

Anatomy of a Patent

A quick guide to understanding patents

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To qualify for a patent, an invention must be new, useful and not obvious. The patent office decides which inventions to approve and which to reject. The US currently receives more than 600,000 patent applications each year, approximately half of which are granted.

Article 1, section 8 of the United States Constitution states that "Congress shall have power 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."

Florence, Italy was the site of the first known patent, filed in 1421. Samuel Winslow received the first patent in North America in 1641, when Massachusetts granted him rights to a new method of processing salt.

On June 8, 1995, the patent office initiated the "provisional patent." It entails a simple, quick and inexpensive application (the fee ranges from \$70 to \$280). A provisional patent is good for one year, and is intended to protect inventors who want to make their inventions public (e.g. researchers who want to publish their work) but are not yet ready to file a complete patent.

Since March 19, 2013, independent inventors can qualify as "Micro Entities" and file patents at a discount. To qualify, applicants cannot be named on more than four previously filed applications, cannot have a gross income more than three times the median household income, and cannot be under an obligation to assign, grant, or convey a license or ownership to a non-qualifying entity.

Utility Patents are more coveted by inventors. Design Patents protect the appearance of a product, not its structure or utilitarian features, and protection is not as strong.

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A US patent will only provide patent protection in the US.

An improvement on someone else's patent can be patented, but unless the original patent has expired the new design may still infringe on the original patent.

Types of patents:

- Utility Patents
Manufactured Articles
Processes
(mainly industrial or technical processes)
Machines
Composition of Matter
(chemical compositions)
- Design Patents
- Plant Patents

Title: The title should be descriptive, but it does not legally define or limit the scope of the patent.

Numbers in brackets comply with an international indexing system.

Inventor: In the US, the inventor must be one or more people. It cannot be a company or organization.

Assignee: This is the owner of the patent often the company or organization that paid for the development.

Int. Cl. and U.S. Cl.: International and U.S. Classifications. These identify the categories under which this invention falls. The first two numbers, in bold type and separated by a slash, indicate the classification of the patent and the subclass. Subsequent numbers indicate cross references.

Field of Search: Lists the classifications of patents where the examiners from the US Patent Office searched.

References Cited: Lists the relevant patents that the examiners from the US Patent Office found.

Patent drawings are best left to patent illustrators. The patent office regulates things such as numbering of the design elements, line weights and cross-hatching. Shading, for instance, must portray light coming in at 45° from the upper left hand corner.

Thomas Edison received more than 1,000 patents.

All patents follow a basic outline:

- Title
- References Cited
- Abstract
- Drawings
- Background of the Invention
- Field of the Invention
- Prior Art
- Summary of the Invention
- Brief Description of the Drawings
- Detailed Description of Invention
- Claims

Patent Number: Patents are numbered consecutively. This patent number must appear on the patented device. You can also use this number to download a copy from the patent office.

Date of Patent: This is the date the patent was granted, not filed.

"Patent" comes from the Latin word "patere" – "to be opened."

In the 1960s, an inventor tried to patent the use of popped corn as packaging material, an ecological version of Styrofoam peanuts. Examiners at the US Patent Office denied the patent citing the existence of "prior art." Back in 1912 businessman F. W. Rueckheim had the idea of including a toy surprise inside boxes of Cracker Jack, essentially "protecting" it with popcorn in the same way.

US patents must be filed within one year of public disclosure. Most foreign patents do not allow a grace period—foreign patents must be filed prior to any public disclosure, or (in most cases) within one year of filing in the US.

In 1895 George B. Selden received a patent covering, in general, gasoline-powered automobiles. Although European manufacturers complied, Henry Ford refused to pay royalties and won a patent fight in 1911.

Background of the Invention (on the first inside page of text, not shown here): A short description that provides a wide-angle view of the field in which the patent was developed. It also refers to prior art, discussing any similar devices, pointing out how this current invention differs, and why this current invention is useful and patentable.

The Primary Examiner and Assistant Examiner are from the US Patent Office. The attorney, agent or firm is hired by the inventor or assignee.

Abstract: This is a simple, non-technical description of the patent. Like the title, it does not legally define or limit the scope of the patent.

On July 31, 1790, three months after George Washington signed the first US patent law, Samuel Hopkins of Vermont received the first US patent. It was not patent number 1—the numbering system came later.

Some other countries employ a "Design Registration" system instead of a Design Patent, a quicker and more convenient system for that type of patent.

Some companies avoid filing for patents too early, or even at all, since a patent can make millions of dollars of research and proprietary information available to anyone. Don't, for example, bother to look for a patent on the formula for Coca-Cola—it's a secret.

Patents are valid from the date of issue. Terms were revised over time:
1790: Patents cannot exceed 14 years.
1836: A 7-year extension allowed for a total of 21 years.
1861: The extension was eliminated, the term was set at 17 years.
1978: Patent term revised to 20 years from the earliest filing date, or 17 years from the issue date, whichever is longer.
1995: Patents term revised to 20 years from the earliest filing date.
1999: The patent office must respond to an application within 3 years.

No column or line numbers? That indicates the patent application was published but not granted. In that case numbers in brackets will appear at the beginning of each paragraph.

Columns are numbered consecutively, two to a page. The lines of text are also numbered.

The patent number appears at the top of every page.

Design Patents filed after May 14, 2015 are valid for 15 years from the grant date. Prior to that the term was 14 years.

"Submarine patents" are banned – a scheme of filing a patent on an anticipated technology then waiting, sometimes decades, for that technology to come to fruition.

Thomas Jefferson administered the first patent laws in the US. He granted Eli Whitney's patent for the cotton gin.

Distinctions between patents, trademarks and copyrights:

- Patents provide a right of ownership of useful inventions.
- Trademarks identify a product or service. Usually a name or symbol, trademarks may also be obtained for distinctive shapes, packaging and colors.
- Copyrights, as the name suggests, bestow the right to copy and the right to control copying. Copyrights cover intellectual or artistic property such as books, movies, plays, music, software, paintings, sculpture and other work fixed on a medium.

Patents are "granted." Trademarks and copyrights are "registered."

Claims: Cut to the chase – claims are what legally define the patent. Beginning with "What I claim is:" they are found at the end of the patent and are numbered. The number of claims is unimportant – it's the content that counts.

Claims fall into two categories:

- Independent Claims are the most significant. They stand alone and do not refer to previous claims in the list.
- Dependent Claims build on the descriptions of Independent Claims, using words like "A modification of claim 2 in which....," and include limitations of the claim.

IBM received the most patents in 2018 with 9,100. It's the 26th year in a row that IBM has topped the list.

Patents are available from the Patent and Trademark Office in Washington, DC, at uspto.gov, or from Google Patents at patents.google.com.

George Beauchamp, working with Adolph Rickenbacker, spent five years patenting the "Frying Pan," the first electric guitar. The examiner from the patent office didn't believe it would work—until musician Sol Hoopii went to the patent office and performed 15 minutes of Hawaiian music. The patent was granted in 1937.

