Patents

One of the few clear things in patent law is that you have to look to the patent claims to know what the invention is and when the patent is infringed. But in a Federal Circuit case now before the Supreme Court, the patent claims were not even mentioned by the Federal Circuit. Nor were they mentioned in the certiorari petition, the response, or the Solicitor General's brief. This is a problem because the way software-based inventions are claimed can determine who infringes the claim and whether the claim is infringed by conduct in foreign countries.

The Form of a Software Claim Makes a Big Difference

BY LEE A. HOLLAAR

On Oct. 27, the Supreme Court agreed to review a Federal Circuit decision regarding the export of software and whether such export can constitute infringement under 35 U.S.C. § 271(f). *Microsoft Corp. v. AT&T Corp.,* 414 F.3d 1366, 75 USPQ2d 1506 (Fed. Cir. 2005) (70 PTCJ 356, 7/22/05); (73 PTCJ 4, 11/3/06). In particular, the questions posed in *Microsoft v. AT&T* are:

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(1) Whether digital software code— an intangible sequence of one's and zero's— may be considered a "component[] of a patented invention" within the meaning of Section 271(f)(1); and, if so,

(2) Whether copies of such a "component[]" made in a foreign country are "supplie[d] . . . from the United States."

Unless the Supreme Court decides to categorically exclude software code as a possible component of a patented invention, the answer to both of the questions has to be "it depends on how the invention is claimed." But surprisingly, neither the Federal Circuit opinion, the petition to the Supreme Court by Microsoft, the response from AT&T, nor the invited brief of the Solicitor General even mention how the patented invention is claimed, much less how that informs the questions under review.

Claiming Software-Based Inventions. When applying for a patent, it is common to claim software-based inventions in a variety of ways: method or process, system or apparatus, article of manufacture storing a program that implements the method, or even signals used to transmit that program. This is not simply stylistic. The nature of the claim affects not only who is a direct infringer of the claim, but also whether the claim is infringed if part of the activity takes place in a foreign country.

Early patents on software-based inventions generally claimed the invention as an apparatus, so that it would look like a statutory machine, and perhaps also as a method. For example, one of the earliest patents (3,568,156) on a software-based technique was granted in March 1971 to Bell Labs. (The inventor was Kenneth Thompson, who went on while working at Bell Labs to create the Unix operating system.)

The '156 patent was one of the Bell discoveries that probed the boundaries of what was allowable for software-based inventions, or at least what the Patent and Trademark Office or the courts would accept. (The application at issue in the Supreme Court in *Gottschalk v. Benson*, 409 U.S. 63, 175 USPQ 673 (1972), was also from Bell Labs.)

The '156 patent, "Text Matching Algorithm," not only includes program code for implementing the claimed technique, but also shows how it can be implemented using special hardware circuitry. However, the patent does note "Although it is less likely that the algorithm of the present invention will be implemented by means of special purpose circuitry, such circuitry is illustrated in fig. 2 to indicate the general nature of the algorithm involved."

The use of functional ("means for") language for each element of the apparatus claims encompasses both the hardware and the software implementations described in the patent specification, making it impossible to reject the claim as solely software-based.

The '156 patent also includes method claims whose elements parallel the elements of the apparatus claims. Presumably, this allowed bootstrapping the allowability of the method claims because the apparatus claims cover circuitry that is clearly statutory subject matter, as well as a software-based implementation, and the method claims are simply a statement of the process performed by the allowable apparatus.

As the courts accepted the patentability of software-based inventions, such subterfuges became unnecessary, and it is rare to find a specification that tries to show the claimed technique implemented in special circuitry. In fact, a recent patent of mine (7,028,044) first claims the method and then claims the machine in a dependent claim that reads "A digital computer system programmed to perform the method of claim 1."

Article of Manufacture Claims. In a 1990 application, IBM decided to push for a new claim form for software-based inventions. It was about to receive patent (4,962,468) for a "System and method for utilizing fast polygon fill routines in a graphics display system," having conventional method and apparatus claims. But because the infringer of such claims would be a person performing the claimed method or loading the associated program into a computer, it would be necessary to sue an end-user (and potential customer) for infringe-ment to try to reach the person selling the patented technique as a contributory infringer or an inducer.

Instead, in a continuation of its patent application, IBM claimed a "computer program product"—a term only used in the title of the invention and the claims. But the claims make it clear what is covered. A computer program product is simply some "computer usable medium having computer readable program code" that performs the previously-patented method.

In other words, it is any memory device that holds the program implementing the method. (In my patent, I used another dependent claim to cover this: "A computer-readable medium storing a computer program implementing the method of claim 1.")

In April 1995, the PTO altered its position and moved for the dismissal of *In re Beauregard,* 53 F.3d 1583, 35 USPQ2d 1383 (Fed. Cir. 1995) (50 PTCJ 56, 5/18/95), agreeing with IBM that the claimed subject matter was patentable.

As more programs are distributed on the Internet, some have suggested using "signal claims"—claims that consider the bits on the network as an "article of manufacture" and claim bits that transmit the patented computer program.

The Effect of Different Claim Forms. The various ways of claiming a software-based invention—method, system, media, and signal—determine whether on not someone infringes a patent. Different acts constitute infringement, depending on the particular claim form.

This is amply illustrated in the so-called Blackberry case. In August 2005, the Federal Circuit withdrew its December 2004 opinion and substituted one that said that if even one step of a patented method is performed in a foreign country, there is no use of the method in the United States. *NTP Inc. v. Research in Motion Ltd.,* 75 USPQ2d 1763, 418 F.3d 1281 (Fed. Cir. 2005)(70 PTCJ 433, 8/12/05); 392 F.3d 1336, 73 USPQ2d 1231 (Fed. Cir. 2003) (69 PTCJ 159, 12/17/04).

> Because a process is nothing more than the sequence of actions of which it is comprised, the use of a process necessarily involves doing or performing each of the steps recited. This is unlike use of a system as a whole, in which the components are used collectively, not individually. We therefore hold that a process cannot be used "within" the United States as required by section 271(a) unless each of the steps is performed within this country.

The Blackberry system had its relay component in Canada (not specifically to avoid patent infringement, but because Research in Motion Ltd. is a Canadian company), so the Federal Circuit held that the method claims of U.S. Patent 5,436,960 were not infringed. The infringement litigation was able to go forward only because the court also held that the system claims of the patent were infringed by the use of the system in the United States.

It is an infringement of a patent to make the patented invention. Whenever a computer program is copied, a new instance of the program is stored in memory. If memory storing a particular program is patented as a *Beauregard*-type claim, any copying results in a new instance of the program stored in memory "making" the claimed article of manufacture and infringing the patent.

Similarly, the Federal Circuit has held that "programming creates a new machine, because a general pur-

pose computer in effect becomes a special purpose computer once it is programmed to perform particular functions pursuant to instructions from program software.'' *In re Alappat*, 33 F.3d 1526, 1545, 31 USPQ2d 1545, 1558 (Fed. Cir. 1994) (48 PTCJ 309, 324, 8/4/94).

Software as a Component. Keeping in mind the different claim forms, we can answer the question before the Supreme Court in the *Microsoft* case:

''Whether digital software code may be considered a component of a patented invention?''

Although the patent statutes do not define ''component,'' the context in which the term is used in Section 271(f) gives a good idea of what Congress intended:

(1) Whoever without authority supplies or causes to be supplied in or from the United States all or a substantial portion of the components of a patented invention, where such components are uncombined in whole or in part, in such manner as to actively induce the combination of such components outside of the United States in a manner that would infringe the patent if such combination occurred within the United States, shall be liable as an infringer.

(2) Whoever without authority supplies or causes to be supplied in or from the United States any component of a patented invention that is especially made or especially adapted for use in the invention and not a staple article or commodity of commerce suitable for substantial noninfringing use, where such component is uncombined in whole or in part, knowing that such component is so made or adapted and intending that such component will be combined outside of the United States in a manner that would infringe the patent if such combination occurred within the United States, shall be liable as an infringer.

A component is clearly something that can be supplied and is combined with at least some other component to give the claimed invention. It would be a stretch to say that there is something that can be supplied that can be combined to infringe a method claim. Infringement of a method claim occurs when all the specified steps of the method are performed, not as the result of some combination of components.

But the analysis for other claim forms is different. The patent (5,838,906) considered by the Federal Circuit in *Eolas Technologies v. Microsoft*, 399 F.3d 1325, 73 USPQ2d 1782 (Fed. Cir. 2005) (69 PTCJ 471, 3/11/05), claims its invention as both a method and as a computer program product. In particular, its media claims are:

A computer program product . . ., the computer program product comprising:

a computer usable medium having computer readable program code physically embodied therein, said computer program product further comprising: computer readable program code for [performing the steps of the method].

In other words, the claimed invention is some ''computer usable medium'' and particular program code stored on the medium. It should be clear that the digital software code is a component of the claimed computer program product.

The claim specifically recites ''computer readable program code'' that is stored in the medium. In fact, it is the code that is the only component of the claimed computer program product that has any unique characteristic. The combining of this code with some conventional computer medium ''makes'' the claimed invention, an act that would be infringement if done in the United States.

The AT&T Patent. The patent that is the basis for the Supreme Court's review in the *Microsoft* case (Re. 32,580) has both method and apparatus claims. The first method claim begins ''A method for processing a sequential pattern comprising the steps of:'' and then lists eight steps. The corresponding apparatus claim begins ''A sequential pattern processor comprising'' and then recites eight of ''means for'' claim elements, corresponding to the eight steps in the method claim.

As is clear from reading the patent's specification, the various ''means for'' can be implemented not only as circuitry, but also by programming a general purpose processor. The specification shows the configuration of such a processor in Figure 2, and provides source code listings in four short appendices.

Much as the digital software code was the key component of a computer program product, it is also the key component of the processor means described in the specification. It is what turns a general purpose processor into the specific means of the claim element. And since the processor means is a component of the claimed apparatus, the code is a component of the claimed apparatus.

In his dissent in *AT&T*, Judge Randall R. Rader, who authored the panel opinion in *Eolas*, tries to draw a distinction between ''copying'' and ''supplying'':

To the contrary, copying and supplying are separate acts with different consequences—particularly when the ''supplying'' occurs in the United States and the copying occurs in Düsseldorf or Tokyo. As a matter of logic, one cannot supply one hundred components of a patented invention without first making one hundred copies of the component, regardless of whether the components supplied are physical parts or intangible software. Thus, copying and supplying are different acts, and one act of ''supplying'' cannot give rise to liability for multiple acts of copying.

It is certainly true that copying and supplying are different acts. But it is equally true that for media claims, the copying of an intangible software component and the making of the claimed invention are the same act—and an infringement of the media claims if done in the United States. The copying of the software to the medium results in the invention of the media claims. The fact that one hundred copies are made from the supplied software simply means that one hundred items have been made that would be infringing if made in the United States.

And the ''component'' referred to in Section 271(f) is *not* the copy that was made, since that is the claimed invention. The component is the intangible digital software code, which can be used again and again to make the invention claimed as a medium.

The same is true for the apparatus claims in the AT&T patent. The supplied code is used to make the claimed sequential pattern processor by copying the supplied code into the memory of a general purpose processor.

While the apparatus claim would not be directly infringed by simply making a copy to some medium (which was the reason IBM came up with the computer program product claim in *Beauregard*), when the copying is the installing of the code on a general purpose computer, the claimed invention of the apparatus claims is being made, something that would be an infringement if done in the United States.

Again, it does not make any difference whether one hundred copies are made. That would be a copyright consideration. For patents, what is important is that one hundred of the claimed media or apparatuses are made from the software component that was supplied from the United States.

Look to the Claims. It should go without saying that one needs to look at the claims, and particularly the conditions where they would be infringed, to determine whether something is a component of a claimed invention and whether combination of that component with other components would infringe a claim if such combination occurred within the United States. Yet neither the Federal Circuit, Microsoft in its petition to the Supreme Court, AT&T in its response, nor the government in its brief even mention the claims, much less analyze what would be infringement in the United States and whether the software code is a component of the claimed invention.

Hopefully, the briefing before the Supreme Court will address how software-based inventions can be claimed, and were claimed in the patent at issue, helping the Supreme Court to make a meaningful decision of how Section 271(f) applies to software-based inventions.