

INTRODUCTION TO INTELLECTUAL PROPERTY

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The Intellectual Property Practice Group of the law firm of Holme Roberts & Owen LLP has published this booklet as a brief introduction to "intellectual property." This booklet is intended only as a generalized introduction to a very complex and rapidly evolving area of the law. A qualified attorney should always be consulted for advice in specific factual situations. For more information about intellectual property, contact any attorney in the HRO Intellectual Property Practice Group.

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PATENTS

The patent system encourages innovation by granting inventors a monopoly to exclude others from making, using and selling their inventions. This exclusive right is enforceable in federal court and provides remedies of injunctions and damages against infringers, and treble damages and attorneys' fees against willful infringers in some cases. In return for this exclusive right, however, the patent system requires the full disclosure of the invention to the public to promote further development and improvement.

Patent rights have several advantages over trade secret rights. Patent rights may be enforced in federal court with federally mandated remedies. Patent rights protect against subsequent independent derivation. A patented product can be marketed without fear of losing the patent rights through reverse engineering. License agreements may also be negotiated without fear of disclosing and forfeiting valuable trade secrets.

Patents yield several intangible benefits in addition to the monopoly described above. Attaching notice that an item is patented or that an application for patent is pending often lends it an air of credibility. In addition, would-be copiers may be dissuaded by a notice that an item is patented or that a patent application is pending.

Patents are not, however, applicable to all inventions. In addition, they require full disclosure of the invention and tend to be more expensive to obtain and enforce than some of the other alternatives.

The patent system provides for three types of patents: utility patents, design patents and plant patents. Each of these has unique characteristics, but all have certain common attributes.

Utility Patents.

The vast majority of patents are utility patents. Patentable subject matter for utility patents includes any new and useful machine, manufacture, composition of matter or process. Improvements to each of these are also proper subject matter of utility patents. A utility patent has a term of twenty years from the date of filing, although periodic maintenance fees are required to maintain a utility patent for the full twenty-year term.

Machine. A machine is a particular apparatus for accomplishing a specific result. A patentable machine may also be a combination of existing machines used to obtain a new result, even if the constituent machines are not independently patentable. Of course, the combination must satisfy each of the conditions of patentability set forth below. A sewing machine and a typewriter are examples of patentable machines.

Manufacture. A manufacture is an article or product made by a human being. A manufacture must have a definable structure that is claimed as its patentable characteristic. A ball-point pen and a computer disk are examples of manufactures.

Composition of Matter. A composition of matter is usually defined by its constituent parts. To be patentable, the composition must be the result of a new combination of elements creating a new compound. For example, a metal alloy or a chemical composition may be patentable if it has new and materially different properties from existing alloys or compositions. Live, human-made microorganisms and multicellular animals may also be patentable as compositions of matter.

Process. A patentable process is a new and useful act or series of acts yielding a definable result. For example, a method of extracting refinable petroleum from oil shale may be a patentable process. A device is often patented by both process claims and non-process, or apparatus, claims. Apparatus claims describe the structure of a device, while process claims describe its operation. Courts have held that a mathematical formula, even if performed by a computer, is not a patentable process. If, however, a mathematical formula is used as one step in a process yielding a definable result with or without the aid of a computer, then the process, including the use of the mathematical formula, computer program or digital computer, may be patentable. Courts have also held that the algorithm underlying a computer program may be patentable as a process.

Improvements. An improvement to a previously patented invention may be patentable if the improvement independently satisfies the conditions of patentability. If, however, the improvement infringes a patent on the underlying invention, then it cannot be practiced without a license on that patent.

Design Patents.

Although design patents constitute a very small portion of patents issued, in recent years their popularity has increased significantly. Design patents protect the visual or aesthetic appeal of a product or invention. The design must be attached to an article of manufacture; but it is the design, not the article, that is the subject of the design patent.

The principle characteristic of design patents is that the design that is the subject of the patent must be ornamental. A design that is primarily dictated by functional considerations is unpatentable. While the design of an article may include functional elements, the overall appearance of the article must have a sufficient degree of aesthetic appeal to be considered a design of other than a primarily functional nature. This is in contrast to the subject matter of utility patents which must be useful and thus have "utility." In design patents, "utility" must be lacking.

Patentable subject matter for design patents includes any new, original and ornamental design for an article of manufacture. Design patents are sought when the visual and aesthetic appeal of a product or article of manufacture is of primary concern. Packaging and containers are common subject matter for design patents. Jewelry and articles of apparel, as well as household furnishing, such as lamps, carvings and other decorative items, are also common subject matter for design patents.

A design patent has a term of fourteen years, and no fees are required to maintain the patent during its fourteen-year term.

Plant Patents.

The patent system provides that anyone who invents or discovers and asexually reproduces any distinct and new variety of plant, other than tuber-propagated plants (*i.e.*, potatoes and Jerusalem artichokes) or plants found in an uncultivated state, may obtain a patent thereon. A plant patent grants the right to exclude others from asexually reproducing the plant or selling or using the plant so reproduced. Certain types of sexually reproduced plant life that are not protectable under the patent system may be protectable under the Plant Variety Protection Act.

The term of a plant patent is twenty years from the date of filing, and no fees are required to maintain the patent during its twenty-year term.

Requirements to Secure Patents and Bars to Patentability.

An invention must satisfy certain statutory requirements to gain patent protection. The principal requirements are that the invention be novel and nonobvious.

Novel. In order to be novel, an invention must be distinct from the "prior art." "Prior art" is a term used to describe patented or unpatented inventions that exist prior to the invention in question. Prior art may include patents and printed publications in the United States and abroad, United States patent applications that have been abandoned, inventions known or used in the United States and prior inventions made in the United States by another who has not suppressed, abandoned or concealed the invention. A patent is barred by the novelty requirement if the prior art is substantially identical to the invention claimed in the application.

The novelty requirement also bars a patent application after one year (six months in the case of design patents) from disclosure of the invention in a patent or printed publication in the United States or abroad, or from the first public use or sale of the invention within the United States. It is, therefore, critical to have the application on file before expiration of the applicable period.

The novelty requirement of most foreign patent laws bars a patent application immediately upon a public use or sale. Most countries, however, are members of an international convention that allows the effective date of the filing of the foreign application to relate back to a United States filing no more than one year earlier. The typical procedure is to file an application in the United States and in foreign countries that are not members of the international convention before any public use or sale, and then to file in foreign countries that are members of the international convention within one year.

Nonobvious. A patent will be granted only if an invention consists of an innovation beyond that which is obvious to a person with ordinary skill in the art at the time of the invention. Courts have struggled for decades to give meaning to this standard of patentability. The current analytical test requires an assessment of the prior art, a determination of the difference between the invention and the prior art, and then a determination of whether such a difference is obvious to one skilled in the pertinent art. Because this analysis yields no bright line as to whether or not an invention is nonobvious, it is often difficult to predict the success of a given patent application.

Utility. In addition to being novel and nonobvious, to obtain a utility patent an invention must have "utility"; that is, it must be useful. An invention is said to lack utility if its sole purpose is to deceive the public, is directed to illegal or immoral purposes, has only frivolous utility or is not capable of operation. While the utility of a machine, device or article of manufacture is generally evident from its description, it can be more difficult to determine whether chemical inventions have utility.

Other Bars to Patentability. If an inventor is found to have abandoned an invention without justification, he or she may be barred from obtaining a patent. In addition, filing a foreign patent application on an invention made in the United States without United States government approval may cause a forfeiture of United States patent rights.

Obtaining Patents.

Attorneys and Agents. United States patent rights are obtainable only through prosecution of an application before the United States Patent and Trademark Office, which is often referred to as the PTO. Only an inventor and those persons authorized to practice before the PTO may prosecute patent applications. Patent attorneys must have a technical background and must pass both the normal attorney bar exam and a separate patent bar exam. Patent agents must have a technical background and must pass the patent bar exam; but they are not attorneys and, therefore, are not authorized to practice in the courts.

Patentability Searches. The first step in obtaining a patent is typically a search of the prior art. Once the relevant prior art is collected, a preliminary determination is made whether the invention is patentable over the prior art. The preliminary decision is just that, preliminary. It is no guarantee of patentability. About six million United States patents have been issued. Many more millions of foreign patents have been issued, and many patents are either missing or misfiled in the public search room of the PTO. In addition, the subjective judgment of the PTO on patentability may differ from that of the inventor or the inventor's patent attorney. Nevertheless, a search is useful to get a rough idea of patentability and the general state of the prior art, and usually justifies the relatively modest cost.

Patent Prosecution. A complete patent application includes a detailed description and drawings of the invention, claims to the invention, an oath of the inventor stating that he or she is the true inventor and a filing fee. During the application process, the applicant is required to disclose to the PTO all material prior art revealed in the prior art search or otherwise known to the applicant or the applicant's attorney.

A PTO examiner reviews the application for form, sufficiency of disclosure and other statutory and regulatory criteria. The examiner reviews the prior art submitted by the applicant, and also conducts an independent search of the prior art. The examiner then makes a determination of whether the claims are allowable in view of the prior art. The examiner commonly rejects some or all of the claims on the grounds they lack novelty or are obvious, and the applicant must either amend the claims or overcome the rejection. The examiner's rejection may be challenged in a response, and ultimately by appeal within the PTO and to federal court if necessary. Once the examiner allows an application, a patent will be granted upon payment of an issuance fee and will remain in effect twenty years from filing, provided the required maintenance fees are paid to the PTO and the patent is not later invalidated.

TRADEMARKS

The goodwill and reputation of a business are symbolized by its name and the names and symbols it uses to identify its products and services. The public looks for names and symbols it trusts. Consequently, it is no surprise that much thought goes into choosing names and symbols that will quickly develop consumer recognition. It is also no surprise that businesses are extremely protective of the name and symbols that have acquired such recognition. A business protects its name and the names and symbols it uses to identify its products and services through trademark law.

Types of Marks.

Definition. The Lanham Act, a federal law, defines a trademark as any word, name, symbol or device, or any combination thereof, adopted and used by a manufacturer or merchant to identify its goods or services and to distinguish them from the goods or services sold or offered by others.

Trademark law generally extends to company names and trade names as well as to product names and symbols. Occasionally, a phrase is protected under trademark law that is both a trade name and a trademark, such as PEPSI. Service marks are similar to trademarks, except that they identify services rather than goods. Both trademarks and service marks are typically referred to as "trademarks" or simply "marks." As illustrated below, the words, names, symbols and devices mentioned in the Lanham Act can take a variety of forms.

Company Names. Company names may serve as marks as well as a means for legal identification. They are generally subject to the same legal principles as other marks, but it is important to understand that reserving a corporate name or incorporating under a name does not confer any trademark rights. Secretaries of State do only a cursory search for similar names, and the list of names they search contains only names in their own states. Furthermore, Secretaries of State normally do not cross-search between trade names and trademarks. Finally, most trademark rights are based on federal registrations or common law rights that would not be apparent from the list of names contained in the Secretary of State's files. In short, trademark rights are acquired through trademark law and not through corporate name reservations or filings.

Words and Phrases. Trademark protection is available for words and phrases that distinguish the goods or services with which they are used from the goods or services of others. A mark need not be fanciful (like XEROX). In fact, most marks have a meaning apart from the goods or services with which they are used (like APPLE).

Pictures and Logos. Pictures and logos may be protected as marks either alone or in conjunction with other elements. The fanciful drawing of a little man with a peanut body on a Planters Peanut jar is an example of a protected mark incorporating a picture.

Numbers and Letters. Numbers and letters can also be successful marks. They are easily remembered because they are often used in a distinctive form or design or are derived from the name of the mark owner. Familiar examples include DEC, IBM, HP and 3M. Numbers and letters, however, will not be protected if they are abbreviations for generic products such as PC for personal computers or PVC for polyvinylchloride.

Slogans. Court decisions have established that slogans and advertising phrases may also be protected under trademark law if they function to identify a company's goods or services. Anheuser-Busch once sued a florist over the use of THIS BUD'S FOR YOU.

Colors. Under some circumstances, a color may serve as part of a mark. The yellow background with the red and black design for KODAK film packages is a familiar color mark.

Choosing a Mark.

Some marks receive less protection than others. In fact, some marks receive no protection at all. The degree of protection afforded a mark is generally determined by reference to a continuous scale ranging from distinctive to generic.

Distinctive. Distinctive marks are those with no natural relation to the goods or services on which they are used. XEROX is a highly distinctive mark for goods or services. Other marks may be distinctive on certain goods but not on others; such as APPLE for computers, versus apple for fruit trees. Distinctive marks receive broad protection that can extend to similar though nonidentical marks used on nonidentical goods or services.

Suggestive. Suggestive marks are marks that may conjure up the image of the goods or services with which they are used without actually describing those goods or services. These marks may not initially be as strong as distinctive marks, but they are valid trademarks whose strength increases with continuing use and promotion. Examples are BAN for deodorant, GLEEM for toothpaste and CHICKEN OF THE SEA for tuna.

Descriptive. Because there are only a limited number of words available to describe particular goods or services, descriptive words or phrases are usually afforded much less protection than distinctive or suggestive works. A descriptive word or phrase is one that would naturally be used in describing the goods or services upon which it is used.

Marks that are descriptive may become eligible for trademark protection through the acquisition of "secondary meaning." Secondary meaning is established by prolonged, exclusive use of a mark in such a manner that in the minds of consumers it serves to identify the entity marketing the goods or services, rather than simply identifying the goods or services themselves. Extremely descriptive phrases, however, sometimes called "generic" phrases, can never acquire a secondary meaning. The word "apple" for use in identifying apples would fall into this category.

Geographic Phrases. With some notable exceptions, geographic words or phrases are generally subject to the same limitations on protection as other descriptive marks. For example, the word "Denver" received no protection in a suit in Denver, Colorado, among the owners of magazines entitled *The Denver Magazine*, *Denver Magazine* and *Denver*.

The descriptiveness problem of geographic phrases may be overcome if the phrase does not in fact describe the goods or services. ESKIMO PIES and MILKY WAY are protected because they do not describe goods or services made by Eskimos or in the Milky Way. There is a danger, however, if the geographic phrase is deceptive. Protection has been denied for AMERICAN BEAUTY for sewing machines manufactured primarily in Japan and for MIDWEST FARMS for milk not from the Midwest.

Marketing Considerations. Companies typically make an early marketing decision between two trademark approaches. One is to adopt distinctive marks for individual products and to allow those products to stand on their own without the benefit of association with the company name. Household products often are treated this manner; most people are not aware that IVORY, LILT, TIDE, CRISCO and ZEST are the marks of Proctor & Gamble to identify its products.

The other approach is to develop a very strong company name and use simple marks. IBM-PC, MERCEDES-BENZ 300D and LOTUS 1-2-3 are examples. This approach has the advantage (or sometimes disadvantage) that each new product borrows from the goodwill and reputation of the company's previous products.

Most small companies should consider adopting a distinctive and easily remembered name for both the company and the first few products, and both the company name and the product names should be promoted at the outset. As the company grows in size and reputation, it can later consider the IBM approach of using very simple product names in conjunction with the well known company name.

Trademark Searches. Trademark searches should always be considered before adopting a company name or trademark. A search lessens the risk that a senior user with prior rights to the name or mark will bring an

action to enjoin the junior user, which often occurs after the junior user has invested time and money in promoting the name or mark.

A trademark search is relatively inexpensive. A well equipped law library will have access to a database containing all trademark applications and registrations on file with the PTO and can search them for a few hundred dollars. More extensive searches of trade directories and other sources can be obtained through specialty search companies and may be prudent depending on the circumstances.

Infringement.

A fundamental principle of trademark law is that a mark cannot be used if it would be likely to cause confusion as to the source of the goods or services with respect to which it is used. In determining this so-called "likelihood of confusion" between marks, courts will focus on many factors. Principal among these are the actual similarity of the marks in terms of spelling, sound, meaning and appearance, and the similarity between the goods or services on which respective marks are used.

For example, courts have held that the following marks, although not identical, are sufficiently similar when used with respect to closely related goods to cause an impermissible "likelihood of confusion":

BEAUTY REST	BEAUTY SLEEP
BLUE NUN	BLUE ANGEL
CHICKEN OF THE SEA	TUNA OF THE FARM
THERMO KING	ZERO KING
PLEDGE	PROMISE
CYCLONE	TORNADO
YAMAHA	MAKAHA
DRAMAMINE	BONAMINE
ARROW	AIR-O

When the same mark is used by two separate users with respect to completely different goods or services, courts may be less inclined to find "likelihood of confusion." As the examples below demonstrate, however, this may not be true with respect to certain strong or well known marks.

A&P	supermarkets/trucking company
BACARDI	rum/jewelry
BLACK LABEL	beer/cigarettes
K2	skis/cigarettes
LIFE	magazine/television sets
PHILCO	radios/razor blades
POLAROID	optical devices/ refrigeration systems

In each of the above examples, courts determined that "likelihood of confusion" was present, even though the products on which similar marks were used were entirely different.

The critical factor with respect to any "likelihood of confusion" analysis is that the determination must be made from the perspective of the consumer. The factors noted above (*i.e.*, similarity of products or services, similarity of marks, strength of marks) are, therefore, all relevant, together with any other factors that could lead to consumer confusion, such as the channels of trade in which the goods or services are marketed or the likely sophistication of the relevant consumers.

Establishing Rights to a Trademark.

Exclusive rights to marks are acquired by adopting and using the marks on goods or in connection with services. Until recently, United States law did not permit marks to be appropriated prior to actual use. Federal law now allows for trademark application prior to actual use based upon an "intent to use" the mark.

Common Law Rights. The common law of unfair competition prohibits use of a mark that is so similar to a mark previously adopted by another that consumers are likely to be confused between the two. In determining whether confusion is likely, courts consider the similarity of the two marks and the similarity of the two products as described above. They also consider the geographical proximity of the two products' marketing areas, the distinctiveness of the first-adopted mark and the extent of use and goodwill with respect to the first-adopted mark.

Common law rights may be enhanced by placing a "TM" adjacent to the mark. This symbol does not create any substantive rights, but it notifies others that the trademark owner regards the mark as its exclusive property.

A major limitation to common law trademark rights is that such rights are often limited to the company's specific geographic marketing area. Accordingly, competitors may be free later to adopt the same mark in a different area of the country and acquire rights to the mark in that area, even to the exclusion of the senior user. The only sure way to avoid this under the common law is for a company to begin using the mark in all areas of the country simultaneously. Federal registration removes this burden.

Federal Registration. The principal advantage to federal registration of a mark is that registration generally gives the registrant immediate nationwide rights to the mark. No competitor, therefore, could preempt the registrant from areas of the country to which the registrant has not yet expanded. Federal registration, however, does not extinguish localized, previously established common law rights of others.

Federal registration also gives rise to an infringement cause of action in federal courts and to procedures for stopping infringing imports. In addition, after the federal registration has been in effect for five years, the trademark owner can file an affidavit that has the effect of making the mark subject to challenge only upon very narrow grounds.

For federal registration, a mark must actually be used to identify goods or services. The use must be in commerce that may be lawfully regulated by Congress. This usually requires an actual sale of the goods or offering of the services (with an ability to provide them) across state lines.

Federal registration takes considerable time because of the large backlog of trademark applications in the PTO. Registration may be further postponed if the PTO persistently objects to the application in view of similar marks uncovered in its search, concerns about descriptiveness, or any of a number of other substantive or procedural matters. In the case of an "intent to use" application, registration will issue upon a showing of actual use, but will become effective as of the filing of the application. Until the trademark registration actually issues for either type of application, the owner has none of the benefits of registration and must rely on common law rights. Once registration issues, the symbol ® may be used to notify others that the trademark has been federally registered.

State Registration. Most states have statutes for trademark registration. The application procedures under the state statutes are usually very simple; and, as noted above, examination of the application is much less rigorous than with federal application examination. State registration does not confer any rights beyond the state of registration, is subordinate to federal registration and does not entitle the registrant to the advantages of federal registration.

State laws generally require registration of names under which a company does business other than its legal name. Such "trade name" registration does not create any exclusive rights to the trade name. It may, however, be evidence of the date rights began accruing under the law of unfair competition.

Using Trademarks.

Sometimes a trademark becomes so well known that it is forfeited. For example, the word "aspirin" was once a protected trademark of Bayer Company for the pain relief compound acetylsalicylic acid. In 1921, however, United States courts determined that the word "aspirin" had evolved into a generic word for the compound itself, rather than a trademark associated with Bayer. Interestingly, in Canada ASPIRIN continues to be a protected trademark of Bayer, and competitors must refer to their "aspirin" by another name or by the scientific name. Other words that were once famous trademarks but that have since been lost to everyday usage include "nylon," "thermos" and "escalator."

Cautious of the losses mentioned above, companies have fought to avoid forfeiting their trademark rights. A familiar example is XEROX Corporation, which expends considerable sums to reinforce the concept that XEROX is a mark, not a synonym for a photocopy, a photocopy machine or the act of making a photocopy. XEROX continuously informs the public and its own employees that it is incorrect to say "please make a xerox of this page." By taking such steps XEROX Corporation has thus far managed to preserve its rights. Another example is Microsoft Corporation, which has run advertisements and distributed brochures educating the public on the use of its WINDOWS mark. Other well known marks with similar problems include American Cyanamid's FORMICA mark, the Caterpillar Tractor Company's CATERPILLAR and CAT marks, Johnson & Johnson's BAND-AID mark, Chesebrough-Ponds' VASELINE mark and the STYROFOAM mark of Dow Chemical Company.

Of course, these principles create ongoing tension between legal and marketing considerations. The marketing division is delighted when consumers use their mark as a synonym for the product. The temptation to encourage such use, however, should be resisted at the risk of losing rights to the mark.

COPYRIGHTS

The United States Constitution provides that "Congress shall have Power . . . To promote the Progress of Science and useful Arts, by reserving for limited Time to Authors . . . the exclusive Right to their . . . Writing." The most recent manifestation of congressional power under this clause is the 1976 Copyright Act, in which Congress passed long overdue changes to the copyright laws that had been in place since 1909.

Type of Protection.

The protection afforded by the copyright laws is superficially quite simple. The owner of the copyright has five basic rights: (i) the exclusive right to copy the work; (ii) the exclusive right to prepare derivative works based on the work; (iii) the exclusive right to distribute the work; (iv) the exclusive right to display the work; and (v) the exclusive right to perform the work. An important limitation to copyrights is that they protect an expression but not the idea underlying the expression. This is a fundamental distinction between the patent and trade secret laws and copyright law. This distinction is of limited significance in the case of a painting, but may be critical in the case of a scientific publication.

Copyright protection extends to a broad range of materials. Typically, we think of copyright protection as applying to literary and musical works; however, the range of materials for which copyright protection exists is much more extensive. For example, the courts have granted copyright protection to works as varied as computer software, ashtrays, codebooks, pantomimes, motion pictures and sculptures.

Obtaining and Maintaining Protection.

Copyright protection arises automatically upon creation of an original work fixed in a tangible medium of expression. To avoid forfeiting the copyright, the law requires each copy of a work published prior to March 1, 1989 to provide notice of the copyright. Such notice consists of the symbol © (or the word "copyright" or the abbreviation "copr."), the year of first publication and the name of the copyright owner. The notice is not required for works published on or after March 1, 1989, but is advisable because it serves as a warning to prospective infringers. It may also remove an "innocent infringer" defense, and it identifies the copyright owner for potential licensing purposes.

The copyright may be registered with the United States Copyright Office. Although registration is not a prerequisite to obtaining the protection of the copyright laws, it is necessary before a party can bring an infringement action, and it enhances the owner's choice of remedies against infringers. Federal registration is also required in order to obtain a renewal of a copyright that was obtained under the pre-1978 copyright law.

Obtaining federal copyright registration is a relatively simple process. The applicant deposits the required number of copies of the work with the Copyright Office along with a simple application form and a small registration fee. Under the 1976 Copyright Act, deposits of certain works are not necessary. For example, where the copies are bulky, unwieldy or easily broken, the copyright office may waive the deposit requirement. Special deposit rules developed for computer programs are discussed below in the section on computer technology.

Copyright protection extends much longer than patent protection. Basic copyright protection under the Copyright Act extends until the death of the author plus seventy years. There are also rules establishing the duration of protection in situations where there is more than one author and where the author is a company or the author is anonymous or a pseudonym.

Infringement.

In most cases a complex body of law must be consulted to determine whether there has been a violation of a copyright owner's rights. For example, a person copying a literary work may alter the wording of the text in many places throughout the work but still be liable for copying the story, characters and "tone" of the work. Because it is not always clear when a copyrighted work has been infringed, inference of infringement is often established by merely showing access to the copyrighted work and substantial similarity thereto.

The most important exception to the rights of a copyright owner is the "fair use" doctrine. That doctrine grants a limited exception to protection of copyrighted material for such purposes as teaching, commenting, criticism, reporting for news purposes, scholarship or research. On the other hand, it is generally true that most commercial uses of a work will not fall within the "fair use" exception. Factors used in determining fair use include: (i) the purpose of the use; (ii) the nature of the copyrighted work; (iii) the amount of the copyrighted material copied; and (iv) the effect the use will have on the potential market for the copyrighted work.

Remedies for infringement include injunctions and damages. Because it is often very difficult to determine the actual damages caused by copyright infringement, the Copyright Act provides that a plaintiff may elect to receive "statutory" or presumed damages ranging from \$500 to \$20,000 per infringement and up to \$100,000 per willful infringement in place of actual damages.

The ownership of a copyright does not necessarily vest in the individual author of the work. According to the "work made for hire" doctrine, when work is prepared within the scope of an employment relationship, the employer, not the employee, will be deemed to be the author for copyright purposes. Likewise, with respect to certain specially commissioned works which the parties have agreed in writing are works made for hire, the party who commissions the work will be deemed the author of the work.

TRADE SECRETS

The law of trade secrets is an increasingly important means for acquiring know-how and exploiting and enforcing intellectual property rights in many fields of technology.

Subjects of Trade Secrets.

Virtually any type of subject matter may be protected under trade secret law. The touchstones are simply that the subject matter gives one a competitive advantage in the marketplace and the subject matter is a secret; that is, not of public knowledge or general knowledge in the relevant industry. Formulas, patterns, customer lists, compilations, programs, devices, methods, techniques and processes can all be trade secrets.

Requirements for Trade Secrets.

The principal requirement for trade secret protection is that the subject matter be kept confidential. This requirement is rigorously scrutinized when trade secret rights are asserted. Accordingly, those claiming trade secret rights must take affirmative steps to demonstrate that the subject matter is actually kept in confidence. Inherent in this requirement is that the subject matter of the trade secret must not be generally known or readily ascertainable by proper means.

Trade secret disputes frequently arise in the context of employment relationships. Employers should take several basic steps to protect themselves. First, they should require employees to read and sign a confidentiality agreement at the commencement of employment. Second, they should instruct employees that trade secrets are not to be disclosed except to other employees on a "need to know" basis. Third, manuals, plans, equipment, software and any other items containing trade secrets should bear a clear legend indicating that the contents are trade secrets and confidential. Finally, at the conclusion of employment, employers should remind employees of their continuing duty not to disclose trade secrets to which they may have had access during their employment.

Outside of the employer-employee relationship, there is no guarantee courts will find that a recipient of trade secret information is under a duty not to disclose the trade secret. Subsequent dissemination of trade secret information by the recipient may destroy all proprietary rights to it. In order to maintain rights in a trade secret, therefore, disclosure should only be made to one under a clear duty to maintain the information in confidence. This duty is normally imposed by requiring the recipient to sign a confidentiality agreement clearly outlining the proprietary nature of the information disclosed and the duty not to disclose the information.

Benefits of Trade Secrets.

There are distinct advantages of trade secret protection over patent, trademark and copyright protection. Trade secret rights vest upon conception of an idea and continue as long as the idea remains secret. The only costs associated with securing trade secret rights are those necessary to maintain the secret. There is no lengthy and costly application or registration process, as there is with respect to patents and trademarks. Trade secret rights are potentially perpetual in duration, ceasing only when the secret becomes public knowledge. Virtually any subject matter may give rise to trade secret rights. Finally, there are no stringent requirements of novelty or nonobviousness, as there are for patents.

Accompanying these advantages are several disadvantages. While trade secret rights have a potential for perpetual duration, they only afford protection against derivation by improper means or by breach of a confidential relationship. No protection is afforded against derivation by proper means such as independent discovery or reverse engineering; that is, the independent derivation of functional equivalents.

Misappropriation of Trade Secrets.

Generally, "misappropriation" of a trade secret occurs when a trade secret is disclosed, used or acquired by a person who knows or has reason to know that the trade secret was acquired by improper means. Acquisition by improper means occurs not only through theft, bribery or espionage, but also through misrepresentation or breach of a duty to maintain secrecy. The duty to maintain secrecy can arise through agreement or by the knowledge that the owner considers the trade secret to be its property.

Actual or threatened misappropriation of a trade secret may be enjoined. In addition, damages can be assessed. Damages may be measured by actual loss, unjust enrichment or imposition of a royalty. In certain circumstances, punitive damages may be awarded for misappropriation of trade secrets.

LICENSING

An increasingly common method of realizing a return on intellectual property rights is through licensing. There is no single definition of what constitutes a license. A license is generally an agreement where the licensee receives from the licensor, for an agreed consideration, the right to enjoy something the licensor has the right to grant without interference by the licensor. Licenses are distinguishable from assignments in that assignments transfer substantially all the rights in the property. In a license, however, the licensor retains most attributes of title, but allows the licensee to use the property that is subject to the license for a particular use and for a particular time. The licensee does not own the subject matter of the license, but does have rights to use the property free from interference by the owner in accordance with the terms of the license agreement.

Typical Licensing Provisions.

There are a number of provisions that should at least be considered in most license agreements. A license agreement is a contract and, like any contract, can be adapted to address virtually any situation.

Defining the licensed rights is both important and difficult. A straightforward patent license can be simple, since the rights are set forth in the patent claims which are easily referenced. But most licenses also involve trade secrets or know-how. The parties should take time to negotiate exactly what is being licensed, and then define it carefully and in detail. Complexity is added by the question of rights to improvements to the licensed technology.

Equally important is defining the technical or manufacturing field of use of the technology by the licensee. Many licenses limit the scope of technological exploitation or exclude use in particular areas. The field of use question may overlap with exclusivity questions. For example, the licensee may have exclusive rights in some fields, but not others.

Fee and royalty provisions can be complicated. Alternatives include up-front royalties, percentage royalties, sliding scale percentage royalties, minimum or maximum royalties and per unit royalties. The license agreement generally includes a mechanism whereby the licensor can inspect the licensee's books and records to determine the licensee's compliance with the royalty obligations.

Some thought should also be given to allocating obligations to prosecute infringers and to defend against infringement claims. Best efforts obligations, termination rights, dispute resolution procedures, choice of law and forum, quality control and technical assistance provisions are elements that merit careful consideration with the advice of counsel familiar with licensing transactions.

Other provisions in licenses meriting significant consideration include transferability and exclusivity. Whether the licensee has the right to further transfer (*i.e.*, sublicense) the subject matter of the license is usually a matter of significant concern to both the licensor and the licensee. In addition, whether the license is exclusive to the licensee (*i.e.*, whether the licensor can further license the property to other parties) is also of significant concern to the parties.

The license agreement must be carefully drafted to avoid the typical licensing drawbacks. For example, the competition issue might be addressed by limiting the licensee's use of the technology. In addition, care must be taken that restrictive provisions do not run afoul of the antitrust laws.

As discussed below, each type of intellectual property has unique characteristics that must be taken into consideration when drafting license agreements. It is of utmost importance when drafting license agreements to understand the benefits of the licensed property to the licensee and the licensor. It is even more important to understand the type of intellectual property (*i.e.*, patent, copyright, trademark and trade secret) involved and the legal attributes of that type of property.

Patent Licensing.

The nature of the exclusive rights granted to the patentee by the government make patent licensing agreements unique. Because one can identify the patent rights by reference to the specific claims and limitations in the patent document, describing and understanding the property being licensed is, at least on the surface, less of a concern than with other forms of intellectual property. When licensing patents, it is extremely important to understand not only the patent claims and limitations contained in the patent, but the prosecution history of the patent application as well. Like the patent itself, a license of a patent does not necessarily give the licensee the right to make, use or sell the invention, but only the assurance that if made, used or sold, the licensor will not interfere therewith. Accordingly, patent licenses often take the form of a covenant by the licensor that it will not sue the licensee for infringement.

United States law generally prohibits royalties on expired patents. Accordingly, it is often desirable to address the issue of royalties after expiration of a patent, particularly if the license is for a package including patents that expire at different times or for patents together with trade secrets.

Rights to inventions for which no patents have been applied and patent applications may also be licensed. Rights to unpatented inventions and pending patent applications, however, are not enforceable against parties not a party to the license agreement until a patent has been issued on the licensed invention.

Trademark Licensing.

Together with the typical licensing provisions described above, trademark licenses must include provisions whereby the licensor exercises control over the manner in which the mark is used by the licensee. This includes not only control of the manner in which the word, phrase or symbol comprising the mark is used, but also sufficient control of the goods or services with respect to which the mark is used. This ensures that the quality of goods or services offered by the licensee under the mark is comparable to that offered by the licensor under the mark. Purported licenses that do not contain such provisions may be invalid; and, more significantly, licensing arrangements pursuant to which the licensor does not exercise such control may result in loss of any protectable right in the mark that the licensor may otherwise have had.

Copyright Licensing.

As previously described, a copyright owner has certain "exclusive rights" regarding a copyrighted work. Depending on the scope and nature of a license agreement, however, these rights may be acquired by a licensee. While nonexclusive licenses of a copyright do not give the licensee any copyright rights, an exclusive license is equated with an assignment and transfers the particular rights licensed. For example, if a license grants an exclusive right to publish a work in book form, the licensee has standing to sue in its own name and collect damages for itself for unauthorized publications of the work in book form. But the licensee would not have standing to sue with respect to an unauthorized screenplay based upon the work. Although copyright licenses, like other contracts affecting intellectual property rights, should always be in writing, an oral nonexclusive license of a copyright can be valid and is sometimes even implied from a course of conduct.

Another unique aspect of copyright licensing is that the making and distribution of certain musical recordings are subject to the compulsory licensing provisions of the Copyright Act. These compulsory licensing provisions provide that after a musical recording has been publicly distributed in the United States by its copyright owner, anyone else may, under certain circumstances and conditions, obtain a "compulsory license" to make and distribute recordings of the work without express permission from the copyright owner.

Trade Secret Licensing.

It is rare to find licenses relating solely to trade secrets and know-how. Typically, licenses of trade secrets and know-how also involve other types of intellectual property. As described above, a trade secret can exist for an indefinite period of time, provided it is maintained secret. Once the subject matter of the trade secret becomes publicly known or widely used, however, it will no longer constitute a trade secret, and the property right will cease to exist. Accordingly, the principal concern with respect to licensing of trade secrets is ensuring that the licensee will maintain the secrecy of the trade secret. Because any further dissemination of the subject matter constituting the trade secret may destroy the very nature of the property interest and render the license and the underlying property useless, it is unusual to allow sublicensing of trade secrets.

A confidentiality agreement is in effect a form of licensing agreement. Confidentiality agreements are used when one party desires to disclose information that it considers to contain trade secrets to another party for limited use or disclosure. In addition to defining the confidential information, confidentiality agreements acknowledge the confidential and proprietary nature of the information and that such information is a "trade secret" of the owner. The principal requirement is that the party receiving the information must maintain the information confidential. To comply with this requirement, confidentiality agreements typically provide: (i) the purpose for which the information is disclosed and how the information can be used; (ii) specifically who within an organization may review the information; (iii) when and under what conditions the information may be disclosed; (iv) which portions of the information, if any, may be copied; (v) when and how the information and any authorized copies must be returned; and (vi) remedies for wrongful use or disclosure.

COMPUTER TECHNOLOGY

Computer technology, and in particular computer software, does not fit neatly within the traditional forms of legal protection for intellectual property. The creation and legal protection of computer programs are of

fundamental importance in this age of intense competition from domestic and international concerns. The extreme simplicity of copying a completed program is in sharp contrast to the thousands of hours often required to produce the program and elevates the importance of legal protection. The laws of patent, copyright and trade secrets have all been stretched and adapted in the search for the best methods of protecting rights in computer programs.

Patent Law.

Patent protection is reserved, by statute, to "any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof." The long-standing principal of patent law that a patent may not be obtained on a mathematical formula or sequence of mental steps greatly slowed the initial use of patents in protecting computer programs. In 1981, however, the Supreme Court upheld a patent granted for a process for curing rubber that included a computer operation. The law that has evolved since 1981 has consistently broadened the extension of patent protection to computer program based inventions. Today, inventions embodied in computer programs are generally considered patentable if they satisfy the ordinary patentability requirements of novelty and nonobviousness.

Despite the availability of patent protection for many applications of computer programs, several factors often militate against its use: (i) the novelty and nonobviousness standards for obtaining a patent are quite high; (ii) the time required to obtain a patent may exceed the useful life of the program; and (iii) substantial public disclosure is required.

Copyright Law.

The legislative history of the Copyright Act clearly indicates that Congress intended computer programs to be protected by copyright law; and a 1980 amendment expressly included computer programs within the scope of the Copyright Act.

As described above, copyright law protects expressions, but not ideas. Applying this doctrine to computer programs means copyright protection extends only to the particular embodiment of a program, not its inherent function.

It is now well established that copyright protection extends not just to source code, as written by the programmer, but also to the machine-generated object code translation. Copyright protection also exists in certain circumstances for the structure, sequence and organization of a program, as well as its literal text. Likewise, the selection and arrangement of data in compilations and databases may be copyrightable.

Despite the current popularity of copyrighting computer software, there are many issues regarding the application of copyright law to computer programs that have yet to be satisfactorily resolved in the courts. For example, since the copyright laws may not protect the "ideas" found in a computer program, adaptations of programs may be made that do not, arguably, "copy" the expression.

Potential litigation of these complex issues has led many owners of computer programs to rely heavily on trade secret protection as an alternative to or in conjunction with copyright protection. The trade secret protection of a program can exist concurrently with copyright protection because the Copyright Office currently allows computer program deposits to be substantially abbreviated--only the first twenty-five and last twenty-five pages of the source code of the program are required to be deposited with the Copyright Office. There are also procedures that enable the copyright owner to delete portions of the source code that contain trade secrets. Where a work is fixed in a CD-ROM format, however, the Copyright Office currently requires one complete copy of the CD-ROM package.

Trade Secret Law.

State statutes and the common law are often used to protect trade secrets embodied in computer software. In order to obtain trade secret protection for computer programs, the program or information protected must be novel, valuable in a trade or business, and secret.

The biggest hurdle in relying on trade secret protection for computer programs is the requirement of secrecy, particularly if the program is to be mass marketed. The owner of the program must take extensive measures to prevent disclosure and dissemination of the secret information contained in the program. Marketing the software when trade secret protection is being relied on is generally accomplished pursuant to limited licensing agreements rather than sales contracts and by providing only object codes without source codes. The extent to which courts will be willing to uphold the confidentiality portions of limited licensing agreements when software is distributed on a large-scale basis is uncertain. Such practices are most likely to be effective if the program is only distributed in object code form.

Semiconductor Protection.

In addition to computer software, the protection of semiconductor chips is a significant concern to the computer industry and creates unique problems under traditional intellectual property law. The initial design of a chip can be extremely expensive and time-consuming. In contrast, copying a chip requires relatively little expense. The United States Copyright Office has refused to register chip designs because they are utilitarian, and most chip designs cannot satisfy the strict novelty and nonobviousness requirements of the patent laws. Because of the lack of protection for semiconductor chips under the copyright and patent laws, Congress passed the Semiconductor Chip Protection Act of 1984. The SCP Act created an entirely new form of intellectual property protection in the United States. Although this protection differs from both patent and copyright laws, it is most analogous to a ten-year copyright.

The SCP Act protects "mask works" which are the two-dimensional and three-dimensional shapes, patterns and configurations in semiconductor chips that perform the functions of electronic circuitry. The SCP Act grants the owner of the mask work the exclusive rights: (i) to reproduce the mask work; (ii) to import or distribute a chip in which the mask work is embodied; and (iii) to introduce or knowingly cause others to perform the same acts. The exclusive rights granted are for ten years from registration or commercial exploitation, whichever occurs first. One important limitation of the SCP Act is that reverse engineering, the derivation of functional equivalents, does not constitute infringement.

To obtain the protection afforded by the SCP Act, the mask work must be registered with the Copyright Office within two years of commercial exploitation. Registration is a prerequisite to instituting an infringement action. In addition, a notice must be affixed to the mask work to place potential infringers on notice of the owner's exclusive rights. This notice must include the words "mask work," an M in a circle or "M" and the name of the owner. The principal requirement for registration is that the mask work be original. This originality requirement, however, is far less stringent than the originality requirement under the copyright laws or the novelty requirement under the patent laws.

The SCP Act preempts the laws of any state to the extent such laws provide for any rights or remedies that are equivalent to those rights provided by the SCP Act. At present, it is uncertain how and to what extent the SCP Act preempts state trade secret law; but it is likely that state trade secret law protection still exists prior to registration or commercial exploitation. Unfair trade practice laws and the patent laws are specifically exempt from preemption.

BIOTECHNOLOGY

Nature of Biotechnology.

Applying the laws of intellectual property to "biotechnology" creates a multitude of unique, interesting and very complex problems. The term "biotechnology" includes many products and processes characterized by their connection to living organisms or portions of living organisms and may be further defined as the scientific manipulation of natural biological materials and processes in order to produce desirable products or results.

The present importance of biotechnology was presaged by many years of incremental increases in our understanding of the processes of life on the subcellular level. Much of the innovation in biotechnology centers around the genetic material found within a cell. Whether in the form of DNA, chromosomes, RNA or plasmids, genetic material controls all functions within the cell by its ability to manufacture proteins. The gains in

knowledge concerning these areas have enabled inventors to harness an enormous specificity and efficiency found in living organisms unattainable under classical chemical reaction conditions.

It is now possible for scientists to control and understand many of the processes occurring within the cell on an elemental level. It is an almost common process, although extremely time-consuming and expensive, to: (i) identify the exact chemical structure of an extremely complex protein; (ii) identify the portion of the genetic material that codifies this composition; (iii) isolate that specific portion of the genetic material and "insert" it into the genetic material of an easily controlled host organism; and (iv) mass produce the desired protein, previously only available in minute quantities. A common example of a biotechnological invention, therefore, would be the genetically engineered microorganism capable of producing large quantities of a desirable protein. Although the protein's existence and desirable properties may have been known to exist for some time, the isolation of the material from naturally occurring sources or synthesis of the chemical pursuant to classical organic chemical techniques would have previously been prohibitively expensive. The inventor of such a process would desire legal protection for the process, the microorganism and the genetic material that expresses the product, as well as for the purified final product itself.

Patent Protection.

Patent law has traditionally adhered to the doctrine that a patent could not be obtained on a "product of nature." For example, patent protection may not be obtained on a naturally occurring rock formation. The finality of the product of nature doctrine, however, has been tempered by developments in the case law that now encourage the application of the patent laws to biotechnology.

A fundamental exception to the product of nature doctrine is a rule of law that allows the pure form of a chemical or composition to be patented, even though it occurs in nature and its existence has been long recognized. This exception is premised on the rationale that the pure form of a chemical is actually a different thing than that chemical existing in nature as a part of a mixture of chemicals. The key distinction is that the purified product did not exist in nature in the form in which the inventor has produced it.

Prior to the late 1970s, it was accepted that a patent could not be obtained on a living organism. In 1980, however, the Supreme Court officially opened the door to the biotechnology revolution by declaring that inventions comprising living organisms may be patentable as "compositions of matter" or "articles of manufacture." Since the original decisions involving unicellular organisms, this premise has been continually advanced to higher plant and animal life forms to the extent that the PTO has now granted patents on genetically engineered mammals.

The liberalization of the patent laws and the product of nature doctrine have coincided with the explosive growth of biotechnological innovations. Today, microorganisms and their enzymes are the bases of industries grossing billions of dollars annually.

A number of problems arise when biological systems and materials are treated as mere chemicals. The application of the patent laws, developed over hundreds of years to deal with classical chemistry, to complex proteins or genetic material often emphasizes the uniqueness of biological systems. For example, in a traditional chemical application, it is routine practice to claim various chemical substitutes in addition to those actually produced or tested. Analogous substitutions create species of the generic chemical that have generally predictable effects on the chemical properties of the generic compound. It is, therefore, possible to obtain broad coverage for a chemical composition by claiming all homologs of the chemical structure that reasonably can be expected to have the same general desirable characteristics.

Obtaining such broad coverage for complex proteins is extremely difficult. For example, assume that the complete amino acid sequence is known for a 150-unit protein useful as a therapeutic agent. Because the three dimensional "folding" of the protein has as much to do with its biological properties as does the location of various amino acid units, it is virtually impossible to predict what homologs of the known sequence would exhibit similar desirable therapeutic properties. Patent coverage for the creation or isolation of a valuable protein should not be thwarted by the competitor who experiments with single amino acid variations until a structure is found that is almost identical in structure, but similar in activity, to the identified protein. Defining coverage for

unique proteins of value emphasizes one of the problems of applying traditional patent law concepts to biotechnological discoveries.

POLICING INTELLECTUAL PROPERTY RIGHTS

The intangible nature of intellectual property rights gives rise to enforcement dilemmas. With other legally protected rights, encroachment is typically readily apparent. You can see a trespasser on your land, you know when your personal property is missing and you can determine when a contract is being breached. In contrast, someone may encroach upon your intellectual property rights without readily affecting your use of your rights. It is not until you enter the marketplace and discover the infringing article diminishing the value of your intellectual property rights that the need to enforce these rights becomes apparent.

Because infringement of intellectual property rights is typically not readily apparent, some means of policing the rights is necessary. In most instances, this involves monitoring competitor's products and advertising. Beyond merely diminishing the value of intellectual property rights, unfettered encroachment may result in the loss of valuable rights through the doctrines of waiver and estoppel.

Litigation of intellectual property rights requires the assistance of counsel with a sound understanding of the substantive law and the subject matter in dispute. In patent and trade secret litigation, proof of infringement may require presentation of highly technical evidence and subtle legal principles that can baffle lay jurors and even judges. Trademark cases typically center around proof of "likelihood of confusion," which may require evidence of consumer surveys designed to show that consumers are, or are not, likely to be confused by the marks. Effective litigation, therefore, requires thoughtful preparation and skilled presentation.

Another peculiarity of intellectual property enforcement is that defendants not only deny the infringement, they also deny there are any rights to infringe. In trade secret cases, the focus is upon whether the information is in fact secret and whether it has been treated as such. In both trademark and patent cases, the application and prosecution process before the PTO is carefully scrutinized. Patent defendants will dissect the prior art and rigorously review compliance with the statutes. Copyright defendants may look for any publication without the statutory notice and any grounds to challenge original authorship. In many cases, defenses of waiver and estoppel will be asserted. Often antitrust defenses and counterclaims are also raised.

Remedies for infringement of intellectual property rights include injunctive relief and damages. Damages may be the plaintiff's lost profits, the defendant's wrongful profits or other injury to the plaintiff. In extreme cases, punitive damages and attorneys' fees may be awarded. Although seldom invoked, courts may also order the seizure and destruction of the defendant's infringing products.