

Recognizing Patentability and Avoiding Infringement

Part 1 – How to Evaluate Patentability

by John Dries

Introduction

Appliance design is commonly referred to by patent attorneys as an area of “crowded art”. That means that there are a relatively large amount of patents covering a relatively narrow field of engineering.

For decades companies from all around the globe have been aggressively seeking patent protection for their new designs and vigorously defending their existing intellectual property. The prior art in appliance design encompasses everything from exotic ideas which have never really panned out to tried and true approaches which have been cleaved up into literally thousands of patents covering every conceivable system and component required to make an appliance operate.

Because of the crowded condition of the prior art and the aggressiveness of the appliance manufactures it is particularly important that senior engineers and management have an excellent grasp of the intellectual property in their field of work, are able to determine if their new designs are in danger infringing on patents still in force, and are good judges of what aspects of their new designs may be patentable and how valuable that patent protection may be.

It is a common misconception that recognizing patentable aspects of new designs and avoiding infringement is the mainly the responsibility of patent attorneys. In the actual practice of new product development, where new designs are being rapidly and simultaneously conceived, rejected and developed the reality is that the company’s patent attorneys simply cannot fill this role by themselves. They are team members who reside on the fringes of the development effort and are usually focused other issues. Knowing when to call on these professionals and for what purposes is squarely the responsibility of the development team, specifically the senior engineers and engineering managers. Attempting to hand this responsibility off to a legal team indicates a fundamental misunderstanding of the roles patent attorneys and engineers play in gaining patents and avoiding infringement and usually results in higher costs, less patent protection, more danger of infringement and poorer designs.

Fortunately, becoming proficient at avoiding infringement and recognizing patentable aspects of new designs are skills that most good engineers and executives can develop fairly rapidly, but it does take knowledge, commitment, and a systematic approach. This series of articles will attempt to provide the most important information for engineers to know concerning patent laws and present a systematic approach to evaluating the patentability of new designs while simultaneously avoiding infringement.

The Importance of Gaining Patent Protection for New Designs

Patents grant the owner both offensive and defensive rights. The offensive rights granted to the patent owner are what most people usually think of when considering the value of a patent. The offensive value is the legal right granted to the owner of the patent to file a lawsuit against anyone who makes, uses or sells the patented invention without the patent owner's permission (an infringer). The claims section of a patent spells out precisely what the invention is and how broadly it can be interpreted, hence the critical importance of the claims section.

If the owner of the patent wins a lawsuit against an infringer the court will order the infringer to stop making, using or selling the invention and can award damages to the patent owner. The damages are usually a reasonable percentage of the infringer's sales, equivalent to what a royalty would be. If, however, it is determined that the infringer acted in bad faith (for example, knew the invention was patented and went ahead and sold it anyway) the damages can be tripled and the infringer ordered to pay the patent owner's attorney's fees.

A good way to think of a patent is as a legal monopoly granted to the inventor (or whom ever the patent is sold or assigned to) in order to allow the inventor to reap the financial rewards of the invention for a reasonable period of time (20 years if all the fees are paid). In exchange for this monopoly the inventor discloses to the public, through the patent document, exactly how to make and use the invention. The ideal result is a win-win scenario where society benefits by the new and inventive knowledge eventually becoming readily available for the greater good of society and the patent owners are insured the financial benefit of their inventive work and investment.

It can be said that the purpose of the entire patent process is primarily to ensure that as much knowledge as possible reaches those who can use it for future development and improvements of products and inventions, not primarily as an offensive legal weapon granted to the current patent owner. This is a very important concept to remember when researching patents while developing new designs; patents exist to help engineers develop better designs, and by doing so benefit society at large. Some engineers assume that they should avoid using any elements of any patent, even an expired one. This is a fundamental mistake. It is not only appropriate but excellent practice to consider for use in new designs any part of an expired patent or aspects disclosed in an "in-force" patent (which are not part of the monopoly defined by the claims) which improves a new design.

In addition to their value as offensive weapons, patents can also function as defensive weapons. The entire patent: specification, drawings and claims, become part of the "prior-art" when published. Therefore anything in the patent, even if it is not spelled out in the claims section, blocks anyone else from gaining a patent on it themselves. This defensive aspect of the patent never expires.

A third benefit of gaining a large portfolio of patents, or a “war chest”, for larger companies is to use them as a defense against other companies which may try to accuse them of patent infringement.

A Few Words About the Patent Laws Themselves

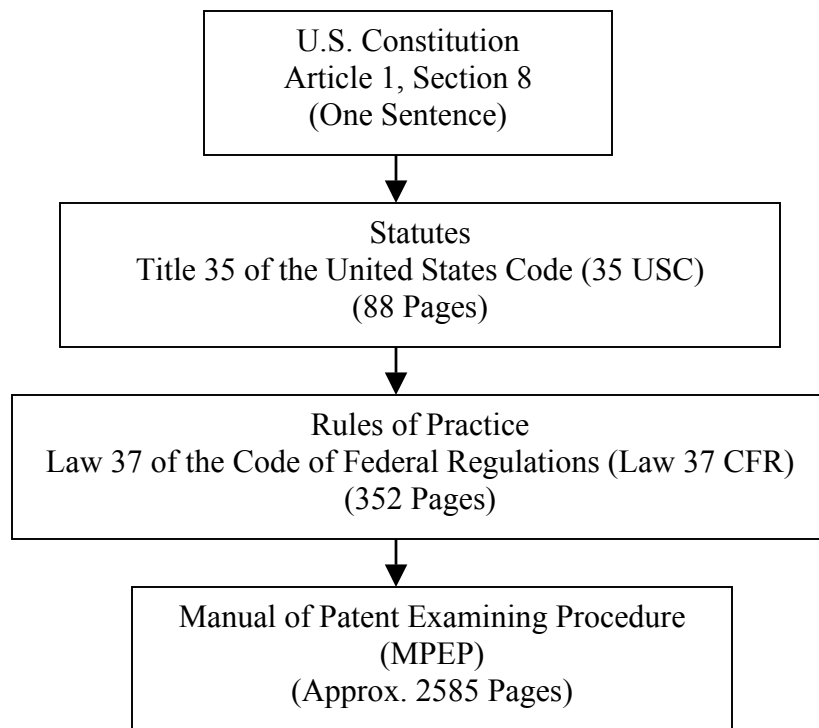
The US patent laws are a series of statutes and rules of increasing specificity and detail all the way from one sentence in the US constitution to the huge Manual of Patent Examining Procedure (MPEP).

Article 1, Section 8 of the U.S. constitution gives Congress the power to create the patent statutes. The patent statutes passed by Congress are part of Title 35 of the United States Code (35 USC). The patent statutes are then divided into different sections of the USC and the individual patent statutes are often referred to by the section they appear under, for example the statute that sets up the requirement that an invention have utility in order to receive a patent is in section 101 of the United States Code and can therefore referred to as “Title 35 of the United States Code, Section 101” or “35 USC 101” or even just “section 101” for short.

The statutes passed by Congress give the U.S. Patent and Trademark Office (PTO) the authority to issue the “Rules of Practice” and the Manual of Patent Examining Procedure (MPEP) (which is relatively specific and as stated above, lengthy).

It is helpful to be familiar with the names and origins of the more important patent statutes and rules because they show up in the jargon which patent attorneys and the PTO tend to use. For instance, one of the important tests of patentability is to determine if the invention in question is novel. The section of the USC which discusses what novelty is with respect to patents is in section 102, so if some of the claims in a patent application are objected to as not being “novel” the PTO or patent attorney may simply refer to it as a “102 objection”. This highlights one of the difficulties about working with some patent attorneys and particularly the PTO: they tend to issue communications which are cryptic, confusing and only really make sense to someone versed in the jargon.

While it is not necessary for engineers to spend a lot of time studying the actual patent statutes and rules in order to be proficient at working with intellectual property, it can be helpful to refer to them when dealing with a specific rule or statute. Fortunately they are readily available on-line. Patent attorneys, on the other hand, need to be very familiar with the patent laws, rules and past court rulings in order to prosecute patent applications and litigate infringement cases effectively. In fact, the patent bar exam is mainly focused on the MPEP and tests one’s knowledge, understanding, and ability to quickly search the MPEP.



(Figure 1 – US Patent Laws, Rules and Rules of Practice)

The Patentability Tests

There are three types of patents:

- 1.) **Plant patents:**
These cover asexually reproducible plants. While obviously important in agriculture these type of patents are of no real interest to engineers and will not be discussed further.
- 2.) **Design patents:**
These patents cover the unique and ornamental shape or surface design of an object. The uniqueness of shape must be purely ornamental; if it serves any function then a design patent would not be proper, even if the shape also looks appealing or unique. A design patent can be obtained for just about any object if it truly has a unique shape which is not functional.

The patent number of design patents are preceded by a “D” which makes them easy to identify, such as D476,461. Design patents are generally considered less valuable and easier to circumvent than utility patents, but in the proper circumstances design patents can be quite useful.

For example, Fluke, a manufacturer of hand-held test and measurement meters, has been very successful in building a reputation for quality meters combined with a distinctive family look. They have aggressively sought design patents for the look of their meters and as a result just about any lab technician or engineer can recognize a Fluke instrument at a glance and associate that meter with a reputation for quality. Without design patents the look of Fluke's meters would have been much more aggressively copied and consequently their reputation and sales diluted by knock-offs.

(Fluke's classic design patent D312,534 for the ornamental design of a multimeter holster is an good example of a of a well thought out design patent used in combination with a focused marketing and engineering effort.)

3.) Utility Patents:

Are appropriate for inventions that function in a unique manner to produce utilitarian results and are by far the most important type of patent to the appliance, and most other industries.

Just about anything that can be designed by humans, in theory, can be covered by a utility patent. Examples include dishwasher spray arm arrangements, methods of dispensing ice from a refrigerator, electrically powered automobiles, folding lawn chairs, new heating methods for ranges, new bacteria, even methods of doing business.

In order for an invention to qualify for a utility patent it must pass four increasingly difficult requirements or tests. The US statues written by Congress give the PTO the job of examining utility patent applications to make sure they pass each test. If the invention described by the application passes each of the four tests the PTO will then award the invention a patent.

The four requirements and the corresponding statues which created them are:

- 1.) Statutory Class (35 USC Section 101.)
- 2.) Utility (35 USC Section 101.)
- 3.) Novelty (35 USC Section 102.)
- 4.) Unobviousness (35 USC Section 103.)

The great majority of utility patent applications pass the first two tests with no problem. The third test, novelty, can be a little more difficult than the first two but can usually be overcome. The last test is by far the most difficult, confusing and contentious and is the reason most applications are rejected. Keep in mind that only about half of the patent applications made are eventually awarded a patent, and of those many of the claims are initially rejected requiring the inventor/patent attorney team to argue and overcome the examiner's objections before being awarded a patent.

Taking a closer look at each requirement (or test):

Test #1, Statutory Class:

The invention under consideration must fall into one of five statutory classes in order for it to pass this test and qualify to for a patent. Over the years the courts have relaxed this test to the point that just about anything that is made by man falls within one of the statutory classes. Additionally the PTO decides what class the invention fits into making this even less of an issue for the inventor. Because of this, the statutory classes are rarely an obstacle and we will not spend a lot ink describing them. Briefly, the five statutory classes are:

- 1.) Machines.
Machines are things which are used to accomplish a task. With machines the important aspects are the hardware, not necessarily the activity itself.
- 2.) Processes or Methods.
These involve ways of making or doing things that are more than just a mental exercises. Processes have also come to include software and methods of doing business.
- 3.) Articles of Manufacture.
These are items that have been made by humans as opposed to naturally occurring things like sticks, fish, leaves, etc. Articles of manufacture are relatively simple things that don't have moving parts as their main features.
- 4.) Compositions of Matter.
These tend to be chemicals and other substances supplied in bulk such as paint, plastics, paper, etc.
- 5.) A New Use of One of the First Four Classes.
If a new use for an old invention is found that is nonobvious and produces new and unexpected results it would fit into this statutory class of invention.

Test #2, Utility:

Statute 35 USC section 101 requires that in order to be patentable an invention must be useful. This test is also rarely an obstacle since most inventions are useful in at least some way and serve a purpose that is more than just aesthetic. There are some exceptions such as perpetual motion machines, nuclear weapons (they have their own process for gaining a patent), or unsafe drugs, but safe to say, such inventions are of little interest to the appliance engineer.

Test #3, Novelty:

Set up by Statute 35 USC section 102, with the novelty requirement we start to get into one of the tests that can be more of an obstacle and needs to be understood in more detail.

In order for an invention to pass the novelty test it must be different in some way from the prior art. Just about any feature of the invention in question that is different from the prior art will satisfy this requirement. Another way of stating this requirement is “has the invention been anticipated by the prior art”.

Note: Prior art is all the information made available to the public, anywhere in the world, that would be relevant to an invention’s novelty before a given date (usually twelve months before a U.S. patent application is filed). This includes magazine articles, patents, technical papers, product demonstrations, etc.

There are three ways an invention can be considered novel over the prior art:

- a.) Physical difference.
- b.) A new combination.
- c.) A new use.

Taking a look at each of these in more detail:

a.) Physical Difference

If the invention is a machine, composition, or article, and it has one or more functional parts that are different in just about any way (shape, size, material, etc.) from any single prior art reference, it will qualify as a physical difference. If the invention has all the same components but they are assembled in a different way that would also be considered a physical difference. Also, having an invention that omits an element can be considered novel. For example, if the dishwasher pumps known in the prior art have always had a shaft to connect the impeller to a motor and a new invention omits the shaft by attaching the impeller directly to the rotor, that would pass the novelty test even though all the parts in the invention are shown in the prior art.

b.) New Combination

An invention can be considered novel even if all of the components of the invention show up in two or more prior art references. So if an invention is a combination of two old and previously known features or components it is still patentable as long as all of those features are not shown in a single prior art reference.

For example, if a new invention for an oven has a unique infrared heating element for broiling and the prior art includes a 1970 patent showing the same exact design of an oven, but without the infrared heater, and an article from a 2005 issue of an appliance trade magazine shows the same infrared heating element used in the new invention, it is still considered novel under section 102 even though these two references taken together show every feature of the new invention. This is because the new invention is the first to combine the two old concepts.

For an invention not to be considered novel under Section 102, all of its physical characteristics must be shown in a single prior-art reference. This is often referred to as the “single document rule”.

Additionally, if a new invention shows a new arrangement of an old combination of elements, it will also satisfy the novelty requirement under Section 102. An example of this would be an invention for an automobile which for the first time mounted the internal combustion engine inside one of the wheels instead of in the chassis (something that has already been done with electric motors). All the elements would be the same as shown in the prior art, but if this is the first invention to use this arrangement it will be considered novel.

c.) New Use

If a new invention finds a new use of an old machine or process it can pass the novelty test. For example, if a new invention for a coffee cup heater is discovered to be identical to an old design for a candle wax melting device, the coffee cup heater will still be considered novel because it is for a new use.

Test #4, Unobviousness:

This is the most difficult test to understand, interpret and pass. This test is set up by Statue 35 USC section 103 and consequently failure to pass this test is often called a “103 rejection”. Even if the invention has passed all the other tests and is completely novel it will not necessarily be granted a patent. Under section 103, to pass this test the invention must not be obvious to a person with ordinary skill in the field and who is also aware of all the prior art. To explain further, this hypothetical person used in the test:

- a.) Has ordinary skill in the field of the invention.
- b.) Is fully aware of all the prior art in that field.

This is of course purely hypothetical since no one has a completely current and encyclopedic knowledge of every patent, magazine article, written paper and presentation made everywhere in the world in a particular field. Setting up such a imaginary person for the test is simply the best compromise the law could find when seeking to define an objective standard for determining a concept as difficult to pin down as nonobviousness.

The main problem (and frustration) with this test is trying to understand in the context of a new invention just what the meaning of the word obvious is. Without further guidance from the courts a patent examiner could conceivable reject just about every patent ever applied for as being obvious.

A combination of several court rulings gives the most commonly used interpretation of nonobviousness. An invention can be considered nonobvious if it produces unusual and surprising results, that is, results that were not suggested or shown in the prior art. Furthermore, the Supreme Court added that secondary factors can also be considered such as commercial success, long-felt but unsolved need, and failure of others.

Generally the tests for novelty and obviousness are made together in a two step process. First, novelty is considered. If it is found that the invention easily passes the novelty test, meaning that it is very different from even multiple references in the prior art, the test for obviousness is usually less stringent. If, on the other hand the invention is very similar to one or two or more prior art references taken together, then a more stringent standard for the obviousness test will be applied, i.e. the invention is going to have to produce a much more surprising and unusual result than one which is structurally completely different from anything in the prior art.

Even though the courts have tried over and over again to give more guidance as to what is obvious and nonobvious, patent examiners still frequently and improperly reject inventions because they either do not fully understand the concept, ignore the guidance given by the courts or just do not spend the time (or are not allowed to take the time due to chronic understaffing and quotas imposed on examiners at the PTO) it takes to properly consider it.

Unfortunately this is an relatively frequent occurrence and there is a name for it: a “shotgun” rejection. When the examiner does this he or she is punting the application back to the inventor and patent attorney in order to save themselves time. It is then left to the inventor/patent attorney team to explain to the examiner why the invention’s novel features actually do produce new and unexpected results (for inventors who also prosecute their own patent applications or pay a patent attorney out of their own pockets this practice can cause much gnashing of teeth). Many an engineer has appreciated for the first time the true value of a good patent attorney when an improper rejection of a patent application occurs based on this test.

In addition to the secondary factors discussed by the Supreme Court, there are many other secondary factors that can be considered in arguing that an invention is nonobvious and is therefore deserving of being granted a patent, such as:

- The invention is in a field of crowded art (like appliances).
- The invention solves and insoluble problem.
- Modifications made by the invention over the prior art were never before suggested.
- The invention is contrary to the prior art’s teachings.
- etc.

This starts to get into the area of arguing the patentability of an invention which is more the realm of the patent attorney, but suffice to say this is one of the areas of the patent process where having a good patent attorney pays off.

If all of the claims pass all of these patentability tests, then the process is going to be relatively easy and it is very likely that the invention will be awarded a patent. More realistically it can be expected that at least some, if not all, of the claims of an invention’s patent application will be rejected. If and when this happens it is up the engineer and

patent attorney team to determine if the rejected claims of the invention actually pass the four tests or not. If it is found by the attorney/engineer team that the claims which have been rejected really do not pass the test in question, the claim will need to be narrowed or withdrawn completely. If, on the other hand, in the opinion of the patent attorney and inventor there is a strong argument for the claim passing the test, it will need to be argued in a formal response to the examiner by the patent attorney.

In part two of this three part series we will examine the different sections of a patent and the critically important issue of how to read and understand patent claims.