CHAPTER 76
PATENTS

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76.1 WHAT DOES IT MEAN TO OBTAIN A PATENT

Before meaningfully discussing such topics as inventions that qualify for patent protection and procedures that are involved in obtaining a patent, it is necessary to know about such basics as the four different types of patent applications that can be filed, the three different types of patents that can be obtained, and what rights are associated with the grant of a patent.

76.1.1 Utility, Design, and Plant Patents

When one speaks of obtaining a patent, it is ordinarily assumed that what is intended is a utility patent. Unless stated otherwise, the discussion of patents presented in this chapter applies only to U.S. patents, and principally to utility patents.

Utility patents are granted to protect processes, machines, articles of manufacture, and compositions of matter that are new, useful, and unobvious.

Design patents are granted to protect the ornamental appearances of articles of manufacture—that is, shapes, configurations, ornamentation, and other appearance-defining characteristics that are new, unobvious, and not dictated primarily by functional considerations.

Plant patents are granted to protect new varieties of plants that have been asexually reproduced, with the exception of tuber-propagated plants and those found in an uncultivated state. New varieties of roses and shrubs often are protected by plant patents.

Both utility and design patent protections may be obtained on some inventions. A utility patent typically will have claims that define novel combinations of structural features, techniques of manufacture, and/or methods of use of a product. A design patent typically will cover outer configuration features that are not essential to the function of the product but rather give the product an esthetically pleasing appearance.

Genetically engineered products may qualify for plant patent protection, for utility patent protection, and/or for other protections provided for by statute that differ from patents. Computer software and other computer-related products may qualify for design and/or utility patent protections. These are developing areas of intellectual property law.

76.1.2 Patent Terms and Expiration

Plant patents have a normal term of 17 years, measured from the dates these patents were granted (their *issue dates*).

Design patents that currently are in force have normal terms of 14 years, measured from their issue dates. Prior to a change of law that took effect during 1982, it was impossible for design patent owners to elect shorter terms of 3½ or 7 years.

Utility patents that expired prior to June 8, 1995, had a normal term of 17 years, measured from their issue dates. Utility patents that (1) were in force on June 8, 1995, or (2) issue from applications that were filed prior to June 8, 1995, have normal terms that expire either 17 years, measured from their issue dates, or 20 years, measured from the filing date of the applications from which these patents issued, whichever is later. Utility patents that issue from applicants that were filed on or after June 8, 1995, have normal terms that expire 20 years from filing.

The filing date from which the 20-year measurement is taken to calculate the normal expiration date of a utility patent is the earliest applicable filing date. If, for example, a patent issues from a continuation application, a divisional application or a continuation-in-part application that claims the benefit of the filing date of an earlier filed "parent" application, the 20-year measurement is taken from the filing date of the "parent" application.

The normal term of a patent may be shortened due to a variety of circumstances. If, for example, a court of competent jurisdiction should declare that a patent is "invalid," the normal term of the patent will have been brought to an early close. In some instances, a "terminal disclaimer" may have been filed by the owner of a patent to cause early termination. The filing of a terminal disclaimer is

sometimes required by the Patent and Trademark Office during the examination of an application that is so closely subject-matter-related to an earlier-filed application that there may be a danger that two patents having different expiration dates will issue covering substantially the same invention.

76.1.3 Four Types of Applications

Three types of patent applications are well known. A *utility* application is what one files to obtain a utility patent. A *design* application is what one files to obtain a design patent. A *plant* application is what one files to obtain a plant patent.

Effective June 8, 1995, it became possible to file one or more *provisional* applications as a precursor to the filing of a utility application. The filing of a provisional application will *not* result in the issuance of any kind of patent. In fact, no examination will be made of the merits of the invention described in a provisional application. Examination "on the merits" takes place only if a utility application is filed; and, if examination takes place, it centers on the content of the utility application, not on the content of any provisional applications that are referred to in the utility application.

The filing of a provisional application that adequately described an invention will establish a filing date that can be relied on in a later-filed utility application relating to the same invention (1) if the utility application is filed within one year of the filing date of the provisional application and (2) if the utility application makes proper reference to the provisional application. While the filing date of a provisional application can be relied on to establish a reduction to practice of an invention, the filing date of a provisional application does *not* start the 20-year clock that determines the normal expiration date of a utility patent.

Absent the filing of a implant application within one year from the filing date of a provisional application, the Patent and Trademark Office will destroy the provisional application once it has been pending a full year.

76.1.4 Why File a Provisional Application

If a provisional application will not be examined and will not result in the issuance of any form of patent whatsoever, why would one want to file a provisional application? Actually there are several reasons why the filing of one or more provisional applications may be advantageous before a full-blown utility application is put on file.

If foreign filing rights are to be preserved, it often is necessary for a U.S. application to be filed before *any* public disclosure is made of an invention so that one or more foreign applications can be filed within one year of the filing date of the U.S. application, with the result that the foreign applications will be afforded the benefit of the filing date of the U.S. application (due to a treaty referred to as the *Paris Convention*), thereby ensuring that the foreign applications comply with "absolute novelty" requirements of foreign patent law.

If the one-year grace period provided by U.S. law (which permits applicants to file a U.S. application anytime within a full one-year period from the date of the first activity that starts the clock running on the one-year grace period) is about to expire, it may be desirable to file a provisional application rather than a utility application because (1) preparing and filing a provisional application usually can be done less expensively, (2) preparing and filing a provisional application usually can be done more quickly, inasmuch as it usually involves less effort, and (3) everything that one may want to include in a utility application may not have been discerned (i.e., invention development and testing may still be underway), hence it may be desirable to postpone for as much as a full year the drafting and filing of a utility application.

If development work is still underway when a first provisional application is filed, and if the result of the development program brings additional invention improvements to light, it may be desirable (during the permitted period of one year between the filing of the first provisional application and the filing of a full-blown utility application) to file one or more additional provisional applications, all of which can be referred to and can have their filing dates relied upon when a utility application is filed within one year, measured from the filing date of the earliest-filed provisional application.

76.1.5 Understanding That a Patent Grants a "Negative Right"

It is surprisingly common to find that even those who hold several patents fail to properly understand the "negative" nature of the rights that are embodied in the grant of a patent.

What a patent grants is the "negative right" to "exclude others" from making, using, or selling an invention that is covered by the patent. *Not* included in the grant of a patent is a "positive right" enabling the patent owner to actually make, use, or sell the invention. In fact, a patent owner may be precluded, by the existence of other patents, from making, using, and selling his or her patented invention. Illustrating this often misunderstood concept is the following example, referred to as *The Parable of the Chair.*

If inventor A invents a three-legged stool at an early time when such an invention is not known to others, A's invention may be viewed as being "basic" to the art of seats, probably will be held to

be patentable, and the grant of a patent probably will have the practical effect of enabling A both (1) to prevent others from making, using, and selling three-legged stools and (2) to be the only entity who *can* legally make, use, and sell three-legged stools during the term of A's patent.

If, during the term of A's patent, inventor B improves upon A's stool by adding a fourth leg for stability and an upright back for enhanced support and comfort (whereby a chair is born), and if B obtains a patent on his chair invention, the grant of B's chair patent will enable B to prevent others from making, using, and selling four-legged back-carrying seats. However, B's patent will do nothing at all to permit B to make, use, or sell chairs—the problem being that a four-legged seat having a back *infringes* A's patent because each of B's chairs *includes* three legs that support a seat, which is what A can exclude others from making, using, or selling. To legally make, use, or sell chairs, B must obtain a license from A.

And if, during the terms of the patents granted to A and B, C invents and patents the improvement of providing curved rocking rails that connect with leg bottoms, and arms that connect with the back and seat, thereby bringing into existence a rocking chair, C can exclude others during the term of his patent from making, using, or selling rocking chairs, but must obtain licenses from both A and B in order to make, use, or sell rocking chairs, for a rocking chair includes three legs and a seat and includes four legs, a seat, and a back.

Invention improvements may represent very legitimate subject matter for the grant of a patent. However, patents that cover invention improvements may not give the owners of these patents any right at all to make, use, or sell their patented inventions unless licenses are obtained from those who obtained patents on inventions that are more basic in nature. Once the terms of the more basic patents expire, owners of improvement patents then may be able to practice and profit from their inventions on an exclusive basis during the remaining portions of the terms of their patents.

76.2 WHAT CAN BE PATENTED AND BY WHOM

For an invention to be patentable, it must meet several requirements set up to ensure that patents are not issued irresponsibly. Some of these standards are complex to understand and apply. Let us simplify and summarize the essence of these requirements.

76.2.1 Ideas, Inventions, and Patentable Inventions

Invention is a misleading term because it is used in so many different senses. In one, it refers to the act of inventing. In another, it refers to the product of the act of inventing. In still another, the term designates a patentable invention, the implication mistakenly being that if an invention is not patentable, it is not an invention.

In the context of modern patent law, invention is the conception of a novel and useful contribution followed by its reduction to practice. Conception is the beginning of an invention; it is the creation in the mind of an inventor of a useful means for solving a particular problem. Reduction to practice can be either actual, as when an embodiment of the invention is tested to prove its successful operation under typical conditions of service, or constructive, as when a patent application is filed containing a complete description of the invention.

Ideas, per se, are not inventions and are not patentable. They are the tools of inventors, used in the development of inventions. Inventions are patentable only insofar as they meet certain criteria established by law. For an invention to be protectable by the grant of a utility patent, it must satisfy the following conditions:

1. Fit within one of the statutorily recognized classes of patentable subject matter
2. Be the true and original product of the person seeking to patent the invention as its inventor
3. Be new at the time of its invention by the person seeking to patent it
4. Be useful in the sense of having some beneficial use in society
5. Be nonobvious to one of ordinary skill in the art to which the subject matter of the invention pertains at the time of its invention
6. Satisfy certain statutory bars that require the inventor to proceed with due diligence in pursuing efforts to file and prosecute a patent application

76.2.2 The Requirement of Statutory Subject Matter

As stated in the Supreme Court decision of *Kewanee Oil v. Bicron Corp.*, 416 U.S. 470, 181 U.S.P.Q. 673 (1974), no utility patent is available for any discovery, however, useful, novel, and nonobvious, unless it falls within one of the categories of patentable subject matter prescribed by Section 101 of Title 35 of the United States Code. Section 101 makes this process.

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

The effect of establishing a series of statutory classes of eligible subject matter has been to limit the pursuit of patent protection to the useful arts. Patents directed to processes, machines, articles of manufacture, and compositions of matter have come to be referred to as utility patents, inasmuch as these statutorily recognized classes encompass the useful arts.

Three of the four statutorily recognized classes of eligible subject matter may be thought of as products, namely, machines, manufactures, and compositions of matter. *Machine* has been interpreted in a relatively broad manner to include a wide variety of mechanisms and mechanical elements. *Manufactures* is essentially a catch-all term covering products other than machines and compositions of matter. *Compositions of matter,* another broad term, embraces such elements as new molecules, chemical compounds, mixtures, alloys, and the like. *Manufactures* and *compositions of matter* arguably include such genetically engineered life forms as are not products of nature. The fourth class, *processes,* relates to procedures leading to useful results.

Subject matter held to be ineligible for patent protection includes printed matter, products of nature, ideas, and scientific principles. Alleged inventions of perpetual motion machines are refused patents. A mixture of ingredients such as foods and medicines cannot be patented unless there is more to the mixture than the mere cumulative effect of its components. So-called patent medicines are seldom patented.

While no patent can be issued on an old product despite the fact that it has been found to be derivable through a new process, the new process for producing the product may well be patentable. That a product has been reduced to a purer state than was previously available in the prior art does not render the product patentable, but the process of purification may be patentable. A new use for an old product does not entitle one to obtain product patent protection, but may entitle one to obtain process patent protection, assuming the process meets other statutory requirements.

A newly discovered law of nature, regardless of its importance, is not entitled to patent protection. Methods of conducting business and processes that either require a mental step to be performed or depend on aesthetic or emotional reactions have been held not to constitute statutory subject matter.

While the requirement of statutory subject matter fails principally within the bounds of 35 U.S.C. 101, other laws also operate to restrict the patenting of certain types of subject matter. For example, several statutes have been passed by Congress affecting patent rights in subject matter relating to atomic energy, aeronautics, and space. Still another statute empowers the Commissioner of Patents and Trademarks to issue secrecy orders regarding patent applications disclosing inventions that might be detrimental to the national security of the United States.

The foreign filing of patent applications on inventions made in the United States is prohibited for a brief period of time until a license has been granted by the Commissioner of Patents and Trademarks to permit foreign filing. This prohibition period enables the Patent and Trademark Office to review newly filed applications, locate any containing subject matter that may pose concerns to national security, and, after consulting with other appropriate agencies of government, issue secrecy orders preventing the contents of these applications from being publicly disclosed. If a secrecy order issues, an inventor may be barred from filing applications abroad on penalty of imprisonment for up to two years or a $10,000 fine or both. In the event a patent application is withheld under a secrecy order, the patent owner has a right to recover compensation from the government for damage caused by the secrecy order and/or for the use the government may have made of the invention.

Licenses permitting expedited foreign filing are almost always automatically granted by the Patent and Trademark Office at the time of issuing an official filing receipt, which advises the inventor of the filing date and serial number assigned to his or her application. Official filing receipts usually issue within a month of the date of filing and bear a statement attesting to the grant of a foreign filing license.

76.2.3 The Requirement of Originality of Inventorship

Under U.S. patent law, only the true and original inventor or inventors may apply to obtain patent protection. If the inventor has derived an invention from any other source or person, he or she is not entitled to apply for or obtain a patent.

The laws of our country are strict regarding the naming of the proper inventor or joint inventors in a patent application. When one person acting alone conceives an invention, he or she is the sole inventor and he or she alone must be named as the inventor in a patent application filed on that invention. When a plurality of people contribute to the conception of an invention, these persons must be named as joint inventors if they have contributed to the inventive features that are claimed in a patent application filed on the invention.

Joint inventorship occurs when two or more persons collaborate in some fashion, with each contributing to conception. It is not necessary that exactly the same idea should have occurred to each of the collaborators at the same time. Section 116 of Title 35 of the United States Code includes the following provision:

> *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.*

Those who may have assisted the inventor or inventors by providing funds or materials for development or by building prototypes are not deemed to be inventors unless they contributed to the conception of the invention. While inventors may have a contractual obligation to assign rights in an invention to their employers, this obligation, absent a contribution to conception, does not entitle a supervisor or an employer to be named as an inventor. When a substantial number of patentable features relating to a single overall development have occurred as the result of different combinations of sole inventors acting independently and/or joint inventors collaborating at different times, the patent law places a burden on the inventors to sort out "who invented what." Patent protection on the overall development must be pursued in the form of a number of separate patent applications, each directed to such patentable aspects of the development as originated with a different inventor or group of inventors. In this respect, U.S. patent practice is unlike that of many foreign countries, where the company for whom all the inventors work is often permitted to file a single patent application in its own name covering the overall development.

Misjoinder of inventors occurs when a person who is not a joint inventor has been named as such in a patent application. *Nonjoinder of inventors* occurs when there has been a failure to include a person who should have been named as a joint inventor. *Misdesignation of inventorship* occurs when none of the true inventors are named in an application. Only in recent years has correction of a misdesignation been permitted. If a problem of misjoinder, nonjoinder, or misdesignation has arisen without deceptive intent, provisions of the patent law permit correction of the error as long as such is pursued with diligence following the discovery.

76.2.4 The Requirement of Novelty

Section 101 of Title 35 of the United States Code requires that a patentable invention be new. What is meant by *new* is defined in Sections 102(a), 102(e), and 102(g). Section 102(a) bars the issuance of a patent on an invention "known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for patent." Section 102(e) bars the issuance of a patent on an invention "described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or in an international application by another." Section 102(g) bars the issuance of a patent on an invention that "before the applicant's invention thereof . . . was made in this country by another who had not abandoned, suppressed, or concealed it."

These novelty requirements amount to negative rules of invention, the effect of which is to prohibit the issuance of a patent on an invention if the invention is not new. The novelty requirements of 35 U.S.C. 102 should not be confused with the statutory bar requirements of 35 U.S.C. 102, which are discussed in Section 76.2.7. A comparison of the novelty and statutory bar requirements of 35 U.S.C. 102 is presented in Table 76.1. The statutory bar requirements are distinguishable from the novelty requirements in that they do not relate to the newness of the invention, but to ways an inventor, who would otherwise have been able to apply for patent protection, has lost that right by tardiness.

To understand the novelty requirements of 35 U.S.C. 102, one must understand the concept of anticipation. A claimed invention is anticipated if a single prior art reference contains all the essential elements of the claimed invention. If teachings from more than one reference must be combined to

Table 76.1 Summary of the Novelty and Statutory Bar Requirements of 35 U.S.C. 102

Novelty Requirements

One may not patent an invention if, prior to its date of invention, the invention was any of the following:

1. Known or used by others in this country.
2. Patented or described in a printed publication in this or a foreign country.
3. Described in a patent granted on an application for patent by another filed in the United States.
4. Made in this country by another who had not abandoned, suppressed, or concealed it.

Statutory Bar Requirements

One may not patent an invention he or she has previously abandoned. One may not patent an invention if, more than one year prior to the time his or her patent application is filed, the invention was any of the following:

1. Patented or described in a printed publication in this or a foreign country.
2. In public use or on sale in this country.
3. Made the subject of an inventor's certificate in a foregin country.
4. Made the subject of a foreign patent application, which results in the issuance of a foreign patent before an application is filed in this country.

show that the claimed combination of elements exists, there is no anticipation, and novelty exists. Combining references to render a claimed invention unpatentable brings into play the nonobviousness requirements of 35 U.S.C. 103, not the novelty requirement of 35 U.S.C. 102. Novelty hinges on anticipation and is a much easier concept to understand and apply than that of nonobviousness.

35 U.S.C. 102(a) Known or Used by Others in This Country Prior to the Applicant's Invention

In interpreting whether an invention has been known or used in this country, it has been held that the knowledge must consist of a complete and adequate description of the claimed invention and that this knowledge must be available, in some form, to the public. Prior use of an invention in this country by another will be disabling only if the invention in question has actually been reduced to practice and its use has been accessible to the public in some minimal sense. For a prior use to be disabling under Section 102(a), the use must have been of a complete and operable product or process that has been reduced to practice.

35 U.S.C. 102(a) Described in a Printed Publication in This or a Foreign Country Prior to the Applicant's Invention

For a printed publication to constitute a full anticipation of a claimed invention, the printed publication must adequately describe the claimed invention. The description must be such that it enables a person of ordinary skill in the art to which the invention pertains to understand and make the invention. The question of whether a publication has taken place is construed quite liberally by the courts to include almost any act that might legitimately constitute publication. The presence of a single thesis in a college library has been held to constitute publication. Similar liberality has been applied in construing the meaning of the term *printed.*

35 U.S.C. 102(a) Patented in This or a Foreign Country

An invention is not deemed to be novel if it was patented in this country or any foreign country prior to the applicant's date of invention. For a patent to constitute a full anticipation and thereby render an invention unpatentable for lack of novelty, the patent must provide an adequate, operable description of the invention. The standard to be applied under Section 102(a) is whether the patent "describes" a claimed invention. A pending patent application is treated as constituting a "patent" for purposes of applying Section 102(a) as of the date of its issuance.

35 U.S.C. 102(e) Described in a Patent Filed in This Country Prior to the Applicant's Invention

Section 102(e) prescribes that if another inventor has applied to protect an invention before you invent the same invention, you cannot patent the invention. The effective date of a U.S. patent, for purposes of a Section 102(e) determination, is the filing date of its application, rather than the date of patent issuance.

35 U.S.C. 102(g) Abandoned, Suppressed, or Concealed

For the prior invention of another person to stand as an obstacle to the novelty of one's invention under Section 102(g), the invention made by another must not have been abandoned, suppressed, or concealed. Abandonment, suppression, or concealment may be found when an inventor has been inactive for a significant period of time in pursuing reduction to practice of an invention. This is particularly true when the inventor's becoming active again has been spurred by knowledge of entry into the field of a second inventor.

76.2.5 The Requirement of Utility

To comply with the utility requirements of U.S. patent law, an invention must be capable of achieving some minimal useful purpose that is not illegal, immoral, or contrary to public policy. The invention must be operable and capable of being used for some beneficial purpose. The invention does not need to be a commercially successful product in order to satisfy the requirement of utility. While the requirement of utility is ordinarily a fairly easy one to meet, problems do occasionally arise with chemical compounds and processes, particularly in conjunction with various types of drugs. An invention incapable of being used to effect the proposed object of the invention may be held to fail the utility requirement.

76.2.6 The Requirement of Nonobviousness

The purpose of the novelty requirements of 35 U.S.C. 102 and the nonobviousness requirement of 35 U.S.C. 103 are the same—to limit the issuance of patents to those innovations that do, in fact, advance the state of the useful arts. While the requirements of novelty and nonobviousness may seem very much alike, the requirement of nonobviousness is a more sweeping one. This requirement

maintains that if it would have been obvious (at the time an invention was made) to anyone ordinarily skilled in the art to produce the invention in the manner disclosed, then the invention does not rise to the dignity of a patentable invention and is therefore not entitled to patent protection.

The question of nonobviousness must be wrestled with by patent applicants in the event the Patent and Trademark Office rejects some or all their claims based on an assertion that the claimed invention is obvious in view of the teaching of one or a combination of two or more prior art references. When a combination of references is relied on in rejecting a claim, the argument the examiner is making is that it is obvious to combine the teachings of these references to produce the claimed invention. When such a rejection has been made, the burden is on the applicant to establish to the satisfaction of the examiner that the proposed combination of references would not have been obvious to one skilled in the art at the time the invention was made; and/or that, even if the proposed combination of references is appropriate, it still does not teach or suggest the claimed invention.

In an effort to ascertain whether a new development is nonobvious, the particular facts and circumstances surrounding the development must be considered and weighed as a whole. While the manner in which an invention was made must not be considered to negate the patentability of an invention, care must be taken to ensure that the question of nonobviousness is judged as of the time the invention was made and in light of the then existing knowledge and state of the art. This test of nonobviousness has been found to be an extremely difficult one for courts to apply.

The statutory language prescribing the nonobviousness requirement appears at Title 35, Section 103, stating:

> *A patent may not be obtained . . . 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.*

In the landmark decision of *Graham v. John Deere,* 383 U.S.1, 148 U.S.P.Q. 459 (1966), the U.S. Supreme Court held that several basic factual inquiries should be made in determining nonobviousness. These inquiries prescribe a four-step procedure or approach for judging nonobviousness. First, the scope and content of the prior art in the relevant field or fields must be ascertained. Second, the level of ordinary skill in the relevant field or fields must be ascertained. Second, the level of ordinary skill in the pertinent art is determined. Third, the differences between the prior art and the claims at issue are examined. Fourth and finally, a determination is made as to whether these differences would have been obvious to one of ordinary skill in the applicable art at the time the invention was made.

76.2.7 Statutory Bar Requirements

Despite the fact that an invention may be new, useful, and nonobvious and that it may satisfy the other requirements of the patent law, an inventor can still lose the right to pursue patent protection on the invention unless he or she complies with certain requirements of the law called *statutory bars.* The statutory bar requirements ensure that inventors will act with diligence in pursuing patent protection.

While 35 U.S.C. 102 includes both the novelty and the statutory bar requirements of the law, it intertwines these requirements in a complex way that is easily misinterpreted. The novelty requirements are basic to a determination of patentability in the same sense as are the requirements of statutory subject matter, originality, and nonobviousness. The statutory bar requirements are not basic to a determination of patentability, but rather operate to decline patent protection to an invention that may have been patentable at one time.

Section 102(b) bars the issuance of a patent if an invention was "in public use or on sale" in the United States more than one year prior to the date of the application for a patent. Section 102(c) bars the issuance of a patent if a patent applicant has previously abandoned the invention. Section 102(d) bars the issuance of a patent if the applicant has caused the invention to be first patented in a foreign country and has failed to file an application in the United States within one year after filing for a patent in a foreign country. Table 76.1 summarizes the statutory bar requirements of Section 102.

Once an invention has been made, the inventor is under no specific duty to file a patent application within any certain period of time. However, should one of the "triggering" events described in Section 102 occur, regardless of whether this occurrence may have been the result of action taken by the inventor or by actions of others, the inventor must apply for a patent within the prescribed period of time or be barred from obtaining a patent.

Some of the events that trigger statutory bar provisions are the patenting of an invention in this or a foreign country; the describing in a printed publication of the invention in this or a foreign country; the public use of the invention in this country; or putting the invention on sale in this country. Some public uses and putting an invention on sale in this country will not trigger statutory bars if these activities were incidental to experimentation. Whether a particular activity amounts to

experimental use has been the subject of much judicial dissension. The doctrine of experimental use is a difficult one to apply because of the conflicting decisions issued on this subject.

Certainly, the safest approach to take is to file for patent protection well within one year of any event leading to the possibility of any statutory bar coming into play. If foreign patent protections are to be sought, the safest approach is to file an application in this country before any public disclosure is made of the invention.

76.3 PREPARING TO APPLY FOR A PATENT

Conducting a patentability search and preparing a patent application are two of the most important stages in efforts to pursue patent protection. This section points out pitfalls to avoid in both stages.

76.3.1 The Patentability Search

Conducting a patentability search prior to the preparation of a patent application can be extremely beneficial even when an inventor is convinced that no one has introduced a similar invention into the marketplace. A properly performed patentability study will guide not only the determination of the scope of patent protection to be sought, but also the claim-drafting approaches to be used. In almost every instance, a patent attorney who has at hand the results of a carefully conducted patentability study can do a better job of drafting a patent application, thereby helping to ensure that it will be prosecuted smoothly, at minimal expense, through the rigors of examination in the Patent and Trademark Office.

Occasionally, a patentability search will indicate that an invention is totally unpatentable. When this is the case, the search will have saved the inventor the cost of preparing and filing a patent application. At times a patentability search turns up one or more newly issued patents that pose infringement concerns. A patentability search is not, however, as extensive a search as is one conducted to locate possible infringement concerns when a great deal of money is being invested in a new product.

Some reasonable limitation is ordinarily imposed on the scope of a patentability search to keep search costs within a relatively small budget. The usual patentability search covers only U.S. patents and does not extend to foreign patents or to publications. Only the most pertinent Patent and Trademark Office subclasses are covered. However, despite the fact that patentability studies are not of exhaustive scope, a carefully conducted patentability search ordinarily can be relied on to give a decent indication of whether an invention is worthy of pursuing patent coverage to protect.

Searches do occasionally fail to turn up one or more pertinent references despite the best efforts of a competent searcher. Several reasons explain why a reference may be missed. One is that the files of the Public Search Room of the Patent and Trademark Office are incomplete. The Patent and Trademark Office estimates that as many as 7% of the Search Room references are missing or misfiled. Another reason is that the Public Search Room files do not contain some Patent Office subclasses. The searcher must review these missing subclasses in the "examiners' art," the files of patents used by Patent and Trademark Office examiners, where the examiners are free to remove references and take them to their offices as they see fit. Since most patents are cross-referenced in several subclasses, a careful searcher will try to ensure that the field encompassed by a search extends to enough subclasses that patents are located that should have been found in other subclasses, but were not.

76.3.2 Putting the Invention in Proper Perspective

It is vitally important that a client take whatever time is needed to make certain that his or her patent attorney fully understands the character of an invention before the attorney undertakes the preparation of a patent application. The patent attorney should be given an opportunity to talk with those involved in the development effort from which an invention has emerged. He or she should be told what features these people believe are important to protect. Moreover, the basic history of the art to which the invention relates should be described, together with a discussion of the efforts made by others to address the problems solved by the present invention.

The client should also convey to his or her patent attorney how the present invention fits into the client's overall scheme of developmental activities. Much can be done in drafting a patent application to lay the groundwork for protection of future developments. Additionally, one's patent attorney needs to know how product liability concerns may arise with regard to the present invention so that statements he or she makes in the patent application will not be used to the client's detriment in product liability litigation. Personal injury lawyers have been known to scrutinize the representations made in a manufacturer's patents to find language that will assist in obtaining recoveries for persons injured by patented as well as unpatented inventions of the manufacturer.

Before preparation of an application is begun, careful consideration should be given to the scope and type of claims that will be included. In many instances, it is possible to pursue both process and product claims. Also, in many instances, it is possible to present claims approaching the invention from varying viewpoints so different combinations of features can be covered. Frequently, it is pos-

sible to couch at least two of the broadest claims in different language so efforts of competitors to design around the claim language will be frustrated.

Careful considerations must be given to approaches competitors may take in efforts to design around the claimed invention. The full range of invention equivalents also needs to be taken into account so that claims of appropriate scope will be presented in the patent application.

76.3.3 Preparing the Application

A well drafted patent application is a work of art. It should be a readable and understandable teaching document. If it is not, insist that your patent attorney rework the document. A patent application that accurately describes an invention without setting forth the requisite information in a clear and convincing format may be legally sufficient, but it does not represent the quality of work a client has the right to expect.

A well drafted patent application should include an introductory section that explains accurately, yet interestingly, the background of the invention and the character of the problems that are overcome. It should discuss the closest prior art known to the applicant and should indicate how the invention patentably differs from prior art proposals. It should present a summary of the invention that brings out the major advantages of the invention and explains how prior-art drawbacks are overcome. These elements of a patent application may occupy several typed pages. They constitute an introduction to the remainder of the document.

Following this introductory section, the application should present a brief description of such drawings as may accompany the application. Then follows a detailed description of the best mode known to the inventor for carrying out the invention. In the detailed description, one or more preferred embodiments of the invention are described in sufficient detail to enable a person having ordinary skill in the art to which the invention pertains to practice the invention. While some engineering details, such as dimensions, materials of construction, circuit component values, and the like, may be omitted, all details critical to the practice of the invention must be included. If there is any question about the essential character of a detail, prudent practice would dictate its inclusion.

The written portion of the application concludes with a series of claims. The claims are the most difficult part of the application to prepare. While the claims tend to be the most confusing part of the application, the applicant should spend enough time wrestling with the claims and/or discussing this section with the patent attorney to make certain that the content of the claims is fully understood. Legal gibberish should be avoided, such as endless uses of the word *said.* Elements unessential to the practice of the invention should be omitted from the claims. Essential elements should be described in the broadest possible terms in at least some of the claims so the equivalents of the preferred embodiment of the invention will be covered.

The patent application will usually include one or more sheets of drawings and will be accompanied by a suitable declaration or oath to be signed by the inventor or inventors. The drawings of a patent application should illustrate each feature essential to the practice of the invention and show every feature to which reference is made in the claims. The drawings must comply in size and format with a lengthy set of technical rules promulgated and frequently updated by the Patent and Trademark Office. The preparation of patent drawings is ordinarily best left to an experienced patent draftsperson.

If a patent application is prepared properly, it should pave the way for smooth handling of the patent application during its prosecution. If a patent application properly tells the story of the invention, it should constitute a teaching document that will stand on its own and be capable of educating a court regarding the character of the art to which the invention pertains, as well as the import of this invention to that art. Since patent suits are tried before judges who rarely have technical backgrounds, it is important that a patent application make an effort to present the basic features of the invention in terms understandable by those having no technical training. It is unusual for an invention to be so impossibly complex that its basic thrust defies description in fairly simple terms. A patent application is suspect if it wholly fails to set forth, at some point, the pitch of the invention in terms a grade school student can grasp.

76.3.4 Enablement, Best Mode, Description, and Distinctness Requirements

Once a patent application has been prepared and is in the hands of the inventor for review, it is important that the inventor keep in mind the enablement, best mode, description, and distinctness requirements of the patent law.

The enablement requirement calls for the patent application to present sufficient information to enable a person skilled in the relevant art to make and use the invention. The disclosure presented in the application must be such that it does not require one skilled in the art to experiment to any appreciable degree to practice the invention.

The best-mode requirement mandates that an inventor disclose, at the time he or she files a patent application, the best mode he or she then knows about for carrying out or practicing the invention.

The description requirement also relates to the descriptive part of a patent application and the support it must provide for any claims that may need to be added after the application has been filed. Even though a patent application may adequately teach how to make and use the subject matter of

the claimed invention, a problem can arise during the prosecution of a patent application where one determines it is desirable to add claims that differ in language from those filed originally. If the claim language one wants to add does not find full support in the originally filed application, the benefit of the original filing date will be lost with regard to the subject matter of the claims to be added—a problem referred to as *late claiming,* about which much has been written in court decisions of the past 40 years. Therefore, in reviewing a patent application prior to its being executed, an inventor should keep in mind that the description that forms a part of the application should include support for any language he or she may later want to incorporate in the claims of the application.

The distinctness requirement applies to the content of the claims. In reviewing the claims of a patent application, an inventor should endeavor to make certain the claims particularly point out and distinctly claim the subject matter that he or she regards as his or her invention. The claims must be *definite* in the sense that their language must clearly set forth the area over which an applicant seeks exclusive rights. The language used in the claims must find antecedent support in the descriptive portion of the application. The claims must not include within their scope of coverage any prior art known to the inventor, and yet should present the invention in the broadest possible terms that patentably distinguish the invention over the prior art.

76.3.5 Functional Language in Claims

While functional language in claims may tend to draw objection, there is statutory support for using a particular type of functional claim language. Section 112 of Title 35 of the United States Code includes this statement:

> *An element in a claim for a combination may be expressed as a means or step for performing a specified function without the recital of structure, material, or acts in support thereof, and such claim shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof.*

Using a *means-plus-function* or a *step-plus-function* format to claim an invention can be one of the most effective avenues to take in an effort to achieve the broadest possible coverage of alternative approaches that competitors may explore. However, in drafting a claim in mean-plus-function format, care must be taken to ensure that what is being claimed amounts to more than a single means (i.e., a single element defined in means-plus-function format), since the requirement of the patent law that means-plus-function language be used only in a claim for a *combination* is not met by such a claim. Such a claim is deemed to be of undue breadth for, in essence, it claims every conceivable means for achieving a stated result.

During recent years, much has been written regarding how a means- or step-plus-function claim limitation should be interpreted. This continues to be a developing area of patent law.

76.3.6 Product-by-Process Claims

In some instances, it is possible to claim a product by describing the process or method of its manufacture.

Even though a *product-by-process* claim is limited and defined by the process it recites, a determination of patentability of the claimed product does not depend on its method of production. If the claimed product is the same as or obvious from a product of the prior art, the claimed product is deemed unpatentable even though the prior product was made by a different process. If the prior art discloses a product that is identical with or only slightly different than a claimed product, an alternative rejection based either on Section 102 or 103 may be given by the Patent and Trademark Office. Once the Patent and Trademark Office has rejected a product-by-process claim by showing that the claimed product appears to be the same or similar to a prior art product, although produced by a different process, the burden falls on the applicant to prove that there exists an unobvious difference between the claimed product and the prior art product.

76.3.7 Claim Format

A patent applicant has some freedom in selecting the terminology he uses to define and claim his invention, for it has long been held that "and applicant is his own lexicographer." However, the meanings that an applicant assigns to the terminology he or she uses must not be repugnant to the well known usages of such terminology. When an applicant does not define the terms he uses, such terms must be given their "plain meaning," namely the meanings given to such terms by those of ordinary skill in the relevant art.

Each claim is a complete sentence. In many instances the first part of the sentence of each claim appears at the beginning of the claims section and reads, "What is claimed is:." Each claim typically includes three parts: preamble, transition, and body. The preamble introduces the claim by summarizing the field of the invention, its relation to the prior art, and its intended use, or the like. The transition is a word or phrase connecting the preamble to the body. The terms *comprises* or *comprising*

often perform this function. The body is the listing of elements and limitations that define the scope of what is being claimed.

Claims are either *independent* or *dependent*. An independent claim stands on its own and makes no reference to any other claim. A dependent claim refers to another claim that may be independent or dependent, and adds to the subject matter of the referenced claim. If a dependent claim depends from (makes reference to) more than one other claim, it is called a *multiple dependent* claim.

One type of claim format that can be used gained notoriety in a 1917 decision of the Commissioner of Patents, *Ex parte Jepson,* 1917 C.D. 62. In a claim of the *Jepson* format, the preamble recites all the elements deemed to be old, the body of the claim includes only such new elements as constitute improvements, and the transition separates the old from the new. The Patent and Trademark Office favors the use of *Jepson*-type claims since this type of claim is thought to assist in segregating what is old in the art from what the applicant claims as his or her invention.

In 1966, the Patent and Trademark Office sought to encourage the use of *Jepson*-type claims by prescribing the following rule 75(e):

> *Where the nature of the case admits, as in the case of an improvement, any independent claim should contain in the following order, (1) a preamble comprising a general description of the elements or steps of the claimed combination which are conventional or known, (2) a phrase such as "wherein the improvement comprises," and (3) those elements, steps and/or relationships which constitute that portion of the claimed combination which the applicant considers as the new or improved portion.*

Thankfully, the use of the term *should* in Rule 75(e) makes use of *Jepson*-type claims permissive rather than mandatory. Many instances occur when it is desirable to include several distinctly old elements in the body of the claim. The preamble in a *Jepson*-type claim has been held to constitute a limitation for purposes of determining patentability and infringement, while the preambles of claims presented in other types of format may not constitute limitations. A proper understanding of the consequences of presenting claims in various types of formats and the benefits thereby obtained will be taken into account by one's patent attorney.

76.3.8 Executing the Application

Once an inventor has satisfied himself or herself with the content of a proposed patent application, he or she should read carefully the oath or declaration accompanying the application. The required content of this formal document recently has been simplified. In it the inventor states that he or she

1. Has reviewed and understands the content of the application, including the claims, as amended by any amendment specifically referred to in the oath or declaration
2. Believes the named inventor or inventors to be the original and first inventor or inventors of the subject matter which is claimed and for which a patent is sought
3. Acknowledges the duty to disclose to the Patent and Trademark Office during examination of the application all information known to the person to be material to patentability

If the application is being filed as a division, continuation, or continuation-in-part of one or more co-pending parent applications, the parent case or cases are identified in the oath or declaration. Additionally, if a claim to the benefit of a foreign-filed application is being made, it is recited in the oath or declaration.

Absolutely no changes should be made in any part of a patent application once it has been executed. If some change, no matter how ridiculously minor, is found to be required after an application has been signed, the executed oath or declaration must be destroyed and a new one signed after the application has been corrected. If an application is executed without having been inspected by the applicant or is altered after having been executed, it may be stricken from the files of the Patent and Trademark Office.

76.3.9 Patent and Trademark Office Fees

The Office charges a fee to file an application, a fee to issue a patent, fees to maintain a patent if it is to be kept alive for its full available term, and a host of other fees for such things as obtaining an extension of time to respond to an Office Action. The schedule of fees charged by the Office is updated periodically, usually resulting in fee increases as the Office has increasingly become self-supporting. Such fee increases often take effect on or about October 1, when the government's new fiscal year begins. This has been known to result in increased numbers of September filings of applications during years when sizable fee increases have taken effect.

As of this writing, the basic fee required to file an application for a utility patent has increased more than 1500-fold to $790 since it was first set at 50 cents under the Patent Act of 1790.

In addition to the basic fee of $790, $82 is charged for each independent claim in excess of a total of three; $22 is charged for each claim of any kind in excess of a total of 20, and $270 is charged for any application that includes one or more multiple dependent claims. However, if the applicant is entitled to claim the benefits of small entity status, the entire filing fee (including each of the filing fee components just described) is halved, as are most other fees that are associated with the handling of a patent application.

Provisional applications require a $150 filing fee that may be halved for small entities. Applications for design patents require a filing fee that presently stands at $330 unless small-entity status is established, whereupon this fee also may be halved. Plant patent applications require a $540 filing fee that may also be halved for small entities.

New rules now permit the Office to assign a filing date before the filing fee and oath of declaration have been received. While the filing fee and an oath or declaration are still needed to complete an application, a filing date will now be assigned as of the date of receipt of the descriptive portion of an application (known as the specification), accompanied by at least one claim, any required drawings, and a statement of the names of the inventors.

The issue fee charged by the Office for issuing a utility patent on an allowed application stands at $1320. Establishing a right to the benefits of small entity status permits reduction of this fee to $660. The issue fee for a design application is $450, which also may be halved with the establishment of small-entity status. A plant patent requires an issue fee of $670, which may be halved for small entities. There is no issue fee associated with a provisional application since a provisional application does not issue as a patent unless it is supplemented within one year of its filing date by the filing of a complete utility application.

Maintenance fees must be paid to keep an issued utility patent in force during its term. No maintenance fees are charged on design or plant patents, or on utility patents that have issued from applications filed before December 12, 1980. As of this writing, maintenance fees of $1050, $2100 and $3160 are due no later than 3½, 7½, and 11½ years, respectively, from a utility patent's issue date. Qualification for the benefits of small entity status allows these fees to be reduced to $525, $1050, and $1580, respectively. Failure to timely pay any maintenance fee, or to late-pay it during a six-month grace period following its due date accompanied by a late payment surcharge of $130 ($65 for small entities), will cause a patent to lapse permanently.

76.3.10 Small Entity Status

The practice of providing half-price fees to individual inventors, nonprofit organizations, and small businesses came into existence concurrently with the implementation of an October 1, 1982, fee increase.

Qualification for small-entity status requires only the filing of a verified statement prior to or with the first fee paid as a small entity. All entities having rights with respect to an application or patent must each be able to qualify for small entity status; otherwise, small entity status cannot be achieved. Statements as to qualification as a small entity must be filed by all entities having rights with respect to an application or patent in order to qualify. Once qualification has been achieved, there is a continuing duty to advise the Office before or at the time of paying the next fee if qualification for small-entity status has been lost.

Those who qualify for small-entity status include

1. A sole inventor who has not transferred his or her rights and is under no obligation to transfer his or her rights to an entity that fails to qualify
2. Joint inventors where no one among them has transferred his or her rights and is under no obligation to transfer his or her rights to an entity that fails to qualify
3. A nonprofit organization such as an institution of higher education or an IRS-qualified and exempted nonprofit organization
4. A small business that has no more than 500 employees after taking into account the average number of employees (including full-time, part-time, and temporary) during the fiscal year of the business entity in question, and of its affiliates, with the term *affiliate* being defined by a broad-reaching "control" test

Attempting to establish small-entity status fraudulently or establishing such status improperly or through gross negligence, is considered a fraud on the Office. An application could be disallowed for such an act. Failure to establish small-entity status on a timely basis forfeits the right to small-entity status benefits with respect to a fee being paid. However, if small-entity status is established within two months after a fee was paid, a refund of the excess amount paid may be obtained if a request for a refund is received by the Patent and Trademark Office within the two-month period. A good-faith error made in establishing small-entity status may be excused by paying any deficient fees. However, if the payment is made more than three months after the error occurred, a verified statement establishing good faith and explaining the error must be filed.

76.3.11 Express Mail Filing

During 1983, a new procedure was adopted by the Office that permits any paper or fee to be filed with the Office by using the "Express Mail Post Office to Addressee" service of the U.S. Postal Service. When this is done, the filing date of the paper or fee will be that shown on the "Express Mail" mailing label.

To qualify for the filed-when-mailed advantage, each paper must bear the number of the "Express Mail" mailing label, must be addressed to the Assistant Commissioner for Patents, Washington, DC 20231, and must comply with other requirements that are changed from time to time.

The practical and very important effect of this new procedure is to eliminate the hassle that has long been associated with the last-minute attempts to effect physical delivery of patent applications and other papers and fee payments to the Office in time to meet a bar date or comply with a convention filing date.

76.4 PROSECUTING A PENDING PATENT APPLICATION

Once an executed patent application has been received by the Patent and Trademark Office, the patent application is said to be pending. The prosecution period of a patent application is the time during which an application is pending, it begins when a patent application is filed in the Patent and Trademark Office and continues until either a patent is granted or the application is abandoned. The activities that take place during this time are referred to as *prosecution.*

76.4.1 Patent Pending

Once an application for a patent has been received by the Patent and Trademark Office, the applicant may mark products embodying the invention and literature or drawings relating to the invention with an indication of "Patent Pending" or "Patent Applied For." These expressions mean a patent application has been filed and has neither been abandoned nor issued as a application. The terms do not mean that the Patent and Trademark Office has taken up examination of the merits of an application, much less approved the application for issuance as a patent.

The fact that a patent application has been filed, or is pending or applied for, does not provide any protection against infringement by competitors. While pending patent applications are held in secrecy by the Patent and Trademark Office and therefore do not constitute a source of information available to competitors regarding the activities of an inventor, nothing prevents competitors from independently developing substantially the same invention and seeking to market it. Unless and until a patent actually issues, there is no legal basis for stopping a competitor from purchasing a product bearing a designation "Patent Pending" and copying the invention embodied in the purchased product. Infringement liability does not attach to infringements that may have occurred prior to the issue date of a patent.

As a practical matter, however, marking products with the designation "Patent Pending" often has the effect of discouraging competitors from copying an invention, whereby the term of the patent that eventually issues may effectively be extended to include the period during which the application is pending. In many instances, competitors will not risk a substantial investment in preparation for the manufacture and merchandising of a product marked with the designation "Patent Pending," for they know their efforts may be legally interrupted as soon as a patent issues.

76.4.2 Secrecy of Pending Applications

With the exception of applications filed to reissue and requests to re-examine existing patents, pending patent applications are maintained in strictest confidence by the Patent and Trademark Office. No information regarding a pending application will be given out by the Office without authority from the applicant or owner of the application. However, if an interested third party learns of the pendency of an application, he or she may file a protest to its issuance.

The file of a pending application can only be inspected as a matter of right by the named inventor, an assignee of record, an exclusive licensee, an attorney of record, or such persons as have received written authority from someone permitted by right to inspect the file. This provision of secrecy extends to abandoned applications as well as to pending applications. In the event an abandoned application is referred to in an issued patent, access to the file of the abandoned case will be granted to members of the public on request. Should a pending patent application be referred to in an issued patent, access may usually be obtained by petition. All reissue applications are open to inspection by the general public.

76.4.3 Duty of Candor

The Patent and Trademark Office has placed increased emphasis on the duty an applicant has to deal candidly with the Patent and Trademark Office.

In accordance with Patent Office guidelines, a patent applicant is urged to submit an Information Disclosure Statement either concurrently with the filing of an application or within three months of its filing. When these guidelines were imposed in 1977, what are now called *information disclosure statements* were referred to as *prior art statements.* An information disclosure statement may be

either separate from or incorporated in a patent application. It should include a listing of patents, publications, or other information that is believed to be "material" and a concise explanation of the relevance of each listed item, and should be accompanied by copies of each listed patent or publication. Items are deemed to be "material" where there is a "substantial likelihood that a reasonable examiner would consider it important in deciding whether to allow the application to issue as a patent."

To ensure that the Patent and Trademark Office will give due consideration to an information disclosure statement, the information disclosure statement must be (1) filed within three months of the filing date of a normal U.S. application, or (2) within three months of entry of a U.S.-filed international application into its national stage, or (3) before the mailing date of a first Office communication treating the merits of the claimed invention (known as an "Office Action"), whatever occurs last. Consideration thereafter can be had only if other requirements are met, which typically include the certification of certain information, the filing of a petition, and/or the payment of a fee. Information disclosure statements filed before the grant of a patent that do not comply with the requirements of the Office are not considered by the Office but will be placed in the official file of the patent (which becomes public on the issue date of a patent).

The courts have held that those who participate in proceedings before the Office have the "highest duty of candor and good faith." While the courts differ in their holding of the consequences of misconduct, fraud on the Patent and Trademark Office has been found to be a proper basis for taking a wide variety of punitive actions, such as striking applications from the records of the Office, cancelling issued patents, denying enforcement of patents in infringement actions, awarding attorney's fees to defendants in infringement actions, and imposing criminal sanctions on those who were involved in fraudulently procuring patents. Inequitable conduct other than outright fraud has been recognized as a defense against enforcement of a patent, as a basis for awarding attorney's fees in an infringement action, and as a basis of antitrust liability.

In short, the duty of candor one has in dealings with the Office should be taken very seriously. Prudent practice would urge that if there is any question concerning whether a reference or other facts are "material," a citation should be made promptly to the Office so that the examiner can decide the issue.

76.4.4 Initial Review of an Application

Promptly after an application is filed, it is examined to make certain it is complete and satisfies formal requirements sufficiently to permit its being assigned a filing date and serial number. Once a patent application has been received by the Patent and Trademark Office and assigned a filing date and serial number, the classification of the subject matter of the claimed invention is determined and the application is assigned to the appropriate examining group. In the group, the application is assigned to a particular examiner. Each examiner is instructed to take up considerations of the applications assigned to him or her in the order of their filing.

Although more than 2000 examiners staff the Patent and Trademark Office, a backlog of several months of cases awaits action in most of the examining sections called *group art units.* This results in a delay of several months between the time an application is filed and when it receives its first thorough examination on the merits. At the time of this writing, the Office is granting about 115,000 patents per year.

Once an examiner reaches an application and begins the initial review, he or she checks the application still further for compliance with formal requirements and conducts a search of the prior art to determine the novelty and nonobviousness of the claimed invention. The examiner prepares an Office Action, in which he or she notifies the applicant of any objections to the application or requirements regarding election of certain claims for present prosecution, and/or any rejections he or she believes should be made of the claims.

In the event the examiner deems all the claims in the application to be patentable, he or she notifies the applicant of this fact and issues a notice of allowance. Applications that are allowed "lock, stock and barrel" on the first Office Action are sometimes regarded with suspicion—a nagging concern being that, had broader claims been sought, perhaps they too might have been allowed.

In some instances, the examiner will find it necessary to object to the form of the application. One hopes that these formal objections are not debilitating and can be corrected by relatively minor amendments made in response to the Office action.

In treating the merits of the claims, especially in a first Office Action, it is not uncommon for an examiner to reject a majority if not all of the claims. Some examiners feel strongly that they have a duty to cite the closest art they are able to find and to present rejections based on this art to encourage or force the inventor to put on record in the file of the application such arguments as are needed to illustrate to the public exactly how the claimed invention distinguishes patentably over the cited art.

76.4.5 Response to an Office Action

In the event the first Office Action issued by an examiner is adverse in any respect and/or leaves one or more issues unresolved, the applicant may reply in almost any form that constitutes a bona fide attempt to advance the prosecution of the application. The applicant is entitled to at least one

reconsideration by the Office following the issuance of the first Office Action; however, as a minimum, a response must present at least some argument or other basis for requesting reconsideration.

Since the file of a patent application will become open to public inspection on the issuance of a patent and because an issued patent must be interpreted in view of the content of its file, the character of any arguments presented to the Patent and Trademark Office in support of a claimed invention are critical. In responding to an Office Action, it is essential that care be taken in the drafting of arguments to ensure that no misrepresentations are made and that the arguments will not result in an unfavorable interpretation of allowed claims being made during the years when the resulting patent is in force.

Years ago, it was not unusual for half a dozen or more Office Actions to issue during the course of pendency of a patent application. During recent years, however, the Office has placed emphasis on "compacting" the prosecution of patent applications, and insists that responses to Office Actions make a genuine, full-fledged effort to advance the prosecution of the application. Today it is not unusual for the prosecution of a patent application to be concluded on the issuance of the second or third Office Action. In an increasing number of cases, a final rejection is made as early as the second or third Office Action.

When an Office Action is mailed from the Patent and Trademark Office, a time period for filing a response begins. In the event a response is not filed within the time set by law, the application will automatically become abandoned, and rights to a patent may be lost forever. Ordinarily, a response must be filed within a three-month period from the mailing date of the Office Action. An extension of time of up to three months ordinarily can be had so long as the statutory requirement of filing a response within six months of the issuance of an Office Action is met. In previous years, it was necessary to present reasons to justify the grant of an extension of time, and the grant of an extension request was discretionary. Now, however, extensions are granted automatically upon receipt of a petition for extension accompanied by a proper response to the Office Action and the required fee.

The fee for obtaining an extension of time increases as the number of months covered by the extension is requested increases. The fees for one, two, and three-month extensions of time currently are $110, $400, and $950, respectively, unless small-entity status is established, in which case the fees are $55, $200, and $475, respectively.

In responding to an Office Action, each objection and rejection made by the examiner must be treated. If the inventor agrees that certain of his or her claims should not be allowed in view of art cited by the examiner, these claims may be cancelled or amended to better distinguish the claimed invention over the cited art.

Typical responses to Office Actions involve the addition, cancellation, substitution, or amendment of claims; the amendment of the descriptive portion of the application to correct typographical errors and the like (which can be done if no "new matter" is added); and the presentation of arguments regarding the allowability of the claimed invention in which explanations are provided that point out how the claims patentably distinguish over the cited references. A response may also include the submission of an affidavit to overcome a cited reference either by establishing a date of invention before the effective date of the reference or by presenting factual evidence supporting patentability over the reference.

If the Office has objected to the drawings, corrections must be made (at a time before the issue fee is paid) by providing substitute drawings that include the required corrections.

76.4.6 Reconsideration in View of the Filing of a Response

Once the applicant has responded, the examiner reexamines the case and issues a second Office Action apprising the applicant of his or her findings. If the examiner agrees to allow all of the claims that remain active in the application, prosecution on the merits is closed and the applicant may not present further amendments or add other claims as a matter of right. If the Office Action is adverse with regard to the merits of the claims, the prosecution of the case continues until such time as the examiner issues an Office Action that presents a final rejection.

The examiner makes a rejection final once a clear and unresolved issue has developed between the examiner and the applicant. After a final rejection has issued, the character of the responses that may be made by the applicant is limited. The applicant may appeal the final rejection to an intra-agency Board of Appeals, cancel the rejected claims, comply with all of the requirements for allowance if any have been laid down by the examiner, or file a continuation application whereby the examination procedure is begun again.

If an initial appeal taken to the Board of Patent Appeals should result in an unfavorable decision, a further appeal may be taken either to the U.S. District Court for the District of Columbia or to the U.S. Court of Appeals for the Federal Circuit (which, as of October 1, 1982, replaced what was previously known as the U.S. Court of Customs and Patent Appeals). In some instances, further appeals may be pursued to higher courts.

In the majority of instances during the period of prosecution, the application eventually reaches a form acceptable to the examiner handling the application, and the examiner will issue a notice of allowance. If it is impossible to reach accord with the examiner handling the application, the inventor can make use of the procedures for appeal.

If the record of examination of an application does not otherwise reveal the reasons for allowance, an examiner may put a comment in the file explaining his or her reasons for allowing the case. If the reason stated by an examiner for allowing a patent is shown during litigation to be faulty, this can cause the patent to be held invalid. Therefore, if a statement of reasons for allowance is provided by an examiner, it should be reviewed with care and commented upon, in writing, if deemed to be necessary.

76.4.7 Interviewing the Examiner

If, during the prosecution of a patent application, it appears that substantial differences of opinion or possible misunderstandings are being encountered in dealing with the examiner to whom the application has been assigned, it often is helpful for the attorney to conduct a personal interview with the examiner. While the applicant has a right to attend such a meeting, this right is best exercised sparingly and usually requires that the applicant spend time with the attorney to become better prepared to advance rather than to detract from his or her position.

Considering the relatively sterile and terse nature of many office actions, it may prove difficult to determine accurately what the examiner's opinion may be regarding how the application should be further prosecuted. While word-processing equipment acquired by the Office has made it easier for examiners to expound the reasons underlying their rejections, situations still arise where it is quite clear that an examiner and an attorney are not communicating in the full sense of the word. At times, a personal interview will be found to provide valuable guidance for bringing the prosecution of the application to a successful conclusion. In other instances, an interview will be beneficial in ascertaining the true character of any difference of opinion between the applicant and the examiner, thereby enabling the exact nature of this issue to be addressed thoroughly in the next response filed by the applicant.

76.4.8 Restriction and Election Requirements

If a patent examiner determines that an application contains claims to more than one independent and distinct invention, the examiner may impose what is called a *restriction requirement.* In the event the examiner finds that the application claims alternative modes or forms of an invention, he or she may require the applicant to elect one of these species for present prosecution. This is called a *species election requirement.* Once a restriction or election requirement has been imposed, the applicant must elect one of the designated inventions or species for present prosecution in the original application. The applicant may file divisional applications on the nonelected inventions or species any time during the pendency of the original application, which often results in a plurality of related patents issuing on different aspects of what the inventor regards as a single invention.

When responding to an Office Action that includes a restriction and/or election requirement, it often is desirable to present arguments in an effort to traverse the requirement and request its reconsideration. After traversing, the examiner is obliged to reconsider the requirement, but he or she may repeat it and make it final. Sometimes the examiner can be persuaded to modify or withdraw a restriction and/or election requirement, thereby permitting a larger number of claims to be considered during the prosecution of the pending application. As a practical matter, unless the examiner has set out a restriction and/or election requirement that is utterly and completely absurd, seeking reconsideration tends to be a waste of effort. Thankfully, it is seldom that an examiner decides that a simple application defines an excessive number of separate inventions, whereby the need to petition for reconsideration is a rarity.

76.4.9 Double-Patenting Rejections

Occasionally, one may receive a rejection based on the doctrine of double patenting. This doctrine precludes the issuance of a second patent on the same invention already claimed in a previously issued patent.

One approach to overcoming a double-patenting rejection is to establish a clear line of demarcation between the claimed subject matter of the second application and that of the earlier patent. If the line of demarcation is such that the claimed subject matter of the pending application is nonobvious in view of the invention claimed in the earlier patent, no double-patenting rejection is proper. If the claimed subject matter of the patenting application defines merely an obvious variation of the claimed invention of the earlier issued patent, the double-patenting rejection may be overcome by the filing of a terminal disclaimer. The terminal portion of any patent issuing on the pending application is disclaimed so that any patent issuing on the pending application will expire on the same day the already existing patent expires. If the claimed subject matter of the pending application is identical to the claimed subject matter in the earlier issued patent, it is not possible to establish a line of demarcation between the two cases and the pending application is not patentable even if a terminal disclaimer is filed.

The courts have held that double-patenting problems may occur when a utility patent application and a design patent application have been filed on the same invention. However, the fact that both a utility patent and a design patent may have issued on various features of a common invention does not necessarily mean a double-patenting problem exists. If it is possible to practice the ornamental

appearance covered by the design patent without necessarily infringing any of the claims of the utility patent, and if it is possible to practice the claimed invention of the utility patent without infringing the ornamental appearance covered by the design patent, no double-patenting problem is present.

76.4.10 Patent Issuance

Once a notice of allowance has been mailed by the Office, the applicant has an inextensible period of three months to pay the issue fee. Payment of the issue fee is a prerequisite to the issuance of a patent. If payment of the issue fee is unavoidably or unintentionally late, the application becomes abandoned but usually can be revived within a year of the payment due date. Reviving an unintentionally abandoned application requires a much higher fee payment than does revival of an unavoidably abandoned application. A patent will not issue unless this fee is paid.

A few weeks before the patent issues, the Office mails a notice of issuance, which advises the applicant of the issue date and patent number.

Once a patent issues, its file history is no longer held secret. The several documents that form the complete file history of a patent are referred to collectively as the *official file* or the *file wrapper.*

Upon receipt of a newly issued patent, it should be reviewed with care to check for printing errors. If printing errors of misleading or otherwise significant nature are detected, it is desirable to petition for a certificate of correction. If errors of a clerical or typographical nature have been made by the applicant or by his or her attorney and if these errors are not the fault of the Patent and Trademark Office, a fee must be paid to obtain the issuance of a Certificate of Correction. If the errors are the fault of the Patent and Trademark Office, no such fee need be paid.

The issuance of a patent carries with it a presumption of validity. As was well stated by Judge Markey in *Roper Corp. v. Litton Systems, Inc.,* 757 F.2d 1266 (Fed. Cir., 1985), "A patent is born valid and remains valid until a challenger proves it was stillborn or had birth defects. . . ." If the validity of a patent is put in question, the challenger has the burden of establishing invalidity by evidence that is clear and convincing.

76.4.11 Safeguarding the Original Patent Document

The original patent document merits appropriate safeguarding. It is printed on heavy bond paper, its pages are fastened together by a blue ribbon, and it bears the Official Seal of the United States Patent and Trademark Office. The patent owner should preserve this original document in a safe place as evidence of his or her proprietary interest in the invention. If an infringer must be sued, the patent owner may be called on to produce the original letters patent document in court.

76.4.12 Continuation, Divisional, and Continuation-in-Part Applications

During the pendency of an application, it may be desirable to file either a continuation or a divisional application. A continuation application may be filed if the prosecution of a pending application has not proceeded as desired, whereby a further opportunity for reconsideration can be had before an appeal is taken. A divisional application may be filed when two or more inventions are disclosed in the original application and claims to only one of these inventions have been considered during examination of the originally filed case.

It frequently occurs during the pendency of a patent application that a continuing program of research and development program being conducted by the inventor results in the conception of improvements in the original invention. Because of a prohibition in the patent law against amending the content of a pending patent application to include "new matter," any improvements made in the invention after the time an application is filed cannot be incorporated into a pending application. When improvements are made that are deemed to merit patent protection, a continuation-in-part application is filed. Such an application can be filed only during the pendency of an earlier-filed application commonly called the *parent case.* The continuation-in-part case receives the benefit of the filing date of the parent case with regard to such subject matter as is common to the parent case. Any subject matter uncommon to the parent case is entitled only to the benefit of the filing date of the continuation-in-part case.

In some instances when a continuation-in-part application has been filed, the improvements that form the subject matter of the continuation-in-part case are closely associated with the subject matter of the earlier-filed application, and the earlier application may be deliberately abandoned in favor of the continuation-in-part case. In other instances, the new matter that is the subject of the continuation-in-part application clearly constitutes an invention in and of itself. In such a situation, it may be desirable to continue the prosecution of the original application to obtain one patent that covers the invention claimed in the original application and a second patent that covers the improvement features.

76.4.13 Maintaining a Chain of Pending Applications

If a continuing development program is under way that produces a series of improvements, it can be highly advantageous to maintain on file in the Patent and Trademark Office a continuing series of pending applications—an unbroken chain of related cases. If an original parent application is initially

filed, and a series of continuation, division, and/or continuation-in-part applications are filed in such a manner that ensures the existence of an uninterrupted chain of pending cases, any patent or patents that may issue on the earlier cases cannot be used as references cited by the Office as obstacles in the path of allowance of later applications in the chain. This technique of maintaining a series or chain of pending applications is an especially important technique to use when the danger exists that the closest prior art the Office may be able to cite against the products of a continuing research and development effort is the patent protection that issued on early aspects of this effort.

76.5 PATENT PROTECTIONS AVAILABLE ABROAD

U.S. patents provide no protection abroad and can be asserted against a foreigner only in the event the foreigner's activities infringe within the geographical bounds of our country. This section briefly outlines some of the factors one should consider if patent protection outside the United States is desired.

76.5.1 Canadian Filing

Many U.S. inventors file in Canada. Filing an application in Canada tends to be somewhat less expensive than filing in other countries. With the exception of a stringently enforced unity requirement, which necessitates that all the claims in an application strictly define a single inventive concept, Canadian patent practice essentially parallels that of the United States. If one has success in prosecuting an application in the United States, it is not unusual for the Canadian Intellectual Property Office to agree to allow claims of substantially the same scope as those allowed in the United States.

76.5.2 Foreign Filing in Other Countries

Obtaining foreign patent protection on a country-by-country basis in countries other than Canada, particularly in non-English-speaking countries, has long been an expensive undertaking. In almost all foreign countries, local agents or attorneys must be employed, and the requirements of the laws of each country must be met. Some countries exempt large areas of subject matter, such as pharmaceuticals, from what may be patented.

Filing abroad often necessitates that one provide a certified copy of the United States case for filing in each foreign country selected. Translations are needed in most non-English-speaking countries. In such countries as Japan, even the retyping of a patent application to put it in proper form can be costly.

With the exception of a few English-speaking countries, it is not at all uncommon for the cost of filing an application in a single foreign country to equal, if not substantially exceed, the costs that have been incurred in filing the original U.S. application. These seemingly unreasonably high costs prevail even though the U.S. application from which a foreign application is prepared already provides a basic draft of the essential elements of the foreign case.

76.5.3 Annual Maintenance Taxes and Working Requirements

In many foreign countries, annual fees must be paid to maintain the active status of a patent. Some countries require annual maintenance fee payments even during the time that the application remains pending. In some countries, the fees escalate each year on the theory that the invention must be worth more as it is more extensively put into practice. These annual maintenance fees not only benefit foreign economies, but also become so overwhelming in magnitude as to cause many patent owners to dedicate their foreign invention rights to the public. Maintaining patents in force in several foreign countries is often unjustifiably expensive.

In many foreign countries, there are requirements that an invention be "worked" or practiced within these countries if patents within these countries are to remain active. Licensing of a citizen of or business entity domesticated within the country to practice an invention satisfies the working requirement in some countries.

76.5.4 Filing under International Convention

If applications are filed abroad within one year of the filing date of an earlier-filed U.S. case, the benefit of the filing date of the earlier-filed U.S. case usually can be attributed to the foreign applications. Filing within one year of the filing date of a U.S. case is known as filing under international convention. The convention referred to is the Paris Convention, which has been ratified by our country and by almost all other major countries. Taiwan is among the few countries that do not honor this treaty.

Most foreign countries do not provide the one-year grace period afforded by U.S. statute to file an application. Instead, certain foreign countries require that an invention be "absolutely novel" at the time of filing of a patent application in these countries. If the U.S. application has been filed prior to any public disclosure of an invention, the absolute novelty requirements of most foreign countries can be met by filing applications in these countries under international convention, whereby the effective filing date of the foreign cases is the same as that of the U.S. case.

76.5.5 Filing on a Country-by-Country Basis

If one decides to file abroad, one approach is to file separate applications in each selected country. Most U.S. patent attorneys have associates in foreign countries with whom they work in pursuing patent protections abroad. It is customary for the U.S. attorney to advise a foreign associate about how he or she believes the prosecution of an application should be handled, but to leave final decisions to the expertise of the foreign associate.

76.5.6 The Patent Cooperation Treaty

Since June 1978, U.S. applicants have been able to file an application in the United States Patent and Trademark Office in accordance with the terms of the Patent Cooperation Treaty (PCT), which has been ratified by the United States and by the vast majority of developed countries.

PCT member countries include such major countries as Australia, Austria, Belgium, Brazil, Canada, China, Denmark, Finland, France, Germany, Hungary, Japan, Mexico, Netherlands, Norway, Russia, Sweden, Switzerland, the United Kingdom, and the United States. In filing a PCT case, a U.S. applicant can designated the application for eventual filing in the national offices of such other countries as have ratified the treaty.

One advantage of PCT filing is that the applicant is afforded an additional eight months beyond the one-year period he or she would otherwise have had under the Paris Convention to decide whether he or she wants to complete filings in the countries he or she has designated. Under the Patent Cooperation Treaty, an applicant has 20 months from the filing date of his or her U.S. application to make the final foreign filing decision.

Another advantage of PCT filing is that it can be carried out literally at the last minute of the one-year convention period measured from the date of filing of U.S. application. Thus, in situations where a decision to file abroad to effect filings has been postponed until it is impractical if not impossible to effect filings of separate applications in individual countries, a single PCT case can be filed on a timely basis in the United States Patent and Trademark Office designating the desired countries.

Still another feature of PCT filing is that, by the time the applicant must decide on whether to complete filings in designated countries, he or she has the benefit of the preliminary search report (a first Office Action) on which to base his or her decision. If the applicant had elected instead to file applications on a country-by-country basis under international convention, it is possible that he or she might not have received a first Office Action from the Patent and Trademark Office within the one year permitted for filing under international convention.

76.5.7 The European Patent Convention

Another option available to U.S. citizens since June 1978 is to file a single patent application to obtain protection in one or more of the countries of Europe, most of which are parties to the so-called *European Patent Convention* (EPC).

Two routes are available to U.S. citizens to effect EPC filing. One is to act directly through a European patent agent or attorney. The other is to use PCT filing through the United States Patent and Trademark Office and to designate EPC filing as a *selected country.*

A European Patent Office (EPO) has been set up in Munich, Germany. Before applications are examined by the EPO in Munich, a Receiving Section located at The Hague inspects newly filed applications for form. A novelty search report on the state of the art is provided by the International Patent Institute at The Hague. Within 18 months of filing, The Hague will publish an application to seek views on patentability from interested parties. Once publication has been made and the examination fee paid by the applicant, examination moves to Munich, where a determination is made of patentability and prosecution is carried out with the applicant responding to objections received from the examiner. The EPO decides whether a patent will issue, after which time a copy of the patent application is transferred to the individual patent offices of the countries designated by the applicant. The effect of EPC filing is that, while only a single initial application need be filed and prosecuted, in the end, separate and distinct patents issue in the designated countries. Any resulting patents have terms of 20 years measured from the effective date of filing of the original application.

76.5.8 Advantages and Disadvantages of International Filing

An advantage of both PCT and EPC filing is that the required applications can be prepared in exactly the same format. Their form and content will be accepted in all countries that have adhered to the EPC and/or PCT programs. Therefore, the expense of producing applications in several different formats and in different languages is eliminated. The fact that both PCT and EPC applications can, in their initial stages, be prepared and prosecuted in the English language is another important advantage for U.S. citizens.

A principal disadvantages of both of these types of international patent filings is their cost. Before savings over the country-by-country approach are achieved, filing must be anticipated in several countries, perhaps as many as four to six, depending on which countries are selected. A disadvantage

of EPC filing is that a single examination takes place for all the designated countries, and patent protection in all these countries is determined through this single examination procedure.

76.5.9 Trends in International Patent Protection

With the advent of the PCT and EPC programs, a significant step forward has been taken that may someday lead to the development of a multinational patent system. For the predictable future, however, it seems clear that the major countries of the world intend to maintain intact their own patent systems.