

BASIC PATENT LAW ISSUES

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I. THE PURPOSE OF A PATENT

A patent is the grant from a government of the right to exclude others from making, using or selling the invention as claimed within the government's jurisdiction.² Patents are intended to promote innovation and the exchange of ideas. The granting of a patent is traditionally considered an exchange between the applicant and the government: the applicant permits the invention to be disclosed to the public (and pays a variety of fees); in return the government grants the applicant a monopoly to practice the invention as claimed in the patent document. But of course it's not that simple: the invention and the patent application must meet all of the government's requirements.

Article 1, section 8, clause 8 of the U.S. Constitution states:

The Congress shall have the power . . . To promote the progress of science and useful arts, by securing for limited times to authors and inventors the exclusive right to their respective writings and discoveries.

Congress has exercised this power by creating statutory schemes for copyrights and patents. The patent statutes are found at Title 35 of the U.S. Code.

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²Patent laws vary widely from nation to nation. For instance, some countries have compulsory licensing provisions, unlike the U.S. Some of the more significant differences will be noted below.

Congress has also set up the United States Patent and Trademark Office (the PTO), the primary responsibility of which is to review patent applications and issue a patent if the application meets the statutory requirements.

II. WHY SHOULD YOUR CLIENT BE THINKING ABOUT PATENTS?

A. If someone else has or obtains a patent that covers your client's product or process, your client

(1) may be enjoined from making, using and selling the product or process, and/or

(2) may be subject to significant monetary damages,³

even if your client did no copying and even if your client did not know about the patent.

B. If your client can obtain a patent, your client may be able

(1) to prevent others from practicing the invention (including even those who independently develop their own product, as well as copycats),

(2) to obtain license fees from others who wish to practice the invention, and/or

(3) to use it as a marketing tool (e.g., "the patented pocket slicing, dicing machine!").

³ In certain cases, the damages may be trebled and attorney fees granted.

C. Filing for a patent early (and keeping good records of the invention's development) puts your client in a better position vis-à-vis later inventors.⁴

D. Having a portfolio of patents may permit your client to cross-license with other companies.

E. Building a patent portfolio can also increase the value of your client's company in the eyes of potential investors or buyers.

Sometimes just one good patent is the difference that allows someone to obtain capital. Investors, of course, would like to invest in a company that has a product that is in demand, but has no competition. Investors also do not want to invest in a company that has made or will make significant expenditures in research, only to have the product knocked-off by a low-cost producer that was able to avoid the research costs simply by copying.

F. On the other hand, if your client is a potential investor, the value of a patent must not be overestimated. Simply because a company has a patent does not mean that the company is valuable--the patent may be narrow (thereby

⁴IMPORTANT: The fact that a person obtains a patent for an invention does NOT mean that invention can be practiced without infringing someone else's patent. The PTO determines whether an invention is new enough to be entitled to a patent, but not whether a device, such as that described in a patent application, infringes anyone else's patent. A typical example is when someone obtains a patent for an improvement on someone else's patent; until the earlier patent expires, a license may be required to practice the later invention. The earlier patent is therefore called a blocking patent. (Like any other patent, a blocking patent may be invalidated if sufficient proof of unpatentability is shown during litigation.) In some cases, however, the fact that a person obtains a patent for an invention is evidence that the product incorporating that later invention does not infringe an earlier patent cited during the prosecution of the later patent in the PTO.

allowing plenty of competition), there may be no demand for the product covered by the patent ("the invention is way ahead of its time"), or the company's product might be of poor quality.

Patents by themselves do not necessarily result in royalty streams. The invention or the products incorporating the invention still have to be marketed--to customers, licensees or assignees--in order to make money. Frequently, for individual inventors, obtaining the patent is the easy part; it's the money-making part that's difficult.

Also, a patent is not a seal of approval from the U.S. government. If one looks through the weekly *Official Gazette* put out by the PTO, one will find plenty of silly inventions that are not practical and that will not make any money.

III. PATENTS VS. OTHER TYPES OF INTELLECTUAL PROPERTY

A. There are disadvantages to patents over other types of protection. Patents have a short, limited life compared to copyrights, trade secrets and trademarks. (Trade secret protection and trademarks can last indefinitely.) Utility patent applications⁵ filed after June 8, 1995 have a term of twenty years from the earliest effective filing date.⁶ (A patent is in force only after it has been issued by the PTO,

⁵Utility patents are the most common type of patent. Other types of patents are design patents and plant patents, which will be discussed briefly below.

⁶Utility patents that are based on applications filed before June 8, 1995, and that have not expired as of June 8, 1995, have a term the longer of twenty years from the earliest effective filing date or seventeen years from issuance.

although--as discussed below--provisional rights are now provided for the time period between the publication of the patent application and the issuance of the patent. It is therefore important in cases where competitors are using or may start using the technology to have the examination of the application accelerated--as also discussed below--in order to stop competitors from using the claimed technology as quickly as possible.)

B. Obtaining a patent requires providing a very complete disclosure to the public, especially in the U.S. Such a disclosure may be useful to the competition, who may not otherwise know how to practice the invention.

C. Another disadvantage is that patents are usually more expensive to obtain than copyrights, trademarks and trade secrets. (Although the costs of maintaining a robust trade-secret protection program at a large company can add up over time.) As just noted, patent applications require a fairly thorough written disclosure. There is, in addition, usually some arguing with the PTO that occurs after the application is filed. Further, although smaller than the attorney fees involved, the various official patent fees are greater than the official fees for copyrights and trademarks.⁷

D. On the other hand, sometimes a patent is the only way to protect adequately an invention. In many cases, trade secret protection is impossible or impractical, because of the nature of the invention (e.g., the invention is mass marketed and can be reverse engineered), or because of other circumstances (e.g., the engineers move freely among competitors in the industry). A copyright is not supposed to

⁷The costs of obtaining and maintaining a foreign patent is frequently greater than in the U.S. Thus, an aggressive foreign patent filing strategy can multiply costs many times over the cost of pursuing protection only in the U.S.

protect an idea, but rather only the expression of the idea. Trademark and trade dress protection is meant to prevent consumers from being misled about the origin of a product and is not intended to prevent competition in the underlying product.

E. There are other advantages for patents over other types of intellectual property protection. In particular, in order to prove infringement of a patent, one does not have to show copying or misappropriation by the accused party, i.e., someone can innocently infringe a patent and still be liable. To prove copyright infringement, one has to show--by one means or another--copying of the copyrighted work.⁸ To prove misappropriation of trade secret, one must show that the trade secret was improperly appropriated.

F. Issued patents are entitled to a statutory presumption of validity.⁹ In addition, since the institution in the early 1980s of the Federal Circuit Court of Appeals, which hears the appeals of all patent infringement cases, patents have become much more valuable than they were twenty years ago. A larger percentage of patents have their validity upheld now than before the institution of the Federal Circuit Court of Appeals. (However, recent decisions of the Federal Circuit Court of Appeals have made the task of proving infringement more difficult.¹⁰)

⁸Thus, the practice, which has been used for developing software that is functionally equivalent to a competitor's software package, of putting a development team under "quarantine," with no access to the software being imitated, can sometimes successfully avoid infringing a copyright. If the competitor's software package was patented, such a quarantine or "clean-room" exercise could not by itself avoid infringing a patent.

⁹35 U.S.C. § 282.

¹⁰*Festo Corp. v. Shoketzu Kinzoku Kogyo Kabushiki Co.*, 234 F.3d 558 (Fed. Cir. 2000), *cert. granted*, 121 S. Ct. 2519 (2001)

IV. WHAT IS PATENTABLE?

A. The subject matter that may be entitled to a utility patent is set forth in 35 U.S.C. § 101, which reads:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

1. The invention must be "useful"--generally, a very easy requirement to satisfy. (Why would anyone want to patent something not useful anyway?) This requirement has, however, been an issue for certain chemical and biochemical compositions.¹¹

Also, an invention that does not work is considered not useful. The PTO, however, rarely makes a specific study to determine if an invention will work, but if the invention's non-operativeness seems clear to the examiner, it will probably become an issue.¹²

¹¹For instance, someone may have isolated a previously unknown compound but does not know how it may be useful. The compound may nevertheless seem interesting because the circumstances surrounding its isolation indicate it is somehow involved in an important but poorly understood chain of chemical reactions. Thus, the inventor may wish to seek patent protection as soon as possible and before figuring out how this compound may be advantageously used.

¹²Models of inventions are normally not required. 37 C.F.R. § 1.91. However, when an inventor attempts to patent a perpetual-motion machine, which defies the laws of physics, the PTO will typically require a model in order to prove that the machine cannot run perpetually. In some chemical and biological cases, the PTO does require a deposit of the claimed matter, in order to ensure that the public can practice the invention after the patent has expired. 35 U.S.C. § 114.

2. Recent decisions by the Federal Circuit Court of Appeals have been very favorable to those who have patented or who are trying to patent software-related and business-method inventions.¹³ (These decisions along with the recent dot-com bubble resulted in a flurry of business-method patent applications, such as the one resulting in Amazon.com's so-called "one-click shopping" patent, U.S. Patent No. 5,960,411.)

3. Medical procedures are patentable in the United States; however, the patentee's ability to sue all infringers of a patent directed to a medical procedure has been curtailed by recent legislation. This legislation makes it even more important to consider likely defendants when drafting a patent claim. (For instance, it is usually easier to sue the manufacturer of an infringing product than the consumers, so the patent should be drafted to cover the product as it leaves the factory--as opposed to how it may be used by the consumer--so as to avoid having to show the additional elements of contributory infringement.) Many foreign countries limit the patentability of medical procedures.

B. Design patents have different subject matter requirements from utility patents, as set forth in 35 U.S.C. § 171, which reads as follows:

Whoever invents any new, original and ornamental design for an article of manufacture may obtain a

¹³See *State Street Bank & Trust Co. v. Signature Financial Group Inc.*, 149 F.3d 1368, 47 U.S.P.Q.2d 1596 (Fed. Cir. 1998), cert. denied, 119 S. Ct. 851 (1999), wherein a machine that performs mathematical calculations to transform data for administering mutual funds was found to be patentable subject matter. See also *In Re Alappat*, 33 F.3d 1526, 31 U.S.P.Q.2d 1545 (Fed. Cir. 1994) (en banc), *In Re Trovato*, 60 F.3d 807, 35 U.S.P.Q.2d 1570 (CAFC 1995) (en banc), and *In Re Lowry*, 32 F.3d 1579, 32 U.S.P.Q.2d 1031 (Fed. Cir. 1994).

patent therefor, subject to the conditions and requirements of this title.

The provisions of this title relating to patents for inventions shall apply to patents for designs, except as otherwise provided.^[14]

The aspects of the design claimed in a design patent must be ornamental, as opposed to functional--which is sometimes a very fine distinction. Design patents can be very useful (especially as a surrogate for or in conjunction with trade dress protection), but are not considered to be as valuable as utility patents, since they are not supposed to protect the underlying concept that makes a product function the way that it does, and since it is usually very easy to design around an ornamental design. Design patents, on the other hand, are generally easier and less expensive to obtain than utility patents.

C. Plant patents also have different subject matter requirements, as set forth in 35 U.S.C. § 161.

D. To be patentable an invention must be novel over the "prior art." What constitutes prior art is set forth in 35 U.S.C. § 102, which reads in part as follows:

A person shall be entitled to a patent unless —

(a) the invention was known or used by others in this country, or patented or described in a printed

¹⁴One difference between utility patents and design patents is the length of their terms. As noted previously, utility patents have a term of twenty years from the earliest effective filing date (or seventeen years from issuance, depending on when they were filed etc). Design patents have a term of fourteen years from issuance.

publication in this or a foreign country, before the invention thereof by the applicant for patent, or

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of the application for patent in the United States, or

(e) the invention was described in—

(1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent . . . ; or

(2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent . . . ; or

(f) he did not himself invent the subject matter sought to be patented, or

(g) . . . (2) before such person's invention thereof, the invention was made in this country by another inventor who had not abandoned, suppressed, or concealed it. In determining priority of invention under this subsection, there shall be considered not only the respective dates of conception and reduction to practice of the invention, but also the reasonable diligence of one who was first to conceive and last to reduce to practice, from a time prior to conception by the other.

1. Statutory Bars

It is very important to note that under 35 U.S.C. § 102(b) the inventor's own activities (as well as the activities of

others) can constitute prior art.¹⁵ The U.S. has a one-year grace period, which permits the inventor to test the commercial success of a product before filing a patent application.¹⁶ If the invention has been published or in public use, or if a product embodying the invention has

¹⁵The term "inventor" is sometimes used herein in the singular for clarity. An invention may have joint inventors, and the rules are basically the same for both single inventors and joint inventors. In the U.S., it is very important and necessary that all the actual inventors be determined and listed on the patent application. Nevertheless, there are (somewhat cumbersome) provisions for correcting honest mistakes in listing inventors.

¹⁶IMPORTANT: The vast majority of foreign countries do not have any grace period, except in very limited circumstances. Thus, **if your client wishes to obtain foreign patent protection, your client generally must file a patent application before it becomes known to the public**, otherwise your client could be statutorily barred from obtaining a patent in another country.

Fortunately, one can at first file only in the U.S. and then file within one year in a country that is a signatory to the Paris Convention for the Protection of Industrial Property with the U.S. filing date as the foreign application's priority date. (The Paris Convention includes almost all countries as signatories--the most notable exception being Taiwan, which has bilateral treaty with the U.S., with the same effect as the Paris Convention.) This way one can avoid a statutory bar problem in foreign countries by initially filing just a U.S. application before any public use or publication of the invention. Pursuing and maintaining foreign patents can be very expensive.

Fortunately, the Patent Cooperation Treaty (which does not have as many signatories as the Paris Convention, but nevertheless includes almost all industrialized countries) allows one at a reasonable initial expense to preserve the right to pursue patents in many jurisdictions, while delaying the filing of many individual national applications, by filing a single international application. If one wants patent protection in many jurisdictions, however, one must eventually--at great expense--pursue separate applications in each of the jurisdictions, regardless of whether an international application was filed. (Many European countries belong to the European Patent Convention thereby streamlining the prosecution of patents in Europe, although perhaps not reducing the costs as much as one would like.)

been on sale, one must file by the one-year anniversary of said event in order to be able to obtain a patent. After that date, one is statutorily barred from obtaining a patent for the invention that was published, in public use or on sale. (It may still be possible to obtain a patent on any improvement over the divulged invention, as long as that improvement was not divulged more than one year previously.)

a. Public Use

The public-use bar frequently creates problems, because courts have held many activities that do not seem very public to be public uses.¹⁷ For instance, there was the corset-spring case,¹⁸ where a female friend of the inventor wore her corset with the improved corset springs in public--under her outer garments of course. No member of the general public saw the invention or had any inkling she was wearing an invention. Yet the Supreme Court held that this was public use. There was also a similar case involving safes, wherein the invention was incorporated into several safes in such a way that the invention could not be discerned without destroying the safe.¹⁹

Another area that can create a statutory bar is an inventor's secret use of a process to make a product that is sold publicly. Although there may be nothing at all public about the process itself, the courts have considered this to be a public use under § 102(b) since the goods

¹⁷Note, however, that foreign countries may define what constitutes a public use differently from the U.S.

¹⁸*Egbert v. Lippmann*, 104 (14 Otto) U.S. 333 (1881).

¹⁹*Hall v. MacNeale*, 107 (17 Otto) U.S. 90 (1883).

made by the process are introduced to the public. As a matter of public policy, the courts--and presumably, Congress--do not want an inventor to take commercial advantage of the process for more than one year and then apply for a patent on the process.²⁰

b. On Sale

The on-sale bar has some traps as well. The one-year grace period generally begins with the first offer for sale, and not necessarily the date the first order was received or the ship date. Also, the customer does not need to know that an invention will be incorporated into the product that is being sold. Furthermore, the offer for sale, the sale itself and the use of the product by the customer may all be confidential, yet the offer for sale still triggers the one-year grace period. An offer for sale can occur before the invention is actually reduced to practice, as long as the invention is "ready" for patenting.²¹

Confidential offers to assign or license the invention itself --as opposed to offers to sell a product incorporating the invention or a product made by means of a process invention--have generally not been considered on-sale activities.

c. The Experimental Use Exception

Experimental use is considered an exception to the public-use and on-sale bars. As a general rule, since it is often difficult to establish definitively that a use is

²⁰Of course, in such a case the inventor can continue to use trade secret protection for the process.

²¹See *Pfaff v. Wells Elecs. Inc.*, 119 S. Ct. 304, 48 U.S.P.Q.2d 1641 (1998)

sufficiently experimental for patent law purposes, it is usually considered unwise to rely on the experimental-use exception prospectively. The safer course is to file an application within one year of the earliest date that could possibly be considered a public-use or on-sale event--or a publication.

d. Publication

Publication, which is another event starting the one-year grace period before one is barred from patenting an invention, is fairly straightforward. There are some instances, however, where there is a question as to what constitutes a publication. (A publication need not be widely circulated; a single copy available in a library may be considered a publication under 35 U.S.C. § 102.) The safest route is, like above, to file an application within one year of the earliest event statutory-bar that could be considered a statutory bar.²²

Companies must be wary of the good-intentioned inventor/employee, who rushes to distribute an article about an invention in order to enhance the reputation of the company, or in order to promote cooperation amongst engineers or scientists in an industry. Such actions can create statutory bars that can prevent the company from obtaining a patent on the invention (especially in foreign countries that do not have a grace period). This is one of the reasons why inventors need to be educated about the

²²Also remember that a good patent application cannot normally be prepared overnight, and therefore the invention should preferably be disclosed to a patent attorney or agent well in advance of the statutory bar date. Nevertheless, it is sometimes possible to prepare and file a provisional application quickly in order to avoid a statutory bar, especially if an adequate description of the invention has already been prepared. (Provisional applications are discussed below.)

importance of patents and the importance of getting a patent attorney involved at an early stage of the development of the invention.

2. Secret Prior Art

Some prior art is not secret, but nevertheless may be difficult to know about ahead of time.²³ Other prior art is truly secret--and unavailable to the public until sometime after its effective date.

Under 35 U.S.C. § 102(e), a pending U.S. patent application, which in some circumstances is kept secret until a patent issues from it, can be prior art as of its filing date. Thus, despite doing a very thorough search done before a patent application is filed, it is always possible that a piece of prior art that one could not have known about ahead of time may be cited against a patent application rendering the claimed invention unpatentable.

A related issue, in the infringement area, is that your client can be found to infringe someone else's patent, even if your client started making, using or selling the accused product or process before that patent issued. In other words, there is no grandfather provision for avoiding the

²³For instance, an article published in an obscure journal in an obscure language in an obscure corner of the world is still considered prior art, even if no one in the U.S. knew about that article at the time of the invention. Even though it may be likely that neither the patent applicant nor the patent examiner would find out about such an obscure reference during the prosecution of the patent application, in patent litigation a great deal of effort is frequently expended in order to find a reference, however obscure, that will invalidate a patent. (Sometimes, a pertinent piece of prior art may be difficult to find within the PTO itself.)

infringement of an ordinary patent²⁴ (unless there was a public use or sale of the accused product more than one year before the patent's filing date, in which case your client's product or process would constitute prior art under 35 U.S.C. § 102(b), or unless there was such a public use before the patented invention's date of invention, in which case your client's product would constitute prior art under § 102(a), or unless the accused product was invented before the patented invention and otherwise constitutes prior art under § 102(g)).

3. Priority Contests (Interferences)

As set forth in 35 U.S.C. § 102(g), when two inventors (or two groups of co-inventors) are each pursuing a U.S. patent for the same invention, priority is given to the inventor who can prove that he or she invented first.²⁵ When such a situation occurs, an elaborate adversarial process, called an "interference," takes place within the PTO in order to determine who is entitled to priority.²⁶ In order to establish an earlier date of invention, it is very important that the inventor or inventors contemporaneously keep detailed notebooks of their development--preferably witnessed by a non-inventor at frequent intervals. If a party to an interference cannot

²⁴There are limited grandfather provisions for alleged infringers of reissue patents, which can (as mentioned below) broaden or narrow an original application (35 U.S.C. § 252), and for alleged infringers of business-method patents (35 U.S.C. § 273).

²⁵Whereas the U.S. has a first-to-invent rule, in most other countries the first to file a patent application for the invention is generally given priority. Generally, the only exception to this first-to-file rule is if the earlier filer derived (stole) the invention from the later filer.

²⁶Interference contests can also be tried in federal district court. 35 U.S.C. § 291.

supply adequate documentary proof of a date of invention, that party may be forced to rely on only the application's filing date.²⁷ As indicated in § 102(g), it is important to have evidence showing the date of conception, the date of reduction to practice, and diligence from the time of conception in reducing the invention to practice.²⁸

E. In order to be entitled to a patent, an invention must not have been "obvious" in light of the prior art. The non-obviousness requirement is set forth in § 103, which reads in part:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

(c) Subject matter developed by another person, which qualifies as prior art only under one or more of subsections (e), (f), and (g) of section 102 of this title, shall not preclude patentability under this section where the subject matter and the claimed invention

²⁷Filing a patent application as early as possible is therefore usually the wisest course to follow. There is always the risk that the evidence of an earlier date of invention will not be satisfactory. In addition, there are procedural benefits in the interference for the party that files first.

²⁸Filing a patent application is considered constructive reduction to practice.

were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person.

Whether an invention would have been "obvious . . . to a person having ordinary skill in the art . . ." is the issue that is most argued about during the prosecution of patent applications, and the second most argued about in patent litigation.²⁹

The obviousness issue requires the resolution of several difficult concepts. One has to imagine a hypothetical person who has only ordinary skill, but who is aware of all the pertinent prior art, however obscure. One further has to place this ordinary and omniscient hypothetical person in the past--at the instant before the actual invention occurred. Would the solution embodied in the claimed invention have been obvious to such a hypothetical person? Even after all the subsidiary issues are resolved (e.g., what is the pertinent field, what was the level of skill in that field, what constitutes the pertinent prior art), determining whether an invention is obvious remains an inherently difficult question, because the arbiter (e.g., the PTO examiner or a jury) already knows the solution, which may seem obvious only in retrospect.

Both the PTO and the courts can look at various indicia of patentability, called "secondary factors," to help them decide if a given invention meets the non-obviousness requirement. The typical secondary factors include (i) a long felt need in the industry for a solution to a problem, (ii) repeated failures in the past to obtain a solution, (iii) the

²⁹The most contentious issue in litigation is infringement, i.e., whether the accused product infringes the asserted patent.

commercial success of the invention, and (iv) copying of the invention by others.

As set forth in the last sentence of 35 U.S.C. § 103(a), it does not matter how an invention was made or conceived; a "flash of genius" is not required. In Thomas Edison's case, invention was "99% perspiration and 1% inspiration," and other ratios with more or less inspiration are permitted. Also, an invention can be discovered by accident.

One cannot always trust the inventor to make an informed decision about whether an invention is obvious. Some inventors, who are modest and/or brilliant, may say that a clearly patentable invention was no big deal, because it was obvious to them--but they may have much more than ordinary skill. Therefore, despite what the inventors or others may think about the obviousness of an invention, one should nevertheless consider patent protection if the invention is important to the company.

V. THE ELEMENTS OF A PATENT APPLICATION

A. The Disclosure

The patent laws require a disclosure of the invention. In most cases, drawings are required.³⁰ In all utility cases (except design cases), a written specification is required. This specification has two main parts: (i) a disclosure of the invention that will teach the public about the invention (as part of the exchange referred to above between the inventor, who has made an advance in the field, and the government, which grants a monopoly in the invention), and (ii) the claims.

³⁰35 U.S.C. § 113.

What is required in the written disclosure is set forth in the first paragraph of 35 U.S.C. § 112, which reads as follows:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same, and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Importantly, the statute requires that the "best mode" be disclosed. Congress does not want inventors withholding important information about the invention so that after the patent expires others cannot practice the invention with the same benefits or efficiency as the inventor. For this reason, patents are sometimes incompatible with trade secrets. If the trade secret is important to know for "the best mode . . . of carrying out [the] invention," then the failure to disclose the secret may invalidate any patent that issues.

B. The Claims

The second paragraph of 35 U.S.C. § 112 reads

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

The claims, which are usually written in a very arcane style, are the most critical part of the patent. The claims are meant to define what is covered by the patent. If an accused product or process falls within the scope of a valid

claim, it infringes the patent.³¹ Yet the claims cannot be so broad so as to cover anything that would have been obvious in light of the prior art.

The claims are the numbered paragraphs found at the end of the patent. A patent may contain one claim or several claims. At least one claim is independent, and the other claims may be independent or dependent. A dependent claim refers to and incorporates another claim.

C. The Oath

An application requires an oath (or declaration under penalty of perjury) by all the inventors that they have reviewed and understand the specification, that they believe themselves to be the original and first inventors of the claimed invention, and that they will disclose all material prior art that they know about to the PTO.³² If an inventor refuses to cooperate, there are provisions that permit the other joint inventors, if any, or the assignee (or someone with sufficient proprietary interest) to file the application.³³

In the U.S., perhaps because of our tradition of enterprising individualism, the correct naming of inventors is given great weight. The determination of who should be listed as inventors on an application should not be taken lightly, because any problems with inventorship can cause problems during litigation and in egregious cases can result

³¹A product or process may infringe a claim literally or under the Doctrine of Equivalents, which allows in some cases a finding of infringement even if the accused product or process does not fall literally within the scope of the claims.

³²35 U.S.C. § 115, 37 C.F.R. § 1.63.

³³37 C.F.R. § 1.47.

in the patent being invalidated. Individuals who help reduce an invention to practice by merely carrying out the routine instructions of others who have conceived the invention (e.g., someone in the machine shop who is merely following the inventor's drawings) are ordinarily not considered to have made an inventive contribution. Only a natural person can be an inventor; a company cannot be an inventor.

Joint inventors are dealt with in 35 U.S.C. § 116, which reads in part:

When an invention is made by two or more persons jointly, they shall apply for patent jointly and each make the required oath, except as otherwise provided in this title. Inventors may apply for a patent jointly even though (1) they did not physically work together or at the same time, (2) each did not make the same type or amount of contribution, or (3) each did not make a contribution to the subject matter of every claim of the patent. . . .

D. The Fee

The basic filing fee for a U.S. patent application is set forth in 37 C.F.R. § 1.16. Fees arising during the prosecution of the application and to maintain an issued patent are set forth in 37 C.F.R. §§ 1.17-1.21. In most cases, the fee for large entities (generally for-profit entities having more than 500 employees) is twice that for small entities (basically everyone else who has not assigned or licensed the invention to a large entity). The fees usually increase annually.

E. The Provisional Application

A provisional application may be used for quickly and cheaply establishing an early priority date for a follow-up regular application. The provisional application must include a disclosure pursuant to 35 U.S.C. § 112, 1st ¶, drawings (if appropriate), the names of the inventors and a filing fee, which is presently \$150.00 for large entities and \$75.00 for small entities. The provisional application requires neither a claim nor an oath, but if time permits a set of claims or a summary of the invention is recommended to show the intended scope of the disclosed invention. A provisional application is not examined by the PTO and becomes abandoned in one year; a regular application must be filed within that one year if patent protection is desired for the invention and if one wants to obtain the benefit of the provisional application's filing date.

F. Continuation-in-Part Applications

The patent laws of the U.S., unlike the laws of most foreign countries, permit the filing of what is referred to as continuation-in-part applications. A continuation-in-part application ("C-I-P"), which has the same requirements as an ordinary application, is frequently useful when there are subsequent improvements to an invention with a pending patent application. Before the original application is issued or abandoned, a C-I-P may be filed incorporating disclosure of the original invention and disclosure of the improvements. The content disclosed in the earlier application will have the benefit of the earlier application's filing date; the new content will have the benefit of the C-I-P's filing date. Applications claiming priority from a provisional application will be similar to C-I-Ps, since some

content will have different dates of priority from other content.³⁴

VI. THE PROCESS OF OBTAINING AND ENFORCING A PATENT

A. Patent Prosecution

In the PTO, examiners with technical backgrounds do the substantive review of the applications, including searching for relevant prior art. Unlike trademark practice, only registered patent attorneys or agents, or the inventors themselves can normally file and prosecute patent applications in the PTO. It usually takes the PTO a year or two after an application has been filed to consider the application, but there are provisions for accelerating examination of an application.³⁵ Sometimes the examiner's review immediately results in a notice of allowance, but in the vast majority of cases it results in an initial rejection of all the claims. The rejection is typically based on the lack of novelty in the invention (35 U.S.C. § 102), the obviousness of the invention (§ 103), the failure to provide clear enough claims (§ 112, 2nd ¶), the failure to provide an enabling disclosure (§ 112, 1st ¶), and/or the subject matter,

³⁴The recent ruling in *Tronzo v. Biomet, Inc.*, 1998 WL 546978 (Fed. Cir. Aug. 28, 1998) limits the situations where a CIP is useful.

³⁵Sometimes, if more than one "invention" is being claimed, the PTO will require that one invention be elected and the others pursued in divisional applications, if at all. After this restriction requirement, the application is examined substantively.

The provisions for accelerating examination are found at 37 C.F.R. § 1.102 and the Manual of Patent Examining Procedure (MPEP) § 708.02.

e.g., the claimed invention is merely a mathematical algorithm (§ 101).

For most applications, these rejections can be overcome. One responds to a rejection by amending the application (including usually the claims) and/or by arguing that the examiner's rejection is ill-founded. This response may result in a notice of allowance or another rejection. There may be several iterations of this process, and one may appeal from a final rejection by the examiner. Alternatively, an application may be abandoned without having its contents disclosed to the public, unless the application has been published.³⁶

It is important that all relevant prior art that is known to the inventors and others involved in the prosecution of the patent be disclosed to the PTO during the prosecution. 37 C.F.R. § 1.56(a) states:

A patent by its very nature is affected with a public interest. The public interest is best served, and the most

³⁶Under the American Inventor's Protection Act of 1999, the contents of an application are published at eighteen months after the filing date (or earlier at the request of the applicant), unless the applicant has certified that the applicant will not be pursuing foreign patent protection based on the U.S. application. (35 U.S.C. § 122.) Publication of the application results in "provisional rights" for the applicant. (Provisional rights are not to be confused with a provisional application.) In particular, once an application is published, the applicant may notify infringers of the published application, and then later on after the patent issues and in a patent infringement suit, the applicant may be able, in some circumstances, to collect damages from the time the infringer was notified. (35 U.S.C. § 154.) Previously, a patentee had only been entitled to damages arising after the patent issues.

Most industrialized foreign countries publish patents applications at eighteen months after the priority date. International applications filed pursuant to the Patent Cooperation Treaty are also published at eighteen months after the priority date.

effective patent examination occurs when, at the time an application is being examined, the Office is aware of and evaluates the teachings of all information material to patentability. Each individual associated with the filing and prosecution of a patent application has a duty of candor and good faith in dealing with the Office, which includes a duty to disclose to the Office all information known to that individual to be material to patentability as defined in this section. . . .

Where there has been a failure to disclose all known material prior art during the prosecution of an application, a patent that issues from that application could be declared unenforceable in later litigation.

After the notice of allowance is sent, an issue fee is due (37 C.F.R. § 1.18); the patent then issues after the issue fee is paid. The prosecution history (called the "file wrapper"), including the rejections and the responses, is made available to the public at the same time. Three maintenance fees (37 C.F.R. § 1.20) are required during the life of a utility patent, which for applications filed after June 7, 1995 will be twenty years from the earliest effective filing date. Failure to pay a maintenance fee results in the expiration of the patent. Like the application filing fee, the maintenance and issue fees for large entities (generally for-profit entities having more than 500 employees) are twice that for small entities (basically everyone else who has not assigned or licensed the invention to a large entity). These fees also usually increase annually.

Because of the detailed examination of the application by the technically trained examiners in the PTO, a patent, once issued, is presumed to be valid. 35 U.S.C. § 282. This presumption is usually of enormous benefit to patent owners in patent litigation.

B. Post-Issuance Procedures

A patent may be reviewed again by the PTO in one of several procedures: reissues, reexaminations and interferences. A third party can institute a reexamination or an interference. In order to institute an interference, a third party must file an interfering application (or amend a pending application to include interfering claims) before the one-year anniversary of the patent's issue date.

Patentees can institute reexaminations or reissues of the application. A reissue requires that there be some mistake on the part of the applicants that caused them to obtain more or less coverage than they were entitled to. Accordingly, a reissue can broaden or narrow the claims. A broadening reissue must be filed within two years of the patent's issue date.

C. Litigation

Once a patent has issued, the owner of a patent can sue others in federal district court for making, selling or using the claimed invention. As monetary damages, a patent owner can recover a reasonable royalty or in some cases lost profits, and has the possibilities of obtaining a trebling of the damages when there is willful infringement and of recovering attorney fees in exceptional cases. Injunctive relief is also available, which can be a powerful bargaining tool when an accused infringer is facing the possibility of being shut down. In the case of importation into the United States of an infringing product, an action may be brought before the International Trade Commission to prevent further importation of infringing articles.

An accused infringer can bring a declaratory judgment action against the patent owner, if the patent owner has alleged infringement but not yet filed suit.³⁷

Unlike patent prosecution, patent litigation may be handled by attorneys not admitted to practice before the PTO; however, because of the specialized issues involved, it is usually highly advisable to retain a patent litigator to try an important patent case.

1. Major Litigation Issues

With respect to liability, the patent owner has the burden of showing infringement, either by showing literal correspondence between the claims and the accused product, or under the Doctrine of Equivalents.³⁸ The accused can try to show that the patent is invalid for failing to comply with one or more of the statutory requirements, e.g., 35 U.S.C. §§ 102 (lack of novelty, statutory bars), 103 (obviousness) or 112 (inadequate disclosure and unclear claims), but must overcome the statutory presumption of validity. Other common defenses include inequitable conduct before the PTO by the patentee,³⁹ patent misuse, estoppel and laches.

On the damages side, there are several recurring issues. The patentee should mark all products incorporating the invention, including those sold by licensees, with the patent number. If the patentee fails to do this, the patentee may not be entitled to damages arising before the

³⁷28 U.S.C. §§ 2201, 2202.

³⁸See the discussion below regarding claim interpretation.

³⁹Usually by failing to disclose a known piece of material prior art. 37 C.F.R. § 1.56.

accused received actual notice of infringement.⁴⁰ Thus, it is important for patentees to make sure that all of their products and all of their licensees' products are properly marked.⁴¹

2. Claim Interpretation

The test of infringement is not between the commercial products. The fact that the accused product is different from the patentee's commercial product, or even that the accused product is different from the device disclosed in the patent, does not mean that there is no infringement. One must look to the claims when analyzing the scope of a patent. The claims are, however, interpreted in light of the disclosure, as well as the prior art and the prosecution history of the application in the PTO.

In order for there to be literal infringement of a patent, an accused product (or process) must "read on" at least one valid claim of the patent. In order for an accused product to read on a claim, the accused product must include every element (and every limitation) required by the claim. If the accused product is missing one element (or one limitation), the accused product does not literally infringe that claim. To read on a dependent claim, the accused product must include the element or elements set forth in the dependent claim as well as the elements required by the claim from which the dependent claim depends.

⁴⁰35 U.S.C. § 287.

⁴¹False marking can result in fines of "\$500 for every such offense" (which is not necessarily for every product falsely marked). 35 U.S.C. § 292.

For example, a patent is literally infringed if the accused product reads on a valid independent claim, even if the accused product does not include any of the elements set forth in the dependent claims depending from that independent claim. A dependent claim is nevertheless valuable if the broader claims from which it depends are found to be invalid in light of the prior art and if the dependent claim is broad enough to cover the accused product. Since it is easier for a patentee to prove that a product reads on a broad claim but it is harder for an accused infringer to invalidate a narrow claim, patentees typically attempt to obtain patents having a range of claims of varying degrees of breadth.

If there is no literal infringement by the accused product, the Doctrine of Equivalents may come into play. The Doctrine of Equivalents permits a finding of infringement in some cases even if the accused product does not fall literally within the scope of the claims.

3. Clearance Opinions

Clients need to be very careful to avoid being found to have willfully infringed a patent, because such a finding can result in the trebling of damages and the award of attorney fees. In order to avoid such a finding, a client needs to have a formal, comprehensive opinion from patent counsel that the product in question does not infringe a patent and/or that the patent is invalid or otherwise unenforceable. This clearance opinion should be done as soon as it is realized that a given patent may pose a problem. Oftentimes, waiting until the litigation commences before requesting an opinion is too late.

Once a clearance opinion is introduced in litigation-- usually in order to counter a charge of willful infringement--all communications between the attorney

and client on the subjects of infringement and validity can lose their privilege.⁴²

VII. OWNERSHIP OF PATENTS

The question of ownership of patents and inventions is generally governed by state law. State law also governs the interpretation and enforcement of license agreements.⁴³

Although the interpretation of license and assignment agreements is generally a state-law question, there are important federal provisions that one needs to pay attention to, in particular regarding the recording of assignments in the PTO as set forth in 35 U.S.C. § 261, which reads in part as follows:

. . .
A certificate of acknowledgment under the hand and official seal of a person authorized to administer oaths within the United States, . . . shall be prima facie evidence of the execution of an assignment, grant or conveyance of a patent or application for patent.

⁴²Sometimes production of a clearance opinion and other related communications can be delayed or avoided by bifurcating the case into liability and damages stages.

On the patentee side, not all communications between the inventor and attorney are considered confidential once a patent has issued; some of these communications are considered merely the relaying of technical information for inclusion into a patent application. Even strictly legal discussions can be discovered if a *prima facie* case of inequitable conduct is made.

⁴³Federal courts have exclusive jurisdiction for patent infringement cases, pursuant to 28 U.S.C. § 1338, but not for enforcement of license agreements.

An assignment, grant or conveyance shall be void as against any subsequent purchaser or mortgagee for a valuable consideration, without notice, unless it is recorded in the Patent and Trademark Office within three months from its date or prior to the date of such subsequent purchase or mortgage.

In addition, one wants to be aware of federal antitrust and patent-misuse law when drafting patent license agreements.

Patents are presumed to be owned by the inventor or inventors, NOT by their employers. It should go without saying then that employers should have each employee execute ahead of time--preferably at the time of hiring--an explicit written agreement in order to avoid any misunderstandings about who owns what. Typically, an employer will want all employees to assign to the employer all inventions relating to the field of the employer or developed using the resources of the employer.

For employees that are "hired to invent," there is generally an implicit obligation to assign inventions to the employer.⁴⁴

⁴⁴See *Dalzell v. Dueber Watch Case Manufacturing Co.*, 149 U.S. 315 (1893), which stated the general rule about employee inventions:

[A] manufacturing corporation, which has employed a skilled workman, for a stated compensation, to take charge of its works, and to devote his time and services to devising and making improvements in articles there manufactured, is not entitled to a conveyance of patents obtained for inventions made by him while employed, in the absence of express agreement to that effect.

149 U.S. at 320.

See also *National Development Co. v. Gray*, 316 Mass. 240, 55 N.E. 2d 783, 62 U.S.P.Q. 205, 153 A.L.R. 973 (1944), which recognized the general rule that employee/inventors own their inventions, and also explained aspects of the "hired to invent" exception to the general rule:

One may be hired for the specific purpose of making a particular invention or a series of inventions in some special branch of a business. . . . If the employer contemplates the discovery of an

Showing that an employee was "hired to invent" is not as easy as one may suppose. Many factors are usually considered, and usually the employer's testimony and the employee's testimony are in sharp conflict. Officers and directors generally have a fiduciary duty to assign relevant inventions to a corporation.

In some cases where an employee retains ownership of an invention, but--in a typical scenario--used an employer's resources to conceive it or reduce it to practice, and then allowed the employer to use the invention, the employer may retain a nontransferable "shop right." The employee, however, is still free to license competitors to practice the invention. The shop right generally allows the employer to practice the invention, or in some cases only certain embodiments of the invention, or only in certain ways (e.g., under some circumstances the employer may be allowed to use the invention but not sell it). Whether a shop right arises and the scope of the shop right depends on the circumstances of the particular case. The shop-right doctrine--or a similar principle such as estoppel, implied license or equity--may also apply in some contractor and consultant arrangements.

Presumably, however, the employer, in addition to ensuring the full right to practice the invention itself, will want to prevent others from practicing an invention developed by an employee, or by a consultant or contractor or whoever may be working for the employer. An explicit written agreement is

invention and enters into a contract with another to endeavor to make the invention for the benefit of the employer and the contract, construed in the light of the attending circumstances, shows that the employee must have reasonably understood that such inventions as resulted from his performance of the contract should belong to the employer, then the employee is under an implied obligation to assign any patents acquired by him for said inventions to his employer.

362 N.E.2d at 787.

the only way to ensure that the employer will retain the ownership rights to the inventions developed by others while working for the employer.

Joint inventors or other joint owners can practice the invention without the consent of or an accounting to the other owners, unless there is an agreement to the contrary.⁴⁵

⁴⁵35 U.S.C. § 262.

VIII. PRACTICE POINTERS

-Companies should obtain written agreements from all employees and anyone else who may be inventing on behalf of the company.

-An invention review program should be set up to recognize inventions early on, and to determine if a patent (or trade secret, etc.) is the best way to protect the invention. Remember that a patent will be published.

-Possible inventors should be educated on the importance of adequate documentation of development, including witnessing by non-inventors.

-Provisional applications may be used to obtain as early a priority date as possible.

-Watch for possible statutory bars, and remember that foreign countries generally do not have a grace period.

-Have searches performed to determine novelty of inventions and to determine if others have patents that may cover your client's product.

-Have a formal, comprehensive clearance opinion prepared by a patent attorney if a patent or patents belonging to another present a possible problem.

If your client has a patent pending:

-Consider filing a continuation-in-part application for any improvements.

-Ensure that all material prior art is disclosed to the PTO.

If your client already has a patent:

-Consider the possibility of a broadening reissue (which must be filed within two years of issuance). Consider a narrowing reissue or a reexamination to strengthen an important patent that may result in litigation.

-Be aware that even if the claims of your client's patent do not literally cover a competitor's product, you might still be able to show infringement under the Doctrine of Equivalents.

-Be sure that your client and all of its licensees are properly marking their products with the appropriate patent numbers.

-Be aware of laches and estoppel issues.

-Be aware that a demand letter can provoke a declaratory judgment suit.

IX. THE GREENHOUSE HELMET HYPOTHETICAL

- A. Determining what type of protection is appropriate.
 - trade secrets
 - utility patents
 - design patents
 - plant patents
 - copyrights
 - trademarks

- B. Determining whether it is too late to file for a patent.
 - on sale
 - public use
 - experimental use exception
 - publication

- C. Determining who the inventors are.

- D. Determining who the owner is.
 - Employer/employee situations
 - hired to invent
 - shop rights
 - agreements

- E. Process of obtaining a patent.
 - search
 - novelty
 - clearance
 - preparation of application
 - U.S. patents are publicly available at issuance, but in some cases are kept secret if not issued.
 - Foreign patents are typically published at 18 months after the priority date, regardless of whether they are allowed or not.
 - written description of the invention
 - enablement

- best mode
- claims
- drawings
- Patent and Trademark Office
- rejections
 - anticipation
 - obviousness
 - disclosure is not enabling
 - claims not clear
- response: amend claims and/or argue that the rejection does not have a sound basis

- F. How to interpret a patent.
- literal infringement
 - Doctrine of Equivalents
 - dependent claims.