**OHORE VICTOR DAVID**

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**ELECT/ELECT ENGINEERING**

**Engineering law**

**A patent** is a right granted to an inventor by the federal government that permits the inventor to exclude others from making, selling or using the invention for a period of time. The patent system is designed to encourage inventions that are unique and useful to society. Congress was given the power to grant patents in the Constitution, and federal statutes and rules govern patents.

The U.S. Patent and Trademark Office ([USPTO](https://smallbusiness.findlaw.com/intellectual-property/the-u-s-patent-and-trademark-office.html)) grants patents for inventions that meet statutory criteria. The following provides a general overview of what a patent is.

**Patent Categories**

There are three different kinds of patents: utility patents, design patents and plant patents.

1. [*Utility Patents*](https://smallbusiness.findlaw.com/intellectual-property/utility-patents-overview.html)*:* The most common type of patent, these are granted to new machines, chemicals, and processes.
2. [*Design Patents*](https://smallbusiness.findlaw.com/intellectual-property/design-patents-overview.html)*:* Granted to protect the unique appearance or design of manufactured objects, such as the surface ornamentation or overall design of the object.
3. [*Plant Patents*](https://smallbusiness.findlaw.com/intellectual-property/plant-patents-overview.html)*:* Granted for the invention and asexual reproduction of new and distinct plant varieties, including hybrids (asexual reproduction means the plant is reproduced by means other than from seeds, such as by grafting or rooting of cuttings).

**Determining What is Patentable: The Basics**

For an invention to [qualify for a patent](https://smallbusiness.findlaw.com/intellectual-property/what-is-patentable.html), it must be both ["novel" and "non-obvious."](https://smallbusiness.findlaw.com/intellectual-property/idea-must-be-useful-novel-or-non-obvious.html) An invention is novel if it is different from other similar inventions in one or more of its parts. It also must not have been publicly used, sold, or patented by another inventor within a year of the date the patent application was filed. This rule reflects the public policy favoring quick disclosure of technological progress. An invention is non-obvious if someone who is skilled in the field of the invention would consider the invention an unexpected or surprising development.

Naturally occurring substances and laws of nature, even if they are newly discovered, cannot be patented. Abstract principles, fundamental truths, calculation methods, and mathematical formulas also are not patentable. A process that uses such a formula or method can be patented, however. For example, a patent has been granted for an industrial process for molding rubber articles that depends upon a mathematical equation and involves the use of a computer program.

A patent cannot be obtained for a mere idea or suggestion. The inventor must have figured out the concrete means of implementing his or her ideas in order to get a patent. A patent also will not be granted for an invention with no legal purpose or for an unsafe drug.

**Usefulness**

An inventor applying for a utility patent must prove that the invention is [useful](https://smallbusiness.findlaw.com/intellectual-property/patent-eligibility-requirements-faq.html). The invention must have some beneficial use and must be operable. A machine that will not operate to perform its intended purpose would not be called useful, and therefore would not be granted a patent. A useful invention may qualify for a utility patent only if it falls into one of five categories: a process, a machine, a manufacture, a composition of matter, or an improvement of one of these.

A *process* is a method of treating material to produce a specific physical change in the character or quality of the material, generally an industrial or technical process. A *machine* is a device that uses energy to get work done. The term *manufacture*refers to a process in which an article is made by the art or industry of people. A *composition of matter* may include a mixture of ingredients or a new chemical compound. An *improvement* is any addition to or alteration of a known process, machine, manufacture, or composition.

**Examples of Patentable Items**

These categories include practically everything made by humans and the processes for making the products. Examples of [things that are patentable](https://smallbusiness.findlaw.com/intellectual-property/is-your-invention-patentable.html) include:

* Computer software and hardware;
* Chemical formulas and processes;
* Genetically engineered bacteria, plants, and animals;
* Drugs;
* Medical devices;
* Furniture design;
* Jewelry;
* Fabrics and fabric design; and
* Musical instruments.

**Applying for Patent Protection**

Unlike a copyright, a patent does not arise automatically; an inventor must [apply for a patent](https://smallbusiness.findlaw.com/intellectual-property/filing-patent-applications.html). The inventor must apply within one year of publicly disclosing the invention, such as by publishing a description of the invention or offering it for sale. An inventor, or his or her attorney, generally makes a preliminary patent search before applying for a patent to determine if it is feasible to proceed with the application. The application and a fee are submitted to the U.S. Patent and Trademark Office, where it is reviewed by a patent examiner.

If a patent is granted, the inventor must pay another fee, and the government publishes a description of the invention and its use. Only a patent attorney or patent agent may prosecute patents before the PTO. Before a person may be licensed as a patent attorney or patent agent, she must have a degree in certain technical or scientific fields.

Utility and plant patents last for 20 years from the application date; design patents last for fourteen years. If the owner of a utility patent does not pay maintenance fees, the patent will expire earlier. After a patent expires, the invention becomes public property and can be used or sold by anyone. For example, after the patent on Tylenol expired, other pharmaceutical companies began producing a generic version of the drug.

**Patent Infringement**

If an inventor thinks someone has used his or her patented invention without permission, he or she may bring a lawsuit against the infringer. If the court agrees, it may award the patent holder costs, attorney's fees, damages in an amount equal to a reasonable royalty, and an injunction (an order prohibiting another person from infringing the patent). An action for [infringement](https://smallbusiness.findlaw.com/intellectual-property/avoiding-patent-infringement-problems.html) can be time-consuming and costly, so infringement cases often are settled.

**Patent Law is Complicated: Contact an Attorney**

If you have an invention that you would like to have protected, it's a good idea to get acquainted with patent law and intellectual property law in general. With a patent, you can license to other companies or go into business yourself; but failure to properly register your patent can end your dreams. Make sure you contact a [patent law attorney](https://lawyers.findlaw.com/lawyer/practice/patents) if you need legal assistance patenting your novel invention.

**Copyright** is a form of intellectual property protection provided by the [laws of the United States](https://codes.lp.findlaw.com/uscode/17)

. Copyright protection is available for original works of authorship that are fixed in a tangible form, whether published or unpublished. The categories of works that can be protected by copyright laws include paintings, literary works, live performances, photographs, movies, and software.

This article provides a brief overview of what copyright is, the rights of the copyright owner, how to register a copyright, and the importance of including a copyright notice on your work.

For more information and resources related to this topic, you can visit FindLaw's section on [Copyrights](https://smallbusiness.findlaw.com/intellectual-property/copyrights.html).

**What Is a Copyright? An Overview**

The dictionary defines [*copyright*](https://dictionary.findlaw.com/definition/copyright.html) as "a person's exclusive right to reproduce, publish, or sell his or her original work of authorship (as a literary, musical, dramatic, artistic, or architectural work)."

It's important to understand that copyright law [covers](https://smallbusiness.findlaw.com/intellectual-property/what-may-be-covered-by-copyrights.html) the "form of material expression," not the actual concepts, ideas, techniques, or facts in a particular work. This is the reason behind why a work must be fixed in a tangible form in order to receive copyright protection. A couple examples of works being fixed in a tangible form include stories written on paper and original paintings on canvas.

**A Copyright Owner's Rights**

The primary goal of copyright law is to protect the time, effort, and creativity of the work's creator. As such, the Copyright Act gives the [copyright owner](https://smallbusiness.findlaw.com/intellectual-property/who-owns-a-copyright.html) certain exclusive rights, including the right to:

* Reproduce the work
* Prepare "derivative works" (other works based on the original work)
* Distribute copies of the work by sale, lease, or other transfer of ownership
* Perform the work publicly
* Display the work publicly

The copyright owner also has the right to authorize other people to do any of the rights mentioned above. The copyright owner has the option and ability to [transfer his or her exclusive rights](https://smallbusiness.findlaw.com/intellectual-property/transfer-of-copyright.html) -- or any subdivision of those rights -- to others as well. The Copyright Office does not have forms for these transfers, so a transfer of copyright is usually done through a contract. It is not legally required for a transfer to be recorded with the Copyright Office, but having a legal record of the transaction is often a good idea.

If an author or artist creates a work for a company or in the course of his or her employment, the creator is usually not the copyright owner. This situation is known as a "[work made for hire](https://smallbusiness.findlaw.com/intellectual-property/what-is-a-work-made-for-hire.html)," and it gives copyright ownership to the employer or person who commissioned the work. A work made for hire situation can occur when an independent contractor is hired to create a particular work, or if the work is created by an employee while he or she is on the job. For example, if an employee writes articles for a company, the company is the copyright owner not the actual writer.

**Registering Your Copyright**

Registration with the [U.S. Copyright Office](http://www.copyright.gov/) is not necessary to secure copyright protection in a work; however, it does have its [advantages](https://smallbusiness.findlaw.com/intellectual-property/top-10-reasons-you-should-register-your-copyright.html). For example, registering your copyright provides a public record of the copyright claim. Copyright registration is also necessary (for works of U.S. origin) before a copyright owner can file an infringement lawsuit in court. Finally, if you register your copyright within three months of publishing the work or before an infringement occurs, you have the ability to recover attorney's fees and statutory damages in the event of a lawsuit.

The [application](http://copyright.gov/fls/sl35.pdf) to register a copyright contains three basic elements: the application form, a non-refundable filing fee, and a non-returnable "deposit" of a copy of your work. The best way to register your copyright is to do it online through the [electronic Copyright Office (eCO)](http://copyright.gov/eco/). Online filing has several advantages including a quicker processing time, lower filing fees, and the ability to track your status online.

**Copyright Notice**

Although previously a requirement under United States law, a copyright notice is no longer required in accordance with the [Berne Convention](http://www.wipo.int/treaties/en/text.jsp?file_id=283698) (for any work created after March 1989). Please keep in mind, however, that a [notice of copyright](https://smallbusiness.findlaw.com/intellectual-property/notice-of-copyright.html) can still benefit the copyright owner.

First of all, it gives notice to the public that the work is under copyright protection. It also notifies the public who the copyright belongs to and the year in which the work was first published. It's also easy to add the copyright notice because it doesn't require the copyright holder to seek any kind of permission to include the notice or to register with the Copyright Office. The final reason a copyright notice is a good idea is because it prevents a defendant from claiming an innocent infringement defense (a claim that it was an "accidental" infringement) in a copyright infringement case.

**The Limits of Copyright Protection**

Copyright law only [covers](https://smallbusiness.findlaw.com/intellectual-property/what-may-be-covered-by-copyrights.html) the particular form or manner in which information or ideas have been manifested, known as the "form of material expression." The law does not cover the actual ideas, concepts, facts, or techniques contained in the copyright work. For example, the *Superman* comic books are copyrighted, which means that they cannot be reproduced and distributed for sale without authorization from the copyright owner. The copyright also prohibits anyone else from creating similar works involving the Superman character present in the comic books. However, the copyright does not prohibit anyone from creating a work about a super-human character in general.

Keep in mind that things not covered by copyright law may be covered under other forms of intellectual property. For instance: ideas, procedures, methods, systems, and processes are not covered by copyrights, but they can be protected under [patent law](https://smallbusiness.findlaw.com/intellectual-property/patents.html). Similarly, titles, names, slogans, and symbols cannot be copyrighted, but can be [trademarked](https://smallbusiness.findlaw.com/intellectual-property/trademarks.html).

**A trademark** is a recognizable insignia, phrase, word, or symbol that denotes a specific product and legally differentiates it from all other products of its kind. A trademark exclusively identifies a product as belonging to a specific company and recognizes the company's ownership of the brand.

Similar to a trademark, a [service mark](https://www.investopedia.com/terms/s/service-mark.asp) identifies and distinguishes the source of a service rather than a product, and the term “trademark” is often used to refer to both trademarks and service marks. Trademarks are generally considered a form of intellectual property.

A trademark can be a corporate logo, a slogan, a brand, or [simply the name of a product](https://www.investopedia.com/articles/personal-finance/120415/trade-name-vs-trademark-know-difference.asp). For example, few would think of bottling a beverage and naming it Coca Cola or of using the famous wave from its logo. It is clear by now that the name "Coca Cola," and its logo belong to [The Coca-Cola Company (KO)](https://www.investopedia.com/markets/quote?tvwidgetsymbol=ko).

Trademarking, however, does contain some fuzzy boundaries because it prohibits any marks that have a “likelihood of confusion” with an existing one. A business cannot thus use a symbol or brand name if it looks similar, sounds similar, or has a similar meaning to one that’s already on the books—especially if the products or services are related.

**Trademarks, Patents, and Copyrights**

A trademark protects words and design elements that identify the source, owner, or developer of a product or service. Different than a trademark, a [patent](https://www.investopedia.com/terms/p/patent.asp) safeguards an original invention for a certain period of time, and there can be many different types of patents. Unlike patents, copyrights protect “works of authorship,” such as writing, art, architecture, and music.

**Why Use a Trademark?**

Individuals and companies have products or services trademarked to protect the product from being used without the permission of the source company. Most countries have patent laws that are designed to protect against [copyright infringement](https://www.investopedia.com/terms/c/copyright-infringement.asp). In the United States, the [United States Patent and Trademark Office (USPTO)](https://www.uspto.gov/) serves this function.

Although most countries have agencies through which businesses can have their products trademarked, international copyright regulation is more complicated than in the U.S., as there exists no universally recognized patent office, rules, or consistency.

**Trademark further explained**

A company or individual does not need to register a trademark to receive protection rights, but there are certain legal benefits to registering the mark with the USPTO. Trademark and [copyright](https://www.investopedia.com/terms/c/copyright.asp) law rarely overlap, but it can happen—for instance, when a graphic illustration is used as a logo, the design may be protected both under copyright and trademark law.

Trademarks can be bought and sold. Famously, [Nike, Inc. (NKE)](https://www.investopedia.com/markets/quote?tvwidgetsymbol=nke) purchased the instantly recognizable Swoosh logo in 1971 from a graphic arts student for a one-time price of $35. Trademarks also can be [licensed](https://www.investopedia.com/terms/l/licensing-agreement.asp) to other companies for an agreed-upon time or under certain conditions, which can result in crossover brands.

**A trade secret** is any practice or process of a company that is generally not known outside of the company. Information considered a trade secret gives the company an economic advantage over its competitors and is often a product of internal [research and development](https://www.investopedia.com/terms/r/randd.asp).

To be legally considered a trade secret in the United States, a company must make a reasonable effort in concealing the information from the public, the secret must intrinsically have economic value, and the trade secret must contain information. Trade secrets are a part of a company's [intellectual property](https://www.investopedia.com/terms/i/intellectualproperty.asp). Unlike a patent, a trade secret is not publicly known.

Trade secrets may take a variety of forms, such as a proprietary process, instrument, pattern, design, formula, recipe, method, or practice that is not evident to others and may be used as a means to create an enterprise that offers an advantage over competitors or provides value to customers.

Trade secrets are defined differently based on jurisdiction, but all have the following characteristics in common:

* They are not public information.
* Their secrecy provides an economic benefit to their holder.
* Their secrecy is actively protected.

As confidential information (as trade secrets are known in some jurisdictions), trade secrets are the "classified documents" of the business world, just as top-secret documents are closely guarded by government agencies. Because of the cost of developing certain products and processes is much more expensive than competitive intelligence, companies have an incentive to figure out what makes their competitors successful. To protect its trade secrets, a company may require employees privy to the information to sign [non-compete](https://www.investopedia.com/terms/n/noncompete-agreement.asp) or [non-disclosure agreements (NDA)](https://www.investopedia.com/terms/n/nda.asp) upon hire.

If a trade secret holder fails to safeguard the secret or if the secret is independently discovered, released, or becomes general knowledge, protection of the secret is removed.

## **Examples of Trade Secrets**

There are many examples of trade secrets that are tangible and intangible. For example, Google Inc.'s search algorithm exists as intellectual property in code and is regularly updated to improve and protect its operations.

The secret formula for Coca-Cola, which is locked in a vault, is an example of a trade secret that is a formula or recipe. Since it has not been patented, it has never been revealed. The New York Times Bestseller list is an example of a process trade secret. While the list does factor in book sales by compiling chain and independent store sales, as well as wholesaler data, the list is not merely sales numbers (books with lower overall sales may make the list while a book with higher sales may not).