

Intellectual property: patents, copyright, and trademarks

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Introduction

"The human mind is a channel through which things-to-be are coming into the realm of things-that-are."

Henry Ford, *Theosophist Magazine* (Feb. 1930)

Creativity of the human mind is wonderful and very diverse. We can listen to a work of W. A. Mozart, read a book by James Joyce, talk with friends who are in other continent, or relax sitting on a nice chair. All these examples and many others that we can easily find arise from human creativity.

We will agree that these examples of creation are not trivial, i.e. the authors have done a commendable job of creation and they have demonstrated their great talent. W.A. Mozart needed six months to write *Le nozze di Figaro*, James Joyce seven years to write *Ulysses* and, Antonio Santi Giuseppe Meucci several years to develop the first telephone. Therefore, it is fair that those who use or enjoy these works reward the authors' effort.

However, there are many examples that show that this is not always so. The invention of printing (by J. Gutenberg in 1440) was a breakthrough, but also made the copy of literary works without the authorisation of their rightful owners easier. An editor could go to another city and buy a book not published in his city. Once back to his city, he could print the book claiming authorship of the book. We can find current examples, such as selling music and movies without the permission of the authors, copying the design of a music player etc. In these cases, offenders save the effort of creating or developing the product and they know that that product will be well accepted by customers. They only sell works or products with a large demand. Buyers may not know that the work is not legitimate. If we make a simple effort of empathy, we see the great harm that offenders do to the authors of the works.

Nowadays, technology is present in our society and gives us many benefits, but also has collateral effects. The ease of copying and distribution of creations allows third parties to obtain benefit from works that are not of their property. Therefore, the authors see their income reduced. The situation may discourage the creation of artistic works or new products, since the authors are not the main beneficiaries of their creations. To avoid this situation, several mechanisms to protect the authors' rights have been created. The protection measures are different depending on the work to protect, i.e. a novel is different from a car engine, so the protection will also be different.

This module is devoted to intellectual property (IP), i.e. the property right that derives from the work of an individual's mind or intellect. IP is a legal concept that includes: copyrights, trademarks, patents, industrial designs, utility mod-

els and trade secrets. In the first section, we will describe copyright protection. Section two introduces trademarks and trade dress. Finally, the module concludes with a section covering the protection provided by patents, industrial designs, utility models and trade secrets.

Objectives

The goals to be achieved by studying this module are the following:

- 1.** To understand the concept of intellectual property.
- 2.** To understand the importance of using the proper tools to protect our intellectual property.
- 3.** To know what is protected by copyright and the different categories of software.
- 4.** To know the concepts of trademark and trade dress.
- 5.** To know the steps of a trademark registry.
- 6.** To know what can be protected by means of a patent.
- 7.** To understand the structure of a patent.
- 8.** To understand the protection offered by a patent.
- 9.** To know the concepts of industrial design and utility model.
- 10.** To understand when it is convenient to use trade secrets.

1. Copyright

Copyright is a right given against the copying of defined types of cultural, informational and entertainment productions.

Copyright is the exclusive legal right to reproduce, publish, sell, or distribute the matter and form of something (as a literary, musical, or artistic work).

Merriam-Webster

Actually, the original work is protected automatically. The author does not need to obtain an official registration. Although the original work must be produced in a tangible form, i.e. it is not possible to protect a work in our mind. The work must exist in some permanent form before it gains copyright.

The rights are usually for a limited period of time, for instance in Spain authors have the rights for their lifetime and their heirs for 70 years. Usually, in other countries, the authors have the same protection and their heirs between 50 and 100 years after the death of the author.

Another consideration is that copyright may apply to a wide range of original works:

- literary,
- dramatic,
- musical work,
- artistic work,
- sound recording,
- film,
- broadcast,
- cable-cast and
- published edition.

Literary works are those that are written, spoken or sung. Dramatic or musical works do not belong in this category. Nonetheless, the category includes tables, compilations, computer programs and databases. **Dramatic works** include dance or mime, and **musical works** consist of music (not associated words or actions). Secondary activities like translating, editing, adapting etc. may attract their own copyright. **Artistic works** comprise graphic works, photographs, sculpture, collage, works of architecture (for instance a building or a model thereof) and, finally, works of artistic craftsmanship. The **sound recording** category includes the reproducible recording of sounds or literary, dra-

matic or musical work. The author is the person undertaking arrangements necessary for making the recording. In the **film** category, we can find the recording on any medium from which a moving image may be produced. The author is the person undertaking the arrangements necessary for making the film and the principal director. The **broadcast** comprises the transmission by wireless telegraphy capable of lawful public reception or transmitted for public presentation. **Cablecast** includes the cable programme service by non-wireless telecommunications for reception at two or more places or for public presentation. The author is the person making the broadcast or providing the cable programme services. Finally, the **published edition** category comprises the typographical arrangement of a published edition of literary, dramatic or musical work. The author is the publisher.

In this part, we briefly introduce the exclusive rights provided by the copyright, the concept of copyleft and, finally a classification of software licenses.

1.1. Exclusive rights

Authors of a work with copyright have a series of exclusive rights by law, so that only they can perform an action or acquire a profit from their work and allow or deny others the right to make the same action or to acquire any benefit. In general, the exclusive rights can be classified into four categories:

- 1) moral rights,
- 2) property (patrimonial) rights,
- 3) public communication and
- 4) modification rights.

The author has four distinct **moral rights**:

- the right to be identified as author or film director (right of attribution),
- the right to object to derogatory treatment of a work (right to the integrity of the work),
- the right against false attribution of a work (the right to have a work published anonymously or pseudonymously) and
- the right to privacy in private photographs and films.

The moral rights are not limited to a period of time. The author and heirs can decide about the disclosing of the work. Nonetheless, a judge can force the disclosing of the work (general cultural interest). When there are no heirs the state is the owner.

Authors can sell their work, but, if they do so, they will not keep the property rights. The owners of the work have the property rights, so they can allow or forbid the exploitation of the original work, produce copies or reproductions of the original work and sell those copies, import or export the original work and sell or assign these rights to others.

Employees are a special case in copyright law, because they have the moral rights, as independent authors, but the company they work for has the economic rights.

Techniques for copying

The techniques for copying have been improved in the last century. Users can easily copy an image, a song, or record a TV broadcast show using a computer or a recorder (video, cassette, DVD etc.). At the same time, the storage devices and storage media (cassette, CD, DVD, SD etc.) are cheaper and have increasing storage capacity.

Thus, these technologies make the unauthorised copy and distribution of copyrighted material easier and, consequently, illegal distribution has increased. In order to compensate the authors, every device capable to record or copy any copyrighted material (photocopiers, dual cassette recorders, video-cassette recorders, computers) may have an associated tax (private copying levy) to compensate the authors. Of course, the storage media (cassette, CD, DVD etc.) may also have a tax. All equipment, devices and materials suitable for the recording of music or audio-visual works are subject to the compensating remuneration payment. Manufacturers and importers of equipment, devices and materials suitable for the recording of music and/or audio-visual works are obliged to pay. The levy is progressive, i.e. if the storage media has more capacity then it has a higher tax. Nonetheless, the users have the right of private copy. Particular users do not have to ask for authorisation to the author's of the original work whenever such work is recorded for their own use.

We should mention that users that have a copy of the work are not the owners of the work. They only have the copy and can use it. The public communication right allows the copyright owner to transmit or display the work by radio or video. The same way, the owner can perform or display the original work publicly. It is not necessary for the public to have a copy of the work.

Every time that the work is displayed publicly, the owner can demand compensation. The compensation is fixed by law or by an agency¹.

⁽¹⁾For instance Sociedad General de Autores y Editores (SGAE) in Spain.

Finally, the owner of the copyright has the modification rights to create derivative works. A derivative work is an expressive creation that includes major, basic copyrighted aspects of an original, previously created first work. The owner has the exclusive right to prepare derivative works based on that copyrighted item. Thus, only the owner of copyright in a work has the right to prepare or to authorise someone else to create a new version of that work, for

example, the translation, adaptation or any other modification of the original work. The owner of the new work is generally the author who has obtained rights from the author.

Copyright infringement usually corresponds to civil law, although in some jurisdictions² it is judged according to criminal law or penal law. An expert decides on the infringement.

⁽²⁾In Spain, for example, if there is economic profit, the sentence can be between 6 and 24 months of prison.

1.2. Copyleft

Copyleft is a licensing scheme. The author gives permission to reproduce, adapt or distribute the original work as long as any resulting copies or adaptations are also bound by the same copyleft licensing scheme; it is required that the same rights be preserved in modified versions of the work.

The following are some examples:

a) Public domain software. The software is not copyrighted. The executable program can be in the public domain but the source code is not available. It is a special case of non-copylefted free software³, if the source code is in the public domain. Some copies or modified versions may not be free at all;

⁽³⁾Free software comes with permission for anyone to use, copy and distribute, either verbatim or with modifications, either gratis or for a fee.

b) GNU General Public License (GPL). GPL is a free software licence, the user can do the following:

- Run the program, for any purpose;
- Study how the program works and adapt it. The derived works must be licensed under the GPL;
- Redistribute copies so you can help other users;
- Improve the program and release improvements to the public, so that the whole community benefits.

c) GNU Lesser General Public License (LGPL). LGPL is a free software license published by the Free Software Foundation. It is a compromise between the strong-copyleft GPL and permissive licenses. LGPL software can be linked to a non-(L)GPLed program. The non-(L)GPLed work can be distributed under any chosen terms if it is not a derivative work. In summary, the LGPL places copyleft restrictions on the program itself but does not apply these restrictions to other software that merely links with this one.

d) GNU Affero General Public (AGPL). AGPL is based on the GNU GPL. It has an additional term to allow users who interact with the licensed software over a network to receive the source for that program. It is recommended for any software that will commonly be run over a network.

e) BSD License. The BSD License allows proprietary commercial use. The derived works may even be released under a proprietary license. All works deriving from a BSD-licensed work must include an acknowledgment of the original source. The following are some licenses based on BSD License: NetBSD, FreeBSD, OpenBSD, Microsoft's Public License:

f) MIT License. The MIT License is a permissive free software license. It allows reuse within proprietary software. The license is distributed with that software and is GPL-compatible. The GPL permits combination and redistribution with software that uses the MIT License. Some examples are the following:

- Expat,
- PuTTY,
- Mono development platform class libraries,
- Ruby on Rails, Twisted,
- Lua 5.0 onwards and
- the X Window System.

g) Creative Commons (CC). The CC is a non-profit organisation, and the CC licenses expand the range of an original work available for others legally to build upon and share. The CC project provides several free licenses: Creative Commons Licenses (CCL), which restrict only certain rights (or none) of the original work.

1.3. Categories of software

The generation of a computer program (software) is considered the creation of literary work.

A literary work is any work that is not dramatic or musical and which is written, spoken or sung, a computer program and (separately) preparatory design material for software.

Thus, the software is copyright-protected by default with the rights described above. The software copyright owners can modify the copyright rights by means of a software licence, so we can find a high number of licences that can be classified mainly within the following categories:

a) Free software. This software comes with permission for anyone to use, copy and distribute, either verbatim or with modifications, either gratis or for a fee. In this case, the source code must be available. Sometimes, software companies use the term "free software" to say that price is zero (freedom vs. zero price).

b) Open Source Software. This software can be sold or offered as a component of a collection software distribution that contains programs from several different sources, and it does not require a royalty or other fee for such sale. Moreover, the software includes source code and allows its distribution in source code and compiled form. The obfuscated code or intermediate code are not allowed. Modifications and derived works are allowed and they must be distributed under the same terms as the licence of the original software. Nonetheless, the license may restrict source-code distributed in modified form only if the licence allows the distribution of "patch files" with the source code to modify the program at build time. The following restrictions are not allowed:

- discrimination against any person or group of persons,
- against fields of endeavour, restricting other software.
- Finally, the licence must be technology-neutral.

c) Public domain software. This software is not copyrighted and the executable can be in the public domain but the source code is not available. It is a special case of non-copylefted free software, if the source code is in the public domain. Note that, some copies or modified versions may not be free at all.

d) Copylefted software. The distribution terms of copylefted software ensures that all copies of all versions are free software.

e) Non-copylefted free software. This software comes from the author with permission to redistribute and modify and to also add additional restrictions to it. The software is free but not copylefted, so that some copies or modified versions may not be free at all. For example, a software company can compile the program, with or without modifications, and it can distribute the executable file as a proprietary software product.

f) GPL-covered software. The GNU GPL (General Public Licence) is one specific set of distribution terms for copylefting software.

g) Non-free software. It is any software that is not free. This category includes the semi-free software and proprietary software:

- Semi-free software. This software is not free, but comes with permission for individuals to use, copy, distribute and modify (including distribution of modified versions) for non-profit purposes. The Pretty Good Privacy software (PGP) is an example.

- **Proprietary software.** This software is not free (or semi-free). The use, redistribution or modification is either *prohibited* or requires asking for *permission*. These uses are *restricted* by default.

h) Freeware. It is commonly used for packages that permit redistribution but not modification. The source code is not available.

i) Shareware. This software comes with permission for people to redistribute copies. Although anyone who continues to use a copy is required to pay a licence fee. Usually, the source code is not available (no modification) and it does not come with permission to make a copy and install it without paying a license fee.

j) Private software. This software is developed for one user (organisation or company). The user cannot release it to the public neither as source code nor as binaries.

k) Commercial Software. This software has been developed by a business that aims to make money from the use of the software. Nonetheless, "Commercial" and "proprietary" is not the same thing. There is commercial free software and there is non-commercial non-free software. For example, GNU Ada is commercial and free software.

2. Trademarks

In this section, we describe the main concepts related to trademarks, i.e. the signs that can be registered as a trademark, and one classification based on their use. We also describe the registration process and, finally, we define a trade dress.

A trademark (TM) is a distinctive sign or indicator that is protected as a symbol used by consumers to distinguish between competing products and services in a market economy. An individual, a business organisation or a legal entity uses trademarks to identify the source of the product and/or service uniquely from other entities. As long as they continue to be used in trade, they cannot be subject to any maximum duration.

As in the copyright protection, the registration of the TM is not required. Continued use of a TM is enough to show that an entity is the TM owner (reference to evidence of use). This protection is mainly used in the Common Law countries (USA, Canada, Australia etc.). The unregistered mark is protected only within the geographical area within which it has been used (or in geographical areas expected to expand).

- TM: The trademark rights are claimed in relation to a mark, but the mark has not been registered with the government trademarks office of a particular country or jurisdiction.
- ®: The trademark has been registered.

There are several signs that may be registered as a trade mark, so trademarks may include the following elements:

- a name,
- word,
- phrase,
- logo,
- symbol,
- design,
- image (2D or 3D), and
- a combination of these elements.

Thus, based on the previous elements, we can classify the different kinds of trademarks:

- a) **Denominative.** Word marks, including letters, numbers or combination of letters, numbers and words.
- b) **Figurative.** Images, drawings, colours or combinations of colours.
- c) **Mixed.** Figurative marks that include words.
- d) **Three-dimensional marks.**
- e) **Sound marks.**

2.1. Types of trademarks

The trademarks can be classified based on its use: brand trade name, commercial name, collective trademark and certification trademark. Next, we describe them briefly.

- **Brand.** "It is an arbitrarily adopted name that is given by a manufacturer or merchant to an article or service to distinguish it as produced or sold by that manufacturer or merchant and that may be used and protected as a trademark" (Merriam Webster).
- **Trade name.** It is the name that a business trades under for commercial purposes. For example, probably we use the term "Aspirin" instead of "acetylsalicylic acid". When the mark becomes synonymous with that product or service, the owner can no longer enforce its proprietary rights. In this situation, the mark becomes generic.
- **Commercial name.** It is a distinctive sign or indicator used by one person or a legal identity (company) in its commercial activity.
- **Collective trademark.** It is owned by an organisation (i.e. association), and their members use it to identify themselves. The collective trademark assures a level of quality or accuracy, the geographical origin or other characteristics set by the organisation.
- **Certification trademark.** The certification trademark is used to demonstrate that a product or service fulfils a set of norms or regulations. Hence, the existence of product certification is legal evidence that the product/service was successfully tested or that the manufacturer is being regularly audited.

Figure 1. Examples of different types of trademarks



2.2. Trademark registration

One of the great advantages of registration is to be able to secure legal protection before launching products or services under the mark. However, if it can be proved that there is no such intention, the application can be rejected. The first step in the registration process is to decide the jurisdiction (territoriality) that we need for our trademark, i.e. a national trademark (in Spain, USA, Japan etc.), European Community Trade Mark (CTM) or an International Trademark by means of the Madrid system.

The next step in the registration process is the trademark activity scope. Usually, the trademark is valid in one activity field (class); so there are 45 classes (34 for goods and 11 for services) according the Nice International Arrangement. Each class includes several activity fields. We should mention that CMT allows selecting 3 classes.

The Madrid system

The Madrid system for the international registration of marks allows trademark owners the option to register their trademark in several countries by filling one application directly with his own national or regional trademark office.

The national or regional trademark office must be one of the 80 members of the Madrid Union.

Activity scopes of classes 9, 42 and 45 of the Nice classification

Class 9: *Scientific, nautical, surveying, photographic, cinematographic, optical, weighing, measuring, signalling, checking (supervision), life-saving and teaching apparatus and instruments; apparatus and instruments for conducting, switching, transforming, accumulating, regulating or controlling electricity; apparatus for recording, transmission or reproduction of sound or images; magnetic data carriers, recording discs; automatic vending machines and mechanisms for coin-operated apparatus; cash registers, calculating machines, data processing equipment and computers; fire-extinguishing apparatus.*

Class 42: *Scientific and technological services and research and design relating thereto; industrial analysis and research services; design and development of computer hardware and software; legal services.*

Class 45: *Personal and social services rendered by others to meet the needs of individuals; security services for the protection of property and individuals.*

Once we have chosen the territoriality and class we should carry out a previous search (priority). We cannot register a trademark if it has been registered previously or there is another mark that is very similar to it. Really, the previous search is composed of two searches: identities and similar trademarks. Next, there is a trademark examination, such that trademark registration can be accepted or rejected by different reasons that are classified into two categories: absolute and relative ground of objection (refusal).

1) Absolute ground for refusal:

- TM is devoid of any distinctive character.
- TM exclusively serves to designate the kind, quality, quantity, intended purpose, value, geographical origin or the time of production of the goods or of rendering of the service, or other characteristics of the goods or service.
- TM has become customary in the current language or in the bona fide and established practices of the trade.
- TM is contrary to public policy or to accepted principles of morality.
- TM is of such a nature as to deceive the public, for instance as to the nature, quality or geographical origin of the goods or services.

2) Relative ground for refusal:

- There is an identical or earlier TM.
- There is a non-registered mark or another sign used in the course of trade of more than mere local significance.
- There exists a likelihood of confusion on the part of the public, including the likelihood of association with the earlier trade mark.
- There exists an earlier mark that has a reputation.

If the trademark satisfies the described requirements meets the conditions for registrability, but it is not yet registered. The trademark is published in the "Trade Marks Journal" and it is open to public inspection. Then we go to the next step, which is the opposition. Within three months of publication in the Trade Marks Journal, any person may launch a formal opposition or submit observations informally. An opposition must allege at least one of the substantive grounds of objection, absolute or relative in detail.

The Registry Authority resolves the opposition, and if the trademark is rejected the applicant can appeal the decision to the High Court within one month of the rejection decision.

Once an application has passed whatever objections have been raised against it, it will be registered as of the filling date of the application. The registration is valid for 10 years since the filling date and it can be renewed every 10 years or for as long as the mark does not become liable to revocation.

A final consideration is about the convenience of contracting a surveillance of national and international trademark rights. We should remember that somebody could try to register an earlier mark in order to use our reputation for their profit. Thus, we should know if somebody tries to apply for a similar trademark and initiate an objection. This service is usually contracted to a trademarks agent.

2.3. Trade dress

Trade dress is a distinctive, non-functional feature that distinguishes a merchant's or manufacturer's goods or services from those of another.

The trade dress of a product involves the following features:

- The "total image".
- The colour of the packaging.
- The configuration of goods.

The basic requirements of trade dress are two:

- 1) The features must be capable of functioning as a source indicator—identifying a particular product and its maker to consumers.
- 2) Trade dress must also be non-functional in order to be legally protected (otherwise it must be protected by patent law).

Figure 2. Trade dress example



Figure 3. Examples of similar trade dresses



3. Patents

In this section we give a patent definition and describe the requirements to file a patent. Next, we explain when a patent is in force, its structure, the different types of applications and the scope of the patent. Finally, we present some questions to consider prior to the patent application and the definitions of industrial design, utility model, and trade secret.

A patent is a set of exclusive rights granted by a state to an inventor or his assignee for a fixed period of time in exchange for a disclosure of an invention and a fixed fee to the state. The assignee is the patent owner who pays the fee. Moreover, the disclosure must give enough details/information to produce the invention by an expert in the field of the invention.

The assignee

The assignee is the proprietor of the patent and has the exclusive rights of the patent.

The exclusive rights allow the initiation of a lawsuit in the appropriate court to prevent or exclude others from making, using, selling, offering to sell or importing the invention. The lawsuit can be initiated if the invention is made, used, sold, offered to sell or imported in the state that has granted the patent (designated states, jurisdiction).

As mentioned above, the assignee is the person who has the right or property of the patent and the inventor is the first to think of or make something. The assignee and the inventor may be the same person or different ones.

"This recognized the fact that someone who is good at coming up with ideas is not necessarily the best person to bring those ideas to market."

The Economist, "A market for ideas" (October 20, 2005).

3.1. Requirements to apply for a patent

We cannot obtain a patent of anything. The patent application must satisfy the following considerations about what we can patent and how is our invention. The invention can be a device, machine, engine, system, method, process or composition of matter. Next, the invention must be new, inventive and useful or industrially applicable. Below, we describe these properties with more detail.

a) **Novelty.** An invention is not patentable if it was already known before the *date of filling*, or before the *date of priority* if a priority is claimed, of the *patent application*. Although, there are two types of novelty: relative novelty and absolute novelty.

- **Relative novelty.** In some countries, such as the United States and Japan, a *grace period* exists for protecting an inventor or the successor in title from a publication of the invention before the filing date. The inventor or the successor in title publishes the invention; an application can still be validly filled which will be considered novel despite the publication. Of course, the filing should be made during the *grace period* following the publication, which is usually 6 or 12 months.
- **Absolute novelty.** In other countries, including European countries, any act that makes an invention available to the public before the filing date or priority date will prevent the grant of the patent. Some examples of acts that can make an invention available to the public: written publications, sales, public oral disclosures, public demonstrations or use, etc.

b) Inventive step and non-obviousness. An invention should be sufficiently inventive (i.e. non-obvious) in order to be patented. The decision on whether an invention involves an inventive step can be difficult; hence we must consider the following steps in the evaluation. We should identify or know the closest and most relevant prior art. This knowledge will help us to determine the objective technical problem, i.e. the problem that claimed invention addresses and successfully solves. Finally, we should examine whether or not the claimed solution to the objective technical problem is obvious for a skilled person in view of the state of the art in general.

c) Utility. The utility concept is slightly different in the United States Patent Office (USPTO) and the European Union (EU). The USPTO uses the term *useful*, i.e. a patent application must express a specific, credible and substantial utility. On the other hand, the EU uses the term *industrial applicability* or *industrial application*, i.e. a patent can only be granted for an invention if it can be made or used in some kind of industry. A method of contraception to be applied in the private and personal sphere of a human being is an example of invention that would not be susceptible of industrial application. Utility prevents the patenting of inoperative devices and there are three types of utility:

- General utility is the requirement of functionality.
- Specific utility is the requirement that the invention actually performs the function.
- Moral, or beneficial, utility requires that the invention not "poison, promote debauchery, and facilitate private assassination".

Figure 4. Example of inoperative device: perpetual motion machines



3.2. Patent in force

The term of a patent is the maximum period during which it can be maintained into force, usually expressed in number of years. The protection starts from the priority date, which is usually the filling date, and ends after 20 years. The assignee must regularly pay the renewal annuities or maintenance fees to keep the patent in force.

The priority date is considered to be the **effective date of filling** for the examination of novelty and inventive step or non-obviousness for the subsequent application claiming the priority of the first application. Thus the priority date can be one of the following dates:

- The filling date of the patent application.
- The date of grant of the patent.
- The filling date of a previous patent or a document.

The patent application must meet the requirements of the priority right, which is also referenced as the Paris Convention priority right, Convention priority right or Union priority right. The priority right allows that any assignee who has filled an application for a patent in one country has the right of filling the patent in other countries during a fixed period of time, *the period of priority*. Of course, the new patent application must derive from the previous patent application.

The period of priority is the period during which the priority right exists, usually 12 months for patents and utility models. The period of priority is often referred as the *priority year*.

The patent applications are generally published 18 months after the earliest priority date of the application (disclosure of the invention). Prior to that publication, the application is confidential to the patent office. Please, note that the patent has not usually been disclosed throughout the *priority year*.

3.3. Patent structure

The patent application must disclose the invention in sufficient detail, so that a notional person skilled in the art can carry out the invention, i.e. the patent contains a description of how to make and use the invention. Furthermore, there are usually several ways to carry out the invention; hence the description should refer to the preferred embodiment, i.e. the best embodiment according to the authors. Therefore a patent typically has the following sections:

- title,
- abstract,
- classification,
- background of the invention,
- summary of the invention,
- brief description of the drawings/figures,
- detailed description of the invention,
- claims, and
- drawings/figures.

Below, we will describe the content of the above sections.

1) **The title** of the invention should be as short, descriptive and specific as possible, such that the scope of the invention is introduced. The title should not exceed 500 characters and must be placed on the first page of the application. It is important that the title indicates the kind of the patent:

- Product or substance: these patents comprise things and are infringed primarily by, selling or using the things protected by the patent.
- Process, method or use: this category involves performing the activity.

2) **The abstract** is a brief technical disclosure of the invention, i.e. what is new in the art to which the invention pertains. It should be in the form of a single paragraph of 150 words or less. The abstract is usually based on the first claim.

3) The patent includes the **patent classification**, i.e. the industrial sector where the invention is applicable. It is mandatory in some patent offices (for instance, in Spain). The classification helps to search similar patents and it defines the scope of protection of the patent.

4) The **background** of the invention describes the patents or publications related to the invention. The description and the relevant background art must be briefly discussed and it is important to distinguish the invention from other inventions and from what is old. It is advisable the search in a database of patents like Derwent World Patents Index® (DWPISM) that is produced by Thomson Scientific.

5) The brief **summary** describes the nature and substance of the invention, and it is a statement of the object of the invention. The summary should be commensurate with the invention as claimed and any recited object should be that of the invention as claimed., It is usually a summary of the claims.

6) The brief **description** of the several **views of the drawings** is essentially the explanation of the drawings titles;

7) The **detailed description** must enable any person skilled in the technological area to which the invention pertains to make and use the invention. It must refer to the different views by specifying the numbers of the figures and to the different parts by use of reference numerals.

8) The **claims** of a patent specification define the scope of protection of the patent granted. They describe the invention in a specific legal style and set out the essential features of the invention in a manner to clearly define what will infringe the patent. They are often amended during prosecution to narrow or expand their scope and are the most important part of the patent. The claims may contain one or more hierarchical sets of claims, i.e. independent claims or dependent claims:

- Independent claims are those that depend on their own.
- Dependent claims depend on a single claim or on several claims.

9) The **drawings or figures** help to understand the invention and are used in the detailed description. They must show every feature of the invention specified in the claims. For this reason, every element of the drawing has a unique numeration that is used to reference the element of the drawing.

3.4. Patent applications

There are mainly four types of patent applications:

- standard,
- provisional,

DWPI

DWPI provides access to information from more than 30 million patent documents, gives details of over 14.8 million inventions. In each update, approximately 20,000 documents from 41 patent-issuing authorities are added to DWPI.

- continuation and
- divisional.

The **standard** patent application contains the parts described above. The grant of a patent depends upon the outcome of an examination by the patent office. In the **provisional** application, the inventor can place an application to obtain a filing date, but without the expense and complexity of a standard patent. A patent application can be filled as a continuation of a previous application (**continuation** patent). The continuation uses the same specification as the pending parent application, i.e. the claims and the filing date priority. The continuation patent must name at least one of the same inventors as in the parent. Finally, a **divisional** application contains matter from a previously filled application. It is filled later than the parent application but it may retain its parent's filing date. Generally the continuation has the same priority of the parent application. This type of applications is used in cases where the parent application may lack unity of invention.

Unity of invention means that the parent application describes more than one invention. Then, the applicant is required to split the parent into one or more divisional applications. Each divisional application claims only a single invention. When we apply for one patent only, we pay the fees of this patent, so, when we must apply for a divisional, our cost increases.

3.5. Territoriality

Every country has its patent law; consequently, if we want to protect our invention in one country, we need a granted patent in that country. When we want to file a patent in several countries we can apply for a European Patent Convention (EPC) or a Patent Cooperation Treaty (PCT).

The European Patent Convention (EPC) is a multilateral treaty instituting the European Patent Organisation and providing an autonomous legal system according to which European patents are granted. EPC is not a unitary right, but it is a group of essentially independent nationally enforceable, nationally revocable patents. It is subject to central revocation or narrowing as a group pursuant to two types of unified, post-grant procedures:

- Time-limited opposition procedure,
- limitation procedure, and
- revocation procedure.

The Patent Cooperation Treaty (PCT) provides a unified procedure for filing patent applications to protect inventions in each of its Contracting States. The PCT does not lead to the grant of an international patent, which does not exist. Although, the PCT has the following advantages:

- The PCT allows delaying the national or regional procedures (fees and translation costs) as much as possible,
- The PCT offers a unified filing procedure.

The PCT application has the following stages:

a) Filing. The international application needs to be filled in one language only and at least one applicant must be a national or resident of a Contracting State to the PCT.

b) Search. In this stage, the patent office of the contracting state elaborates the International Search Report (ISR). The ISR comprises the relevant prior art documents regarding the claimed subject matter and the opinion regarding patentability. The ISR is normally provided 9 months after filling of the application (first application) or 16 months after the priority date.

c) Publication. The patent is published 18 months after the filling date or after the priority date. The international application is published by the International Bureau (IB) of WIPO and is published in one of the eight **languages of publication**: Arabic, Chinese, English, French, German, Japanese, Russian and Spanish. If the international application only designates the United States, then the application is not automatically published.

d) Optional examination. An International Preliminary Examining Report (IPER) may optionally be requested.

e) Subject matter. The PCT does not make any specific provision concerning the types of invention that may be the subject of an international application.

f) National and regional phase. After 30 months from the filling date of the international application or from the earliest priority date of the application of the international phase, the international application enters the national and regional phase. Note that it is possible to enter the European regional phase at 31 months from the earliest priority date.

3.6. Some questions that we should ask us before applying for a patent

Applying for a patent is expensive, so we should study if a patent is the best way to protect our invention. Below, we present some questions and answers that can help us.

1) Why should I file a patent?

a) Because we want to maintain an advantage gained through:

- brilliant innovation,

- small hard-earned incremental advances, and
- good luck.

b) Because we want to prevent that competitors gaining a foothold into a particular area of commercial endeavour that would not otherwise be possible.

c) Because the patent can be exploited and we can reach one (or more) of the following goals:

- Consolidate a strong market position;
- Provide new revenue streams through licensing, franchising or sale;
- Gain investment funds to develop and market new products;
- Increase in negotiating power through cross licenses or joint venture agreements;
- Provide the basis for a company culture based on innovation, brand presence and design;
- Provide a positive image to potential investors, customers, manufacturers and distributors;
- Attract and retain key personnel enabling new products to be developed further, and
- Secure overseas markets, distributors and alliances.

Nonetheless, the above situation can happen if and only if:

2) The invention can be imitated.

a) We are confident that:

- We will detect the infringements;
- We will prove the infringements to the judge and the sentence will compensate our expenses (file the patent, find the infringement and win the lawsuit);
- We think that the invention is patentable and we are confident that applications will be granted in the designated countries.

Other reasons are that, if we have a licensed patent, we can claim to have expertise in the field. If we are researchers, then we can publish the invention (conferences, journals, workshops etc.). Moreover, a patent gives a good image (advanced technology) to authorities, investors, employees and salesmen.

Finally, we should file the patent as soon as we see the feasibility of the invention in those countries where we think there are business opportunities.

3.7. Industrial designs and utility models

An industrial design consists of the creation of a shape, configuration or composition of pattern or colour, or combination of pattern and colour in three-dimensional form containing aesthetic value. The design can be a two- or three-dimensional pattern used to produce a product, industrial commodity or handicraft.

A utility model is a statutory monopoly granted for a limited time in exchange for an inventor providing sufficient teaching of his or her invention to permit a person of ordinary skill in the relevant art to perform the invention. It has a shorter term (often 6 or 10 years) and less stringent patentability requirements.

3.8. Trade secrets

A company can protect its confidential information through non-compete non-disclosure contracts with its employees. A trade secret is some sort of information that:

- It is not generally known to the relevant portion of the public,
- It confers some sort of economic benefit on its holder, and
- It is the subject of reasonable efforts to maintain its secrecy.

Non-Disclosure Agreements (NDA) and Non-Compete Clauses are used to protect trade secrets. In these cases, the worker signs an agreement not to reveal his prospective employer's proprietary information. Infringement of the agreement carries stiff financial penalties.

Coca-cola

The Coca-Cola formula is the most famous example of trade secret. The pharmacist John Stith Pemberton invented the Coca-Cola in 1886. Later, the Coca-Cola formula and brand were bought in 1889 by Asa Candler who incorporated The Coca-Cola Company in 1892.

Figure 5. Patent example



US006302230B1

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

(10) **Patent No.:** **US 6,302,230 B1**
(45) **Date of Patent:** **Oct. 16, 2001**

(54) **PERSONAL MOBILITY VEHICLES AND METHODS**

(75) **Inventors:** **Dean L. Kamen**, Bedford; **Robert R. Ambrogi**, Manchester; **Robert J. Duggan**, Northwood; **J. Douglas Field**, Bedford; **Richard Kurt Heinzmann**, Francetown, all of NH (US); **Burl Amesbury**, Cambridge, MA (US); **Christopher C. Langenfeld**, Nashua, NH (US)

(73) **Assignee:** **DEKA Products Limited Partnership**, Manchester, NH (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.

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(22) **Filed:** **Jun. 4, 1999**

(51) **Int. Cl.⁷** **B60K 31/00**; B60K 28/00; B62D 63/00; B60Q 1/00

(52) **U.S. Cl.** **180/171**; 180/218; 180/271; 180/21; 340/441

(58) **Field of Search** 180/218, 271, 180/274, 170, 171, 21, 41, 440; 340/438, 441, 440, 439, 905, 936; 318/465, 461, 798; 188/181 C; 280/455.1; 298/175, 5, 20 R

(56) **References Cited**

U.S. PATENT DOCUMENTS

849,270	4/1907	Schafer et al. .
2,742,973	4/1956	Johannesen .
3,145,797	8/1964	Taylor .
3,260,324	7/1966	Suarez .
3,283,398	11/1966	Andren .
3,288,234	11/1966	Feliz .
3,306,626	2/1967	Kawada .
3,348,518	10/1967	Forsyth et al. .

FOREIGN PATENT DOCUMENTS

2 048 593	5/1971	(DE) .
31 28 112 A1	2/1983	(DE) .
3411489 A1	10/1984	(DE) .
32 42 880 A1	6/1989	(DE) .
298 08 091		
	U1	10/1998 (DE) .
298 08 096		
	U1	10/1998 (DE) .
584127	6/1897	(EP) .

(List continued on next page.)

OTHER PUBLICATIONS

Teruaki Self Supported Carrier Machine and Automatic Carrier Device Using the Same in Patent Abstracts of Japan, Dec. 21, 1989, #63149523, Japanese Patent Office, Japan.

Kawaji, S., Stabilization of Unicycle Using Spinning Motion, *Denki Gakkai Ronbushi, D*, vol. 107, Issue 1, Japan (1987), pp. 21–28.

Schoonwinkel, A., *Design and Test of a Computer-Stabilized Unicycle*, Stanford University (1988), UMI Dissertation Services.

Vos, D., *Dynamics and Nonlinear Adaptive Control of an Autonomous Unicycle*, Massachusetts Institute of Technology, 1989.

(List continued on next page.)

Primary Examiner—Brian L. Johnson

Assistant Examiner—Matthew Luby

(74) *Attorney, Agent, or Firm*—Bromberg & Sunstein LLP

(57) **ABSTRACT**

An automatically balancing vehicle having a headroom monitor. The headroom monitor determines the difference between the maximum velocity of the vehicle and the present velocity of the vehicle. An alarm receives a signal from the headroom monitor and produces a warning when the headroom falls below a specified limit.

Figure 6. Patent example



US006302230B1

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

(10) Patent No.: **US 6,302,230 B1**
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(73) Assignee: **DEKA Products Limited Partnership**, Manchester, NH (US)

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(58) Field of Search **180/218, 271, 180/274, 170, 171, 21, 41, 440; 340/438, 441, 440, 439, 905, 936; 318/465, 461, 798; 188/181 C; 280/455.1; 298/175, 5, 20 R**

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U.S. PATENT DOCUMENTS

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3,283,398	11/1966	Andren .
3,288,234	11/1966	Feliz .
3,306,626	2/1967	Kawada .
3,348,518	10/1967	Forsyth et al. .

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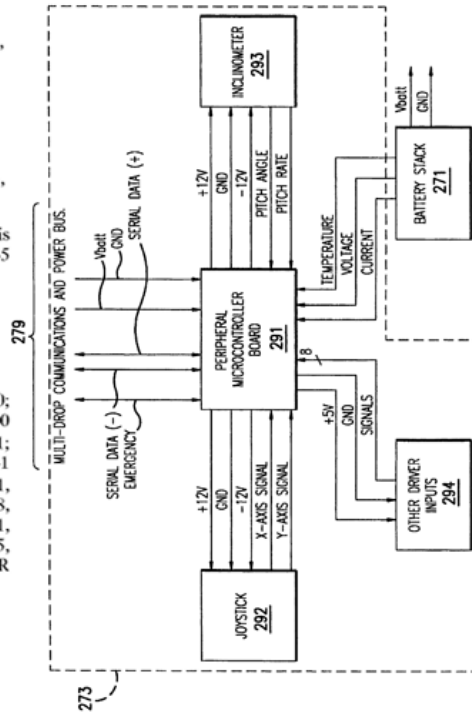


FIG. 6

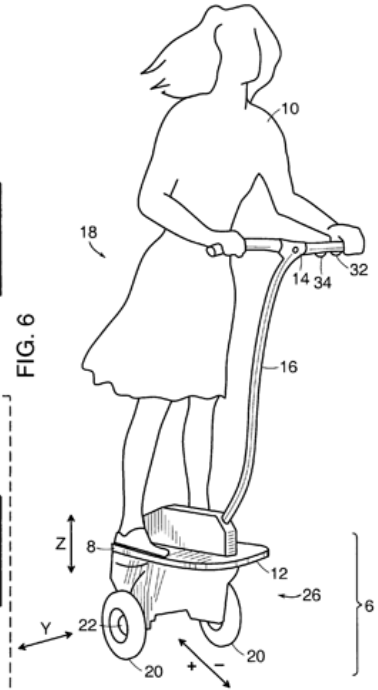


FIG. 1

Summary

This module is devoted to intellectual property. By studying this module, the basic skills for protecting intellectual property should be acquired.

In the first section, we introduced the concept of copyright protection. Thus we describe the kind of works that are protected by copyright and the exclusive rights of the author and the work owner (moral, property, public communication and modification). Also, we presented copyleft licenses and software categories according to their licenses.

Throughout the second section, we define what a trademark is and explain that there are several kinds of trademarks based on the elements that compose the trademark (words, images, 3D figures etc.). In addition, we presented a trademark classification depending on the trademark use (brand, trade name, commercial name, collective and certification). Then, we described the trademark registration process (jurisdiction, activity scope, previous search, examination, publication, opposition, appeal and registration). Finally, we defined trade dress and we gave some examples.

In the third section, we explained what a patent is and the requirements to file a patent (novelty, inventive step and usefulness). Then, we described the period of time that a patent is in force, because there are several cases depending on the priority date. Since it is important to understand the patent structure, we described their sections. Another consideration is patent territoriality, i.e. the country where the patent is in force. In this sense, we introduced the European Patent Convention (EPC) and The Patent Cooperation Treaty (PCT). Finally, we raised some questions to be asked prior to filling a patent. We completed the section by defining the following concepts: industrial designs, utility models and trade secrets.

Activities

1. You are the Chief Intellectual Property Officer (CIPO) in the software company, Brilliant Ideas Good Software (BIGS) and you have developed a new product:

- Cloud desktop (CD): your PC is in the cloud! All your applications, documents and music are in the cloud. You only need a network connection.
- Please, could you describe the Intellectual Property Management Plan of your company?

2. You are the Chief Intellectual Property Officer (CIPO) in a hardware company, Beautiful Designs and Impressive Utility (BeDimU), and you have developed a new product:

- Home Center (HC): your home center has two robots (broom and rubs) and one multi-media center (TDT, blu-ray disk, HD, FullHD, Wi-Fi, Ethernet etc.).
- Please, could you describe the Intellectual Property Management Plan of your company?

3. You are the Chief Intellectual Property Officer (CIPO) in a carbonated soft drink company, Wild flavour (Wif), and you have developed a new product:

- Orange power (OP): the taste is wonderful and intense. It has as much vitamin C as seven fresh oranges.
- Please, could you describe the Intellectual Property Management Plan of your company?

Abbreviations

AGPL GNU Affero General Public

DWPISM Derwent World Patents Index®

EPC European Patent Convention

EU European Union

GPL General Public License

IP Intellectual Property

ISR International Search Report

LGPL GNU Lesser General Public License

NDA Non-Disclosure Agreements

PCT The Patent Cooperation Treaty

® Registered trademark

SGAE Sociedad General de Autores y Editores

TM trademark

USPTO United States Patent Office

Glossary

Copyleft Licensing scheme, in which the author gives permission to reproduce, adapt or distribute the original work as long as any resulting copies or adaptations.

Copyright Right given against the copying of defined types of cultural, informational and entertainment productions.

Industrial design Consists of the creation of a shape, configuration or composition of pattern or colour, or combination of pattern and colour in three-dimensional form containing aesthetic value.

Patent Set of exclusive rights granted by a state to an inventor or his assignee for a fixed period of time in exchange for a disclosure of an invention and a fixed fee to the state.

Trade dress Trade dress is a distinctive, non-functional feature, which distinguishes a merchant's or manufacturer's goods or services from those of another.

Trademark Distinctive sign or indicator that is protected as a symbol used by consumers to distinguish between competing products and services in a market economy.

Trade secret A company protects its confidential information through non-compete non-disclosure contracts with its employees.

Utility model Statutory monopoly granted for a limited time in exchange for an inventor providing sufficient teaching of his or her invention to permit a person of ordinary skill in the relevant art to perform the invention.

Bibliography

Bainbridge, D. (2007). "Introduction to Information Technology Law". Longman: Sixth edition. ISBN: 978 1405 846 660.

Confédération Internationale des Sociétés d'Auteurs et Compositeurs: <http://www.cisac.org>.

Cornish, W.; Llewelyn, D. (2007). "Intellectual property: patents, copyright, trade marks and allied rights". Thomson: Sixth edition. ISBN: 978 0421 919 006.

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European Patent Office: <http://www.european-patent-office.org/>

International Trademark Association: <http://www.inta.org>

Japan Patent Office: <http://www.jpo.go.jp>

Lloyd, I. J. (2008). "Information Technology Law". OUP Oxford: Fifth edition. ISBN: 978 0199 299 775.

Lloyd, I. J. (2000). "Legal Aspects of the Information Society". OUP: First edition. ISBN: 978 0406 929 587.

Murray, A. (2010). "Information Technology Law: The law and society". OUP Oxford: First edition. ISBN: 978 0199 548 422.

Oficina Española de Patentes y Marcas: <http://www.oepm.es>

Office for Harmonization in the Internal Market: <http://oami.europa.eu>

Rowland, D.; MacDonald, E. (2005). "Information Technology Law". Routledge-Cavendish: Third edition. ISBN: 978 1859 417 560.

Sociedad General de Autores y Editores: <http://www.sgae.es>

The American Society of Composers, Authors and Publishers: <http://www.ascap.com>

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