

## INTELLECTUAL PROPERTY

### A Patent Primer for the Uninitiated

*Myths, Terms and Procedures Explained, From 'Claims' and 'Prior Art' to 'Equivalents'*

BY MICHAEL I. RACKMAN

JUDGING JUST from the trafficking in patent lawyers and the gobbling up of boutique patent firms by the national giants, patents, and especially patent lawsuits, are big business today. Yet the average legal practitioner remains unfamiliar with them. For example, the popular notion, shared by general practitioners, is that if one invents a better widget (a widget being the best known "legal" invention) and gets a patent on it, he can go out and make his fortune. In fact, however, a patent does not even give its owner the right to make, use or sell the patented invention. Rather, a patent gives its owner the right to stop everyone else from doing this.<sup>1</sup>

A hundred-year-old classic case illustrating this is that of Fleming and DeForest. Fleming patented the "diode" vacuum tube, a glass bulb with two electrodes inside. A few years later, DeForest added a third electrode, called a grid, and patented the "triode" vacuum tube. Fleming could stop even DeForest from making triodes, since every triode necessarily incorporated Fleming's patented diode. And DeForest, with his patent right to exclude everyone from making three-electrode vacuum tubes, could stop Fleming from going into the triode business. The patent lawyers of their day had a feeding frenzy.

Another incorrect popular notion is that a patent is the reward for genius, or at least the reward for inventing. In fact, however, a patent is the reward for teaching the public how to practice the invention after the patent expires. This theory is the rationale for the "best mode" defense<sup>2</sup> often raised by an alleged infringer in an attempt to defeat the validity of a patent — "an inventor [may not] disclose only what he knows to be his second-best embodiment, retaining the best for himself."<sup>3</sup>

That would put the public at a disadvantage after the patent expires. The theory falls short, though, because today technology changes so fast that by the time a patent expires (20 years after application filing), a 20-year-old implementation would be considered obsolete even had it been disclosed. Nevertheless, the "best mode" invalidity defense remains alive and well.

Federal courts have exclusive jurisdiction over patent cases.<sup>4</sup> The Federal Circuit, which has jurisdiction over patent appeals from all district courts, was created as a result of conflicting decisions and attitudes among the circuit courts, with the hope that a single appellate court would bring consistency. That may someday be achieved if the judges on the Federal Circuit can agree among themselves.

While jurists may disagree over how to apply patent law, though, businesses have learned well how to exploit patents. During the formative years of an emerging technology, so many patents on improvements may be obtained that market entry by a competitor may be foreclosed even *after* the basic patents have expired. In mature technologies, on the other hand, the leaders often cross-license. Since "R&D" (research and development) at any one company often parallels that at others (medical technology companies are a good example), cross-licenses allow the sharing of innovations without the fear of patent suits. Cross-licenses are typically granted on all inventions made during the coming five years. A poor patent showing during this time may result in a cross-license not being renewed by a competitor, or a one-way payment of royalties.

The patent climate in the United States has undergone a radical change in the last 20 years, and the courts are no longer "anti-patent." The patent owner, who is typically the plaintiff and is suing for infringement, has the right to a jury trial, and the jury is supposed to apply the principles of patent law (as the judge explains them for an hour or so when he charges the jury) to a technology about which they have listened to testimony

for days or weeks. The defendant may argue that the patent is invalid and/or not infringed, but the jury is most impressed by the ribbon on the official copy of the patent granted by the U.S. Patent and Trademark Office (PTO).

Patent suits can result in huge monetary awards — many tens or hundreds of millions of dollars are not unusual. Sometimes, even more frightening is the grant of the injunction to which a victorious plaintiff is entitled under the patent statute,<sup>5</sup> which would stop the defendant from manufacturing and selling its infringing product. The threat of a "bet-the-company" injunction is often the impetus for settlement of a patent lawsuit.

#### Business Methods and Software

The popular press over the past several years has reported extensively about business methods now being patentable. The Federal Circuit actually said that it had never held that business methods were not patentable.<sup>6</sup> This attitude came as a surprise to many patent practitioners, but it was certainly welcome news to Internet companies and their investors. Witness Amazon.com's successful motion for a preliminary injunction against Barnes & Noble based on its "one-click" patent,<sup>7</sup> and the filing of Priceline's patent suit against Microsoft for its use of a reverse auction on the Internet.<sup>8</sup>

Actually, the business method patent activity that followed the Federal Circuit's pronouncement could have been expected — most business method inventions are based on software, and software-based inventions have long been patentable. The New York University Law Review published a law note on the subject as far back as 1963.<sup>9</sup> Examples of today's crop of business method inventions are online dating services, airline seat upgrade systems, Internet-based grocery shopping, and downloading of music previews.

There is a pronounced misunderstanding of "software patents" that has given rise to misguided concern about how these patents will stifle innovation. All microprocessor-

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based products (not only PCs, but also DVD players, radios, cars, games, etc.) run on software. If software is developed for a microprocessor-based washing machine that controls the machine cycling so as to reduce washing time by 50 percent, a washing machine invention has been made, not a "software" invention. Similarly, the inventor of the shopping cart model for buying on the Internet invented a method of purchasing products, not software.

Regardless of the presence of software, inventions like these are as worthy of protection as any other — a software-based washing machine that gets rid of ring-around-the-collar is just as deserving of patent protection as a washing machine that cycles the same way but uses cams, gears and switches.

The terms "software patent" and "business method patent" are often used interchangeably, even though the former is really a misnomer (a "software patent" is directed to an overall system or method, not software) and no one has adequately defined the latter. Be that as it may, the popular perception is that the PTO has recently granted a lot of dubious patents of this genre. There is an element of truth in this.

The subject of "claims" is a most important part of patent law and is discussed in more detail below (a claim is the definition of an invention, and is the measure of both a patent's validity and its infringement). But even without a solid grounding in claim analysis, that the PTO has been granting some questionable software/business method patents can be appreciated by considering the following claim in a patent<sup>10</sup> granted at the end of 1999 on an application filed two years earlier:

1. A method of automatically accessing Web page information from Internet addresses comprising the steps of:

- a. automatically accessing Web page information at a specified Internet address;
- b. downloading the Web page information from the specified Internet address; and
- c. storing the Web page information in order to allow a user to access the Web page information while not connected to the specified Internet address.

Any person who, without permission from the patent owner, automatically downloads a Web page and views it offline may infringe this patent. The application on which this patent was granted was filed on Sept. 30, 1997. The reader can decide whether the invention was really new and nonobvious as of that date, and whether the patent should have

been granted in the form that it is.

Before turning to the mechanics of patents, another area in which vigorous patent activity is occurring should be mentioned, and that is the creation of standards. Some technologies today are so complicated that to use them would necessarily infringe the patents of many companies. So companies are starting to "pool" their patents and set new standards, after getting Justice Department approval, and they are licensing all comers on a non-discriminatory basis. The royalties that any one

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company gets are much lower than those normally expected in a one-on-one license, but the setting of a standard and the pooling of dozens of patents is a pretty compelling reason for all manufacturers in a field to sign up for licenses. Examples where pool royalties will total billions of dollars are MPEG and DVD.

### Getting a Patent

A patent application and the patent that may eventually be granted on it (typically, at least two years later, following PTO examination)<sup>11</sup> includes a drawing and a description of an illustrative embodiment of the invention. The "best mode" of practicing the invention known to the inventor at the time of filing must be disclosed, but alternatives and variations should be described so that the ultimate protection will not be limited.

The examination of the application entails a comparison of the invention with the relevant "prior art" (inter alia, earlier printed publications, prior commercial uses, earlier patents, and prior inventions of others) to determine if the invention is "anticipated" (the complete invention is in a single piece of prior art)<sup>12</sup> or if the invention would have been obvious to a person of ordinary skill in the art to which the invention pertains (taking into account two or more pieces of prior art).<sup>13</sup> The fact that an original inventor did not patent an invention is irrelevant — a later inventor may not get a patent on anything that is anticipated (the patent statute's way of saying old) or obvious.

Patent prosecution (the taking of a patent application from filing to patent issuance) and

patent litigation revolve around "claims." If an inventor proclaims that he has just invented a better color television, without a way to distinguish his invention from the myriads of color televisions that existed in the past (the "prior art"), it would not be possible to determine whether the inventor has really made an invention and deserves protection. And as technology progresses and engineers make improvements to today's invention, without a way to distinguish today's invention from tomorrow's improvements, it would not be possible to tell whether those improvements still embody the principles of today's invention or constitute something different. The solution is to define today's invention in a way that allows it to be measured against the past and to be applied to the future. The definition is called a claim.<sup>14</sup>

Every claim is a list of parts (or a list of steps in a method claim, as in the example above) and a description of how they cooperate. Usually the individual parts are all old — it is the claimed *combination* of old parts that is new. Also, a claim may define a new use of an old product. It may also define a simplification of a known product or method. During the patent prosecution, as the PTO Examiner cites prior art against a claim, the claim is usually amended so as to distinguish the newly defined invention over that prior art. The amended claim is often accompanied with an argument explaining why the newly defined invention would not have been obvious to a person of ordinary skill in the art.

In a suit for patent infringement, the patent owner wins if there is at least one claim that is both valid and infringed. While a claim enjoys a presumption of validity,<sup>15</sup> an accused infringer, in addition to denying infringement, usually challenges validity, often arguing that the invention was obvious in view of the prior art. The PTO Examiner may have spent a day or two searching the prior art available to him during the patent prosecution. In a life-and-death patent suit, the accused infringer may spend many hundreds of thousands of dollars finding the elusive killer prior art.<sup>16</sup>

Because patent law is all about claims, some further words about them are in order. A broad claim is one with few parts, and the parts that are listed are defined broadly. For example, consider a claim drawn to the world's first table. That table might be defined as comprising a flat upper board attached to a set of substantially perpendicular legs, without explicitly specifying that the attachment is achieved by using nails, or screws or glue. A narrow claim has more parts, or parts defined in a more restricted way. A narrow claim

might define the legs as being attached to the flat upper board by the use of screws.

A broad claim is more likely to be infringed than a narrow claim. In the example, consider the world's second table that uses glue to attach the legs to the board instead of the first table's screws. The table with glue literally infringes the broad claim that defines the attachment broadly, but it does not literally infringe the narrow claim that explicitly defines the use of screws because glue is not the same as screws.

On the other hand, a narrow claim, while less likely to be infringed, is more likely to be held valid when compared to the prior art. In our example, suppose the prior art taught a table whose legs were attached by glue, but not by screws. The broad claim would be invalid because the claim literally describes the old table since to the broad claim it does not matter how the attachment is achieved. However, the narrow claim, which defines screws explicitly, might not be invalid since the prior art taught glue, but not screws.

Multiple claims are allowed in a patent, ranging from very broad to very narrow. So our table patent whose drawing includes a screw embodiment only might include a broad top-legs-attachment claim and a narrow top-legs-screw claim. Each claim defines the table invention, but each claim defines it differently.<sup>17</sup>

A particular part may be defined as a "means" (or "step" in a method claim) for performing a specified function. Parts covered by such a "means" clause will be those shown in the drawing and what are known to be structural equivalents of it.<sup>18</sup> Continuing with the table example, suppose the patent drawing and description disclose only screws for attaching the legs to the board. If the claim recites not screws, but rather "means for attaching the legs to the board," a glue-using defendant in litigation would make the argument that the claim is still limited to the use of screws. While in years past using "means" language was considered an expansive way to write a claim, the law has changed in the last several years as the Federal Circuit has tried to make "means" elements in claims more restrictive. Now, if alternatives are not spelled out in the patent description, there will be no literal

infringement. (Literal infringement means that the words of the claim literally apply to the accused infringement.)

The test for infringement of a claim is whether all of its parts are to be found in the product (or method) accused of infringement. If just one part is missing, there is no infringement. On the face of it, the patent owner would appear to have a tough hurdle, since he wins only if the accused product or process has every single element defined in one of the patent's claims. But, on the other hand, the patent owner can assert multiple claims, and



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he wins the suit if even a single claim is held both valid and infringed.

There is one more complication. Even where there is no literal infringement, the patent owner can rely on an equitable doctrine known as the doctrine of equivalents. While a claim element may be missing from a product accused of infringement, there may still be infringement if the accused product has an equivalent element.

Putting all of this together using the table example, consider a claim that includes, in addition to the top and the legs, "means for attaching." This "means" claim element is to be interpreted as covering only screws if screws are the only way the legs are described in the patent as being attached to the board. If the defendant uses glue, then perhaps he will

win with the argument that glue is not the equivalent of the claimed screws. If he uses nails, then he may be in trouble if the jury decides that a nail, unlike glue, is the equivalent of a screw.

## The Current Equivalents Issue

There is a lot of turmoil in patent law, much of it pertaining to the doctrine of equivalents. The table example dealing with screws, nails and glue is obviously simplistic. Real-life equivalents issues occur regularly and they are rarely one-sided. The basic problem is that today technology changes so rapidly that by the time a patent is actually granted, no one is interested in the implementation disclosed in the patent. The question is whether the patent claims nevertheless apply to new designs.

Taking another simplistic example and condensing a time line, suppose that the Wright brothers were granted a patent on their airplane and a few years later the jet plane is invented. Does the Wright brothers' patent on the airplane cover the jet plane, so that in the absence of a license from the Wright brothers the jet plane inventor cannot go into business? The answer, of course, depends on whether one of the Wright brothers' patent claims applies to the jet plane.

Suppose the Wright brothers have a single claim that defines lots of parts — a body, wings, a tail assembly, etc. — that apply not only to their model but also to the jet plane, but their claim

defines as the last element a propeller. The jet plane uses a jet engine instead of a propeller, and a jet engine is not equivalent to a propeller.<sup>19</sup> Suppose next that the claim defines the propeller broadly, as "means for applying a forward thrust" so that the language literally reads on a jet engine. There would still be no infringement because, under 35 U.S.C. §112, ¶6, which authorizes use of the "means plus function" form, if all the patent describes is a propeller, then "means for applying a forward thrust" would not cover the jet engine.<sup>20</sup> But now suppose that the description included a single sentence to the effect that alternative sources of forward thrust could be used, for example, a high-pressure water spray out the back of the plane. This might allow the Wright brothers to argue successfully that a jet

engine for providing a forward thrust is equivalent to their claimed "means."<sup>21</sup>

The law on equivalents was so muddled, and the issue arose so often, that the Federal Circuit, in its now famous *Festo* decision,<sup>22</sup> seriously impacted application of the doctrine. The court decided that when, during a patent's prosecution, a narrowing claim amendment is made that relates to a statutory requirement of patentability, the patentee cannot later expand the scope of protection by invoking the doctrine of equivalents for the limitation that was amended. The Supreme Court, in its decision that vacated and remanded *Festo*, seems to have imposed a new requirement. Now, for the patent owner to rely on a defendant's use of an equivalent when an amendment has been made, the equivalent must have been unforeseeable when the amendment was made.<sup>23</sup>

In the landmark decision of *Markman v. Westview Instruments, Inc.*, 116 S. Ct. 1384 (1996), the Supreme Court agreed with the Federal Circuit that claim interpretation is for the court to decide. Since then, "Markman hearings" have become an integral part of patent litigation. It is possible that "Festo hearings" will become just as common. Even the lawyers representing Fleming and DeForest surely would have been jealous.

Patent litigation indeed is a costly war of words.

## Early Filing Is Important

While the U.S. allows a one-year "grace" period for anticipation (prior publication about, or sale of, the patented item is not invalidating if the patent application is filed within a year),<sup>24</sup> foreign jurisdictions are not so forgiving. If, as in many cases, protection will be sought outside the U.S. as well as in this country, a patent application should be filed before making the invention "public" in any way.

Early filing is often the key to defeating an attack on validity. For one thing, an obviousness argument cannot rely on publications dated after the PTO filing date. Thus, filing at the earliest possible time is important.

As discussed above, the law requires disclosure in the application of the "best mode" known to the inventor for practicing his/her invention. Postponing filing until after full development may necessitate disclosure of details that are better kept secret (not to mention greater attorney expense because there is more to describe). On the other hand, filing early does not require disclosure of such details because they aren't even known yet,

so they cannot be considered part of the inventor's "best mode." There is no requirement to update an application after initial filing; in fact, updating is prohibited. If protection on later-developed features is desired, additional applications on the improvements may be filed, provided, of course, that they themselves are inventive. So early filing on an invention not only secures an early filing date and is cheaper, it also often blunts a potential defense of failure to disclose the "best mode."

A working model is not necessary to get a patent. Very often all it takes to get a patent is a good idea. All the books on patents say that one cannot patent an idea. But it is often a simple matter to convert a good idea into an adequate patent drawing. And this is a good example of what characterizes the practice of patent law today — it is an art that takes many years to learn.



- (1) 35 U.S.C. §281 et seq.
- (2) 35 U.S.C. §112, ¶1.
- (3) *In re Nelson*, 280 F.2d 172, 184 (CCPA 1959).
- (4) 28 U.S.C. §1338(a).
- (5) 35 U.S.C. §283.
- (6) *State Street Bank & Trust Co. v. Signature Fin. Group*, 149 F.3d 1368, 1375 (Fed. Cir. 1998), cert. denied, 525 U.S. 1093 (1999).
- (7) *Amazon.com, Inc. v. Barnesandnoble.com, Inc.*, 73 F. Supp.2d 1228 (W.D. Wa. 1999), vacated and remanded, 239 F.3d 1343 (Fed. Cir. 2001).
- (8) *Priceline.Com Inc. v. Microsoft Corp.*, 99-CV-1991 and 00-CV-1321 (D. Conn.).
- (9) Comment, "The Patentability of Computer Programs," 38 N.Y.U.L. Rev. 891 (1963).
- (10) Patent No. 5,978,807, issued to Sony Corporation on Nov. 2, 1999 on an application filed on Sept. 30, 1997.
- (11) There are many formal requirements that have to be fulfilled, but most of them revolve around the attorney and the PTO Examiner in charge of the application agreeing on a set of claims. There is no legal protection until a patent actually is granted, and a "patent pending" notice is merely a warning that a patent may issue in the future.
- (12) 35 U.S.C. §102.
- (13) 35 U.S.C. §103.
- (14) 35 U.S.C. §112.
- (15) 35 U.S.C. §282.
- (16) Before filing a patent application, a patent attorney will often do a search of the prior art to determine if an invention is really "new" and should be filed on, but the search is often limited to issued patents. Obviously, no client will be happy with an attorney who keeps on doing a pre-filing search until he finds prior art that convinces the client not to file an application! Pre-filing searches are therefore usually limited in time and expense, and never "guaranteed." Prior art that is "better" is invariably found during litigation over a patent.

(17) Why not include just one claim that is narrow enough to distinguish over the prior art and yet is broad enough to cover the disclosed embodiment and all alternatives? Because in the absence of a full-scale search no one knows where the dividing line is. Besides, no inventor or

attorney can divine all future alternatives, so claims with different wordings and approaches are tried.

(18) 35 U.S.C. §112, ¶6.

(19) One test for equivalence is whether the substitute element performs substantially the same function in substantially the same way to achieve the same result. *Warner-Jenkinson Co. v. Hilton Davis Chem. Co.*, 117 S. Ct. 1040, 1053 (1997). A jet engine does not work the same way as a propeller.

(20) Under 35 U.S.C. §112, ¶6, a "means" element in a claim covers the structure described and its equivalents that existed at the time of the invention. If all that is described is a propeller, then the jet — which is hardly a structural equivalent of a propeller — is not covered.

(21) One expert would testify that a jet engine is structurally equivalent to a high-pressure water spray and the other would testify that it isn't. The jury, after being instructed on the law of the doctrine of equivalents, would be expected to apply it to the testimony about high-pressure water sprays and jet engines and decide whether they are equivalent to each other.

It might be thought that the whole problem could be avoided by not including in the claim anything about the source of the forward thrust — just leave out the element altogether. Unfortunately, the claimed airplane then doesn't work, and a claim that defines something inoperative is invalid. See, e.g., *EMI Group North America, Inc. v. Cypress Semiconductor Corp.*, 268 F.3d 1342, 1348-49 (Fed. Cir. 2001).

(22) *Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co.*, 234 F.3d 558 (Fed. Cir. 2000), vacated and remanded, 122 S. Ct. 1831 (2002).

(23) In his concurring opinion in *Johnson & Johnston Associates Inc. v. R.E. Service Co.*, 285 F.3d 1046, 1063 (Fed. Cir. 2002), Judge Alan Lourie actually said that "[d]etermining what is foreseeable would often require expert testimony as to what one skilled in the art would have foreseen." The en banc *Johnson & Johnston* decision in itself will probably turn out to be quite important. The court held that subject matter that is disclosed in a patent but not claimed is dedicated to the public and cannot be recaptured under the doctrine of equivalents. Judge Pauline Newman correctly pointed out that this holding conflicts with the policy of promoting full disclosure in a patent application.

(24) 35 U.S.C. §102(b), (d).

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