



# What is patentable?

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..... In my last column, I discussed the general process of creation. According to Taoist philosophy, it is as natural for humans to create as it is for fish to swim. For those who believe that we were created in the image of our creator, this same conclusion follows directly. And for those who are uncertain as to their concept of “a creator,” author H.L. Mencken defines it as “a comedian whose audience is afraid to laugh.” This column gives attention to something much less natural than creation: patents, which are the legal manifestations of creation.

In the US, patents are issued by the Patent and Trademark Office (PTO). There are three basic types of patents: those for plants, those for designs, and those for utilities. Plant patents (and I’m not kidding) are for newly discovered asexually reproduced plants. Design patents are for novel ornamental characteristics of a product that are not (primarily) structural. And utility patents are for new processes, machines, articles of manufacture, material compositions, structures, and the like.

Most things that are new can arguably be crafted to fit into one of these categories. Although we have been comfortable with the concept of patenting contraptions for some time now, it was not until the 1980s that the PTO considered software patentable. And since the turn of the century, business processes—new methods of doing business—have been patentable. Now, you can also patent other less obvious things: clothing, recipes,

games, medical procedures, genetically altered (and reproducible) animals or plants, methods for hitting a baseball or golf ball, and so on. It was not always so.

A patent is a legal document that entitles its holder the right to prevent others from making, using, or selling the invention during the term of the patent. The specific invention being protected must be clearly articulated in legal claim language. Typically, since the designer or manufacturer of a product might not necessarily be the product’s user, specifically crafted claims target each party. *Method claims* (which specify a method for doing something) target the product manufacturer. *Apparatus claims* (which specify the tangible means that implements the methods—usually a machine or a program) target the product user.

Most patents contain both types of claims, and they are in direct correspondence within the *claims* section of the patent. In fact, it is frequently possible to transform a method claim into an apparatus claim by using a straightforward set of word substitutions.

### Criteria for granting a patent

For the PTO to grant a patent, the hope is that it meets three criteria. First, it has to be new or novel. Second, it is supposed to be “useful” (and there are two different definitions of the word “useful” that I will discuss). And third, it is supposed to be “nonobvious.” Note that the last two criteria are quite ambiguous, and this has led

to shifting interpretations by the PTO.

The concept of “new and novel” is simply that no one has previously conceived of the invention. If you are performing an internal review of a patent disclosure, the best way to kill the application (while keeping the mood positive) is to gush forth with “I’ve *always* liked this idea!”

Note that an invention can be a completely new thing, a new combination of existing things, or a new use for an existing thing or combination of things. In the claim language, the inventor must be careful to claim only what is new. Patents must identify previously existing things that are part of the invention.

A brilliant invention can just be some rearrangement or multiple of an existing invention. Comedian Sid Caesar captured this well when he said, “The guy who invented the first wheel was an idiot. But the guy who invented the other three, now *he* was a genius.”

The idea of an invention being useful actually embodies two independent concepts. First, the plain meaning of useful is just that the invention is actually good for something. Generally, it has been assumed that this goes without saying, otherwise, why obtain a patent? However, in a subtle way, this meaning of useful becomes relevant in the determination of whether the invention is nonobvious, as I will discuss shortly.

The definition of useful that the PTO standards mean to imply is that the invention has to be reducible to a working thing.

In this sense, it is said to be useful. By implication, if it can't work, then it isn't useful.

A long time ago, the PTO required the inventor to provide a working prototype of the invention. Today, that is not necessary, but the body of the patent must adequately describe how to implement the idea. The description must be at a level such that anyone "with ordinary skill in the art" (in quotation marks because of the ambiguity) could reduce the invention to practice. Who it is that has "ordinary skill in the art" is subject to interpretation.

### What is obvious? It's not obvious

I was once preparing a patent application with an attorney to whom I had spent most of the morning explaining the invention. A little before lunchtime, he finally understood what I had been saying all morning. Immediately on grasping the gist of the invention, he asked, "But isn't that obvious?"

This took me aback, because I had not truly considered the possibility. It certainly didn't seem obvious when I had come up with the idea. But I pondered the question throughout lunch, and made several sketches. Finally, through a tortuous chain of reasoning, I reached the conclusion that yes, in fact the invention was obvious. Nonetheless, it took much expertise, and knowledge drawn from three disciplines to understand why the invention was obvious.

So instead of *answering* his question ("But isn't that obvious?"), I *responded* to it. I said, "That's not obvious."

The most ambiguous criterion is that an invention be nonobvious. There is no statement as to whom the invention should be nonobvious. Should it be nonobvious to someone with ordinary skill in the art, or to an expert, or to laity? It's not clear. It's also not clear whether it is better to use a layperson or an expert as the standard for determining "obviousness." I have frequently found that some of the most ingenious inventions appear completely obvious to a layperson (or even to someone with ordinary skill in the art), but appear elusive (meaning nonobvious) to an expert in the field.

Why is this? In all inventions, a basic problem is solved. In some inventions,

there are ancillary, second-order problems that are solved as well. Elegant solutions will address the secondary problems subtly (and sometimes indirectly) so that the overall invention remains simple. The fact that all second-order problems are solved may be nonobvious to the expert who is attuned to the subtleties of those problems. A lay person may be oblivious to the fact that numerous problems are solved by a simple and elegant invention. They will just perceive the invention to be simple, and will (wrongly) equate "simple" to "obvious."

In a truly elegant invention, there are no residual artifacts left in the invention as the result of coping with ancillary problems.

Albert Einstein captured the essence of this concept very nicely in his explanation of how a radio works, in which he uses the telegraph as a base: "The telegraph is a kind of very long cat. You pull his tail in New York, and his head meows in Los Angeles. Radio works exactly the same way, except that there's no cat."

In contrast to an elegant invention (which may be deemed obvious by a lay person), direct solutions to the basic, and secondary problems may seem nonobvious to a lay person, but be obvious to an expert. This is because an aggregation of direct solutions can become an ugly entanglement. An expert may see each (obvious) constituent piece, and merely be nonplussed by the entanglement. A lay person will tend to perceive the aggregation as complex, and will then (wrongly) equate "complex" to "nonobvious."

If you ever have to evaluate—and kill—obvious inventions like this in internal reviews of patent disclosures (while keeping the mood positive), I suggest using language such as: "although the design is evidently of the Rococo school, nevertheless, I find it so excessively florid that..." You get the idea.

I think that some of the best and most valuable inventions are those which when shown to others (experts or not), evoke an immediate response of, "That's obvious!" Of course, what people usually mean by "That's obvious!" is that, "It's obvious that it's a great idea." Truly great inventions—like these—eventually become ubiquitous;

everyone has to have one. In the words of Thornton Veblen, "Invention is the mother of necessity."

But some of these inventions are the hardest to prosecute through to an issued patent for exactly this reason. And this is where you can bring to bear the simple interpretation of useful. Some evaluators and examiners fail to readily grasp the distinction between the notion of it *being obvious*, and the notion of it *being* (obviously) *good*. Further, they usually mean that it is obviously a good idea because it is so obviously useful (in the simple interpretation of the word useful).

Thus, the way to argue about an invention's obviousness is to stipulate that it is so obviously useful, that surely everyone would be using it by now. But if no one is using it by now (because it is new), then it must not have been obvious. Does this sound convoluted? Wait until you deal with the lawyers. They will prove to you that talk is definitely not cheap.

### Some recent history

Prior to the 1980s, the PTO granted patents only to processes, machines, articles of manufacture, and material compositions. It considered software to be nonstatutory (thus not patentable), viewing it as the mere embodiment of scientific truth(s). These people clearly had no concept of software. A simpler distinction, which could have helped them, is that hardware is the part of the machine that you can pummel into oblivion, and it is thus "statutory." You cannot pummel software at all (unfortunately).

In fact, the PTO even frowned on granting patents to inventions that used machine-made calculations.

In 1981, the case of *Diamond v. Diehr* set a precedent when the US Supreme Court ordered the PTO to grant a patent for an invention that used a computer program. The patent describes a method for curing rubber in which a computer program computes the times required in the various processing steps. The court ruled that the invention was not merely an algorithm, but was more broadly a process for curing rubber.

Although this was a breakthrough in legal opinion, it fell far short of clarifying a complex issue. It was not until the 1990s that the Federal Circuit Court (one level below the US Supreme Court) attempted to further clarify the issue. This court ruled that if a program is only a mathematical algorithm, then it is not patentable. But if the invention uses a computer to manipulate symbols (including numbers) that represent or pertain to real-world objects, then the invention is a process relating to those objects, and could be patentable.

This caused the PTO to grant patents relating to computers more liberally than before. In addition, in the early 1990s, the Clinton administration recognized the PTO as a source of revenue because of the application fees and maintenance fees associated with patents. This also manifested itself in a more liberal approach toward the granting of patents.

In particular, the more ambiguous criteria for evaluating a patent—usefulness and nonobviousness—seemed to be de-emphasized in the 1990s, with the principle criterion of being new and novel sufficing as the only apparent criterion in some cases.

During the Monica Lewinsky scandal in 1998, the press lionized Clinton defender Representative Marty Meehan for making light of the Independent Council Reauthorization Act of 1994 by claiming that a prosecutor could “indict a ham sandwich” if he wanted to.

This phrase was originally coined by former New York State Chief Judge Sol Wachtler in a 1985 interview with Marcia Kramer of the *New York Daily News* (and later immortalized in the movie *Bonfire of the Vanities*). In retrospect, Wachtler claimed that he was sure that he had said “pastrami sandwich,” which Kramer misquoted as “ham sandwich.” And she should have known better, since this was strictly *treyf* (unkosher).

Whether you could have indicted a ham (or a pastrami) sandwich under the Clinton administration, I can’t say for sure. But I am reasonably certain that if you paid the requisite fees, you could have patented one.

In fact, in Todd Wilbur’s book, *A Treasury of Top Secret Recipes* (Plume, 1999),

you will find a schematic of the “Applebee’s Club House Grill Sandwich” (Job #A5456317-CHG, p. 251), showing not merely ham, but turkey, mayo, cheddar cheese, tomatoes, and their special BBQ sauce. In fairness, the schematic has a date of 1990—so it was actually conceived of under the George Bush administration, but I can’t say for certain under which administration this might have been filed.

### When is it worth filing a patent?

As an inventor, when deciding whether to invest the time and money to file a patent for an invention, you also need to assess whether infringement of the invention is easily discoverable, and whether the invention is easily avoidable. The question of discoverability is this: If someone infringed your patent, would it be apparent that they had done so, or would this be hard to determine? And the question of avoidance is: Are there other ways (without using your invention) of doing roughly the same thing and are those ways nearly as good? So let’s suppose that you have determined that infringement of your invention would be discoverable, and that your invention is unavoidable. This means that anyone who wanted to provide the same function (as provided by your invention) would have to infringe your patent, and when they did, it would be apparent. Now the questions are

- Who would be likely to do this?
- Based on who that is, what is the potential value to you?
- How much will it cost you to obtain the patent?
- Will your patent stand up in court if it is challenged?

I intend to address these questions in a later column.

In closing, let’s recapitulate what we have learned about patent law. First, what’s new is old, and what’s old is probably new. Second, what’s useful is usually useless, and what’s useless can be especial-

ly useful. Third and most obviously, what’s obvious isn’t, and what’s not obvious is. If you sometimes felt confused in engineering school, can you imagine what law school is like?

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