Patents

by
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The U.S. Patent and Trademark Office (USPTO) rewards designers with two types of patents: utility patents and design patents—provided that your invention meets all of the relevant criteria, and you go through the long and expensive application process. A utility patent may be awarded to anyone who creates a novel, nonobvious, useful device or process. Charles Eames’s wall mounted vertically adjustable desk\(^1\), Buckminster Fuller’s Geodesic dome\(^2\), and the magnetic strip\(^3\) on the side of the iPad were all awarded utility patents.

A design patent may be awarded to anyone who creates a novel, nonobvious, ornamental design for a useful object. This type of patent protects the visual appearance or presentation of a useful object. Philippe Starck’s “Uncle Jo” chair\(^4\), Raymond Loewy’s parking meter\(^5\), and the camera icon\(^6\) on the iPhone all received design patents.\(^7\)

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1. US 3043640.
2. See figure 1. US 2682235 A.
5. US D107527 S.
7. The USPTO refers to patented designs as “inventions” and the designers as “inventors.”
1. Utility Patents v. Design Patents

How do utility and design patents stack up against each other?

Utility patents are more popular. The ratio of granted utility to design patents is approximately 10:1.⁸ If you’re wondering why, keep reading.

Utility patents are “stronger” than design patents.⁹ Imagine someone invented an anti-aging facial mirror (it digitally removes typical physical signs of aging). With a utility patent the patent owner can stop any seller using the patented technology, no matter the shape, size, or appearance of the mirror. With a design patent the owner can only stop mirrors similar to the patented design. In this way, a design patent is considered “weaker” because the design patent lacks utility and is often easy to “design around” without infringing.

Design patents can provide an advantage when many products have the same functionality. Charles Strite’s utility patent for the automatic pop-up toaster ¹⁰ expired 70 years ago making the technology available for all. The result is that over 100 distinctive two-slice toaster designs have been patented by manufacturers like Sunbeam¹¹, Hamilton Beach¹², and Philips.¹³ When competitors sell the same technology, design is one way to distinguish products.

Design patents are easier and less expensive to obtain. Because they’re based on drawings, design patents are easier to prepare and prosecute (the process of shepherding an application through the USPTO). The median cost of registering a utility patent is approximately $20,000.¹⁴ Registering a design patent is usually under $5,000.

Utility patents are enforceable for a longer duration. A utility patent is awarded for twenty years from the filing date. Because patent prosecution can take two years or more, utility patents are actually enforceable for only 17 to 18 years. Design patents are granted for 15 years from the date when issued. (If filed before May 13, 2015, the design patent lasts 14 years from issuance.) Patents are not renewable.

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¹⁰ The Automatic (Pop-up) Toaster Becomes a Standard in American Households.
¹¹ US D520801 S.
¹² US D655129 S.
¹³ US D472421 S.
names, logos, and product appearances (known as trade dress). As long as a trademark continuously serves to identify a source, it is protected by trademark laws. (Trademark laws are intended to prevent consumer confusion and unfair competition.) Some trademarks like the words, “Coca-Cola,” and the Sherwin Williams logo, have been protected for over a century. Because consumers associated the hobble skirt bottle solely with Coca-Cola, the company registered the bottle shape as a trademark, which will give the company a monopoly on the bottle’s shape indefinitely.  

Just as some design patents “extend” legal protections under trademark law, the owners of some utility patents can maintain a sales advantage over competitors by using trademarks as well. For example, the utility patent for Velcro has expired and competitors freely manufacture similar hook-and-fastener products. But only the Velcro corporation can use the trademark, “Velcro.” The same strategy is used for Ziploc resealable bags, Frisbee flying disc, and The Club antitheft device.

2. Hurdles, Expenses, and Limitations
In 2014, Elon Musk ordered the removal of the wall of patents hanging in Tesla Motors’ Palo Alto lobby and announced that patents “serve merely to stifle progress, entrench the positions of giant corporations and enrich those in the legal profession, rather than the actual inventors.” Musk went on to add that

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he “avoided [patents] whenever possible.” Nevertheless, within four years later Tesla Motors had amassed a portfolio with over 250 utility and design patents (and had another 200-plus patent applications in the pipeline).

If patents provide a business advantage over competitors, why are patents considered a necessity for bigger companies but “worthless”\(^\text{17}\) for small ones? Like all government grants, patents come with a few strings attached.

**You don’t have any patent rights until you get a patent.** Until you convince the U.S. Patent and Trademark Office to grant your patent (the “patent pending” period), you cannot stop infringers.

**Patent rights are worthless if you can’t afford to go after infringers.** A patent owner gets a temporary monopoly over what’s described in the patent and can stop infringers who make, use, sell or import the innovation without permission. Unfortunately, there are no patent police to step in and go after violators; it’s up to the owner to enforce patent rights. That’s why patents are considered to be offensive rights (a sword, not a shield). A patent owner should budget several million dollars, and expect litigation to take up to five years (assuming there’s no appeal).

**There are risks when chasing an infringer.** Large companies accumulate patents as insurance against being sued for infringement. These portfolios give them a basis to counter-sue, jacking up the legal costs, forcing the patent owner on the defensive, and often driving the whole effort towards a standstill. Alternatively, an infringer may be able to challenge the patent owner and invalidate the patent by proving it was obvious or that it wasn’t novel.

**And then there are more fees.** A patent owner must pay thousands in maintenance fees over the lifetime of the patent.

**Unique designs often lead to Utility Patents.** Charles and Ray Eames could not have created many of their award-winning furniture designs without first inventing over two dozen patented methods and processes for constructing those designs (for example, a method of preparing indoor/outdoor furniture\(^\text{18}\), and a lamination process\(^\text{19}\)). In this way, to paraphrase an idiom, design is the mother of invention.

\(^{17}\) For Most Small Companies Patents Are Just About Worthless.
\(^{18}\) US 3041109 A.
\(^{19}\) US 2395468 A.
3. Software, Business Methods and UX/UI

*Software* refers to written programs or procedures pertaining to a computer system and stored in read/write memory.\(^{20}\) A business method is a collection of related activities or tasks that produce a specific service or product.\(^{21}\) *UX* (user experience) is a design that maximizes the effectiveness and enjoyment of a product or service. UI (user interface) overlaps with UX by designing an engaging look and feel for the product or service.\(^{22}\) Software, business methods and UX/UI are often visualized as a flowchart or matrix of sequential activities.

Software and business methods are registrable as utility patents – that is, to the extent that they meet the narrowing requirements. These overlapping disciplines have had a chaotic history at the USPTO and now have an uncertain future due to a 2014 Supreme Court decision\(^ {23}\) in which the Court held that merely computerizing a conventional process is not patentable and that software that claimed an abstract idea would not be protected. (Unfortunately, the Court did not define what they meant by the term “abstract”.) This decision casts a cloud on many existing software patents and makes the future of business method patents unclear.

The patent world is much clearer (and friendlier) to UX/UI designs which are typically registered as design patents. The importance of protecting the appearance of icons, interfaces, and interface animations has altered the

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\(^{20}\) [Software program](https://en.wikipedia.org/wiki/Software).


dynamics of design patent registrations, and in recent years, a new group of companies—Samsung, IBM, Apple, Sony, Microsoft, and LG Electronics—have dominated design patent filings. Many of those filings are for UX/UI designs, considered the fastest growing area of design patents.

4. Qualifying for a Patent

Utility Patent Requirements
Whether it’s Tesla Motors seeking a patent for a control system for an all-wheel drive electric vehicle, or Buckminster Fuller applying for a utility patent for the revolutionary Dymaxion Car, an applicant for a utility patent must meet four requirements:

**Statutory Class.** The invention must fit into one of five classes: processes (also known as methods), machines, articles of manufacture, compositions, or “new uses” of one of the other four. These classes include everything “made by humans”. However, they do not include abstract ideas, laws of nature and natural phenomena.

**Useful.** Patent applications are rarely rejected for lack of utility. Any usefulness will suffice, provided the usefulness is functional and not aesthetic. By law, some inventions are not useful such as nuclear weapons, unsafe drugs and inventions that can only be used for an illegal purpose.

24 [Swipe To Patent: Design Patents In The Age Of User Interfaces].
26 US 2101057 A.
Novelty. The invention must be new. That is, the invention must have an aspect that is different in some way from all previous knowledge and inventions (referred to as the “prior art,” and discussed below).

Nonobvious. So many commonplace inventions, such as bifocals and paper clips, seem obvious to us now but were actually quite revolutionary in their time. This standard requires that the novel features of the invention must not be obvious from the standpoint of a person having ordinary skill in the art (PHOSITA). Or as it is sometimes put, to be nonobvious, the invention must provide one or more new and unexpected results.

Design Patent Requirements

To be patentable, a design must be “primarily ornamental.” This means that the claimed design cannot be dictated by the article’s function. If a variety of designs could achieve the same function, the design is ornamental.

To be ornamental, the design should also be visible during normal intended use or at some other commercially important time—for example, at the time of sale or in an advertisement. Designs for articles that would be hidden intermittently—for example lingerie, garment hangers, tent pegs, and inner soles for shoes—are still eligible for design patents.

A design must meet three requirements to qualify for a design patent. It must be:

An Ornamental Design for a Useful Article of Manufacture. An ornamental design is the way that a product looks. A design patent can be granted only if the design is embodied on an article of manufacture—a term that is broad and includes everything from perfume bottles to computer displays. (It is not meant to include paintings, silk screens, photographs, or separable two-dimensional surface ornamentation, such as decals.) There are three common types of protectable product designs: (1) shape and proportions—for example, Massimo Vignelli’s armchair, (2) surface ornamentation—for example, Hitachi’s user interface for computer display, or (3) a combination of shape and surface ornamentation—for example, a Nike jacket. Finally, a design can be patented even if it’s only a portion of the article—for example, the “sole” of a golf club.

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28 According to the USPTO, ornamental design “is the appearance presented by the article which creates an impression through the eye upon the mind of the observer.” Manual of Patent Examination Procedure (MPEP) § 1542.
29 USD 628824 S.
30 USD 614192 S1.
31 USD 713620 S.
32 USD 442245 S1.
**New and Original.** To be new (also referred to as “novelty”), a design must differ from all previous product designs (“prior art,” discussed, below). A design must also be original, which means that it has to do more than simply imitate what already exists. A design that simulates a well-known object—for example, a paperweight replica of Mount Rushmore—is not considered to be original. The design must be the result of “industry, effort, genius, or expense.”

**Nonobvious.** The PTO will reject a design patent application if the design would be considered obvious by others in the field. As is true of the novelty standard, it is possible for a concept to be obvious while the actual design (based on the concept) is not. For example, the concept of caricaturing Donald Trump on a watch face may be obvious, but a particular caricature design may not. If you find the nonobvious standard for designs confusing, you’re not alone. There aren’t too many clear standards for determining when a design is obvious and when it’s not, which means that individual patent examiners and judges have a lot of leeway when making decisions.

It’s possible for a design to be novel but obvious. For example, a court determined that a design for an alcohol server that was shaped like an intravenous dispenser was new—no such design had been used for serving alcohol—but it was obvious and therefore not patentable.

**Prior Art**

After a patent application is filed, a patent examiner looks for evidence that the invention was publicly known before the filing date. This evidence could be anything from an ad in a motorcycle magazine, to a movie still from the 2006 film, *Borat* to a 19th Century patent. If the examiner finds evidence (the “prior art”) the application will be rejected unless the applicant can distinguish the invention from the prior art. There’s an exception: If a public disclosure was

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35 *Prior Borat? Non-traditional Prior Art Rejections!*.
made by the inventor, and it was made within a year before the filing date, it will not be considered prior art as to that application (but it will be considered as prior art to anyone else with a similar invention).

The types of information that patent examiners consider as prior art include anything in public use, or publicly known, or on sale in the world before the filing date of the patent application; prior patents that issued before the filing date of the patent; prior publications dated before the filing date of the patent application; anything that was made or built by another person before the filing date; or U.S. patents that have a filing date prior to the applicant’s filing date.

An applicant is expected to unearth relevant prior art before filing and to include it with the application, distinguishing each item. Google has made prior art searching easier, not just because of its search engine, but because of two additional databases, Google Scholar (with a wide array of academic articles) and Google Patents (a patent database that many believe surpasses the USPTO database in ease of use and searching capability). Lawyers and large corporations employ patent searchers who throw a wide net and often visit the USPTO office to research patent records.

5. Registering a Patent

When a company launches an innovative product such as the Kindle eBook reader, or the Nest thermostat, it’s not unusual to seek multiple utility and design patents covering the functional innovations and the device’s appearance. But should everyone with a new product apply for a patent? That depends.

**Does the product’s commercial potential justify registration?** Commercial feasibility studies may convince an applicant that a patent is not necessary. For example, a marketability study may indicate similar products hit their sales peak within two years of launch, then fall off. Because it may take three years to receive a utility patent, registration is probably a waste of money.

**Will a patent provide sufficient value?** Will your patent be broad enough to cover minor variations or will it be so narrow that others can easily design around it? Is this technology a major breakthrough that will serve as a tent pole for your startup, like Google founder Larry Page’s 1998 utility patent for a “Method for node ranking in a linked database”? In some industries, companies often use patents as bargaining chips and enter into cross-licenses. The same strategy is often used as a means of resolving patent litigation.

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**Does it qualify for a patent?** Paying for a patent attorney and patent searcher to review patentability will save money and time. If the innovation doesn’t qualify there may be some other form of protection available such as trade secrecy or trade dress.37

**Applying for a U.S. Patent**
The U.S. has adopted the first-to-file (FTF) system in which the patent is awarded to the applicant with the earliest filing date. The filing date is the day when all of the necessary application materials are received by the USPTO.

**Utility Patents**
The utility patent application follows archaic and technical conventions and contains words and drawings to clearly demonstrate how to make and use the invention, explains why the invention is different from all previous and similar developments (the prior art), and precisely describes what aspects of the invention deserve the patent (the patent claims).

Most of this is contained in two documents: the Specification (primarily a detailed description of the invention and how it works, and what is claimed to be patentable); and the Drawings (formally drawn visual representations showing how the technology works).

After the application is received, a PTO examiner examines and initially rejects (or sometimes “allows,” that is, “accepts”) the claims of the application. The applicant responds to the rejection with an amendment, and the PTO examiner reviews the amendment and either issues a Notice of Allowance or makes a final rejection of the application. The most serious and difficult issue to fix is whether the invention qualifies for a patent in light of previous developments—that is, whether the invention is novel and nonobvious in light of the prior art.

Processing a utility patent takes two-to-three years and the applicant who survives—45% of utility patent applications flunk out—will get a patent.

To keep a utility patent in effect, three additional fees must be paid over the life of the patent.

**Design Patent**
Applying for a design patent is much simpler than a utility patent. The drawings are the key element because the claims in a design patent are presented visually, not by words. Because many companies may modify their patented designs, multiple design patent applications are often filed to separately claim the various ways that the design may be embodied. Amending a design patent

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37 See AIGA’s *Trademark and Trade Dress*. 

Guide to patents
patent application rarely requires more than elementary changes. Usually, the examiner tells the applicant exactly what to do. Design patent processing takes 12-18 months and can be fast-tracked for a fee.

Do You Need an Attorney?
Drafting a utility patent application is not for the faint-hearted (just read one if you need proof). Although many inventors have DIY-ed it—for example GoPro founder Nick Woodman filed his company’s utility patents after reading a book on the subject—there are two reasons to use an attorney.

First, a lawyer is more likely to help you get broader patent rights and knows better how to navigate the USPTO bureaucracy. Second, if you are a startup or a business with investors, you have a duty to protect the business assets and that would best be done with legal counsel.

That said, filing a design patent by yourself is not out of the question. With the exception of the drawings, for which you should hire a patent draftsperson, the application is fairly simple and the application process is explained at the USPTO site. (Again, look at examples at the Google patent site – all design patent numbers have a letter “D” in front.)

Should You File for Foreign Patents?
The rights of a U.S. patent owner stop at the border. To stop someone from making, selling, or using the invention in another country, American inventors must acquire patent rights in that country and rely on rules of reciprocity in international treaties. “Reciprocity” means that an American inventor will be treated the same as inventors living in a foreign country.

The United States belongs to several international patent treaties, the most important of which are the Paris Convention and the Patent Cooperation Treaty.

38 Ask a Billionaire: GoPro’s Nick Woodman on the Book ‘Patent It Yourself’
The most common route for Americans filing foreign is to first, file in the U.S and then, within one year, file a PCT application to cover PCT countries and jurisdictions (including the European Patent Office).

Patent practice in other countries is relatively complicated and extremely expensive. It is usually only worthwhile for U.S. inventors to file applications in a foreign country if a significant market for the invention is very likely to exist, or the inventor has a foreign licensee (someone who’s paying the inventor for the invention and know-how).

6. Ownership
Patent law makes the inventor the initial owner of the patent rights. Ownership, however is usually fleeting because most employed inventors work for corporations who acquire patent rights in one of three ways.

Employment Agreements
An employment agreement includes provisions that require the employee to give up all rights in advance of creating an invention. Because these employment agreements are signed before the employee creates the invention, they are sometimes referred to as pre-invention assignments. Most pre-invention assignments require that the employee-inventor assign all inventions to the employers that are: made during the term of employment; related to the employer’s existing or contemplated business; made by using the employer’s time (that is, the time for which the employee is paid), facilities, or materials; or made as a result of activity within the scope of the employee’s duties. Under many employment agreements, even if an employee makes an invention at home, on the employee’s own time, the employer may still be entitled to ownership. Equally important, the employed inventor is usually bound to disclose all inventions to the employer (so the employer can determine if they’re assignable).

To protect employees, eight states—California, Delaware, Illinois, Kansas, Minnesota, North Carolina, Utah, and Washington—impose restrictions on the permissible scope of assignments of employee-created inventions.

Employed to Invent
If an inventor is employed—even without a written employment agreement—to accomplish a defined task, or is hired or directed to create an invention, the employer will own all rights to the subsequent invention. This doctrine is derived from a Supreme Court ruling that stated, “One employed to make an invention, who succeeds, during his term of service, in accomplishing that task, is bound to assign to his employer any patent obtained.”

determining inventorship can be a mysterious process. How else can it be explained why the collaborative team of Charles and Ray Eames listed only Charles as inventor on Eames’ fifty-plus utility and design patents, or why Jonathan Ive, Apple’s Chief Design Officer, is named as an inventor in over 5,000 patents.40

Whose Name is on the Patent?
Patent law requires that every patent application list the inventors—anyone who contributes significant, material, and creative input into what is claimed to be patentable—regardless of who owns the patent rights. A failure to list all the inventors can result in penalties including in extreme cases, invalidation. Of course, determining inventorship can be a mysterious process. How else can it be explained why the collaborative team of Charles and Ray Eames listed only Charles as inventor on Eames’ fifty-plus utility and design patents, or why Jonathan Ive, Apple’s Chief Design Officer, is named as an inventor in over 5,000 patents.40

7. Assignments and Licenses
Because a patent is a type of property, it can be sold (assigned) to others. An assignment is a permanent transfer of a patent owner’s rights. Because the inventor is the initial owner of patent rights, most corporations and universities require that, as a condition of employment, all employees sign pre-invention assignment agreements. In other cases, a company or individual may make an assignment in exchange for money payable in a lump sum or royalties on future sales of the invention.

Alternatively, patent owners make arrangements to commercialize an invention under a license. A license is not a transfer of ownership; it is permission to use the patented technology under certain circumstances. It may be exclusive (only one company is licensed to exploit the patent) or nonexclusive (a number of companies are licensed to make and sell it). The license may be for the duration of the patent or for a shorter period of time.

Licenses are often limited by geography (for instance, different licenses for different countries or for different parts of one country) and by use. In many cases, one company will trade licenses with other companies—called

40 Jonathan Ive.
cross-licensing—so that companies involved in the trade will benefit from each arrangement, an industry organization that sets an industry standard will other's technology. A related arrangement is known as “Fair, Reasonable, and Non-Discriminatory” (FRAND, or sometimes RAND) licensing. Under a FRAND require that member companies that own patented technology necessary to meet those standards, be licensed fairly to all members.

8. Infringement
Patent infringement is the unauthorized act of making, using, selling, offering for sale, or importing a patented invention. An essential element of infringement is that it occurs without the patent owner’s authorization. When a patent owner has authorized a use, anything that exceeds that authorization is also an infringement. A patent can be infringed only during the term of the patent, not between filing of the patent application and issuance of the patent. There is a method of recovering damages for infringements that occur 18 months after filing an application, provided certain criteria are met.\textsuperscript{41}

Utility Patent Infringement
A defendant may commit direct infringement by either reproducing every element of a patented invention (called literal infringement) or by designing around the patent claims to achieve the same function in substantially the same manner and with the same result (the “doctrine of equivalents”).

Indirect infringement can occur in two ways: when someone is encouraged to infringe by a third party (inducing infringement), or when a material component of a patented invention is sold with knowledge that the component is designed for an unauthorized use (contributory infringement).

Design Patent Infringement
The standard for measuring design patent infringement (known as the Gorham or “Egyptian Goddess” test) is if an ordinary observer would think that the accused design is substantially the same as the patented design when the two designs are compared in the context of the prior art.

\textbf{FIGURE 10:} Egyptian Goddess Nail Buffer

\textsuperscript{41} Liability for Infringing Acts.
Three Patent Tips for Designers

Treat it with confidentiality. Because public disclosure or sales prior to the filing date may torpedo a patent application (even with the one-year exception for patent owners), it’s wise not to disclose without the protection of a confidentiality agreement.

Consider a provisional patent application. Applicants seeking a utility patent can inexpensively stop the clock for prior art purposes and obtain an early filing date by filing a Provisional Patent Application (PPA). (PPAs are not available for design patents.) The only requirement for a PPA is that it must adequately describe how to make and use the invention, so PPA preparation typically costs a fraction of the cost of a regular utility patent. If the PPA sufficiently discloses the invention, and a regular patent application is filed within one year of the PPA’s filing date, the inventor gets the benefit of the PPA filing date for the purpose of deciding whether prior art is relevant. In addition, the inventor gets the full 20-year term from the date the regular application is filed.

Document idea development. It may be axiomatic, but documenting idea development is crucial to many aspects of the patent process (for example, determining who contributed “inventor-level” contributions).

For more information about patents, please check out these useful resources:

« The USPTO website
« Google Patents
« The Patently-O Blog
« IP Watchdog

DISCLAIMER: This article provides information about the law to help designers safely cope with their own legal needs. However, legal information is not the same as legal advice—the application of law to an individual’s specific circumstances. Although care has been taken to make sure that this information is accurate, it is recommended that you consult a lawyer if you want professional assurance that this information, and your interpretation of it, is appropriate to your particular situation.