you will be able to:

- Explain why Congress would grant exclusive monopolies (patents) for certain periods of time.
- Describe what kinds of things may be patentable and what kinds of things may not be patentable.
- Explain the procedures for obtaining a patent, and how patent rights may be an issue where the invention is created by an employee.
- Understand who can sue for patent infringement, on what basis, and with what potential remedies.

Source of Authority and Duration

Patent and copyright law are federal, enacted by Congress under the power given by Article I of the Constitution “to promote the Progress of Science and useful Arts, by securing for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries.” Under current law, a patent gives an inventor exclusive rights to make, use, or sell an invention for twenty years. (If the patent is a design patent—protecting the appearance rather than the function of an item—the period is fourteen years.) In return for this limited monopoly, the inventor must fully disclose, in papers filed in the US Patent and Trademark Office (PTO), a complete description of the invention.

Patentability

What May Be Patented

The patent law says that “any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof” may be patented.³⁵ United States Code, Section 101. A process is a “process, art or method, and includes a new use of a known process, machine, manufacture, composition of matter, or material.”³⁵ United States Code, Section 101. A process for making rolled steel, for example, qualifies as a patentable process under the statute. A machine is a particular apparatus for achieving a certain result or carrying out a distinct process—lathes, printing presses, motors, and the cotton gin are all examples of the hundreds of thousands of machines that have received US patents since the first Patent Act in 1790. A manufacture is an article or a product, such as a television, an automobile, a telephone, or a lightbulb. A composition of matter is a new arrangement of elements so that the resulting compound, such as a metal alloy, is not found in nature. In *Commissioner of Patents v. Chakrabarty*, *Commissioner of Patents v. Chakrabarty*, 444 U.S. 1028 (1980), the Supreme Court said that even living organisms—in particular, a new “genetically engineered” bacterium that could “eat” oil spills—could be patented. The *Chakrabarty* decision has spawned innovation: a variety of small biotechnology firms have attracted venture capitalists and other investors.

According to the PTO, gene sequences are patentable subject matter, provided they are isolated from their natural state and processed in a way that separates them from other molecules naturally occurring with them. Gene patenting, always controversial, generated new controversy when the PTO issued a patent to Human Genome Sciences, Inc. for a gene found to serve as a platform from which the AIDS virus can infect cells of the body. Critics faulted the PTO for allowing “ownership” of a naturally occurring human gene and for issuing patents without requiring a showing of the gene’s utility. New guidelines from the PTO followed in 2000; these focused on requiring the applicant to make a strong showing on the utility aspect of patentability and somewhat diminished the rush of biotech patent requests.

There are still other categories of patentable subjects. An improvement is an alteration of a process, machine, manufacture, or composition of matter that satisfies one of the tests for patentability given later in this section. New, original ornamental designs for articles of manufacture are patentable (e.g., the shape of a lamp); works of art are not patentable but are protected under the copyright law. New varieties of cultivated or hybridized plants are also patentable, as are genetically modified strains of soybean, corn, or other crops.

What May Not Be Patented

Many things can be patented, but not (1) the laws of nature, (2) natural phenomena, and (3) abstract ideas, including algorithms (step-by-step formulas for accomplishing a specific task).

One frequently asked question is whether patents can be issued for computer software. The PTO was reluctant to do so at first, based on the notion that computer programs were not “novel”—the software program either incorporated automation of manual processes or used mathematical equations (which were not patentable). But in 1998, the Supreme Court held in *Diamond v. Diehr*, 450 U.S. 175 (1981), that patents could be obtained for a process that incorporated a computer program if the process itself was patentable.

A business process can also be patentable, as the US Court of Appeals for the Federal Circuit ruled in 1998 in *State Street Bank and Trust v. Signature Financial Group, Inc.*, 149 F.3d 1368 (Fed. Cir. 1998). Signature Financial had a patent for a computerized accounting system that determined share prices through a series of mathematical calculations that would help manage mutual funds. State Street sued to challenge that patent. Signature argued that its model and process was protected, and the court of appeals upheld it as a “practical application of a mathematical, algorithm, formula, or calculation,” because it produces a “useful, concrete and tangible result.” Since *State Street*, many other firms have applied for business process patents. For example, Amazon.com obtained a business process patent for its “one-click” ordering system, a method of processing credit-card orders securely. (But see *Amazon.com v. Barnesandnoble.com, Inc.*, 239 F.3d 1343 (Fed. Cir. 2001), in which the court of appeals rejected Amazon’s challenge to Barnesandnoble.com using its Express Land one-click ordering system.)

Tests for Patentability

Just because an invention falls within one of the categories of patentable subjects, it is not necessarily patentable. The Patent Act and judicial interpretations have established certain tests that must first be met. To approve a patent application, the PTO (as part of the Department of Commerce) will require that the invention, discovery, or process be novel, useful, and nonobvious in light of current technology.

Perhaps the most significant test of patentability is that of obviousness. The act says that no invention may be patented “if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.” This provision of the law has produced innumerable court cases, especially over improvement patents, when those who wish to use an invention on which a patent has been issued have refused to pay royalties on the grounds that the invention was obvious to anyone who looked.

Procedures for Obtaining a Patent

In general, the United States (unlike many other countries) grants a patent right to the first person to invent a product or process rather than to the first person to file for a patent on that product or process. As a practical matter, however, someone who invents a product or process but does not file immediately should keep detailed research notes or other evidence that would document the date of invention. An inventor who fails to apply for a patent within a year of that date would forfeit the rights granted to an inventor who had published details of the invention or offered it for sale. But until the year has passed, the PTO may not issue a patent to X if Y has described the invention in a printed publication here or abroad or the invention has been in public use or on sale in this country.

An inventor cannot obtain a patent automatically; obtaining a patent is an expensive and time-consuming process, and the inventor will need the services of a patent attorney, a highly specialized practitioner. The attorney will help develop the required specification, a description of the invention that gives enough detail so that one skilled in the art will be able to make and use the invention. After receiving an application, a PTO examiner will search the records and accept or reject the claim. Usually, the attorney will negotiate with the examiner and will rewrite and refine the application until it is accepted. A rejection may be appealed, first to the PTO’s Board of Appeals and then, if that fails, to the federal district court in the District of Columbia or to the US Court of Appeals for the Federal Circuit, the successor court to the old US Court of Customs and Patent Appeals.

Once a patent application has been filed, the inventor or a company to which she has assigned the invention may put the words “patent pending” on the invention. These words have no legal effect. Anyone is free to make the invention as long as the patent has not yet been issued. But they do put others on notice that a patent has been applied for. Once the patent has been granted, infringers may be sued even if the infringer has made the product and offered it for sale before the patent was granted.

In today’s global market, obtaining a US patent is important but is not usually sufficient protection. The inventor will often need to secure patent protection in other countries as well. Under the Paris Convention for the Protection of Industrial Property (1883), parties in one country can file for patent or trademark protection in any of the other member countries (172 countries as of 2011).

The World Trade Organization's Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS) established standards for protecting intellectual property rights (patents, trademarks, and copyrights) and provides that each member nation must have laws that protect intellectual property rights with effective access to judicial systems for pursuing civil and criminal penalties for violations of such rights.

Patent Ownership

The patent holder is entitled to make and market the invention and to exclude others from doing so. Because the patent is a species of property, it may be transferred. The inventor may assign part or all of his interest in the patent or keep the property interest and license others to manufacture or use the invention in return for payments known as royalties. The license may be exclusive with one licensee, or the inventor may license many to exploit the invention. One important limitation on the inventor's right to the patent interest is the so-called shop right. This is a right created by state courts on equitable grounds giving employers a nonexclusive royalty-free license to use any invention made by an employee on company time and with company materials. The shop right comes into play only when a company has no express or implied understanding with its employees. Most corporate laboratories have contractual agreements with employees about who owns the invention and what royalties will be paid.

Infringement and Invalidity Suits

Suits for patent infringement can arise in three ways: (1) the patent holder may seek damages and an injunction against the infringer in federal court, requesting damages for royalties and lost profits as well; (2) even before being sued, the accused party may take the patent holder to court under the federal Declaratory Judgment Act, seeking a court declaration that the patent is invalid; (3) the patent holder may sue a licensee for royalties claimed to be due, and the licensee may counterclaim that the patent is invalid. Such a suit, if begun in state court, may be removed to federal court.

In a federal patent infringement lawsuit, the court may grant the winning party reimbursement for attorneys' fees and costs. If the infringement is adjudged to be intentional, the court can triple the amount of damages awarded. Prior to 2006, courts were typically granting permanent injunctions to prevent future infringement. Citing *eBay, Inc. v. Merc Exchange, LLC*, *eBay, Inc. v. Merc Exchange, LLC*, 546 U.S. 388 (2006), the Supreme Court ruled that patent holders are not automatically entitled to a permanent injunction against infringement during the life of the patent. Courts have the discretion to determine whether justice requires a permanent injunction, and they may conclude that the public interest and equitable principles may be better satisfied with compensatory damages only.

Proving infringement can be a difficult task. Many companies employ engineers to "design around" a patent product—that is, to seek ways to alter the product to such an extent that the substitute product no longer consists of enough of the elements of the invention safeguarded by the patent. However, infringing products, processes, or machines need not be identical; as the Supreme Court said in *Sanitary Refrigerator Co. v. Winers*, *Sanitary Refrigerator Co. v. Winers*, 280 U.S. 30 (1929), "one device is an infringement of another...if two devices do the same work in substantially the same way, and accomplish substantially the same result...even though they differ in name, form, or shape." This is known as the doctrine of equivalents. In an infringement suit, the court must choose between these two extremes: legitimate "design around" and infringement through some equivalent product.

An infringement suit can often be dangerous because the defendant will almost always assert in its answer that the patent is invalid. The plaintiff patent holder thus runs the risk that his entire patent will be taken away from him if the court agrees. In ruling on validity, the court may consider all the tests, such as prior art and obviousness, discussed in Section 30.1.2 "Patentability" and rule on these independently of the conclusions drawn by the PTO.

Patent Misuse

Although a patent is a monopoly granted to the inventor or his assignee or licensee, the monopoly power is legally limited. An owner who misuses the patent may find that he will lose an infringement suit. One common form of misuse is to tie the patented good to some unpatented one—for example, a patented movie projector that will not be sold unless the buyer agrees to rent films supplied only by the manufacturer of the movie projector, or a copier manufacturer that requires buyers to purchase plain paper from it. As we will see in Chapter 26, various provisions of the federal antitrust laws, including, specifically, Section 3 of the Clayton Act, outlaw certain kinds of tying arrangements. Another form of patent misuse is a provision in the licensing agreement prohibiting the manufacturer from also making competing products. Although the courts have held against several other types of misuse, the general principle is that the owner may not use his patent to restrain trade in unpatented goods.

Key Takeaway

Many different “things” are patentable, include gene sequences, business processes, and any other “useful invention.” The US Patent and Trademark Office acts on initial applications and may grant a patent to an applicant. The patent, which allows a limited-time monopoly, is for twenty years. The categories of patentable things include processes, machines, manufactures, compositions of matter, and improvements. Ideas, mental processes, naturally occurring substances, methods of doing business, printed matter, and scientific principles cannot be patented. Patent holders may sue for infringement and royalties from an infringer user.

Exercises

1. Calera, Inc. discovers a way to capture carbon dioxide emissions at a California power plant and use them to make cement. This is a win for the power company, which needs to reduce its carbon dioxide emissions, and a win for Calera. Calera decides to patent this invention. What kind of patent would this be? A machine? A composition of matter? A manufacture?
2. In your opinion, what is the benefit of allowing companies to isolate genetic material and claim a patent? What kind of patent would this be? A machine? A composition of matter? A manufacture?
3. How could a “garage inventor,” working on her own, protect a patentable invention while yet demonstrating it to a large company that could bring the invention to market?

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