The Statutory Toolbox: An Introduction

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ABSTRACT

This chapter presents the main forms of statutory intellectual property (IP) protection with emphasis on utility patents, trademarks, geographical indications, copyright, and trade secrets. Basic questions with regard to who can get protection, the subject matter of each form of protection, statutory requirements, and certain exceptions. The chapter concludes with short sections on institutional aspects including employee agreements, how to mark the protected intellectual property, how to integrate the various rights, and how to identify infringement. The authors conclude that the form of protection chosen for a given invention should be guided by the mission of the institution (whether public or private), the purpose of the work it conducts, and the nature of the invention, or other IP, that will be subject to IP rights protections.

1. INTRODUCTION: WHAT IS INTELLECTUAL PROPERTY?

Intellectual property (IP), sometimes called intangible property is any product of the human mind or intellect. Intellectual property can therefore be almost anything: a technical invention or an improvement of an earlier invention; it can be a unique name or logo, design, method, software, database, domain name, a chapter in a book (like this chapter), or an entire book (like this *Handbook*). The broad area of intellectual property is subdivided into different types, each clearly defined and protected through statutes or laws, which then can be protected by different means. In the United States, for example, IP rights protection is even enshrined in the Constitution of the United States of America:

> The 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 … .[1]

By this clause the Constitution grants the rights to patent and copyright protection. Even though trademarks are not expressly protected by the Constitution, trademarks have a long history of use and protection in the United States and globally. Likewise, trade secret protection has long been accepted as a means for protecting IP rights. Other forms of IP protection include plant breeders' rights.

What makes these forms of IP protection particularly useful is that they have been able to adapt to the changing times. Even if the present technologies are different from the technology that was protected in Thomas Jefferson's day, the means to protect are similar. But the essential nature of patents was "invented" well before the Constitution was written. They emerged in medieval Europe where first rights were granted to individuals for what they owned, using a remuneration or an award as a means to encourage individuals to generate "property desired by themselves." A more formal system of patents was born in the Venetian Republic where the first patent

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was granted in 1443 to a manufacturer of conveyors for loading and unloading ships.[2] Two centuries later, in 1623, the British Crown passed a patent law, then called the Statute of Monopolies. This law defined basic concepts that continue to influence to this day the interpretation of patents around the world.

In the United States, the first patent law was adopted in 1790, shortly after the Constitution was ratified. The first U.S. patent was signed by President George Washington on July 31, 1790 and was issued to Samuel Hopkins (of Pennsylvania) for his improvement of the potash manufacturing process. The invention saved what was then the country's leading export industry.

In the following chapters we will look briefly at issues related to the protection of intellectual property; Table 1 provides an overview of the main tools of IP protection. We especially focus on the law in the U.S., though in general terms, similarity exists throughout many parts of the world. Where international agreements regulate IP protection, that is noted. In national laws there are differences: some countries give broader protection to intellectual property, others, narrower, but basically the forms of protection are similar, especially in member countries of the World Trade Organization (WTO), which adhere to the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS).

2. PATENTS

2.1 *What is a patent?*

A patent, which usually refers to a *utility patent,* can be granted to anyone who invents a new and useful process, machine, article, manufacture, composition of matter, or any new and useful improvement thereof. A utility patent is usually granted for a period ending 20 years after the filing date. A patent gives the inventor a right to exclude others from making, using, offering for sale, or selling the invention in the country where the patent is issued or importing the invention to the country where the patent is issued. In exchange for being granted a patent, the inventor agrees to disclose in the patent application, the invention in detail as well as the best mode of practicing the invention. The disclosure is published normally 18 months after the filing but, at the latest, when the patent issues. Disclosing the invention to the public will help others to invent further, thus pushing technology forward for the benefit of the society.

In the United States, there are three different kinds of patents: utility patents, design patents, and plant patents. Plant patents are essentially specific to the United States. In addition to these types of patents, several counties provide additionally *utility model protection*. Utility models are also called *petty patents*. Basically they allow the right holder to prevent others from commercially using the protected invention during a limited time period. Therefore, a utility model is basically similar to a patent. The main difference is that the requirement of nonobviousness, or innovative step, is not as stringent for utility models as it is for patents. Moreover, the duration of the protection given by utility models is shorter than that given by patents. The duration depends on the country; usually the protection is between seven and ten years. In Estonia and Finland, for example, an invention can be protected by utility model for ten years, at most.

In the United States, a utility patent can be filed as a provisional or a nonprovisional application. A provisional patent application is a lower-cost first patent application, which does not have to contain any claims. A provisional patent application has a pendency of 12 months from the date of its filing. A provisional patent application cannot mature to an issued patent but it gives the inventor an early filing date, and the term *patent pending* is applicable. In order to benefit from the early filing date of the provisional application, a nonprovisional patent application has to be filed before the end of the 12 months pendency of the provisional application. It is possible to extend the period of patent life up to 21 years by first filing a provisional application and then later a nonprovisional one.[4]

A *design patent* can be granted to anyone who invents a new, original and ornamental design for an article of manufacture. A design patent is

Table 1: What is the intellectual property of your business?

Means of protection	What can be protected	How to protect	Term of protection	The rights of the owner
Patents	Any useful, novel, and nonobvious invention; design patents can be filed on new, original, or ornamental design	Submit a patent application	20 years from filing of the priority application; for design patent, 14 years from the date of issuance.	Right to exclude others from making, using, manufacturing, selling, and offering to sell
Trademarks	Words, phrases, and logos that can distinguish the goods and services from those of others	Use or have a bona fide intent to use and apply for a federal registration	Unlimited duration as long as the mark is in use; the mark has to be renewed every tenth year	Right to exclude others from using the mark and other marks so similar they cause confusion
Copyright	Literary works, software, dramatic works, music, pictures, sound recordings, architectural works, movies	Apply for federal registration	Life of the author plus 70 years	Right to prevent unauthorized copying or public performance
Trade Secrets	Any technical or business information that is secret and that gives the holder an advantage over a competitor who does not have the information	Keep secret; no registration available	Unlimited duration as long as the subject matter is secret	Right to prevent unlawful use

Note: An overview and introduction of protections available for plants are treated elsewhere in this *Handbook*.[1]

granted for a period of 14 years from the date of issuance.

Certain countries provide protection called registered or industrial designs, which is similar to the U.S. design patent. In some countries, industrial design provides protection of up to 25 years. Since April 2003, one can also get a Community Design in the European Union, which protects the design in all the member countries of the European Union for up to 25 years.

Plant patents are a form specific to the United States. A plant patent can be granted to anyone who invents or discovers and asexually reproduces any distinct and new plant variety. Tuber-propagated plants are excluded from plant-patent protection. For sexually reproduced (by seeds) or tuber-propagated plants, one can get protection via the Plant Variety Protection Office administered by the U.S. Department of Agriculture. Several countries provide protection to sexually reproduced plant breeds through plant breeders' rights.[5] It is important to note the distinction between plant patents and utility patents on plants.[6]

2.2 *Who can get a patent?*

According to the law in perhaps any country with patent law, only the inventor can apply for a U.S. patent. However, if the inventor is dead, a legal representative can make the application. Similarly, if an inventor assigned the right to his or her employer or any third party, that entity may file for the patent. In any case, it is important that the true inventors are named in the patent application. If there is more than one inventor, the inventors apply for the patent jointly. A person who contributed to the invention only financially cannot be a joint inventor. None of the inventors needs to be a U.S. citizen or live in the United States in order to be entitled to a U.S. patent.

2.3 *U.S. and "international" (PCT) patent applications*

A patent is territorial. This means that there is no such a thing as a world patent. A U.S. patent is valid only in the United States and the owner of a U.S. patent therefore can, based on the U.S. patent, only claim rights in the United States.

The Patent Cooperation Treaty (PCT) is an international treaty harmonizing patent application procedures in its member countries. Through a PCT patent application, the inventor can get a filing date with one application in all the member countries. Thirty months after the filing, the applicant has to decide in which member countries he or she actually wants and needs a national patent. The benefit of PCT application is that there is no need to file separately in all the countries; the procedure can be done by one application. Moreover, the PCT system gives the inventor approximately 30 months to shop around before deciding in which countries a national patent would be relevant.

All the PCT applications will be published 18 months from the filing if not abandoned before that. Usually, a U.S. patent application is published 18 months after the filing, if nonpublication is not specifically requested. The applicant is entitled to request nonpublication if the application is not and will not be a subject of filing in any country publishing the patent application 18 months after filing. Nor may the invention be subject to a PCT application. When the patent has issued it will be published. Due to the publishing policy of PCT, some inventors prefer to file a U.S. patent and request no publishing, thereby keeping the invention secret until the patent issues.[7]

2.4 *First to file versus first to invent*

The United States is the only country in the world not applying the first-to-file concept. In the United States a patent is granted to the party that first invented. Because of this concept the U.S. patent system is known for its interference practices. Interference is a proceeding conducted before the Board of Patent Appeals and Interferences to determine priority on invention between a pending application and another pending application or unexpired patent. The key elements of determining priority are the date of conception, the date of reduction to practice, and diligence or lack of it.

2.5 *Subject matter of patents*

In the United States, statutory subject matter of a patent is defined as "*any new and useful process,*

machine, manufacture, or composition of matter or any new and useful improvement thereto."[8]

The Supreme Court acknowledged through legislative history that Congress intended that statutory subject matter includes "*anything under the sun that is made by man*."[9]

The Supreme Court has specifically identified three categories that are not patentable. Laws of nature, natural phenomena, and abstract ideas do not fall into any statutory class and they are, therefore, unpatentable. Furthermore, items from these categories are not patentable according to the national legislations of many other countries. Some national laws give further provisions for nonpatentable subject matter. For example, India does not allow patents on agricultural methods. The European Union and many other countries do not allow patents on methods to treat a human condition or surgical methods.

Mathematical algorithms as such are abstract ideas when they stand alone and are not reduced to a practical application. However, when an abstract idea is reduced to a practical application, the practical application of the abstract idea can be a useful, concrete, and tangible result and therefore patentable.[10] In the United States, such applications of mathematical algorithms are increasingly patented as business-method patents. Business-method patents are, however, not allowable in several countries; for example, the European Patent Office does not currently examine applications disclosing a business methods.

2.6 *Statutory requirements for patentability*

2.6.1 *Novelty*

Because patents are granted to promote the progress of the useful arts, a product or process is not patentable unless it is new. A product or process is not new if all the claimed elements are present expressly or inherently in a single piece of relevant prior art. If a single piece of relevant prior art contains all the claimed elements, it is said to anticipate the product or process. An invention is not new and therefore not patentable, if "*it was known or used by others in this country or patented or described in a printed publication in this or a foreign country …*"[11] *Known* has been interpreted to mean that the knowledge is accessible to the public. An oral presentation may be enough to make the knowledge accessible to the public. *Used* in this clause means publicly accessible use. A machine that is operated in an open field is publicly accessible use even if no one sees the machine,[12] but a machine in a windowless building where no one can enter without swearing to secrecy has been ruled not to be public use.[13] *Printed publication* has been very broadly interpreted to mean all material accessible to the public in tangible form.[14] Oral communication is excluded, but if copies of a paper were distributed at a conference, they would be publications. However, if those receiving the copies were asked to keep the content of the communication secret, the paper would not be a publication.

An invention is not patentable "*if the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of the application for the patent in the United States.*"[15] This section creates the one-year grace period, during which the inventor may develop the invention further, market it, and prepare a patent application.

It is noteworthy that the U.S. patent system is different from systems of the most other countries because of this grace period. In most other countries the inventor would lose the rights to patent if the invention were published before filing the patent. In European countries, for example, a public disclosure is an absolute bar to patentability. Japan gives a six-month grace period for filing a patent if the public disclosure was a presentation at a scientific meeting.

2.6.2 *Utility*

The purpose of granting patents is to promote the progress of the useful arts. Therefore, in order to be patentable an invention has to be useful. For a product or process to be useful it must, at least, work, although it does not have to work perfectly or even better than any competing products or processes. However, products or processes that are working but can be used, for example, only for immoral or illegal purposes are not considered useful. Also, products and processes that

are regarded as useless are not considered useful. A process for producing a steroid that had no known use, for instance, was found to be not useful and therefore not patentable.[16]

2.6.3 *Nonobviousness*

A new and useful product or process is not patentable unless it was nonobvious when it was made. The nonobviousness requirement is included in Section 103 of the Patent Act. Different from the novelty determination, the nonobviousness determination does not include a strict identity requirement. Therefore, prior art that does not disclose all the elements of the claim at issue might be relevant when determining obviousness. When making a decision of obviousness, the examiner has to determine the level of ordinary skill in the art at the time the invention was made.

2.7 *Experimental-use exemption*

U.S. patent law does not have a written research-exemption clause, but current practices are based on case law, that is, on court decisions. The basic rule says the patentee shall not be allowed to prevent experimentation using a patented product or process for bona fide research activities designed to further scientific knowledge.

However, the experimental-use exception is very narrow, such that any research aimed at commercialization (with even the slightest commercial implication) will not fall under the exemption and will hence be subject to infringement liability.

3. TRADEMARKS AND RELATED RIGHTS

A *trademark* is a word, phrase, symbol, design or a combination of those items, that distinguishes the source of one's goods or services from the goods or services of others. A trademark can be valid only when it is used in, or in connection with, goods or services in the course of commerce.

There are various types of marks that can be registered with the Patent and Trademark Office. In addition to trademarks[17] and service marks (marks that indicate a specific service, such as a rental or leasing service), the Trademark Act provides for registration of collective marks, membership marks, and certification marks. *Collective marks* are trademarks or service marks that are used by a member of cooperation, an association, or other collective group or organization. One type of collective mark is a membership mark. These are not trademarks in the ordinary sense. *Membership marks* do not indicate the origin of the good or service. The purpose of a membership mark is, rather, to indicate that the user of the mark is a member of a particular organization.

There are generally three types of *certification marks*. First, there are marks that certify that the good or product is from a certain geographic region; for example *Cognac* for the distilled brandy from a certain region in France. Second, there are marks that certify that the goods or services meet certain standards, for example, quality standards or safety standards. Third, there are marks that certify that a member of a union or other organization performed the work or labor on the goods or services and that the performer meets certain standards.

In addition, one can register a *trade dress* of a good or service. Trade dress can, for example, be product design, packaging, or color. Trade dress of a service can be, for example, the overall look of restaurant.

The most effective way to get trademark registration is to choose a mark that is fanciful or arbitrary. An example of a fanciful mark is *EXXON*—a made-up word—something that does not mean anything in itself. An example of an arbitrary mark is *Apple* used by Apple Computer—an existing English word that itself has no connection to computers.

A mark that resembles another mark already in use in the United States cannot be registered because of the likelihood of customer confusion. Therefore, before filing a trademark registration it is important to perform a trademark search to discover whether the mark or a similar one is already in use.

An important element of trademark law is the *naked licensing* doctrine. Quality assurance and protection of the public is a central purpose of the trademark law. Therefore, an indispensable condition of a valid trademark license is that the licensor controls the nature and quality of the good or service sold by the licensee under the

mark. Naked licensing results when the licensor does not adequately supervise the quality of the licensee's products or services. Naked licensing can be regarded as abandonment of a mark and therefore leads to cancellation of registration.

4. GEOGRAPHICAL INDICATIONS

A geographical indication is a sign used on goods that have a specific geographic origin and possess qualities or a reputation that are derived from that place of origin. Geographical indications are defined in the TRIPS agreement as a type of intellectual property. WTO members provide legal means for interested parties to prevent the use of a geographical indication that indicates or suggests that a good originates in a geographical area other than the true place or origin in a manner that is misleading to the public or constitutes an act of unfair competition.

Most commonly, a geographical indication consists of the name of the place of origin of the goods. Agricultural products typically have qualities that derive from their place of production and are influenced by specific local factors, such as climate and soil. Examples of geographical indications are Idaho (potatoes) and Roquefort (cheese).

Whether a sign functions as a geographical indication is a matter of national law and consumer perception. The TRIPS Agreement does not require that a WTO member extend protection to a geographical indication if that geographical indication is the generic name for the goods in that member country. Therefore, the word *champagne* is not registrable as a geographical indication in the United States, because *champagne* is a generic term, in the United States, meaning a light-colored wine with bubbles.

The United States offers robust protection for geographical indications, generally through registration as a certification mark.

5. COPYRIGHT

A copyright is a type of intellectual property protection for authors of original works. Generally the categories of works that are protected are:

- literary works
- musical works, including words accompanying music
- dramatic works
- pantomimes and choreographic works
- pictorial graphic and sculptural works
- motion pictures and other audiovisual works
- sound recordings
- architectural works

A copyright protects an original work and allows the author an exclusive right to:

- reproduce the work exclusively
- prepare derivative works
- distribute copies or phonorecords by sale, transfer of ownership, lease, rent or lend
- perform the work publicly
- display

An original work of authorship is immediately protected by copyright after it is fixed in a tangible medium. The duration of a copyright protection on or after 1978 is that of the author's lifetime plus 70 years. If there are two or more authors, the term is 70 years after the death of the last surviving author. If the creation is a work for hire, and the works are created anonymously, the duration is 95 years from publication or 120 years from creation, whichever is shorter.

Only the author, or those deriving rights from the author, can claim the copyright. A copyright requires no registration or publication to be protected, but a copyrightable work is protected automatically when the creation is fixed in a tangible form.

Importantly, federal copyright registration is a legal formality intended to make a public record of the basic facts of a particular copyright. Copyright registration may be filed at any time during the life of a work. Even if registration is not a requirement for protection, registration brings several advantages. For example, before an infringement suit may be filed in the court, registration is required for a work of U.S. origin. Moreover, if registration is filed within five years of publication of the work, the registration will establish prima facie evidence, in court, of

validity and of the facts stated in the copyright certificate. Registration makes available to the copyright owner statutory damages and attorney fees, in case of an infringement suit, if the registration was made three months after publication of the work or prior to an infringement of the work. Registration also enables the U.S. Customs Service to protect the copyright owner against importation of infringing copies.

To be copyrightable, a work has to be original and in a fixed medium. This means that a work has to be the independent creation of an author and that it has required a modest quantum of creativity. Being in a "fixed medium" means that the creation is in a tangible form: a short story is written down, a song is recorded, and so on. A pure idea or concept cannot be copyrighted without description or illustration.

An important question is whether software and databases can be protected. The last decades have seen a revolution in knowledge management, library services, and information-resource database configurations. The use of integrated computer networks and the ability to produce and distribute information have had far-reaching implications for IP (intellectual property) protection. In order to demonstrate IP laws and their application, another chapter discusses these aspects together with respect to geographic information systems and remote sensing.[18]

As mentioned earlier, the author of a work owns the copyright. In a case of work for hire the employer is regarded as the author and, therefore, the employee does not own the copyright. A work for hire is defined in copyright law as a work prepared by an employee, within the scope of his or her employment, or a work specially ordered or commissioned for use as a contribution to a collective work, a part of a motion picture or other audiovisual work, a translation, a supplementary work, a compilation, an instructional text, a test, answer material for a test, or an atlas, if the parties expressly agree in a written instrument signed by them that the work shall be considered a work made for hire.

Copyright protection subsists from the time the work is created in fixed form. The owner of a copyright can assign all his or her rights unconditionally to another. Alternatively, the owner can license the rights exclusively or nonexclusively. If, at the time of creation, the authors intend to combine their contributions into inseparable or interdependent parts, the work is considered joint work and the authors are considered joint copyright owners. Each copyright owner has an equal right to exploit her or his rights. In such a case, a company can license or get an assignment for the copyright of the whole work from only one of the authors. If at the time of creation the authors did not intend their works to be part of an inseparable whole, the fact that their works are later put together implicates the work as a collective work. In such a case, each author owns a copyright in only the material she or he added to the final product. In this case, the company needs to have an agreement with each of the authors to convey the copyrights.

It should be noted that in countries of the European Union, greater protection of databases is provided than in the United States. The European Union Database Directive adopted by the European Parliament in 1996 sets out two rights for the makers of databases:

- the right to prevent unauthorized acts of extraction from a database
- the right to prevent unauthorized acts of reutilization of the contents of a database

The first right is similar to that provided under the U.S. Copyright Act. With this right the directive provides protection to a database but not to the underlying data, and the right is limited to databases containing a sufficient degree of creativity in the selection or arrangement of the data. The second right, however, provides for a sui generis right that prohibits the extraction or reutilization of any database in which there has been a substantial investment in obtaining, verification, or presentation of the data contents. Under this second right, there is no requirement for creativity or originality. The protection is available for 15 years from creation of the database. If substantial changes are made to the content of the database, the modified database will be protected a new term of 15 years. Protection under the directive is available only to nationals of member countries

of European Union. Other countries will obtain such protection only if they offer comparable protection to databases of a European national and if a bilateral agreement is reached.

In the U.S. Copyright Act, there is a *fair use exception* that states that use of an author's original creation is authorized for the purposes of criticism, comment, news reporting, teaching, scholarship, or research. Fair use takes into consideration the purpose and character of the use, the nature of the copyrighted work, the amount and substantiality of the portion used in relation to copyrighted work as a whole, and the effect of the use on the potential market. There are four aspects to the fair-use exception:

1. **Classroom use**. Certain educational establishments are allowed to publicly display and perform others' works in the course of face-to-face teaching activities. But this exemption applies only to the use of legally acquired works.
2. **Copying in a library**. In academic and research institutions, copying limited portions of certain copyrighted works[19] is not an infringement, provided that libraries (or their users) make single copies of the works, provided that all of the following apply:
   - only individual articles (for example, of a book) or small portions of a larger work be copied
   - the copies become the property of the person making the copies
   - the copies are used for private study, scholarship, or research
   - the copying is not done for commercial advantage
   - the library displays prominently a notice warning of copyright restrictions in accord with requirements published by the U.S. Copyright Office[20]

Finally, it should be noted that no "international copyright" exists. But since most countries offer protection to foreign works under simplified international copyright treaties and conventions, a rule of thumb is that if a work could be protected as a U.S. domestic work, it is protected as a foreign work. There are cases, however, where foreign copyright law is less restrictive than the U.S. code, so the work may still be protected even though in the United States the work would be in the public domain.

6. TRADE SECRETS

6.1 *What can be a trade secret?*

Trade secrets are an important and widely used business asset in the United States. Both small and large businesses rely on trade secret protection, often without even realizing it. It has been estimated that 90 percent of inventions are protected by trade secrets.

There are various kinds of trade secrets. The most popular example of a trade secret is the formula for Coca Cola, which has been kept successfully in secrecy now for more than 100 years. In addition to chemical formulas or processing methods, trade secrets can involve software, accounting records, customer lists, plant designs, and so on. Although trade secrets may overlap with patentable subject matter, they go well beyond that.

A generally accepted definition of a trade secret appears in the 1939 Restatement of Torts. The subject matter of a trade secret must be secret. Matters of public knowledge or of general knowledge in an industry cannot be appropriated by anyone as a secret, nor can matters that are completely disclosed by the goods one markets be trade secrets. Therefore, a trade secret is known only in the particular business in which it is used.

6.2 *How are trade secrets protected?*

Intentional theft of trade secrets can constitute a crime under both federal and state law. The most significant federal law dealing with trade secret theft is the Economic Espionage Act (EEA) of 1996.[21] The EEA applies not only to thefts that occur within the United States, but also to conduct outside the United States, if the thief is a U.S. citizen or corporation, or if any act in furtherance of the offense occurred in the United States. All of the 50 U.S. states have enacted trade secret laws, most of which are some version of the Uniform Trade Secret Act (UTSA).

6.3 *To file a patent or to keep a trade secret?*

Before filing a patent one should always consider the possibility of keeping the invention in secrecy, because there are situations when one of these two protection methods is more useful than the other.

There is no limitation in the time that a trade secret can protect the invention. On the contrary, a patent is normally enforceable for a period of 20 years after the filing. If the subject matter is easy to keep in secret, if there will be no products being marketed that could be used to reverse engineer the trade secret, then keeping trade secret might be worth considering.

Sometimes it is very difficult to prove that someone has infringed a patent. For example, infringement of a patent on a laboratory method might be difficult to prove, and, therefore, keeping the method as a trade secret might be a better means of protection.

In order to be patentable an invention has to be useful, novel, and nonobvious. There are no such requirements for trade secrets. The only "usefulness" requirement for a trade secret according to the Restatement of Torts § 757, is that "*it confers the owner an opportunity to obtain an advantage over competitors who do not know or use it.*" Therefore, an improvement or a variation of a method, for example, can be a trade secret, but it might not be patentable. The field of trade secrets is much wider than that of patents.

6.4 *Misappropriation of trade secrets*

Based on the definition given in the 1939 Restatement of Torts, one who discovers a trade secret properly, for example, by analyzing a commercial product embodying the secret, reverse engineering the secret, or by independent invention, is free to disclose it or to use it in his or her own business without liability to the owner. The cases rising from trade secret misappropriation are basically of three types:

1. Cases in which a trade secret is learned by improper means, as through industrial espionage
2. Cases in which an employee knowing a trade secret is hired by a competitor to whom the employee discloses the trade secret, or the employee knowing the trade secret begins his or her own business basing it on the trade secret
3. Cases in which a trade secret is disclosed during licensing negotiations, and the licensee later refuses to pay royalties but continues to use the trade secret[22]

7. OWNERSHIP OF RIGHTS

Ownership of rights is an important question with regard to licensing and transfer of the rights to another party. It may be that there are some rights belonging, for example, to an employee of an organization, that might interfere with the interest of the organization to license the rights further. In order to prevent misunderstandings related to such situations, it is worthwhile to think how the technology was created: Did the organization hire a consultant? What were the conditions of the agreements? Who sponsored the research? Where are the inventors now?

7.1 *Ownership of patent rights*

Employed to invent. As a general rule, the inventor owns the patent rights to the subject matter of his or her invention, even if the inventor conceived it or reduced it to practice during his or her employment. The main exception to this rule is the *employed-to-invent-exception*. An employer owns the invention of the employee if the employee was employed to invent something or to solve a problem.

Shop right. When an employee makes an invention or discovery that is outside her or his employment, but she or he uses the employer's resources, the invention may be owned and patented by the employee, but the employer has a shop right to the invention. A shop right is a royalty-free, nonexclusive, nontransferable, implied-in-law license granted to an employer to use the employees patented invention.

A shop right exists for the life of a patent, regardless of whether the employment continues or not. The employer having a shop right can make, use, and sell articles embodying the patented invention. The employer may, however, not sell articles outside his or her normal range of business.

Joint inventors. In the Code of Federal Regulations, the term *joint inventor* is defined as one who "*must have made a contribution, individually or jointly, to the subject matter of at least one claim of the application.*" To be legally named as an inventor, a person must have contributed to the discovery of the way of obtaining the wished-for results. Creating the idea of the general wished-for result desired is not, by itself, sufficient to constitute joint invention.

It is important to remember that any patent with a named inventor who cannot meet the legal test for the minimal requirement of inventorship will lead to that patent becoming invalidated. Similarly, if all joint inventors are not named, the patent is invalid.

In absence of an assignment of the patent, the joint inventors are co-owners of the patent. Each of the co-owners has all the rights of a patent owner. This means that each of them may make, use, or sell the patented invention without the permission of or the need to account to the other joint owners.

7.2 *Ownership of copyright*

As a general rule, a person who creates a work is the author and therefore owns the rights to the work. However, a work made for hire is an exception to this rule. If an employee within the scope of his or her employment prepares a work, the employer and not the employee is considered to be the author.

8. PROTECTING THE ORGANIZATION'S IP

8.1 *Notebook keeping*

Under U.S. law, a patent is granted to the first to conceive the idea for an invention, not to the person who first files a patent application. Because of the first-to-invent concept, a notebook must be able to serve as essential evidence of the date of conception. In a case of interference, the notebook might also be essential for proving diligence in developing the invention after the conception. For these purposes proper notebook keeping is important.[23] All notebook entries should be made with permanent ink. The pages of the notebook should be numbered and filled consecutively, with no intervening pages left blank. Someone able to understand the work, but not participating in it, should witness all of the entries.

8.2 *Employee agreements*

Employees make the majority of inventions patented in the United States. Therefore, it is important for an organization to establish practices related to inventions made by its employees. Employee agreements often contain clauses that require protection of trade secrets and confidential information, require the employee to assign inventions to the employer, require the employee to cooperate in disclosing inventive activity, and require the employee to cooperate in patent-prosecution activities. Employee agreements can also include trailer clauses requiring the employee to assign inventions made for a certain period after leaving employment.

Some states have recently enacted state statutes attempting to prevent an employer from abusing his or her unequal bargaining power. The statutes are limiting the type of inventions that an employer can contractually require an inventor to assign.

8.3 *Marking the protected intellectual property*

Patent marking. Patent law gives a patent owner an option to mark the patented product. Marking the product is not required, but owner failure to mark a patented product may raise a risk that the owner would not be able to collect damages from infringers during the time the product was not marked. An appropriate way to make the marking is: *U.S. Patent No 5,555,555* or *U.S. Pat. No. 5,555,555*. After obtaining a filing date one can also use the marking: *Patent Pending* or *Pat. Pending*.

Trademark marking. The designation *TM* indicates that a particular word, symbol, or logo is considered by its user to function as a trademark. Similarly, the designation *SM* indicates a service mark.

When a mark becomes registered with the U.S. Patent Office, the designation should change from *TM* or *SM* to the registered-mark symbol,

®. Instead of this symbol, the mark owner can use the designation *Registered in the U.S. Patent and Trademark Office* or *Reg. U.S. Pat & TM off*. A marking *Registered trademark* is not appropriate because it could be misleading by not indicating *where* the mark is registered. It is important to indicate that the mark is registered with the U.S. Patent and Trademark Office, because the law provides that the owner of the mark is precluded from recovering profits and damages unless it can be established that the defendant had actual notice of the registration.

Copyright marking. The copyright symbol, ©, or the designations *Copr.* and *Copyright* are the proper legal notices for copyright protection. The copyright notice is usually included directly on the product or product label and typically takes this form:

© ABC Corporation 2007.
or
© MIHR and PIPRA. All Rights Reserved.

Failure to include the notice of copyright once was, but is no longer, fatal to the owner's rights. Before the United States acceded to the Berne Convention, the author lost his or her rights if failing to include notice of copyright. It is still good practice, however, to include the traditional copyright notice where applicable. Very often a copyrighted work carries the notice *All Rights Reserved,* in addition to the copyright symbol. This is because the *All Rights Reserved* designation is required under the Buenos Aires Copyright Convention, which is important in several South American countries.

9. INTEGRATION OF IP RIGHTS

A question that often comes up is whether a party can one have a patent and a trade secret simultaneously? At first sight it might seem that patents and trade secrets would exclude each other: patent application will become public, at the latest, when the patent is issued, and trade secret has to be kept in secrecy. Furthermore, the patent law requires the patent applicant to disclose the best mode of the invention in the patent application. It seems as if there would be no room for trade secret if one has filed a patent.

This, however, is not the case. One can have a patent and also keep trade secret. One very common situation is that after filing a patent, the invention has been developed further and after filing, the development is kept secret. The patent law requires the inventor to disclose the best mode known when the patent is filed, but there is no requirement to disclose any improvements made later. In addition, sometimes trade secrets can be "negative know-how." For example, information learned during research and development that shows some formula or process does not work can be kept as a trade secret. It has been estimated that 80 percent of all license and technology transfer agreements cover proprietary know-how or trade secrets.

Importantly, trademarks can prolong the protection of a patented good. The life of a patent is usually 20 years, while there is no limit to the life of a trademark as long as it is used. Many companies use trademarks to prolong the protection of a patented good. During the lifetime of the patent, the product is well protected, but if the company has also trademarked the product, the public will recognize the patented product also after expiration of the patent. When filing a trademark for a patented product, the applicant should, however, remember that one cannot get trademark protection for any functional features.

10. IP INFRINGEMENT

Patent infringement can be either direct or indirect. *Direct infringement* is either literal or it takes place under the Doctrine of Equivalents. Direct infringement occurs when a party makes, uses, offers to sell, or sells any patented invention, within the United States, or imports the patented invention in the United States during the patent term without the patentee's authorization during the term of patent.

An infringement is literal when every limitation recited in any claim in the patent appear in the alleged infringing product or process. If the alleged infringing product or process is missing on one of the claim limitations, there is no literal infringement.

In a case where the accused product or process is missing a component or step of the claims, there can still be direct infringement, if the accused product or process has a component or step that is insubstantially different from the missing one. Such a case is known as infringement under the Doctrine of Equivalents. In such a case, the alleged infringing device (or method) substantially performs the same function, in the same way, with the same result as the patented invention.

In addition to direct infringement, the patent law describes *indirect infringement*. Indirect infringement can be either induced infringement (knowingly aiding another in an act of infringement; aiding and abetting infringement) or a contributory infringement (knowingly selling an article that has no other use than as part of a patented invention).[24]

A copyright is infringed if the defendant copied from the plaintiff's copyrighted work. A plaintiff can prove copying through direct evidence of copying, or through circumstantial evidence that the defendant had access to the plaintiff's work and the work is substantially similar to the work of the plaintiff.

11. SO I HAVE INTELLECTUAL PROPERTY. NOW WHAT?

Evidently, intellectual property is really only useful if indeed the invention is used, applied, and incorporated into a productive process. This can be done either by those who own it or by authorized third parties, called licensees. Inventing something new is important. Protecting such an invention might also be important. But bringing an invention from "bench to bedside" is undisputedly the most important. For this, IP protection might not always be the most efficient way as other chapters in this *Handbook* suggest.[25] Equally important are the complex decisions regarding when, to whom, and how to license intellectual property in order to optimize both economic and humanitarian value.[26] Suffice it to say that the form of protection chosen for a given invention should be guided by the mission of the institution and the purpose of the work conducted, as well as by the specific subject of the invention. ■

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1 Article I, Section 8, Clause 8.

2 Some 30 years later, in 1474, the first patent law was enacted, called the "Inventor Bylaws," also in Venice.

3 See, also in this *Handbook*, chapter 4.4 by JP Kesan, and chapter 4.6 by J Dodds, A Krattiger and SP Kowalski.

4 See, also in this *Handbook*, chapter 10.2 by RL Cruz.

5 See, also in this *Handbook*, chapter 4.7 by M Blakeney.

6 See Dodds et al., *supra* note 3.

7 See, also in this *Handbook*, chapter 10.7 by AM Schneiderman; chapter 10.8 by R Yin and S Cunningham; and chapter 10.6 by AS Viksnins and AM McCrackin.

8 35 U.S.C. 101.

9 *Diamond v. Chakrabarty.* 447 U.S. 303 (1980).

10 *State Street Bank v. Signature Financial Group.* 47 U.S.P.Q. 2d 1596. This case was the most important case to establish the concept of business-method patents. As a result, during fiscal year 2001, the U.S. Patent Office was expecting to receive about 10,000 business-method patent applications. This was in a year the U.S. Patent Office issued only 433 business-method patents.

11 35 U.S.C. § 102(a).

12 *Rosaire v. Baroid Sales*. Div. 218 F 2d 72.

13 *Kimball Int'l Inc. v. Allen Organ*. Co. 212 U.S.P.Q. 584.

14 *Ritter v. Rohm & Haas Co.* 271 F. Supp. 313.

15 35 U.S.C. 102(b).

16 *Brenner v. Manson,* 383 U.S. 519 (1966).

17 See, also in this *Handbook,* chapter 4.3 by W Needle.

18 See, also in this *Handbook,* chapter 4.8 by J Dodds, S Somersalo, SP Kowalski and A Krattiger.

19 Musical works, graphic, pictorial or sculptural works, motion pictures, or other audiovisual works are not included in this exception.

20 Note that libraries may make copies of entire works if the work cannot be obtained after a reasonable search and at a reasonable price. This exemption is also the basis of the fair-use doctrine that libraries may copy and place materials on course reserve.

21 18 U.S.C. §§ 1831–1839.

22 For further information on trade secrets, especially the licensing of trade secrets, see, in this *Handbook*, chapter 11.4 by KF Jorda.

23 See, also in this *Handbook*, chapter 8.2 by JA Thomson.

24 See, also in this *Handbook*, chapter 17.26 by M Goldman.

25 For example, see, in the *Handbook*, chapter 10.1 by S Boettiger and C Chi-Ham.

26 See Sections 2 and 10 in this *Handbook*.