CHAPTER 5

Protecting Your Intellectual Property

VisiCalc PAYS FOR DECISION NOT TO PATENT FIRST SPREADSHEET PROGRAM

Many people believe that one of the key contributors to the growth of personal computers was a spreadsheet program called VisiCalc. VisiCalc was the brainchild of Dan Bricklin while he was studying for his MBA at Harvard Business School in 1978. He observed that an error in a single cell of a common (paper) spreadsheet required that the value in every other cell be changed. As a way to solve this problem, Bricklin envisioned electronic spreadsheets where a cell entry could be changed, and all the other cells would change automatically according to specified formulae.

To implement this new idea, Bricklin enlisted the expertise of a software programmer named Bob Frankston. Their partnership led to the creation of Software Arts, Inc. Soon, Bricklin and Frankston's fledgling company garnered the attention of Personal Software, a software publisher that loaned Software Arts an Apple II computer on which to perform a demo of VisiCalc.

Personal Software eventually funded the development of VisiCalc by licensing it from Software Arts and becoming its sole distributor. What once began as an innovative idea in Bricklin's apartment building in mid-1978 went on to become, in 1979, the first spreadsheet program ever released on the market. VisiCalc was considered revolutionary in many circles.

However, VisiCalc's story does not end there. No sooner had the company completed its initial investment and established a firm market for its product, other companies began to place conceptually identical spreadsheet programs on the marketplace. These newcomers not only profited from publicly available information of the original spreadsheet program, including its established market acceptance, but arguably they were able to muster greater resources to overcome VisiCalc's market leadership.

According to Bricklin, a conscious decision was taken not to pursue patent protection of VisiCalc. He stated that Personal Software (later renamed VisiCorp) had retained a patent attorney. The patent attorney explained that there were many obstacles involved in obtaining a patent on the software, estimating only a 10% chance of success. Based on this advice, and the potentially high costs involved, Bricklin decided not to pursue a patent. Instead, copyright and trademark protection were vigorously pursued to keep others from replicating their work.

Continued

"The enormous importance and value of the spreadsheet, and of protections in addition to copyright to keep others from copying our work, did not become apparent for at least two years, too late to file for patent protection," said Bricklin. "If I invented the spreadsheet today, of course, I would file for a patent," he added.

Source: *Hormby, VisiCalc and the Rise of the Apple II, http://lowendmac.com/orchard/06/visicalc-origin-bricklin.html. U.S. Patent and Trademark Office; Dan Bricklin, Patenting VisiCalc, http://www.bricklin.com/patenting.htm.*

5.1 INTRODUCTION

Intellectual property (IP), the intangible asset that comprises or results from creativity, innovation, *invention*, *know-how*, and reputation (and encompasses all rights to technology), is becoming an increasingly important aspect of any business. This is particularly true with start-up and emerging technology ventures. IP is typically the basis for the competitive advantage necessary for a technology venture to succeed and has become the primary asset of modern business enterprises. As Dan Bricklin found out to his chagrin, having the greatest technology in the marketplace will not sustain success if you do not take the appropriate steps to prevent your competitors from legitimately appropriating it.

In this chapter, we examine the various types of IP and how to protect them. We discuss the significance of IP, how to recognize IP assets, and the characteristics of the individual types of IP and protection mechanisms.

5.2 IP AND TECHNOLOGY VENTURES

The importance of IP to modern business ventures is clear. Only a few decades ago, the bulk of U.S. corporate assets were tangible in nature, which is depicted in Exhibit 5.1. Intangibles such as IP comprised ~20% of corporate assets. However, by 2005, the ratio of intangible to tangible corporate assets had essentially reversed; the market value of the S&P 500 was ~80% intangible assets.

According to the U.S. Department of Commerce, "[t]he entire U.S. economy relies on some form of IP, because virtually every industry either produces or uses it."[1] In 2010, about 28% of the jobs and 35% of the GDP in the United States are attributable to IP intensive industries. The emphasis on IP assets is not confined to the United States; as shown in Exhibit 5.2, intangible assets also represent at least approximately a third, and typically the majority, of value in significant non-U.S. markets. As of September 2013, about 35% of the jobs in the European Union and 39% of the GDP come from sectors that are dependent on patents and other IP to function.[2]

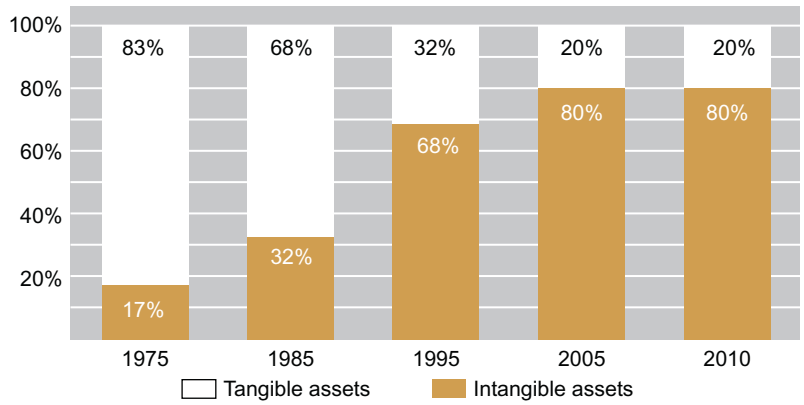


EXHIBIT 5.1

Components of the S&P 500. *Source: Ocean Tomo: http://www.oceantomo.com/media/newsreleases/intangible_asset_market_value_2010.*

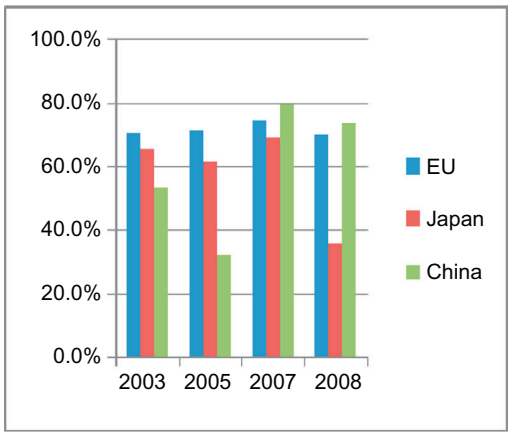


EXHIBIT 5.2

Intangible value as percent of market value for non–U.S. markets. *Source: Ocean Tomo: http://www.oceantomo.com/media/newsreleases/intangible_asset_market_value_2010.*

Consider the size and nature of the transactions driven by IP. For example, Microsoft paid $8.5 billion to acquire Skype and $6 billion to acquire a Quantive.[3] SanDisk paid $327 million to acquire Pliant Technology,[4] and Nuance acquired Equitrac for a price of $150 million.[5] Apple, RIM, and Microsoft teamed up to outbid Google to buy a bundle of Nortel patents relating to mobile phones and tablet computers for $4.5 billion.[6] Apple and Google

teamed up to purchase Kodak's patent portfolio relating to the capture, manipulation, and sharing of digital images for $527 million.[7] Microsoft sold a package of its patents related to mobile, Web, and instant messaging technology to Facebook for $550 million and purchased AOL's patents covering Internet technology for $1.05 billion. InterDigital sold a bundle of patents relating to 3G/LTE technology to Intel for $375 million.

IP is particularly important to startup and emerging ventures. For a venture to succeed it must have a competitive advantage; some aspect of the venture—its operations, product, or services—must be (or at least must be perceived in the market to be) unique, better, or distinctive in comparison to that of the competition. This is particularly true for a start-up venture in a market with already established (and well-financed) competitors. Sustained success requires a sustained competitive advantage. Sustainable competitive advantage for technology companies almost always derives from some form of IP. Without the appropriate legal foundation to protect IP rights, however, competitors will be able to legitimately appropriate or copy the feature, and the competitive advantage will be lost.

In addition to providing competitive advantage, IP can contribute to the success of a venture in a number of ways:

- Demonstrable rights to IP are perceived as an indicator of the likelihood of success of a technology venture. A study of venture capital funding between 1995 and 2002 showed that businesses that had IP holdings (patents) were 34% more likely to be successful in obtaining subsequent rounds of venture capital funding.[8]
- Rights to IP are assets of the venture, often one of the most significant factors in the valuation of the venture.
- Patents are, in effect, a third-party certification of expertise.
- IP (most commonly patents) can be used as collateral for a loan.[9]
- IP can be leveraged (through strategic licensing, granting profit interests,[10] securitization,[11] etc.) to provide capital to the venture.

IP is also "currency" between participants in the formation of a technology start-up venture. (We discuss the various legal structures available for your start-up in the next chapter.) Exhibit 5.3 shows that each participant (co-venturer) in the start-up venture makes a *contribution* to the venture and in return for that is given some form of *consideration*.

A participant's contribution to the venture can be capital (cash or credit). However, in a technology venture, at least one participant makes a contribution in the form of IP. The IP contribution can be in lieu of capital. (Contributions to the venture can relate to any of the elements necessary for the success of the

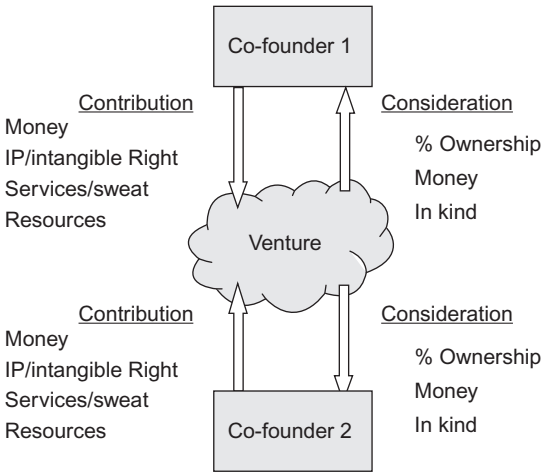


EXHIBIT 5.3

Transactional analysis of formation of a business. *Source: Michael Lechter, A., 2010. OPM: Other People's Money, The Ultimate Leverage, second ed. TechPress, Phoenix, AZ.*

venture, such as resources, leadership, "sweat," and connections. Initial contributions by principals are typically made in return for, at least in part, an equity interest (otherwise they would not be principals).

Recently, so-called *open* models of doing business have gained notoriety. Examples include various consortia[12] and *open source licensing* of software.[13] Even these business models for the most part rely on IP protection.[14]

A savvy technology entrepreneur will secure exclusive rights to the venture's IP to the greatest extent possible. However, the laws relating to IP are anything but intuitive. Valuable rights in IP can be unwittingly lost by seemingly innocent courses of action, and failing to consider third-party rights can lead to disaster.

5.2.1 IP Protection

IP can take many forms. As will be discussed, the terms trade secret, utility patent, design patent, copyright, mask work, and trademark have come to denote both an IP asset and legal mechanism for protecting the underlying assets. These mechanisms provide a framework for establishing and maintaining rights in IP. A strategy employing combinations of the various legal mechanisms should be developed to maximize protection for facilitating the venture's goals. Exhibit 5.4 highlights some of the characteristics of the respective legal mechanisms.

Exhibit 5.4 Comparison of U.S. Intellectual Property Protection Mechanisms

Protection mechanism	Term	Source of Law	Protectable Subject Matter	Scope of Protection Precludes Unauthorized	Compatible Concurrent Forms of Protection
Trade secret	Potential infinite (as long as kept secret)	State law (Uniform Trade Secret Act)	Anything that can be kept secret	Copying or use. No protection against independent development	Trademark
Trademark	Potentially infinite (as long as in use and capable of identifying source) registrations renewable 10-year terms	State common law; State statutes; Federal statute (15 USC §1051 et seq)	Anything non-utilitarian that is capable of identifying the source of goods or services	Use of trademark in context that creates any likelihood of confusion as to source, sponsorship, or affiliation	Trade secret Design patent Utility patent Copyright
Copyright	70 years after death of the last surviving author, or if work for hire, 95 years from publication	Federal statute (17 USC §101 et seq)	Non-utilitarian works of authorship	Copying of copyrighted aspects of a work of authorship	Trademark Design patent Utility patent
Maskwork	Until end of 10th calendar year after earlier of registration or first commercial exploitation	Federal statute (17 USC §901 et seq)	Maskworks (images, representing three-dimensional patterns in the layers of a semiconductor chip)	Use of reproductions of masks introduction of competing chips	Trade secret Trademark Utility Patent
Design patent	14 years from issue date	Federal statute (35 USC §§1 et seq, §171)	Nonfunctional aspects of ornamental designs	Application of patented design to any article of manufacture, or sale or offering for sale such article of manufacture	Utility patent Copyright Trademark
Utility Patent	20 years from filing date of application	Federal statute (35 USC §1 et seq)	New and useful process machine, manufacture, or composition of matter, or new and useful improvement thereof	Making, using, offering to sell, selling or importing any patented invention	Copyright Design patent Maskwork Trademark

5.3 RECOGNIZING IP

A starting point for developing IP assets is, simply, recognizing their existence. Identifying IP assets is easy when a venture is built around a particular product or idea. For example, when technology is developed specifically to fulfill a want or need in the marketplace or to solve a problem generally encountered in the marketplace, it is clear that IP rights in that technology should be pursued. However, valuable IP also may reside in other aspects of the venture.

A potential IP asset is created every time a problem is solved—even when the problem relates to internal operations. When a problem is encountered in connection with a business, it is likely that its competitors will encounter the same problem. If the business develops a solution to the problem that is better than that of its competitors, obtaining the exclusive rights to use that solution can give the business an advantage—a great advantage if the problem is significant and the solution is notably better than that of the competition's.

Technology ventures should: continuously and systematically analyze their products and operations to identify potential IP; affirmatively seek opportunities to develop protectable IP assets; obtain and maintain exclusive rights to the IP to the maximum extent available; and exploit the assets as part of an overall strategy. Everything that gives the business an advantage should be identified. For example, this may involve:

- Identifying the reasons that customers are attracted to the business instead of to its competitors.
- Dissecting the operations and systems, products, services, and communications and analyzing each component and feature to determine whether there is anything about it that is unique, better, or distinctive.
- Developing a strategy to exploit the IP by securing exclusive rights through application of the appropriate legal mechanisms and/or promoting the use by others to drive the company's sales of other products or services.

Technologies or processes that are not used by the venture might still be of use to others. For example, you may develop alternative technological solutions to a problem and choose to actually employ only one of those alternatives. However, the alternatives that were not chosen may still have value. Rights to those developments may be used to broaden a competitive advantage or to generate income through licensing.

Any noncompetitive markets where the venture's technology can be utilized should be identified. Income can be generated, without affecting competitive advantage in your marketplace, through strategic field of use *license agreements*—permitting (for some consideration) a *licensee* to use the technology only in the noncompetitive market.

By properly identifying and protecting as many IP assets as possible, a venture will be more attractive to investors. Ventures with IP holdings are more likely to be successful in obtaining multiple rounds of venture capital funding. In analyzing a company, investors evaluate not only its IP, but also the systems and processes the venture has in place to protect IP assets.

5.4 RECORD KEEPING

The basic foundation for IP protection and for protecting against third-party charges of infringement is often a complete and accurate evidentiary record. It is sometimes necessary to prove the specific nature of technical innovations, the date they were made, and the project with which the innovations are associated.

KEY POINT

Making an Invention Under U.S. Law: Two Distinct Steps

To *make* an invention under U.S. law you must *conceive* the invention and then *reduce it to practice*. Conception is the mental portion of the inventive act. Reducing the invention to practice is building the invention and proving that it works for its intended purpose. The filing of a patent application is a *constructive reduction to practice*, equivalent to actually reducing the invention to practice. The *diligence* with which the inventor reduces the invention to practice after conception can also be a factor in some circumstances.

This two-step process becomes important in, for example, interference proceedings under the old law and in the application of contract provisions keyed to when an invention is *made*, *first made*, or *first actually reduced to practice*.

Your contemporaneous evidentiary record should cover each of the elements of making an invention.

Typical situations that require an evidentiary record of development include:

- Disputes regarding ownership of or rights to use technology—whether a certain technology was first made under a particular development contract or government contract, is covered by a particular license agreement, or is subject to a confidentiality or nonuse agreement
- Proving that IP was independently developed and not derived from another's proprietary material (e.g., as a defense to trade secret, copyright, or mask work infringement, in patent *derivation proceeding* or *interference proceeding*)
- Proving that an invention was previously developed, not abandoned, suppressed, or concealed (as a defense to patent infringement with respect to patents applications filed prior to March 16, 2013)

KEY POINT

Change in U.S. Patent Law

In 2013 U.S. patent law changed. However, the old law still governs those applications filed prior to the date that the new law went into effect and patents issuing from those applications. This means that the different law applies to U.S. patents depending upon their effective filing dates. This will be a consideration until all of the patents with effective filing dates prior to March 16, 2013 have expired—at least until March 16, 2033.

Among other things, the law changed from a "first to invent" to a "first to file" system. It also expanded the criteria for prior art against which patentability is measured; expanded a prior use defense; and changed or added various postgrant and inter-partes proceedings.

- Proving that an invention was in public use, on sale, or otherwise available to the public prior to the effective filing date of the patent (as a defense to patent infringement with respect to patents applications filed on or after March 16, 2013)
- Proving that an invention was in nonpublic commercial use before a certain date (as a personal defense to patent infringement with respect to patents applications filed on or after March 16, 2013)
- Holding interference proceedings before the United States Patent and Trademark Office or courts to determine priority of invention (with respect to patents applications filed prior to March 16, 2013)

Significantly, in most proceedings, the mere word of the inventor or inventors with respect to the elements of making an invention *is not considered competent evidence*; documentation and corroboration by a noninvolved witness are typically required. Accordingly, development should be contemporaneously documented in tangible media form and witnessed by, or placed in the possession of, a person or entity that was not involved in the development effort.

5.4.1 Record Keeping Procedures

It is best practice to establish procedures that facilitate complete and accurate records of the precise nature and time frame of development activities, keeping in mind the requirement for independent corroboration.

Many companies employ some form of invention disclosure forms to establish a conception date in the United States. These are not a substitute for contemporaneous records. The forms typically (1) are at least days after the fact and (2) do not contain the details necessary to prove all of the elements of making an invention, let alone diligence.

The evidentiary value of a record entry is directly proportional to the specificity of the entry and the care taken to establish the date and authenticity of the entry. For a physical record, this is accomplished simply by signing and dating each entry and having each entry read, signed, and dated by a witness. Electronic records (which can easily be modified), require a more elaborate procedure—typically involving placing the records into the hands of an independent "trusted third party" (escrow agent) who can testify that the records were deposited into escrow as of a certain date and have not been modified.

KEY POINT

Technology Escrow

Technology escrow is a process where information regarding technology is placed into the hands of a "trusted third party" (escrow agent) who delivers the information to a specified entity upon the occurrence of a specified condition or event. In the context of establishing evidentiary records of development, the escrow agent holds the records and provides evidence (testimony) that the information is precisely that delivered to them on a certain date.

In the context of trade secret licensing (e.g., software licenses) trade secret information regarding the licensed technology (e.g., source code) is delivered to the escrow agent by the licensor and delivered to the licensee upon occurrence of, for example, a breach of the license agreement or inability of the licensor to maintain the software. In some instances, the escrow agent will verify the completeness and sufficiency of the escrowed materials.

When referring to the sale of trade secrets, a technology escrow is often used in precisely the same manner as what is used in the escrow process in the sale of real property.

The context of an entry within a set of records can sometimes be used to prove a date. For example, if an entry showing conception is found in a *bound* notebook between entries dated January 3 and January 5, then that is relevant proof the invention was conceived sometime between January 3 and January 5. It would not be as relevant, however, if a loose-leaf binder had been used instead of a bound notebook because loose-leaf binders allow for inserting pages.

5.4.2 Guidelines for Record Keeping

The goal of keeping records is to create an irrefutable evidentiary record of development and invention. It is imperative that each record entry identifies the subject of the work with particularity and contains all relevant details. An entry such as "worked on new sharpener" sheds little light on whether the "new sharpener" included a specific feature. Every entry should indicate the particular project with which the entry is associated, and, if possible, be signed and dated by (or "escrowed" with) someone who is not participating in the project.

All computations, diagrams, and test results should be contemporaneously entered into the record. Keep in mind the evidentiary value of the record is at least in part determined by how easily it can be falsified. It is as easy to do "pencil" calculations in ink in a bound notebook as it is to do them on scratch paper. If the entry is legible, there are no particular format or neatness requirements. It is also easy enough to scan documents into a computer to become part of an electronic record. However, if electronic records are used, they may be of little evidentiary value unless escrowed with—provided (preferably on a daily basis) to—an entity (preferably independent) who was not involved in the development effort and can verify that the records were provided to him or her on a certain date, and unless they are unchanged from the original provided. All persons involved in the work should be identified in the corresponding entries. Unless participants are identified, it is often difficult to establish, long after the fact, those involved in or who witnessed particular activities.

It is important that all loose papers, such as blueprints, schematics, flowcharts, oscillographs, photographs of models, and so on, be signed and dated, cross-referenced to a particular entry, and, preferably, mounted in or scanned into the body of the appropriate entry. Similarly, physical results of tests, for example, samples, models, and prototypes, should be carefully labeled with the date, cross-referenced to record entries, and retained.

Records should be maintained with the idea of proving not only the dates of conception and reduction to practice, but also reasonable diligence in reducing to practice. To this end, it is important to have the documentary evidence and dated record entries describe *all* testing performed (both good results and bad), materials and equipment ordered, the particular types of equipment used, and the results of the testing.

Procedures should be implemented to ensure that significant tests or demonstrations showing or comprising reduction to practice are witnessed by noninventors or that such tests or demonstrations are repeated before noninventor witnesses.

Audio and/or video recordings of significant tests showing and identifying all participants, preferably including noninventor witnesses, should be considered.

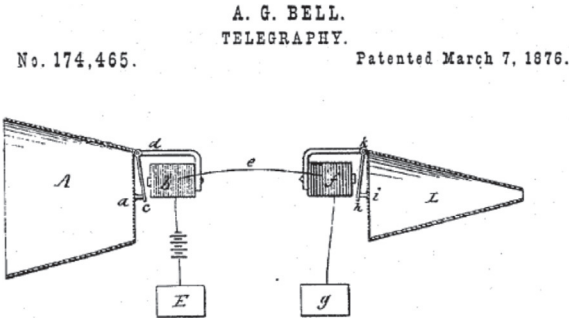
In all, a documentary record should be maintained that is capable of establishing the dates and activities comprising each of the elements of making an invention, identifying individuals involved in the work who can provide testimony, and identifying the particular project with which technical work is associated.

MINI-CASE

Invention Must Be Proven by Competent Evidence

Was Alexander Graham Bell entitled to the patents on the telephone? Was he the first to reduce a telephone to practice? The courts of his time ultimately held that he was, but primarily because of a lack of documentation evidencing the allegedly prior work of others.

During the 1860s and 1870s, there was considerable parallel experimentation on the transmission of the human voice over electrical wires. Notably, the experimenters included not only Alexander Graham Bell, but serial inventors Thomas Edison, Elisha Gray of Chicago, and Prof. Amos Dolbear. Bell was the first to file patent applications on the key components of the telephone (e.g., the microphone); he filed an application entitled "improvement in telegraphy" on February 14, 1876. Over the next five years, Bell filed applications on mechanisms for establishing a telephone connection and on twisted pair wire.


A. G. BELL.
TELEGRAPHY.
No. 174,465. Patented March 7, 1876.

5. The method of, and apparatus for, transmitting vocal or other sounds telegraphically, as herein described, by causing electrical undulations, similar in form to the vibrations of the air accompanying the said vocal or other sound, substantially as set forth.

Over the next two decades, however, there were over 600 proceedings involving the Bell patents. For example, Western Union (which then dominated the U.S. telegraph system), purportedly acquired technology from Edison, Gray, and Dolbear and entered the telephone market in 1878. Bell sued for patent infringement, resulting in Western Union agreeing to pull out of the telephone market in 1879. Around that time, "People's Telephone Company" entered the market with technology acquired from one Daniel Drawbaugh. Bell sued for patent infringement. People's Telephone argued that Bell's patent was invalid because of prior invention by Drawbaugh; Drawbaugh claimed to have invented the microphone element of the telephone approximately a decade prior to Bell, but had not applied for patent or commercialized the technology due to lack of funds. In support of its "prior invention" defense People's Telephone presented the testimony of 300–400 witnesses (resulting in some 1200 pages of transcript). Notwithstanding all of the testimony, since nothing whatsoever "in print or in writing," "not even a memorandum or a drawing of any kind," was produced in support of Drawbaugh's claim, the majority of the court held that Drawbaugh did not make a telephone microphone prior to Bell. A number of judges, however, dissented. We will never know whether Drawbaugh's claims to have made a telephone microphone before Bell were factual. If they were, contemporaneous documentation would have made all the difference.

5.5 TRADE SECRETS

Secrecy is probably the most ancient form of IP protection. Any proprietary information that can be kept secret can be a trade secret. If the competition doesn't know it, they can't copy it—and will have to expend the time and effort to develop it on their own (assuming that they can). Trade secrecy is the primary protection mechanism for information, data, know-how, and expertise, but it can also be used to protect inventions.

Trade secret protection has a potentially infinite duration. The information underlying the trade secret is protected as long as it is not accessible to competitors. However, a trade secret can be very fragile. Once a trade secret becomes generally known, irrespective of how it becomes known, the protection is lost. A trade secret also provides no protection against independent development of the technology by others.

In the United States, trade secret rights that are enforceable against others are provided under the laws of the various individual states. In order to qualify for protection, the subject matter of the trade secret right must meet certain prerequisites. It must not be generally known, and must: (1) derive some value from being kept secret, and (2) be subject to reasonable efforts to maintain its secrecy. As will be discussed, reasonable efforts typically involve restricting access and establishing contractual obligations of confidentiality.

Some types of technology are simply unsuited for trade secret protection. For example, any technology that is evident from marketing materials, or that can be reverse engineered from a product that is sold to the public, cannot be maintained as a trade secret. **In general, in the absence of an express or implied contractual obligation, any unpatented technology that comes into an entity's possession legally can be freely used and copied**.

Information that is generally known in an industry and basic skills or practices employed in an industry, even though unquestionably valuable to a business, do not qualify for trade secret protection. Typical examples of such *nonproprietary know-how* are the skills and knowledge acquired by an employee who is trained in the operation of a commercially available machine. A venture's interest in nonproprietary know-how is best served by ensuring that the know-how is possessed by a number of people within the business and by ensuring that the know-how is well documented or recorded.

5.5.1 Procedures for Trade Secret Protection

In theory, the procedure for maintaining a trade secret is simple. Implementation of the procedure, however, requires discipline. To maintain trade secret status, you must be able to show that your procedures for maintaining secrecy meet the standard of "reasonable under the circumstances." All technology considered proprietary should be clearly treated and marked as such. For example, all printouts,

flowcharts, schematics, layouts, blueprints, technical data, and test results that contain confidential information should be marked confidential. However, merely marking something "confidential" does not make it so. Providing someone with a document marked "confidential" does not in and of itself create any obligation to keep the secret. Conversely, indiscriminate use of proprietary markings can dilute the significance of the marking when used on things that are, in fact, proprietary.

KEY POINT

Inappropriate Confidentiality Markings Can Hurt You

A large aerospace company was sued for infringement of a patent with an effective filing date over two decades earlier. Finding witnesses that could testify with respect to the events occurring so long ago presented a problem. However, it happened that the claimed invention was described in a maintenance manual for an earlier model of the accused device. The manual was provided, without any confidentiality agreement, to all purchasers of the earlier model of the accused device, as well as to all organizations servicing aircraft and to anyone else that requested a copy. The dates were such that the manual, if a publication, would invalidate the claims that were being asserted. However, though publicly available, the manual was marked "confidential." The inappropriate confidentiality markings complicated the company's patent infringement defense; they had to prove that the manual was in fact publicly available notwithstanding the confidentiality markings.

Tight security should be maintained and access restricted to the area in which a trade secret is practiced or kept. Access to and knowledge of a trade secret should be permitted only on a need-to-know basis. Records should be kept identifying all persons given access to any portion of the trade secret. All copies of trade secret documents should be accounted for.

It is imperative that *confidentiality agreements* be executed with every entity that is given access to any part of the trade secret technology. Confidentiality agreements are the primary mechanism for creating the obligation of secrecy necessary for trade secret status. As a general rule, permitting any entity to have access to the trade secret information without first imposing an obligation of confidentiality will impair or destroy trade secret status. An illustrative generic confidentiality agreement is provided in Appendix I.

Although employees are obligated by law in most jurisdictions to keep their employer's trade secrets confidential, there is great room for dispute regarding the scope of that obligation and precisely what should be considered a trade secret. Accordingly, each principal and/or employee of a company who has access to company technology or sensitive business information should sign a confidentiality agreement that defines and creates presumptions with respect to things deemed confidential. Generally, such agreements should be executed at or prior to the time of hiring the employee.

When employees who have access to trade secret information leave the company to take a similar position with a competitor, disclosure or use of the former employer's confidential information is sometimes inevitable, notwithstanding any agreement to the contrary. In those circumstances, a *noncompetition agreement* is often used with the employee to prevent the employee from taking a position that would inevitably cause the trade secret to be disclosed. However, such agreements are disfavored and strictly construed by the courts.[15] Under any circumstances, the noncompetition agreement should be carefully crafted so that geographic scope, duration, and scope of prohibited employment are restricted to the minimum necessary to protect the proprietary rights of the former employer. If any of those aspects of the agreement are deemed to be overly broad or overreaching, a court is likely to find the agreement unenforceable.[16]

5.6 PATENTS

The basic premise of the patent system is to provide inventors a limited-term exclusive right to their inventions as an incentive to bring their inventions to the public, as opposed to keeping the inventions secret. Generally, the term of a patent on an invention is 20 years from the date on which the application for the patent was filed.

Patents are territorial, effective only within the jurisdiction in which it is granted. The patent law of the jurisdiction specifies the general fields of subject matter that can be patented and the conditions under which a patent may be obtained. As will be discussed in greater detail, a patent is divided into two major sections: the written description (typically incorporating a drawing), which discloses the invention to the public; and the claims, which define the particular IP to which the inventor obtains rights.

The significance of the patent system in the United States is reflected by its origin in the U.S. Constitution. Article I, section 8 of the U.S. Constitution reads: "Congress shall have power to promote the progress of science and useful arts, by securing for limited times to authors and inventors the exclusive right to their respective writings and discoveries." Under this power, Congress has enacted various laws relating to patents. The first patent law was enacted in 1790, and was revised in 1952, in 1999, and then again in 2011 (effective March 16, 2013). The 2011 revisions, referred to as the "American Invents Act" (AIA), significantly changed the U.S. patent law with respect to patents with effective filing dates of March 16, 2013 and later. There are four basic patent types (three in the United States):

Utility Patent ("patents for invention"): These are intended to protect utilitarian, functional items and relationships, physical embodiments of innovative ideas, and discoveries. For example, in the United States, a utility patent is issued, subject to the conditions and requirements of the patent law, to "any person who invents or discovers any new and useful process, machine,

manufacture, or composition of matter, or a new and useful improvement thereof." The word "process" is defined as a process, act, or method and primarily includes industrial or technical processes. The term "manufacture" refers to articles that are made and includes all manufactured articles. The term "composition of matter" relates to chemical compositions and may include mixtures of ingredients as well as new chemical compounds. These classes of subject matter taken together include practically everything that is made by man and the processes for making the products. The utility patent generally permits its owner to exclude others from making, using, or selling the invention for a period of up to 20 years from the date of patent application filing. Generally, when someone refers to a "patent," they are referring to a utility patent. Approximately 90% of the patents granted by the USPTO in recent years have been utility patents. (See Exhibits 5.5 and 5.6.)

Petty Patent/Utility Model (not available in the United States): This type is intended to protect utilitarian/functional items and relationships that are worthy of an incentive but don't quite meet the threshold standard requirements for a utility patent. A utility model typically affords a lesser protection than a utility patent.

Design Patent/Industrial Design: This type is intended to protect nonutilitarian/nonfunctional appearance and designs. In the United States, they are issued for a "new, original, and ornamental design for an article of manufacture." The design patent permits its owner to exclude others from making, using, or selling the items embodying the design for a period of 14 years from the date of patent grant.

Plant Patent: This patent is issued for a new and distinct, invented or discovered asexually reproduced plant, including cultivated sprouts, mutants, hybrids,

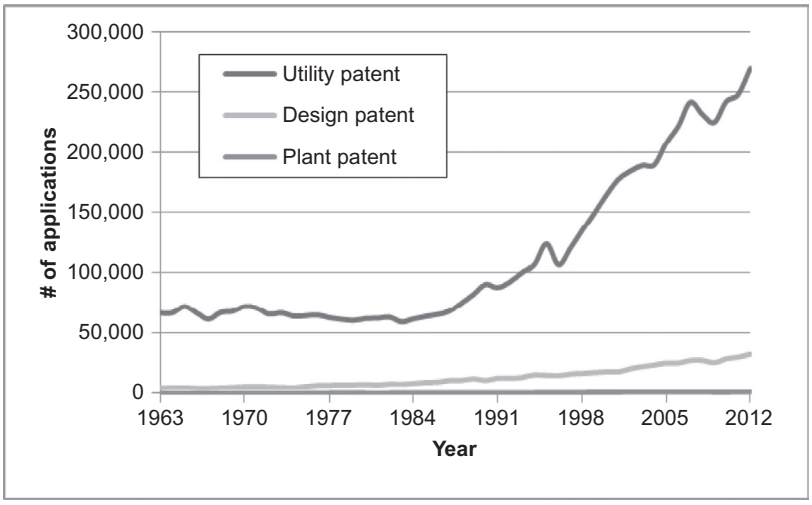


EXHIBIT 5.5
U.S. patent applications.

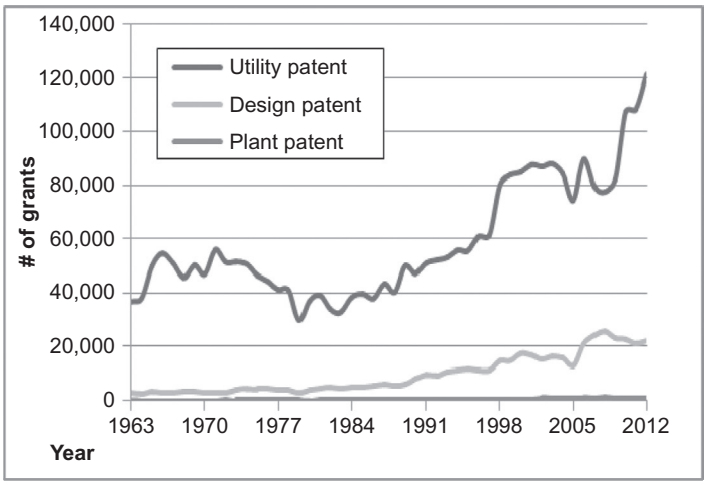


EXHIBIT 5.6
U.S. patents granted.

and newly found seedlings, other than a tuber-propagated plant or a plant found in an uncultivated state. The plant patent permits its owner to exclude others from making, using, or selling the plant for a period of up to 20 years from the date of patent application filing.

5.6.1 The Patent Application

A *patent application* is, in effect, a proposed patent, submitted to the appropriate government agency (patent office) for its approval. The requirements for the application are typically provided in the applicable statute. In the United States, a nonprovisional application for a patent must include a written description of the invention, a drawing when necessary for understanding of the invention, at least one claim (defining the patented invention), and an oath or declaration by the applicant.[17]

Some countries (e.g., the United Kingdom and the United States) provide for what is referred to as a *provisional application*, which does not require the formalities of a regular application. A provisional application, however, is not intended to provide any enforceable rights. It is a tool to prevent subsequent events from becoming prior art against which patentability is measured (which will be discussed) with respect to related nonprovisional applications. A provisional application is not examined and is automatically abandoned 12 months after filing. It does not ever mature into a patent. For a patent to issue on the subject matter described in the provisional, a regular nonprovisional application *claiming priority* on the provisional application must be filed within a year of the provisional.

In some cases, examination of an application by the patent office does not result in the allowance of all of the claims that are desirable with respect to the subject matter described in the application. In those cases, a *continuation application*, substantively identical (except perhaps in the case of claims) to (and containing a specific reference to) the original or "parent application," to which it specifically refers, may be filed while the parent application is still pending to pursue the claims that were not allowed in the parent application.[18] The continuation is treated as if it was filed on the date that the parent application was originally filed. However, the term of the patent issuing from the continuation application is measured against the filing date of the parent application.[19]

Once a formal application has been filed, no *new matter* can be added to the application. In this context, new matter refers to new embodiments or details not described or shown in the originally filed application. However, those further details, or embodiments, of the invention can be covered by filing a *continuation-in-part* (CIP) application. The claims relating to the material described in the parent application are given the benefit of the original filing date. The claims covering the additional details are given the filing date of the CIP application. However, the term of the patent issuing from the CIP application is measured against the filing date of the parent application, even with respect to the claims relating to the new matter. A CIP application can be filed at any time before the original application issues as a patent or is abandoned.

5.6.2 Written Description

A patent's *written description* (with the drawing) is the primary vehicle for making the invention known to the public. Each element of the invention is shown in the drawing, designated by a numeral. The written description describes the elements of the invention and how they work together, with specific reference to the numeric designations used in the drawing.

By way of illustration, the first page of a patent is shown in Exhibit 5.7. This is Patent No. 7,122,923, entitled Compact High Power Alternator, invented by Messrs. Lafontaine and Scott and owned by Magnetic Applications, Inc. It issued in 2006 from an application filed in 2004. Note how each element in the drawing is numbered. Note also all of the valuable information provided on the front page of the patent regarding, e.g., other potentially relevant patents.

The level of detail required in the description tends to vary from jurisdiction to jurisdiction. The United States requires a greater level of detail than most other countries; the U.S. law requires that the description be in sufficient detail to enable a *person of ordinary skill in the art* (hypothetical typical practitioner in the field of the invention) to make and use the invention. Basically, it is desirable to include as much detail as possible in the description and to be exceedingly careful to fully describe each and every feature that is to be protected. In addition, at

First page of a U.S. Patent

(12) **United States Patent**
Lafontaine et al.

(10) **Patent No.: US 7,122,923 B2**
(45) **Date of Patent: Oct. 17, 2006**

(54) **COMPACT HIGH POWER ALTERNATOR**

(75) Inventors: **Charles Y. Lafontaine**, Berthoud, CO (US); **Harold C. Scott**, Lafayette, CO (US)

(73) Assignee: **Magnetic Applications Inc.**, Lafayette, CO (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: **10/889,980**

(22) Filed: **Jul. 12, 2004**

(65) **Prior Publication Data**

US 2005/0035673 A1 Feb. 17, 2005

Related U.S. Application Data

(60) Provisional application No. 60/486,831, filed on Jul. 10, 2003.

(51) **Int. Cl.**
H02K 9/00 (2006.01)

(52) **U.S. Cl.** ..... **310/58**; 310/61; 310/60 A

(58) **Field of Classification Search** ..... 310/52–64, 310/153, 112, 113; 290/1 B
See application file for complete search history.

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Primary Examiner—Dang Le
(74) *Attorney, Agent, or Firm*—Michael A. Lechter; David B. Rogers; Squire, Sanders & Dempsey, L.L.P.

(57) **ABSTRACT**

An apparatus for converting between mechanical and electrical energy, particularly suited for use as a compact high power alternator for automotive use and "remove and replace" retrofitting of existing vehicles. The apparatus comprises a rotor with permanent magnets, a stator with a winding, and a cooling system. Mechanisms to prevent the rotor magnets from clashing with the stator by minimizing rotor displacement, and absorbing unacceptable rotor displacement are disclosed. The cooling system directs coolant flow into thermal contact with at least one of the winding and magnets, and includes at least one passageway through the stator core. Various open and closed cooling systems are described. Cooling is facilitated by, for example, loosely wrapping the winding end turns, use of an asynchronous airflow source, and/or directing coolant through conduits extending through the stator into thermal contact with the windings.

129 Claims, 43 Drawing Sheets

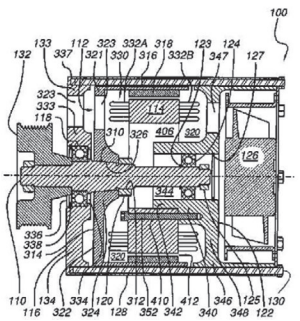


EXHIBIT 5.7
First page of a U.S. patent.

least in the United States, the application must describe the best mode contemplated by the inventor of carrying out the invention.

5.6.3 Claims

The *claims* define the scope of protection provided by the patent. An accused device or process infringes a claim if it includes elements corresponding to *each and every* element of the patent claim. The broader and less specific the terms of the claim, the broader the protection that is afforded by the patent, but also the more vulnerable it is to invalidation based on prior art. The language of the patent claims must, therefore, be drafted with the utmost precision. It is permissible to have a number of different claims in the patent application. In common practice, claims of varying scope, ranging from the most general to the most specific, are submitted. In this way, if it appears after the fact that some relevant piece of prior art exists that invalidates the broad claims, the other, more specific claims are not necessarily invalidated. In this manner, the inventor not only can obtain protection on the broad aspects of his invention, but also on the specifics of the particular product that is put on the market. Claims can also be strategically directed to catch specific potential infringers or to facilitate licenses into different fields of use.

5.6.4 Exclusive Right

As noted above, a patent provides an *exclusive right* to the inventor. A patentee has the right to exclude others from practicing the invention.[20] However, the grant of a patent does not necessarily give the patentee the right to practice the patented invention. It is this distinction that makes the patent system so effective in advancing industry. Through this mechanism, patent protection can be provided for improvements without degrading the protection provided for basic inventions.

An unauthorized item infringes a patent if it includes elements corresponding to *each and every* element in any claim in the patent. It is irrelevant that the item includes additional elements, even if the additional elements or a combination of those elements are patentable in their own right.

To illustrate the "exclusive" nature of patent protection, assume that when the "stool" and "chair" were first invented, there was a patent system in place. Let's say that I obtain a patent on the "stool," claiming: "Apparatus comprising a platform and at least one support member disposed to maintain the platform at a predetermined level from the ground." (See Exhibit 5.8.)

You purchase a stool and determine that it can be improved by incorporating a back support. Ultimately, you invent and obtain a patent on the "chair," claiming: "Apparatus comprising a platform, at least one support member for maintaining the seat at a predetermined level from the ground, and a back extending above the platform." (See Exhibit 5.9.)

Both you and I have patents. However, notwithstanding the addition of the back, shown in Exhibit 5.10, the chair still includes elements corresponding to

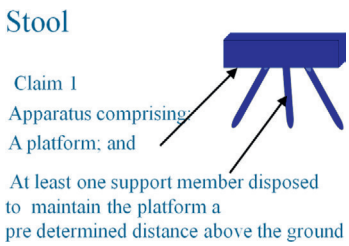


EXHIBIT 5.8
Example of a patent claim on a stool.

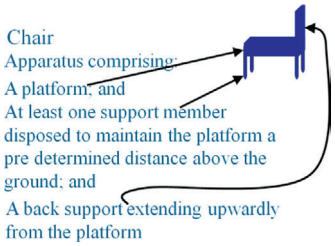


EXHIBIT 5.9
Example of a patent claim on a chair.

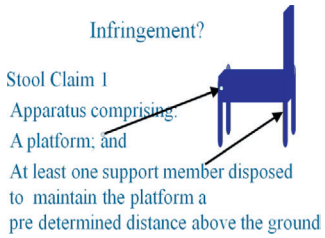


EXHIBIT 5.10
Infringement analysis: application of school claim to chair.

each and every element of the claim of, and thus infringes on, my basic patent on the stool. So you need a license from me to make your chair. Similarly, while I am free to make, use, and sell the stool, I cannot put a back on the stool without infringing your patent on the chair.

In practice, the result is that you and I each obtain a license from the other under the respective patents, and, where before there was only one stool manufacturer, there are now two chair manufacturers.

5.6.5 Patentability

Threshold criteria must be met before an inventor is awarded a patent on an invention: (1) the invention must consist of patentable subject matter, that is, be within certain broad categories of subject matter (*patent-eligible*); (2) the

invention must be capable of industrial application (or, in certain countries such as the United States, be useful); (3) the invention must be new (novel); (4) the invention must be nonobvious (it must involve an inventive step); and (5) the disclosure of the invention in the patent application must meet certain formal and substantive standards.

5.6.5.1 Patent-Eligibility

The categories of subject matter that are eligible for utility patent protection vary from jurisdiction to jurisdiction (e.g., from country to country), although various treaties tend to set a minimum threshold.[21] The scope of patent-eligibility tends to differ primarily with respect to the extent protection is provided to such things as pharmaceuticals, medical devices and procedures, food and agricultural inventions, business methods, software, game rules, and human genes. In the United States, *patent-eligibility* encompasses essentially "anything under the sun made by man" and excludes only those things that logically could not be subject to exclusivity, or with respect to which exclusivity could not realistically be enforced.[22] For example, laws of nature, natural phenomena, things that are unchanged from the way that they occur in nature, and abstract ideas are not eligible for patent protection.[23] Likewise, mental processes, processes of human thinking, and systems that depend for their operation on human intelligence alone are not patent-eligible subject matter.[24] Claims directed to or encompassing a human organism are expressly not patent-eligible.[25]

There has been considerable controversy on whether computer software or methods of doing business are eligible for patent protection. It is now settled in the United States that they are not per se ineligible for patentability. However, if a patent claim is drafted so broadly that it (1) preempts substantially all uses of a fundamental principle or mathematical algorithm or (2) covers purely mental processes it is not patent-eligible.[26] With these principles in mind, a claimed process is typically patent-eligible if:

- It is tied to a particular machine or apparatus
- It transforms a particular article into a different state or thing

The law in Europe, although stated differently, is substantially very similar. The European patent convention expressly excludes computer programs *per se* and methods of doing business *per se* from patentable subject matter. That being said, however, if there is a technological aspect to a patent claim, such as controlling an industrial process or processing data representing physical things, or an aspect that involves the internal functions of a computer, even though software, it is likely patent-eligible in Europe. In China patentability of software is very similar to that in Europe. In Japan, patent-eligibility tends to depend upon whether a claim relates to data representing the physical or

technical properties of an object, in which case it is patent-eligible. If the data represents economic law, a commercial method, or mathematical formula, it is not patent-eligible.

It is important to note that claims intended to cover an invention can be drafted in many different ways, and in some cases, form is exalted over substance. The specific manner in which the claim is drafted can determine whether or not the claim is found to meet the above criteria.

The patentability of genetically engineered organisms, and particularly, human genomes, is another area of controversy. Recent cases in the United States have established that, specifically, a human gene as it occurs in nature (and not created or modified by man), even though isolated, is not patent-eligible, but claims to (1) modified gene sequences that do not occur in nature and (2) *processes* to identify or isolate a particular gene or to modify a gene sequence, or which use the isolated gene to some effect, are patent-eligible.[27]

5.6.5.2 Novelty and Nonobviousness

Novelty and nonobviousness are measured against what is referred to as *prior art*. The applicable patent law defines specific circumstances, referred to as *statutory bars*, which define those things that are considered prior art.[28]

In most countries, subject to specific exceptions that tend to vary from country to country, any publication, public disclosure, or commercialization prior to the effective filing date of the application is prior art against the application.

This is the case in the United States with respect to patents subject to the AIA (post–March 15, 2013); all prior art is established with reference to the effective filing date of the application. Any public disclosure or commercialization of the claimed invention more than one year prior to the effective filing date is prior art and bars a patent. However, patent filings, public disclosures, and commercializations within the year prior to the effective filing date are not considered prior art if they are attributable to the inventor or to someone who derived the subject matter from the inventor, or the third-party disclosure followed an "inventor" disclosure.[29]

For U.S. patents subject to the old U.S. law, statutory bars arise by virtue of relative timing with two dates: the filing date of the patent application and the date of invention.

1. Prior art by virtue of relative timing with the application filing date includes things that were:
   - Commercialized by the applicant more than one year before the application for patent was filed
   - Ascertainable from publicly available information more than one year before the application for patent was filed

- Claimed in a foreign patent granted prior to the U.S. filing of an application filed more than one year before the application for patent was filed

2. Prior art by virtue of relative timing with the date of invention includes things that:
   - The inventor knew from external sources when the invention was conceived
   - Were ascertainable from publicly available information before the invention was conceived
   - Were invented by someone else (and not maintained as a trade secret) before the invention was made

Under the old law, a bar can occur if filing a U.S. application is (1) unduly delayed after making the invention (abandoned)[30] or (2) unduly delayed relative to filing a foreign patent application[31] or (3) the application intentionally misnames the inventors.[32]

5.6.6 The Patent Examination Process

After the patent application is filed with the patent office, it is assigned to a *Patent Examiner* having expertise in the particular technological area of the invention. The examiner then reviews the application to ensure it conforms to formal requirements, conducts an investigation to determine if there is any relevant prior art in addition to that supplied by the applicant, and negotiates the appropriate scope of the claims with the applicant. The examiner's investigation is reflected in an *Office Action* sent to the applicant, which, in brief, lists the prior art (references) considered by the examiner and indicates whether he/she considers the claims to be (1) of proper form, and (2) anticipated or rendered obvious by the prior art.

A response to the Office Action must typically be filed within a specified time period (e.g., three months). The response must answer each and every issue raised by the examiner, arguing against the examiner's positions, amending the claims, or canceling the claims. In effect, the applicant negotiates with the Patent Examiner to determine the exact scope of the claims to which the inventor is entitled. If the examiner agrees with respect to the exact scope of the claims, the application issues a patent.

5.6.7 Patent Pending

Filing a patent application does not, in itself, provide any enforceable rights. That is, no enforceable rights are provided until the patent is actually granted. (Although in certain instances, rights can be retroactive to the date of publication of the patent application.) However, during the period the patent application is pending before the USPTO, a *patent pending* notice can be placed on

products including the invention described in the application. A patent pending notice can sometimes scare off certain types of potential infringers. Care must be taken, however, not to mismark; marking a product with a patent pending notice when it is not actually described in pending application can be a violation of the false marking statute.

5.6.8 Patent Ownership

The rules with respect to ownership of patents are far from intuitive and vary from country to country. In the United States, unless there is an express or implied contractual agreement to the contrary, the actual inventor owns the invention and any patent on the invention. Where there are joint inventors, each owns an equal undivided interest in the whole of the invention and any patent on the invention. Absent an agreement to the contrary, all joint inventors are entitled to make, use, and sell the invention, without accounting to the other coinventors.[33] Of course, these are default rules and may be varied by agreement. In practice, the default rules are typically superseded by written agreements.

Under certain circumstances, for example, where an employee is hired to invent, there is an implied agreement that the employer will own all rights to that invention. Similarly, where an invention is made on company time and/or using the businesses' facilities, the business may acquire *shop rights*—a royalty-free license—to the invention. However, in order to avoid any disputes, it is a best practice for a venture to require each of its employees to execute an employee's invention assignment agreement as a condition of employment—explicitly obligating the employee to assign all rights in relevant inventions to the business. Certain countries, however, notably Germany, have laws in place that require, irrespective of any agreements that might be in place, employers to compensate employees for even inventions for which the employee was specifically hired to invent.[34]

5.6.9 International Patents

Patent rights are territorial. For example, the rights granted under a U.S. patent extend only throughout the territory of the United States and have no effect in other countries. Almost every country has its own patent law, and a technology entrepreneur desiring a patent in a particular country must make an application for patent in that country in accordance with that country's requirements. Fortunately, there are several international treaties that aid in applying for patent protection in jurisdictions around the world. Perhaps the most helpful of those treaties is the *Patent Cooperation Treaty*, otherwise known as the PCT.

The PCT facilitates the filing of applications for patents on the same invention in countries that have ratified the treaty. It provides for centralized filing

procedures where a single application filed in a member country governmental receiving office constitutes an application for patent in one or more designated member countries. Once the application is filed, one of the eligible PCT governmental searching offices will perform a patent search. When the search is completed, the applicant may then elect to have a PCT governmental office evaluate the patentability of the application pursuant to standards set forth in the treaty. Eventually, the applicant will be required to have the PCT application entered into the national patent office of each of the countries in which patent protection is desired.

Patent maintenance fees (fees that must be paid periodically to keep the patent in force) are required in most countries, but vary in timing and amount from jurisdiction to jurisdiction. In addition, most countries (other than the United States) require that a patented invention be manufactured in that country after a certain period, usually three years. This requirement is generally referred to as the "working requirement." If there is no manufacture within this period, the patent may be void in some countries, although in most countries the patent may be subject to the grant of compulsory licenses to any person who may apply for a license.

5.7 COPYRIGHTS

Copyrights protect artistic expression. They arise automatically as soon as an *original work of authorship* is put into a form that can be read or visually perceived (either directly or with the aid of a machine or device). Neither publication nor registration is necessary to secure copyright protection.

Exemplary categories of original works of authorship include: literary works; musical works; dramatic works; pantomimes and choreographed works; pictorial, graphic, and sculptural works; motion pictures and other audiovisual works; and architectural works. Certain aspects of computer programs are also considered literary works.[35] Copyright protection is also available for original compilations (creative selection or arrangement of preexisting materials or data).[36]

To be "original," a work must be independently created by the author and possess a minimal degree of creativity.[37] Those aspects of a work that are not created by the author are not copyrightable subject matter. For example, facts are said to be discoveries, not creations of the author. The same is true with respect to those elements of a work that are in the public domain and those elements of the work dictated by function. In addition, some types of works are simply not sufficiently creative to warrant copyright protection. These include, for example, numbering schemes for parts, command codes, and fragmentary words and phrases.[38]

A work often includes expressions or descriptions of ideas and concepts, facts, and utilitarian elements. In this context, the term "utilitarian element" means a "useful article" or anything that (1) has an intrinsic function other than just portraying appearance or conveying information or (2) is required to be in a particular form because of some external factor. Examples of utilitarian elements include logical sequences, procedures, processes, systems, and methods of operation. The copyright gives the author exclusive rights with respect to the way in which the ideas, facts, and utilitarian elements are expressed or described. It does *not* give any sort of exclusivity with respect to the use of the ideas, facts, and utilitarian elements themselves.

MINI-CASE

A Classic Example of Copyright Law

A classic example is found in the case of Baker v. Selden.[39] Baker, an accountant, wrote a book describing a double entry accounting system that he had developed. Selden, also an accountant, bought the book and began using the double entry accounting system developed by Baker. Baker contended that the use of his accounting system by Selden constituted copyright infringement. The Supreme Court, however, disagreed. The use of the ideas described in a copyrighted work does not constitute infringement of the copyright.[40]

Expression, which is inseparable from an idea, is likewise not protectable under the copyright law. Expression becomes inseparable from an idea, when, for example (1) protecting the expression would, in effect, give exclusive rights to the underlying idea or because (2) the expression serves a functional purpose or is dictated by external factors (which is the case with respect to the logic reflected in software code). However, an original compilation comprising an arrangement or selection of those unprotectable elements that is itself nonutilitarian and sufficiently original is protected by copyright.

5.7.1 Considerations with Respect to Software

Historically, there was much debate on whether software even qualifies as a "work of authorship" subject to copyright protection. It is now well settled that copyright protection is applicable to human-readable software, machine-readable source code representations of a program, and audiovisual displays in game programs.[41] However, a copyright registration of the underlying program code that generates screen displays may not extend to the displays; arguably, the screens must be subject to a separate copyright. It may be advantageous to register copyrights on the respective screens as audiovisual works separate and apart from the program code.[42]

In any event, however, it must be kept in mind that utilitarian elements of the software are not protected by copyright.[43] A copyright protects against actual

copying of substantial portions of copyrighted literal program code. However, categorizing aspects of a computer program other than literal code as protectable expression as opposed to idea or utilitarian is often extremely difficult.[44]

Furthermore, a copyright does not protect the owner against independent creation of a similar program by another, even if the other is generally aware of the copyrighted program. A competitor can, in general, study a copyrighted program, determine the central concept and basic methodology of the program, and then write its own program to accomplish the same results. In practice this is often done using the so-called clean rooms.

5.7.2 Copyrights and the Internet

Just because something is in digital form does not take it out of the realm of copyright law. Unauthorized copying of an MP3 version of a song, or a DVD version of a movie, is a copyright infringement. Using the Internet as a vehicle for transmitting those copies doesn't relieve the copier from liability. The liability of entities that facilitate making illicit copies of content, however, is a bit more complicated.

Contributing to (knowingly encouraging) unauthorized copying of a copyrighted work can create liability for (contributory) infringement.[45] However provisions of the copyright act, The Digital Millennium Copyright Act ("DMCA"),[46] creates certain safe harbors, limiting copyright infringement liability on the part of Online Service Providers ("OSP")[47] arising from certain separate and distinct categories of conduct (transitory communications; system caching; storing information at direction of users; and information location tools). Where the OSP is storing files for its users, or facilitating peer-to-peer file transfers, primary issue with respect to an OSP qualifying for limited liability is whether OSP knows or should know about the infringement and whether the offending files are expeditiously removed once the OSP is put on notice.

MINI-CASE

Viacom Versus YouTube

Viacom sued YouTube for copyright infringement with respect to various video "clips" (~79,000 files) of TV shows that YouTube patrons uploaded to the YouTube website. YouTube took down the offending files once Viacom complained, but Viacom contended that YouTube had actual knowledge of the infringement before the "takedown requests" and accordingly did not fall into the safe harbor of the DMCA. In 2010 a federal district court found that YouTube did not have actual knowledge of the infringement and was immune from liability. However, an appellate court disagreed and sent the case back to the District Court to determine whether, among other things, YouTube willfully blinded itself to the infringement. YouTube ultimately prevailed convincing the court that it did not have the right and ability to control the infringing activity.[48] Google, the parent company of YouTube, settled the suit (on undisclosed terms) prior to the case going back up on appeal. Whether there will be further activity in the courts to settle the issue of what constitutes OSP knowledge of infringement remains to be seen.

5.7.3 Notice

It is advantageous that all published copies of a work bear a *copyright notice*. Basically, the copyright notice includes three elements: the copyright symbol©, the word "copyright," or the abbreviation "Copr"; the named owner of the copyright; and the year of first publication of the work. There are various requirements for where the copyright notice must be placed on the work.[49] However, in general, the placement of the notice should be sufficient if it is placed in a prominent position on the work, in a manner and location as to "give reasonable notice of the claim of copyright."

5.7.4 Copyright Registration

Copyright registration is not a prerequisite for copyright protection. However, registration is significant in several respects. A registration is normally necessary before the copyright on works originating in the United States can be enforced.[50] If the registration is made before publication, or within five years after publication, it establishes the validity of the copyright and of the facts stated in the copyright certificate in court.[51] Unless made within three months after the publication of the work, a registration not made until after the infringement only entitles the copyright owner to be awarded the damages and profits that can actually be proven[52] without an option to set statutory damages and attorneys' fees.[53] A registration is obtained by filing the appropriate completed application form, a specified fee for each application, and two complete copies of the work. In general, two complete copies of the "best" edition must be filed. However, special provisions are made in the Copyright Office regulations for deposit of "identifying portions" of machine readable works in lieu of complete copies.[54]

5.7.5 Copyright Ownership

Copyright ownership under U.S. law is counterintuitive and tends to turn the unwary into casualties. One would think that the person who paid for a work to be created would own it. This is not necessarily so under the copyright law. Unless there is a written assignment or the work qualifies as a *work for hire*, the creator/originator of a work owns the copyright.[55] If the work qualifies as a "work for hire," then the employer of the creator, or the entity that commissioned the work, is considered to be the author and holder of the copyright.[56]

When an independent contractor is commissioned to create a work it is desirable that the work qualifies as the work for hire; with respect to any work other than a work made for hire, the author has an inalienable *right of reversion* that can be exercised after 35 years. Exercising the right of reversion effectively takes back any rights granted (including an assignment) in the work.[57]

A work prepared by two or more authors with the intention that the respective contributions be merged into inseparable or interdependent parts of a unitary work is referred to as a *joint work* by *coauthors.* Absent agreement to the contrary, coauthors are co-owners of the copyright. Each coauthor owns a proportionate share of the copyright and, in the absence of an agreement, is entitled to a share of any royalties received from licensing. A joint owner may generally use or license the use of the work without the consent of co-owners, but must account to the co-owners for their shares of profits derived from any license to a third party.

5.8 MASK WORKS

Under the Semiconductor Chip Protection Act, *mask works* are defined as a "series of related images, however fixed or encoded, that represent three-dimensional patterns in the layers of a semiconductor chip."[58] In essence, the Chip Protection Act protects against the use of reproductions of registered mask works in the manufacture of competing chips. However, there must be copying; a *clean room* procedure can defeat a mask work infringement charge.[59] And, competitors are not precluded from reverse engineering the chip for purposes of analysis or from using any unpatented technology embodied in the mask work.[60]

Registering a mask work involves filing a Copyright Office form together with particular identifying material and a fee. Typically, the owner of a mask work is the person(s) who created the mask work. Presumably, in analogy to the copyright statute, co-creators of the mask work would be co-owners of the mask work protection. However, where the mask work is made within the scope of the creator's employment, the employer is considered the owner of the mask work.[61]

5.9 TRADEMARKS

A *trademark* or *service mark* is used to identify the source or origin of a product or service. It distinguishes goods or services of one company from those of another. Customers connect the goodwill and reputation of the company to its products through its trademarks. Under the law, a competitor is prevented from capitalizing on another venture's reputation and goodwill by passing off possibly inferior goods as those of the venture. In this way, proper use of a trademark can protect the sales value of the venture's reputation, and that of the product, as well as its investments in advertising and other promotional activities used to develop goodwill. However, trademark protection does not prevent the competition from copying or reverse engineering the technical aspects of a product.

5.9.1 Acquiring Trademark Rights

There are three different basic types of trademark law regimes employed around the world: use-based common-law, pure registration, and combination use-based registration.

5.9.1.1 Use-Based Common-Law and Combination Use-Based Registration Systems

In *common law* jurisdictions (e.g., United States, Canada and the United Kingdom) trademark rights are acquired through use of the mark. The first to use a given mark in connection with particular goods or services in a given geographical area obtains the exclusive rights in the mark for use of the mark with those particular goods or services in that particular geographical area. However, if someone else adopts the mark somewhere outside of that geographical area without knowledge of the prior use of the mark, that person would acquire valid common law rights to the mark in the remote area. This is where combination use-based registration comes into play: Obtaining a trademark registration from the appropriate governmental agency provides constructive knowledge of the mark and can prevent subsequent remote users from obtaining rights.

Use of a trademark requires physical association of the mark on or in connection with the product or service. With a trademark, it is sufficient to apply the mark to labels or tags affixed to the product or to the containers for the product, or to displays associated with the product or the like. Trademark usage cannot be established just through use of the mark in advertising or product brochures. However, if it is not practicable to place the mark on the product, labels, or tags, then the mark may be placed on documents associated with the goods or their sale.[62] On the other hand, if services are involved rather than a physical product, use of a mark in advertising is a proper usage for a service mark. A service mark is a mark used in sales, advertising, or services to identify the source of the services.

5.9.1.2 Pure Registration Systems

In those jurisdictions that have adopted a pure registration system, all rights to trademarks derive from registration of the mark with the appropriate government agency. Actual use of the mark within the jurisdiction does not confer any rights (with the possible exception in some jurisdictions of "famous" marks, and certain special circumstances, such as the existence of a particular relationship between the respective parties claiming rights to the mark.) Most jurisdictions in Asia, Continental Europe, and Central and South America have adopted pure registration systems, although the particulars of the law tend to vary from country to country.

KEY POINT

Trademark Law in China

Historically, China has had a pure registration trademark system. Effective May 1, 2014, amendments will go into effect that are intended to make "trademark squatting" and counterfeiting more difficult. The new law places time limits within which government actions in the registration process must take place, and, significantly, accords prior users certain rights against subsequent registrants, particularly with respect to well-known marks.

With the Internet now providing essentially instantaneous worldwide access to information regarding the marks used on products, it is particularly important to think in terms of global trademark protection when introducing a product. It is also essential as an applicant to ensure that you have obtained appropriate registrations and have complied with any local requirements to record agreements with the government before introducing a product into, or entering into distribution agreements and so on in, pure registration countries.

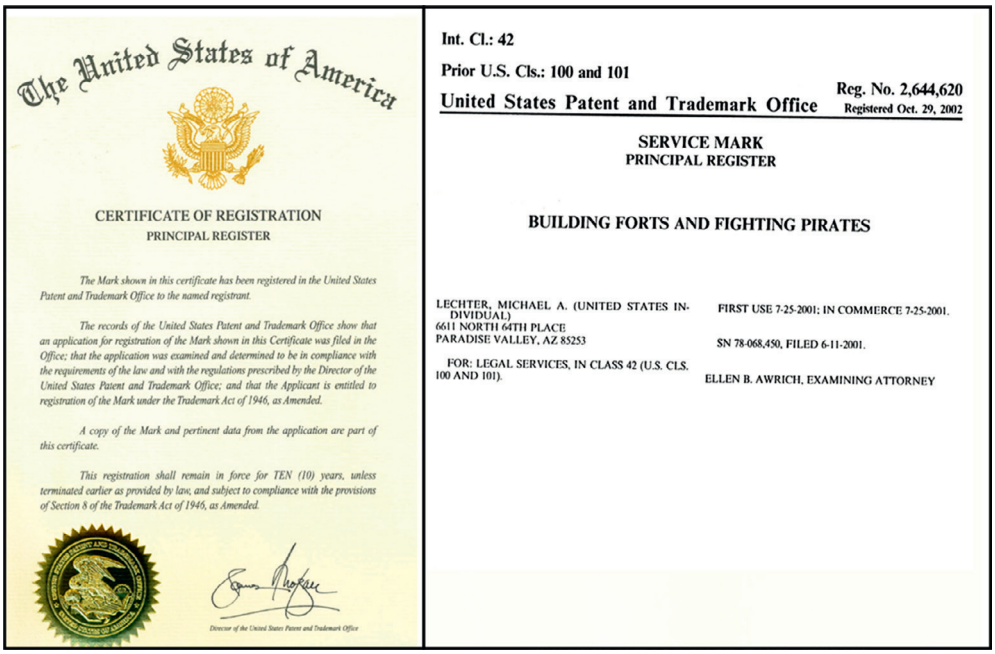
5.9.2 Registering a Trademark

Registering a mark generally involves filing an application with the appropriate government agency. The specific criteria for registration and the process for registration tend to vary from jurisdiction to jurisdiction. However, with the exception of a few countries, the government agency generally examines the application to ensure that it meets formal requirements and does not conflict with existing marks prior to issuing a registration.

For example, in the United States, rights in a mark can be created by actual use or by filing an application for registration based upon intent to use the mark.[63] An application may be filed at any time after a *bona fide*, good faith intention to use a mark in interstate commerce can be alleged. However, a registration will not be granted until the mark has actually been used in interstate commerce. Registration provides a number of procedural and substantive advantages.

After the application is filed, a Trademark Examiner reviews the application to determine whether the mark is registrable, that is, whether it is capable of distinguishing the applicant's goods from the goods of others. The examiner also conducts an investigation to determine if the mark is confusingly similar to any mark already being used. Thus, registering a mark and making it available to the Trademark Examiner tends to prevent registration of confusingly similar marks. An example of a U.S. trademark registration (principal register) is provided in Exhibit 5.11.

Once an application is filed, a Trademark Examiner reviews the application to determine whether the mark is registrable, as described above. If all the formalities are met and the examiner finds no conflicting marks, the examiner



The United States of America

CERTIFICATE OF REGISTRATION
PRINCIPAL REGISTER

The Mark shown in this certificate has been registered in the United States Patent and Trademark Office to the named registrant.

The records of the United States Patent and Trademark Office show that an application for registration of the Mark shown in this Certificate was filed in the Office; that the application was examined and determined to be in compliance with the requirements of the law and with the regulations prescribed by the Director of the United States Patent and Trademark Office; and that the Applicant is entitled to registration of the Mark under the Trademark Act of 1946, as Amended.

A copy of the Mark and pertinent data from the application are part of this certificate.

This registration shall remain in force for TEN (10) years, unless terminated earlier as provided by law, and subject to compliance with the provisions of Section 8 of the Trademark Act of 1946, as Amended.

Director of the United States Patent and Trademark Office

Int. Cl.: 42

Prior U.S. Cls.: 100 and 101

United States Patent and Trademark Office

Reg. No. 2,644,620
Registered Oct. 29, 2002

SERVICE MARK
PRINCIPAL REGISTER

BUILDING FORTS AND FIGHTING PIRATES

LECHTER, MICHAEL A. (UNITED STATES INDIVIDUAL)
6611 NORTH 64TH PLACE
PARADISE VALLEY, AZ 85253

FOR: LEGAL SERVICES, IN CLASS 42 (U.S. CLS. 100 AND 101).

FIRST USE 7-25-2001; IN COMMERCE 7-25-2001.

SN 78-068,450, FILED 6-11-2001.

ELLEN B. AWRICH, EXAMINING ATTORNEY

EXHIBIT 5.11
Sample of a U.S. trademark registration.

will publish the mark in the Official Gazette to permit third parties to oppose grant of a registration. Any opposition must be filed within 30 days of the publication date. Assuming that there is no opposition filed, or that the applicant is successful in defending the opposition, the examiner will issue a notice of allowance indicating that, subject to a proper showing of the use in commerce, the mark is entitled to registration.[64] If the application is based upon intent to use the mark, rather than actual use, however, actual use of the mark must commence within a predetermined period of the notice of allowance. Once a registration based upon intent to use is obtained, the registrant is accorded a constructive use priority, meaning, it is as if the mark were actually used with the goods or services on the date of the application for registration.[65]

Even though trademark protection is of potentially infinite duration in common law jurisdictions, registrations must be periodically renewed. There is no limit on the number of times that the registration can be renewed. For example, in the United States, trademark registrations must be renewed every 10 years by filing the appropriate papers and fees within six months before the expiration of the registration. When the registration is renewed, it is necessary to indicate that the mark is being used in interstate commerce. In addition, the renewal application must recite only the goods on which the mark is in actual use at that time.

5.9.3 Trademark Notice Symbols

Once a federal registration has been obtained, the registrant is entitled to use a *registration notice* such as ®, which is typically placed as a superscript to the registered mark. The use of a registration notice is not mandatory. However, the notice does provide constructive notice of the registration and sets off the mark. Setting off the mark signifies that the term or symbol is intended to be a mark that indicates the source or origin of the goods rather than a descriptive term for the goods.

A registration notice is appropriate only when used with the specific term or symbol shown in the registration and only when the mark is used in connection with goods that are within, or are natural extensions of, the definition of the goods set forth in the registration. Accordingly, when a registered trademark is used in conjunction with a new product, it should be determined whether or not the new product falls within the scope of the definition of goods of the registration. If not, a registration notice should not be used and consideration should be given to filing an application for a new registration. In circumstances where there is no applicable registration, a "™" or "℠" symbol may be used. The use of the ™ symbol has no legal significance other than to signify that the term or symbol is intended to be a source-identifying trademark.

5.9.4 International Protection of Trademarks

Historically, trademark protection had to be obtained on a country-by-country basis. However, in recent times, regional protection has become available in certain parts of the world, and, more significantly, international protection can be obtained through the filing of a single application and maintaining a single registration.[66] After a registration is obtained with a trademark in a country that is a signatory to the treaty, an international application can be filed (through the originating country's trademark office), which, assuming no hitches, results in an international registration that has the effect of a national-registration issuing in each of the signatory countries designated in the application.

5.9.5 The Strength of a Mark

The protection afforded by a particular trademark is a direct function of the distinctiveness of the mark and how closely the public associates the mark with the source of the product rather than the product itself. A symbol or word that cannot effectively identify the source of the goods cannot be a trademark. The more descriptive the symbol or word is of the goods or services, the less effective the symbol or word is as a source-indicating trademark. If a symbol or word merely indicates the generic type of goods, or merely describes some characteristic of the goods, it cannot function as a trademark. On the other hand, a symbol or word that has no meaning, or has nothing to do with the goods or services with which it is used, can only function as a source-indicating

Exhibit 5.12 Categories of Marks

Category	Definition	Examples
Fanciful	Term or symbol specifically created to act as a trade mark	"Exxon"; "Kodak"
Arbitrary	Term or symbol that has no relationship to the goods or services	"Apple" for computers
Suggestive	Term or symbol hinting at, but not directly conveying, a characteristic of the goods or services	"Diehard" for batteries; "Building Forts and Fighting Pirates" for legal services
Descriptive	Term or symbol conveying immediate idea of a characteristic of the goods or services	"Windows" for graphical user interface
Generic	Term or symbol referring to the genus of the goods or services	Aspirin; Band-Aid; Cellophane; Thermos; Murphy bed; Dry Ice; Escalator; Lanolin; Laundromat; Scotch Tape and Zipper

trademark. The different categories of marks, in decreasing order of strength, are reviewed in Exhibit 5.12.

Companies with famous marks have to be diligent in policing the way that the public uses their marks. If the primary meaning of the mark to the public becomes generic rather than indicating source, the company will lose its exclusive right to use the symbol or word with its goods or services. For example, the word "Aspirin" was originally a trademark of Bayer AG. A copy of the 1899 label for Bayer Aspirin brand acetylsalicylic acid is shown in Exhibit 5.13.

However, the public began using the word as the generic name for the product, and, at least in the United States, the word ceased to be a trademark.[67] Other examples of former trademarks that are now generic words include: escalator,[68] thermos,[69] cellophane,[70] and pilates.[71] Similarly, the word Kleenex (Exhibit 5.14) is in danger of becoming generic. "Kleenex" is widely used to describe tissue paper, even though it is a registered mark for a Kimberly-Clark product. Other examples of words that are in danger of becoming generic include Styrofoam, Super Glue, Taser, Xerox, Band-Aid, and Google. In the past, some marks that have found themselves in a generic status have, in effect, made a comeback. For example, the marks "Goodyear" and "Singer" at one time were considered to be generic, but eventually reacquired the status of protectable trademarks.[72]

It should be apparent that a given word may be generic in one market and arbitrary in another market; for example, the mark "oscilloscope" for an oscilloscope apparatus is generic. However, the mark "oscilloscope" for chewing gum is arbitrary.

EXHIBIT 5.13
1899 Label for Bayer Aspirin.

EXHIBIT 5.14
Kleenex Logo.

5.9.6 Choosing a Mark

There are certain basic guidelines with respect to choosing a mark. The strongest word mark is a relatively euphonious, easily pronounced, coined word or a word with no relation to the goods or services. However, from a marketing perspective, a mark suggesting the nature or characteristics of the product is desirable. The mark should be simple—a simple mark is not only more easily protected (avoiding the possibility that another could adopt some, but not all, of the elements of the mark), but more easily remembered by consumers.

Before adopting a mark, it is prudent to make sure that no one else is using it. Basically, this involves examining trademark registration files (in the United States, maintained at the USPTO, and accessible at www.USPTO.gov) to see whether any similar mark is already registered to another or whether an application has been made for registration of a similar mark for similar goods or services.

Potential trademark problems arise when the proposed trademark is *confusingly similar* to another mark given the cumulative effect of the differences and similarities in the marks and in the goods or services. Rule-of-thumb criteria for determining whether or not a mark resembles another are

- Do the marks look alike?
- Do the marks sound alike?
- Do the marks have the same meaning or suggest the same thing?

The similarities and dissimilarities of the goods themselves must also be considered. Do the respective goods move in the same channels of trade? Are they sold in the same type of store? Are they bought by the same people? What degree of care is likely to be exercised by the purchasers?

Trademarks used on products purchased by relatively sophisticated purchasers are less likely to cause confusion regarding the source of goods, sponsorship, or affiliation than when used on goods typically sold to unsophisticated purchasers.

5.10 CHAPTER SUMMARY

IP is the great equalizer in the world of business. It is often the primary factor that enables an emerging business to compete successfully against larger, established competitors with vastly more marketing power. IP assets not only can be leveraged to sustain competitive advantage, but also can create credibility in the industry and with investors. Credibility is based not only on a venture's IP assets, but also on the venture's systems and processes to develop and protect

them. IP-based strategic alliances and/or licensing can also be an alternative to raising capital, providing a venture the benefit of the co-venturer's resources without having to spend the time and money to develop them on its own.

Technology ventures should continuously and systematically analyze their products and operations to identify potential IP and seek opportunities to develop protectable IP assets. It should develop a comprehensive strategic plan to acquire, maintain, and reap maximum benefit from those assets. All of the various protection mechanisms should be employed, singly and in combination, as part of that plan. At the same time, the venture must be mindful of competitors' IP rights. A few relatively simple procedures and precautions can mean the difference between the success and failure of a technology venture.

In this chapter, we examined the various types of IP: know-how and trade secrets, inventions and patents, works of authorship and copyrights, mask works, and trademarks. The co-venturers in a business must learn to recognize and identify potential IP assets and establish procedures, including keeping contemporaneous records of development activities, to provide a foundation for protecting those IP assets and defending against third-party infringement claims.

KEYTERMS

Intellectual property The intangible asset that comprises or results from human intellect, creativity, innovation, know-how, and reputation and encompasses all rights to technology and rights to benefit from one's repute.

Invention New technological developments or discoveries produced or created through the exercise of independent creative thought, investigation, or experimentation.

Know-how Accumulated practical skill, expertise, data, and information relating to a business and/or its operations, or performing any form of industrial procedure or process.

Open source licenses Standardized licenses that permit use of the licensed software only if the licensee agrees to grant third parties licenses to any modifications or derived works (and in some cases background intellectual property necessary to use the licensee's software) under the terms and conditions of the open source license. The open source license is typically royalty-free, unrestricted with regard to products, platforms, and fields of endeavor, and provides for access to source code, unrestricted redistribution as part of an aggregate of software components from multiple sources. The specific terms of the open source licenses vary from version to version.

License agreement An agreement under which the owner/proprietor of intellectual property rights (the licensor) permits another entity (the licensee) to utilize the intellectual property rights in return for some consideration, typically the payment of royalties.

Interference proceeding A PTO administrative proceeding pertaining to patents filed before March 16, 2013 to determine which of rival claimants was the first to invent a commonly claimed invention.

Derivation proceeding A PTO administrative proceeding pertaining to patents filed before March 16, 2013 to determine whether an inventor named in an earlier filed application derived a commonly claimed invention from an inventor named in a later application.

Trade secret Information, know-how, data, and/or processes that are not readily ascertainable from publicly available information, are subject to reasonable measures to maintain secrecy, and derive value from being kept secret.

Nonproprietary know-how Know-how that is valuable in the operation of a venture, but is generally known in the industry and does not qualify as a trade secret, such as expertise or skill in operating a commercially available machine.

Confidentiality agreement An agreement placing obligation of confidentiality on an entity provided access to confidential information. The agreement also typically limits the use to which the information can be put by the entity.

Non-competition agreement An agreement intended to protect a business from unfair competition arising from proprietary or invested relationships by precluding an entity from engaging in certain competitive activities which would be aided by knowledge of the proprietary information or invested relationships.

Patent A grant by a sovereign government of some privilege or authority. In the context of intellectual property, the grant is typically the exclusive right to make, use, sell, offer to sell, or import embodiments of an invention, design, or asexually reproduced plant.

Patent application A proposed patent submitted to the appropriate patent office for its approval.

Provisional patent application A disclosure document, not subject to the formalities of a regular patent application, submitted to the appropriate patent office, to establish a date with respect to inventions adequately described in the disclosure document, after which subsequently occurring activities do not constitute prior art against which patentability is measured. To get the benefit of the provisional patent application, a regular patent application must be filed within one year of the provisional.

Claiming priority An explicit statement in a patent (or trademark) application claiming the benefit of an earlier filed application containing common subject matter, with the effect that the filing date of the first filed application is deemed the effective filing date of the subsequent application in which priority is claimed.

Continuation-in-part application A patent application that is, in part, substantively identical and contains a specific reference to an earlier filed "parent application," filed while the parent application is still pending, but also including a description of subject matter not included in the parent application.

Continuation application A patent application that is substantively identical (except perhaps in the case of claims) and contains a specific reference to an earlier filed "parent application," filed while the parent application is still pending.

Written description A required portion of a patent application (and patent), typically including a drawing to which the description refers, which provides a detailed description of a preferred embodiment of an invention with a requisite level of detail. In the United States the written description must provide sufficient detail to enable the average practitioner in the relevant technology to make and use the invention.

Person of ordinary skill in the art A hypothetical average practitioner in the field of the invention, having the average level of education and experience and an ordinary level of creativity. In some instances the person is presumed to have known all of the relevant art at the time of the invention.

Patent claim A single sentence defining each of the essential elements of the invention in technical terms, establishing the scope of protection provided by the patent. The patent typically includes multiple claims. Some of the claims (*dependent claims*) may incorporate another claim (*parent claim*) by reference, in effect adding detail to more narrowly define the invention. Claims that do not refer to other claims are known as *independent claims*.

Exclusive right In connection with patents, a right to prevent unauthorized use of a claimed invention by others. An exclusive right, however, does not necessarily give the patentee the right to practice the invention and should be distinguished from a "monopolistic" or "sole" right where the right holder is the only entity that has the right to provide an article or to practice a process.

Patent-eligibility Within certain broad categories of subject matter that are eligible for patent protection.

Prior art Things and activities against which the patentability of an invention is measured.

Statutory bars Specific circumstances set forth in statutes that define prior art.

Patent examiner A patent office employee that considers a patent application and, determines in the first instance whether patent claims will be granted.

Office action A communication notifying the applicant of the examiner's positions with respect to a pending application.

Shop rights An implied license under which an employer may use the invention of an employee made at the place of work during hours of employment.

Patent cooperation treaty (PCT) A multilateral international patent law treaty that permits an inventor in a member country or region to file a single application in a designated language (Arabic, Chinese, English, French, German, Japanese, Korean, Portuguese, Russian, or Spanish) and have that application acknowledged as a regular national or regional filing in any country or region that is a PCT member.

Original work of authorship The product of creative expression (such as literature, music, art, and graphic designs) that has not been copied from another.

Copyright notice A notice placed on copies of published works to place the public on notice of the underlying copyright protection.

Work for hire A work created by an employee within the scope of his or her employment, or certain types of works (e.g., a contribution to a collective work, part of an audiovisual work, a translation, an instructional text, a supplementary work) specifically commissioned by a *written* agreement that designates the work as a work for hire.

Right of reversion An inalienable right given to individual authors under U.S. copyright law to terminate any grant, license, or assignment of a work 35 years from the date of such transfer and reclaim the copyright for the work, as long as the work was not originally created as a work for hire.

Joint work A work prepared by two or more authors (*coauthors*) with the intention that the respective contributions be merged into inseparable or interdependent parts of a unitary work.

Mask works A series of representations of three-dimensional patterns in the layers of a semiconductor chip.

Clean room In intellectual property infringement analysis, a process wherein a first individual or group reverse engineers an item and a second group that does not have direct access to the item develops an analogous item from the report of the first group.

Trademark A word, phrase, symbol, design, or tangible nonutilitarian aspect of a product that signifies the source or origin of the product to the consumer.

Common law A system of laws based on precedential court decisions (originating in England).

Trademark notice symbols Symbols (®, ™, ℠) used to provide notice of a claim of rights in a trademark or service mark, typically placed as a superscript to the mark. The registration notice, ®, may be used only after federal registration has been obtained and provides constructive notice of the legal ownership status of the mark.

ADDITIONAL READING

Lechter, M., 2014. Protecting Your #1 Asset: Leveraging Intellectual Property, second ed. TechPress, Inc., Phoenix Arizona.

Poltorak, A., Lerner, P., 2011. Essentials of Intellectual Property: Law, Economics, and Strategy, second ed. John Wiley & Sons Inc., Hoboken New Jersey.

Revette, K., Kline, D., 2000. Rembrandts in the Attic: Unlocking the Hidden Value of Patents. Harvard Business School Press, Boston Massachusetts.

WEB RESOURCES

The websites below are intended to be destinations for your further exploration of the concepts and topics discussed in this chapter:

http://www.copyright.gov/: This is a site that contains more information regarding copyrights.

http://www.epo.org/patents/patent-information/free/espacenet.html: This website offers the general public free access to worldwide patent information. It has the following main aims: (1) to offer basic patent information to individuals, small and medium-sized enterprises, students, etc.; (2) to increase awareness and use of patent information at the national and European levels; (3) to support innovation and reduce wastage in the innovation cycle; and (4) to supplement existing channels for the dissemination of patent information.

https://www.google.com/?tbm=pts: This is another site that enables people to conduct their own patent searches. The patents are downloadable in PDF format.

http://www.USPTO.gov: This is the website for the U.S. Patent and Trademark Office. It provides search capabilities and has other useful information about obtaining patents and trademarks in the United States.

http://www.wipo.int/portal/index.html.en: This is the website for the World Intellectual Property Organization (WIPO). For technology entrepreneurs interested in building a global business, this site has useful information about developing IP in international markets.

ENDNOTES

1 Economics and Statistics Administration in the U.S. Department of Commerce and the United States Patent and Trademark Office, "*Intellectual Property and the U.S. Economy: Industries in Focus*," March 2012.

2 European Patent Office and the European Commission's Office for Harmonization in the Internal Market, "*Intellectual Property Rights Intensive Industries: Contribution to Economic Performance and Employment in the European Union*," September 2013.

3 http://technology-acquisitions.findthedata.org/.

4 http://www.sandisk.com/about-sandisk/press-room/press-releases/2011/2011-05-16-sandisk-announces-agreement-to-acquire-pliant-technology/.

5 http://www.equitrac.com/pr061611.html.

6 http://www.bloomberg.com/news/2011-07-01/nortel-sells-patent-portfolio-for-4-5-billion-to-group.html.

7 http://www.businessinsider.com/most-lucrative-patent-sales-of-2012-2012-11?op=1#ixzz2hH3wqpXL.

8 Ocean Tomo, Historical Impact of IP on VC, 2007.

9 For example, Silicon Valley Bank in San Jose, has repeatedly made loans collateralized by patents, reflected by a security agreement recorded at the USPTO.

10 Profit interests are typically utilized in circumstances where an income stream/profit is directly attributable to the intellectual property, such as when the intellectual property is embodied in the specific product or enables a specific service. A third party pays the company a lump sum in return for, e.g., a percentage of the income stream or profit from the sale or use of a product or service. In many cases the profit interest is capped at a specific amount or terminates after a specific time period.

11 IP securitization is a financing technique whereby a company transfers rights in receivables (e.g., royalties) from IP to an entity, which in turn issues securities to capital market investors backed by the receivables and passes the proceeds back to the owner of the IP. The revenue

from receivables pays the investor/bondholder back with an interest rate over a fixed period. As a practical matter securitization is employed only with intellectual property that has an existing royalty stream and generally involves pooling a number of different intellectual property assets.

12 Examples of such consortia include SEMATECH (semiconductor devices), Semiconductor Test Consortium (STC), RFID Industry Patent Consortium (RF identification) and the Symbian Foundation (platform for converged mobile devices).

13 Prevalent regimes of open source licenses include: Apache License 2.0, Berkeley Software Distribution (BSD) 3-Clause "New" or "Revised" license, BSD 2-Clause "Simplified" or "FreeBSD" license, GNU General Public License (GPL), GNU Library or "Lesser" General Public License (LGPL), MIT license, Mozilla Public License 2.0, Common Development and Distribution License, Eclipse Public License, and so-called "copyleft" licenses. See http://opensource.org, http://www.gnu.org & http://www.fsf.org.

14 In those models, intellectual property is not dedicated to public. Trade secret protection of the technology involved is typically abandoned, it is either provided subject to a license to a select group of entities, e.g., a pool or consortium, requiring a cross license of their intellectual property, or subject to some form of general public license (again relying on underlying intellectual property rights, typically copyright and occasionally patent) making certain requirements of the users. See Jacobsen v Katzer, 87 USPQ2d 1836, 535 F3d 1373 (Fed. Cir. 2008), Wallace v International Business Machines Corp., 80 USPQ2d 1956, 467 F3d 1104 (7th Cir. 2006).

15 California go so far as to prohibit non-competition agreements with employees. Bus. & Prof. Code, § 16,600.

16 *See*, *e.g.*, Cambridge Engineering v. Mercury Partners, 27 IER Cases 68 (Ill. App. Ct. 2007); H & R Block Eastern Enters. v. Swenson, 26 IER Cases 1848 (Wis. Ct. App. 2007); Whirlpool Corp. v. Burns, 457 F. Supp. 2d 806 (W.D. Mich. 2006); Mohanty v. St. John Heart Clinic S.C., 866 N.E. 2d 85, 225 Ill.2d 52 (Ill. 2006); Coventry First LLC v. Ingrassia, No. 05–2802, 23 IER Cases 249 (E.D.Pa. July 11, 2005); Scott v.Snelling & Snelling, Inc., 732 F. Supp. 1034, 1043 (N.D. Cal. 1990); The Estee Lauder Co. v. Batra, 430 F. Supp.2d 158 (S.D.N.Y. 2006); MacGinnitie v. Hobbs Group, LLC, 420 F. 3d 1234 (11th Cir. 2005).

17 35 U.S.C. §115.

18 35 U.S.C. §120.

19 35 U.S.C. §1.54 (a) (2).

20 Vaupel Textilmaschinen RG v. Meccanica Euro Italia S.P.A., 944 F.2d 870 (Fed. Cir. 1991).

21 For example, the General Agreement on Tariffs and Trade (GATT) was amended in 1994 to include an Agreement on Trade Related Aspects of Intellectual Property Rights (TRIPS) establishing minimum standards for protection of various types of intellectual property, including patents, in members of the World Trade Organization (WTO)

22 Diamond v. Chakrabarty, 447 U.S. 303, 309 (1980).

23 Diamond v. Diehr, 450 U.S. 175, 101 S. Ct. 1048, 209 U.S.P.Q. 1 (1981); In re Bilski, 88 USPQ2d 1385, 1389 (Fed. Cir. 2008).

24 In re Bilski, 88 USPQ2d 1385, 1389 (Fed. Cir. 2008), In re Comiskey, 84 USPQ2d 1670, 499 F.3d 1365, 1371 (Fed. Cir. 2007).

25 35 USC §101 (a).

26 Bilski v. Kappos, 130 S. Ct. 3218, 177 L.Ed.2d 792 (U.S., 2009); CLS Bank Int'l v. Alice Corp. Pty. (Fed. Cir., 2013) citing Gottschalk v. Benson, 409 U.S. 63, 70 [175 USPQ 673] (1972)) and Diamond v. Diehr, 450 U.S. 175, 192 [209 USPQ 1] (1981); UltraMercial, Inc. v. Hulu, LLC (Fed. Cir., 2013).

27 Ass'n for Molecular Pathology v. Myriad Genetics, Inc., 133 S. Ct. 2107, 186 L. Ed. 2d 124, 106 U.S.P.Q.2d 1972 (2013); *Mayo Collaborative Servs. v. Prometheus Labs., Inc.*, 132 S. Ct. 1289, 1293 (2012).

28 See, e.g., 35 U.S.C. §102.

29 35 U.S.C. §102 as amended by the AIA.

30 35 U.S.C. §102 (c).

31 35 U.S.C. §102 (d).

32 35 U.S.C. §102 (f)(old Law).

33 See 35 U.S.C. §262; Willingham v. Star Cutter Co., 555 F.2d 1340, 1344 (6th Cir. 1977); Lemelson v. Synergistics Res. Co., 669 F.Supp. 642, 645 (S.D.N.Y. 1987); Intel Corp. v. ULSI System Technology Inc. [27]USPQ2d 1136 (Fed. Cir. 1993); Schering Corp. v. Roussel-UCLAF SA 41 USPQ2d 1359 (Fed. Cir.1997); Ethicon Inc. v. United States Surgical Corp. 45 USPQ2d 1545 (Fed. Cir. 1998).

34 Germany's Act on Employees' Inventions (ArbEG).

35 17 U.S.C. § 101 (a "computer program" is a set of statements or instructions to be used directly or indirectly computed in order to bring about a certain result; "Literary works" are works … expressed in words, numbers, or other verbal or numerical symbols or indicia, regardless of the nature of the material objects, such as … film, tapes, disks, or cards, in which they are embodied.); 17 U.S.C. § 117; *Gates Rubber Co. v. Bando Chemical Indus., Ltd*, 9 F.3d 823, 28 USPQ2d 1503, 1513 (10th Cir. 1993).

36 17 U.S.C. § 101 (a "compilation" is a work formed by the collection and assembling of preexisting materials or of data that are selected, coordinated, or arranged in such a way that the resulting work as a whole constitutes an original work of authorship); 17 U.S.C. §103.

37 *Feist* Publications, *Inc. v. Rural Telephone Services Co.*, 111 S. Ct. 1282, 1296, 18 USPQ2d 1275 (1991).

38 Hutchins v. Zoll Medical Corp., 492 F3d 1377, 83 USPQ2d 1264 (Fed. Cir. 2007), *CMM Cable Rep, Inc.* v. *Ocean Coast Properties, Inc* 97 F.3d 1504, USPQ2d 1065, 1077–78 (1st Cir. 1996) (copyright law denies protection to "fragmentary words and phrases" … on the grounds that these materials do not exhibit the minimal level of creativity necessary to warrant copyright protection). See also *Arica Inst., Inc. v. Palmer*, 970 F.2d 1067, 1072–73, 23 USPQ2d 1593 (2d Cir. 1992) (noting that single words and short phrases in copyrighted text are not copyrightable); *Alberto-Culver Co. v. Andrea Dumon, Inc.*, 466 F.2d 705, 711, 175 USPQ 194 (7th Cir. 1972) (holding that "most personal sort of deodorant" is short phrase or expression, not an "appreciable amount of text," and thus not protectable); National Nonwovens, Inc. v. Consumer Products Enterprises, Inc., 78 USPQ2d 1526, 397 F.Supp.2d 245, 256 (D. Mass. 2005) (There are no stylistic flourishes or any other forms of creative expression that somehow transcend the functional core of the directions), *Perma Greetings, Inc. v. Russ Berrie & Co., Inc.*, 598 F.Supp. 445, 448 [223 USPQ 670] (E.D.Mo. 1984) ("Clichéd language, phrases and expressions conveying an idea that is typically expressed in a limited number of stereotypic fashions, [sic] are not subject to copyright protection.").

39 *Baker v Selden*, 101 U.S. 99 (1879).

40 *CMM Cable Rep, Inc.* v. Ocean *Coast Properties, Inc* 97 F.3d 1504, 1516 41 USPQ2d 1065 (1st Cir. 1996).

41 *See, e.g.*, Asset Marketing Systems Inc. v. Gagnon, 542 F3d 748, 88 USPQ2d 1343 (9th Cir. 2008), *Sega* Enterprises, *Ltd. v. Accolade, Inc.*, 977 F.2d 1510 (9th Cir. 1993); *Atari Games Corp. v. Nintendo of America, Inc.*, 975 F.2d 832 (Fed. Cir. 1992); *Computer Associates, Int'l, Inc. v. Altai, Inc.*, 23 U.S.P.Q. 2d 1241 (2d Cir. 1992); *Johnson Controls v. Phoenix Control Sys., Inc.*, 886 F.2d 1173 (9th Cir. 1989). *Stenograph L.L.C. v. Bossard Assocs., Inc.*, 144 F.3d 96, 100, 46 USPQ2d 1936 (D.C. Cir. 1998). See also *Triad Systems Corp. v. Southeastern Express Co.*, 64 F.3d 1330,

1335, 36 USPQ2d 1028 (9th Cir. 1995) (where defendant's conduct "involved copying entire programs, there is no doubt that protected elements of the software were copied") See, e.g., *Lotus* Development *Corp. v. Paperback Software Int'l*, 740 F. Supp. 37 (D. Mass. 1990), *MiTek Holdings*, Inc. *v. Arce Eng'g Co*, 89 F.3d 1548, 39 USPQ2d 1609, 1617 (11th Cir. 1996); *Digital Communications Assocs., Inc. v. Softklone Distrib. Corp.*, 659 F.Supp. 449, 463, 2 USPQ2d 1385 (N.D.Ga. 1987).

42 *Digital* Communications *Assoc. v. Softklone Distrib. Corp.*, 659 F. Supp. 449 (N.D. Ga. 1987).

43 *Digital* Communications *Assoc. v. Softklone Distrib. Corp.*, 659 F. Supp. 449 (N.D. Ga. 1987).

44 *Gates Rubber Co. v. Bando Chemical Indus., Ltd.*, 9 F.3d 823, 28 USPQ2d 1503, 1512–13 (10th Cir. 1993).

45 *Intellectual Reserve, Inc. V. Utah Lighthouse Ministry, Inc.* 75 F. Supp. 2d 1290 (D. Utah 1999). (providing links to other sites that were known to contain infringing copies of a work and encouraging the use of the links to obtain unauthorized copies constituted contributory copyright infringement.).

46 17 U.S.C. §§ 1201 et. seq

47 17 U.S.C. § 512

48 Viacom Int'l Inc. v. YouTube, Inc., 2013 WL 1689071 (S.D.N.Y. Apr. 18, 2013).

49 37C.F.R. §201.20.

50 17 U.S.C. §411.

51 17 U.S.C. §410.

52 17 U.S.C. § 412.

53 17 U.S.C. §504, 17 U.S.C. §505.

54 37C.F.R. §§202.20, 202.21.

55 *See* 17 U.S.C. §201.

56 17 U.S.C. §§101, 201(b).

57 17 U.S.C. § 203 (a) (2009).

58 The Semiconductor Chip Protection Act of 1984, 17 U.S.C. §901(a)(2).

59 Brooktree Corp. v. Advanced Micro Devices, Inc., 977 F.2d 1555, 24 USPQ2d 1401 (C.A.Fed. (Cal.), 1992).

60 17 U.S.C. §§902(c), 906(a)(2).

61 17 U.S.C. §901(a)(6).

62 15 U.S.C. § 1127 (definition of "use in commerce").

63 15 U.S.C.§1057(c).

64 15 U.S.C. §1051(d) (1988).

65 15 U.S.C. § 1057(c).

66 The Madrid Protocol. As of the publication date of this book there are 92 jurisdictions that have signed on to the Madrid Protocol. The United States became a signatory on November 2, 2003.

67 Bayer Co., Inc. v. United Drug Co., 272 F. 505 (S.D.N.Y. 1921).

68 Haughton Elevator Co. v. Seeberger (Otis Elevator Co.), 85 U.S.P.Q. 80 (Comm. Pat. 1950).

69 King-Seely Thermos Co. v. Aladdin Indus., Inc., 321 F.2d 577 (2d Cir. 1963).

70 DuPont Cellophane Co. v. Waxed Prods. Co., 85 F.2d 75 (2d. Cir. 1936).

71 Pilates, Inc. v. Current Concepts, Inc., 120 F. Supp. 2d 286 (S.D.N.Y. 2000).

72 Singer Mfg. Co. v. Briley, 207 F.2d 519 (5th Cir. 1953).