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ATTORNEYS

Rule #169

July 15, 2016

Provides Examination Guidelines for Patent Applications – Block II – Patentability

THE PRESIDENT and the PATENT DIRECTOR, of the BRAZILIAN PATENT AND TRADEMARK OFFICE, in the exercise of the powers conferred upon them by Decree #8,686 of March 4, 2016,

HEREBY RESOLVE AS FOLLOWS:

Article 1. Establish the Examination Guidelines pursuant to document "Examination Guidelines for Patent Applications – Block II – Patentability," attached to this Rule.
Article 2. This Rule repeals the Examination Guidelines for Patents, established by Rule #64/2013.
Article 3. This Rule enters into force on the date of its publication in the BRPTO's Official Gazette.

Luiz Otavio Pimentel
President

Júlio César Castelo Branco Reis Moreira
Patent Director

MINISTRY OF DEVELOPMENT, INDUSTRY, AND FOREIGN TRADE
BRAZILIAN PATENT AND TRADEMARK OFFICE

EXAMINATION GUIDELINES FOR PATENT APPLICATIONS

Block II

Patentability

Patent Backlog Solution Project, Presidency

Rule #262 of January 13, 2011

DIRECTORATE OF PATENTS

DIRPA – April 26, 2016

Summary

Chapter I – Inventions

Introduction

1.1 An invention must be technical and feasible in some technological field. In accordance with Normative Instruction #030/2013, the invention must be inserted in a technical sector, solve a technical problem, and present a technical effect. Thus, the application must highlight the technical nature of the problem to be solved, of the proposed solution, and of the achieved effects.

Basic requirements

1.2 There are three basic patentability requirements for an invention:

(i) industrial application;

(ii) novelty; and

(iii) non-obviousness.

These requirements must be reviewed in the order presented above. If the application fails to meet one of the requirements, it is not necessary to examine the others. There may be cases in which the examiner deems it necessary to evaluate the other requirements, in order to exhaustively examine the invention as a whole.

Before assessing the three patentability requirements outlined above, the examiner must identify whether the claimed subject matter, considered as a whole, falls within Articles 10 and

18 of the Brazilian Patent Statute, following the directions presented in the Items on subject matters not considered inventions and non-patentable inventions of this Guidelines.

Subject matters that are not considered an invention

Discoveries, scientific theories, and mathematical methods – Item I of Article 10 of the Brazilian Patent Statute

Discoveries

1.3 If a new property of a product is found, said property is considered a mere discovery that is not considered an invention. A product that presents said property, giving it a practical application, can be considered an invention.

Example:

The discovery that a particular known material is suited to withstand mechanical shock is not considered an invention. However, a railway crosstie made of this material could be considered an invention.

1.4 Non-biological products or processes found in nature, such as natural minerals and chemical elements, are not considered an invention, as they are a discovery, even if isolated therefrom.

1.5 For issues involving biological products and processes found in nature, see the provisions of this Guideline regarding Item IX of Article 10 of the Brazilian Patent Statute, as well as Rule #144/2015.

Scientific theories

1.6 These are a more general form of discoveries, and the same principle presented in the discoveries Item of the Guidelines applies.

Example:

The physical theory of semi conductivity is not considered an invention. However, new semiconductor devices and processes for manufacturing them can be considered an invention.

Mathematical methods

1.7 A method that solves a problem exclusively in the field of mathematics (e.g., deductions, operations, solving equations, etc.) is not considered an invention, since it does not constitute a solution to a technical problem. However, methods that use mathematical concepts to solve a technical problem inserted in a technical field are considered an invention as long as they do not fall under other Items of Article 10.

Example 1:

A quick division method would not be considered an invention, but a calculating machine built to perform the method could be considered an invention.

Example 2:

A method for developing electrical filters, even though referring to a mathematical equation, is considered an invention, as it constitutes the solution to a technical problem.

Example 3:

A method for encrypting/decrypting electronic communications can be considered as a method that solves a technical problem, even if it is essentially based on a mathematical method.

Purely abstract concepts – Item II of Article 10 of the Brazilian Patent Statute

1.8 Everything that exists only as ideas, without any feasible practical implementation, constitutes an idea, a purely abstract conception, and is therefore not considered an invention in accordance with the provisions of Item II of Article 10 of the Brazilian Patent Statute. As purely abstract conceptions, they lack sufficiency of disclosure. Methods that refer to a sequence of actions to solve a technical problem are not understood as pure abstractions.

Example:

Consider the idea of an invisible car. As an idea that cannot be carried out by a person skilled in the art, it is a purely abstract conception and, therefore, is not considered an invention. If the inventor describes a way of implementing said vehicle, this implementation may be the subject matter of a patent.

Schemes, plans, principles, or methods of a commercial, accounting, financial, educational, publishing, lottery, or fiscal nature – Item III of Article 10 of the Brazilian Patent Statute

1.9 The Items contained in Item III of Article 10 of the Brazilian Patent Statute, even when using technical means or having practical use, will not be deemed to constitute an invention. The examiner must identify whether the claimed subject matter, considered as a whole, solves commercial, accounting, financial, educational, advertising, lottery, and/or inspection problems, and not a technical problem.

Example:

Creations that fall under Item III of Article 10 of the Brazilian Patent Statute include: (i) market analysis, auctions, consortia, incentive programs, methods of Item III of Article 10 involving points of sale (POS); funds transfer – through a banking network or ATM, which, among its functional steps, includes exchange rate calculations and service fees; banking methods, tax processing, insurance, equity analysis, financial analysis; audit methods, investment planning, retirement plans, health insurance, online shopping methods; method of selling airline tickets over the Internet, among others.

1.10 The fact that a method is applied to the financial area does not necessarily mean that it is classified as a financial method. It is necessary to evaluate the claimed subject matter as a whole and whether it solves a problem of a technical nature.

Example:

A method that performs the identification of a bank note by its pattern of images, colors, and texts is considered an invention for solving a technical problem, even if the method is specifically adapted to a bank note. In this case, the technical problem concerns the identification and counting of objects, which is not a financial method.

1.11 Similarly, a method that provides a technical (non-financial) solution to a technical problem is considered an invention.

Example 1:

A method of operating a bank machine, characterized by the steps of reading the user's card, identifying, and comparing a password with card information is considered an invention. The technical problem solved is user authentication.

Example 2:

A solution referring to communication protocols or encryption applied to bank accounts or conversion of data formats can also be considered an invention.

Literary, architectural, artistic, and scientific works or any aesthetic creation – Item IV of Article 10 of the Brazilian Patent Statute

1.12 An aesthetic creation, by definition, relates to an article that presents other non-technical aspects, the appreciation of which is essentially subjective, and is therefore not considered an invention.

Example:

A painting or sculpture.

1.13 If, however, the article also has technical features, it can be considered an invention.

Example:

A tire-tread.

1.14 The aesthetic effect is not considered when evaluating an invention, neither a product nor a process claim.

Example:

A book claimed solely in terms of the artistic or aesthetic effect of its information content, its layout or its font is not considered an invention, and neither a painting defined by the aesthetic effect of its subject matter or the arrangement of colors, or by artistic style, such as impressionism.

1.15 Nevertheless, if an aesthetic effect is obtained by a technical structure or other technical means, although the aesthetic creation itself is not considered an invention, the means for obtaining it may be.

Example 1:

A fabric with an attractive appearance, obtained by means of a layered structure not previously used for this purpose, can be considered an invention.

Example 2:

A process for binding or gluing a book could be patentable, even if it also has an aesthetic effect, as similarly a

painting defined by the type of fabric, or by the dyes or additives used.

1.16 A process for producing an aesthetic creation can also be considered an invention.

Example 1:

A diamond may have a particular aesthetic form (not considered an invention), produced by a new technical process. In this case, the process can be considered an invention.

Example 2:

A process for cutting a diamond can be considered an invention, regardless of the fact that the shape of the resulting diamond has only aesthetic features, which are not considered an invention.

Example 3:

A new printing technique for a book resulting in a particular layout with an aesthetic effect may be considered an invention, along with the book obtained as a product of that process.

Computer program per se – Item V of Article 10 of the Brazilian Patent Statute

1.17 Computer programs per se, as Item V of Article 10 of the Brazilian Patent Statute, refers to the literal elements of creation, such as object code or source code, understood as an organized set of instructions written in natural or encoded language. As a set of instructions, code or structure, the computer program per se is subject to copyright and is therefore not considered an invention, not being subject to patent protection as it is an authorial expression by a programmer for a technical solution.

1.18 It should be noted that a method considered an invention (does not fall under Article 10 of the Brazilian Patent Statute) may be implemented by a computer program. In this case, such a method may be subject to patent protection, while the computer program per se (source code), through which its implementation occurs, is subject to copyright protection.

1.19 Even if the source code undergoes modifications, and such modifications may entail technical effects, this code is not considered an invention, but a copyright object. If a programmer "A" uses different programming concepts from a programmer "B" to implement the same method and arrives independently at a different program, such program still is subject to protection only by copyright.

1.20 The fact that a method is implemented by a computer program is irrelevant for its inclusion in Article 10 of the Brazilian Patent Statute.

Presentation of information – Item VI of Article 10 of the Brazilian Patent Statute

1.21 Any creation characterized only by its informational content, such as music, text, images, and data, is considered presentation of information.

Example 1:

The presentation of information contained in a medication package insert is not considered an invention.

Example 2:

Assigning different colors to different weights used in dumbbells is considered a presentation of information.

Example 3:

The disclosure of information on panels affixed to the rear window of a vehicle, without any functionality, constitutes the presentation of information. However, panels dealing with a specific film that preserves the

driver's visibility is considered an invention.

1.22 In the case of graphical user interfaces used on computers, aspects that concern only their informational content are not considered an invention as they fall under Item VI of Article 10 of the Brazilian Patent Statute.

Example:

The subject matter claimed in a claim that defines a graphical interface that deals with the arrangement of icons on the screen, without any technical effect or functionality, is considered as presentation of information.

1.23 On the other hand, the method associated with the functional aspects of such interfaces can be considered an invention.

Example:

A claim that deals with a graphical interface that associates personal notes with document excerpts through XML tags can configure a technical solution considered an invention.

Game rules – Item VII of Article 10 of the Brazilian Patent Statute

1.24 Game rules are not considered an invention because they constitute the solution to a non-technical problem, for example, a method for solving a crossword puzzle. The automation of a game rule, inventive or not, does not change the fact that it is a game rule.

1.25 In patent applications for games, any references to game rules must be eliminated from the set of claims, which often appear mixed with descriptions of a technical nature in the patent application. Board games could be patented if they present any new layout or format, such as recesses or grooves that facilitate the fixation of the pieces, or feet to prevent the board from slipping or that adapts itself to be used in external environments such as a beach, as well as provisions that allow folding the board to pack it in a smaller space, are subject to protection.

Operative or surgical techniques and methods, as well as therapeutic or diagnostic methods, for application in the human or animal body – Item VIII of Article 10 of the Brazilian Patent Statute

Overview

1.26 According to Item VIII of Article 10 of the Brazilian Patent Statute, therapeutic, operative/surgical, or diagnostic methods for application in the human body or animals are not considered an invention.

Therapeutic method

1.27 Therapeutic methods are those intended to cure and/or prevent a disease or malfunction of the human or animal body, or relieve symptoms of pain, suffering, and discomfort, to restore or maintain its regular health conditions. Methods characterized by a drug's dosage to treat or prevent a disease are also considered therapeutic methods.

1.28 Thus, therapeutic methods performed inside or outside the body are not considered inventions.

Example 1:

Treatment method against ectoparasites such as lice, fleas, scabies, and ticks.

Example 2:

Retinal treatment methods using laser.

Example 3:

Method for treating a patient through extracorporeal dialysis or a filtration method, in which the filtered blood is returned to the body at the end of the process.

1.29 The following claim formats are considered as therapeutic methods: the treatment of medical condition Y characterized in that it comprises the administration of substance X; the use of substance X characterized in that it is to treat a medical condition Y. "Substance X for use in therapeutic method" or "Substance X for use in treating medical condition Y" are also considered therapeutic methods. However, claims in the format conventionally called the Swiss formula “Use of a compound of formula X, characterized in that it is to prepare a drug to treat disease Y” are not considered a therapeutic method.

1.30 While both preventing and curing disease are considered therapeutic methods, there must be a direct link between the treatment and the condition to be treated or prevented. In this sense, hygiene methods are not considered therapeutic, although they may result in a reduction in the incidence of infection. Similarly, purely cosmetic methods are not considered therapeutic. However, if the cosmetic method is directly related to the prevention or cure of an illness, such method will be classified as having an associated therapeutic character and therefore not considered an invention.

1.31 Non-therapeutic treatment methods:

Example 1:

Method for increasing wool production characterized in that it comprises administering compound X to sheep;

Example 2:

Method for moisturizing human skin characterized in that it comprises applying the Y composition to human skin for aesthetic purposes – in this case, there is no indication in the application or in the prior art that the composition and hydration method can also be used for the prevention/treatment of some skin disease.

1.32 However, there are some cases in which the methods can be simultaneously therapeutic and non-therapeutic. If the non-therapeutic effect is inseparable from the therapeutic effect, or even if it is only a secondary consequence of the therapy, the subject matter is not considered an invention. Thus, methods for removing dental plaque, or preventing plaque from forming, are considered therapeutic, since the inherent therapeutic effect of removing plaque cannot be separated from the purely cosmetic effect of improving the appearance of teeth. Similarly, in the case of animal treatments where there is an increase in meat production or other industrial benefit as an inevitable consequence of the cure or prophylaxis of an animal pathology, it is not possible to dissociate the therapeutic effect.

1.33 On the other hand, body hair reduction methods can be used for purely aesthetic reasons or in the treatment of hirsutism (i.e., one can dissociate the therapeutic character, using a negative limitation to exclude hirsutism), and may be eligible for protection.

Operative or surgical method

1.34 Any method that requires an operative step, or an invasive step in the human or animal body, is considered an operative method, falling under that which Article 10 (VIII) establishes not to be an invention.

1.35 By definition, operative processes aimed at curing diseases are said to be surgical methods or surgery. Surgery can be aimed at curing diseases or prophylaxis, such as, for example, if the appendix or tonsils are removed before the appearance of any disease associated with them, as well as operative methods that do not present a therapeutic character, such as surgery with aesthetic purpose. Likewise, methods that define the insertion or implantation of devices by surgical means are also not considered an invention.

1.36 In addition, invasive methods such as endoscopy, puncture, injection, excision, and catheterization will

also be considered operative methods. Similarly, a method for implementing embryos, as well as in vivo artificial insemination, will be considered an operative method, regardless of its purpose.

Diagnostic method

1.37 Diagnosis is the determination of the nature of a medical condition, usually by investigating its history, etiology, and symptoms and applying tests.

1.38 The diagnostic method involves a series of steps that lead to the identification of a clinical condition, which include steps of analysis and interpretation of the data obtained. When for application in human or animal bodies, they are not considered an invention in accordance with the provisions of Item VIII of Article 10 of the Brazilian Patent Statute.

1.39 A diagnostic method for application in human or animal bodies falls under Item VIII of Article 10 of the Brazilian Patent Statute when it meets the following criteria: (i) has direct application in the human or animal body, as for example, in the case of the determination of allergic conditions by diagnostic test applied in the body, or requires the presence or participation of the patient for its interpretation; and (ii) allows the conclusion of the clinical status of the patient or indicates several probable clinical conditions, only based on the processing, analysis, or interpretation of data, information, and/or results of clinical tests associated with the patient.

1.40 Some examples of claims for diagnostic methods that are not considered an invention are cited.

Example 1:

Method of automated diagnosis of a patient, characterized in that it comprises the steps of:

(i) examining the patient to provide at least one first symptom element having a first relative degree of importance for the symptom;

(ii) examining the patient to provide at least one second symptom element having a second relative degree of importance to the symptom;

(iii) applying relative degrees of importance to symptoms in order to obtain a diagnostic score for the conclusion of a medical condition.

Example 2:

Method for diagnosing occlusive diseases in patients, characterized in that it comprises:

(iv) establishing separate basic data of size and angle measurements of facial harmony markings and values compiled from a group of faces;

(v) accessing the patient's facial features, place marks on facial structures, and measuring the size and angle of the patient's face;

(vi) comparing the measured marker values and angle measurements and patient values to the corresponding baseline data.

This method consists of compiling and establishing standard data on facial measurements, arranging and marking patients, and comparing data to establish a diagnosis, therefore being applied to the human body and requiring the patient for its interpretation.

1.41 Methods consisting of in vitro tests, carried out on samples of blood or other tissues removed from the body, are therefore considered inventions, either because they are not applied to the human or animal body or because they are not conclusive as to the patient's clinical status. On the other hand, diagnostic methods may include both in vivo and in vitro steps. In these cases, if the claimed method includes technical steps performed in vivo which are inseparable from the in vitro step, the method as a whole will be considered as being applied to the body and, therefore, not considered an invention. In addition, the treatment of tissues, cells, or body fluids after having been removed from the human or animal body, or methods applied thereto, such as in vitro

methods, are considered eligible for protection. In this situation, there are methods of measuring enzymes and glucose in the blood, complete blood count, serology tests, among others.

1.42 Additionally, methods for obtaining information from the human or animal body are not considered diagnostic methods when the collected data merely represent an intermediate result that, by itself, is insufficient for a decision regarding diagnosis. Therefore, they are eligible for protection.

Example:

Methods for obtaining and/or processing X-ray images, magnetic resonance imaging, in addition to processing physiological signals, such as electrocardiograms and electroencephalograms, to obtain data from a patient.

The whole or part of natural living beings and biological materials found in nature, or even isolated therefrom, including the genome or germplasm of any natural living being and natural biological processes – Item IX of Article 10 of the Brazilian Patent Statute

1.43 The whole or part of natural living beings and biological materials found in nature – even if isolated therefrom or produced synthetically with natural counterparts occurring in nature without the possibility of distinguishing them from their natural counterparts –, are considered natural biological products and not deemed to constitute inventions, as they fall under the provisions of Article 10 (IX) of the Brazilian Patent Statute.

1.44 For process claims, such as processes, methods, uses, applications, among others, the provisions of Item IX of Article 10 of the Brazilian Patent Statute refer only to natural biological processes, providing that these are not considered inventions. When the claimed process involves natural living beings, whole or in part, and biological materials found in nature, including the genome or germplasm, but does not consist of a natural biological process, there is no impediment to its patentability in accordance with the provisions of Item IX of Article 10 of the Brazilian Patent Statute. Thus, the process that uses a natural product represents the result of human intervention and is considered an invention.

Example:

The classic process of obtaining plants or animals is not an invention. Similarly, processes that encompass only stages mimicking events that occur in nature are also not considered inventions. In contrast, methods based on genetic engineering, in which technical intervention is significant, are considered inventions.

Non-patentable inventions – Article 18 of the Brazilian Patent Statute

Anything that is contrary to morals, good customs, and public safety, order, and health – Item I of Article 18 of the Brazilian Patent Statute

1.45 Inventions may be considered non-patentable when it is necessary to avoid exploitation in their territory, in order to protect public order or morality, including to protect human, animal or plant life or health or to prevent serious damage to the environment, provided that this determination is not made solely because exploitation is prohibited by its legislation.

1.46 Any invention in which commercial exploitation is contrary to public order or morality is specifically excluded from patentability. This is intended to deny protection to inventions typical of inducing chaos or public disorder, or which lead to criminal or other generally offensive behavior, although this provision is only invoked in rare cases. A bomb card is an example. The mere possibility of abuse of an invention is not sufficient to deny patent protection if the invention can be exploited in a way that does not infringe public order and morals.

1.47 Particular attention should be paid to applications where the invention has both offensive and non-offensive use.

Example 1:

In a process for opening safe deposit boxes, use by a robber is considered offensive, but not use by a locksmith in an emergency situation. In this case, there should be no objection.

Example 2:

A claim for a copying machine with improved reproduction accuracy does not fall under Article 18 of the Brazilian Patent Statute as something contrary to public policy even though it may lend itself to use in money counterfeiting.

1.48 Biotechnology is a technological field that generates inventions which can raise moral and public order issues. Patenting these inventions is refused in accordance with the provisions of Item I of Article 18 of the Brazilian Patent Statute. As non-exhaustive examples, there are:

(i) human cloning processes;

(ii) processes for modifying the human genome which cause modify the genetic identity of human germ cells; and

(iii) processes involving animals that cause suffering thereto, with no substantial medical benefit for the human beings or animals resulting from such processes.

Substances, materials, mixtures, elements, or products of any kind, as well as the modification of their physical-chemical properties and the respective processes for obtaining or modifying them, when resulting from the transformation of the atomic nucleus – Item I of Article 18 of the Brazilian Patent Statute

1.49 The nuclear fission or fusion methods themselves, as well as their products, are not patentable in accordance with Item II of Article 18 of the Brazilian Patent Statute. However, processes or methods involving radioactive materials, but which do not include the transformation of the atomic nucleus may be patented.

Example 1:

A method for separating deuterium and tritium from a mass of hydrogen (which already contains these isotopes) would be patentable. The fact that a method is applied to nuclear engineering, for example in a reactor or particle accelerator, does not necessarily mean that it is in disagreement with the aforementioned Item.

Example 2:

A magnetic confinement method can be used both for the production of Bose-Einstein condensates (not prohibited by the Item) and for the production of substances by nuclear fusion (prohibited by the Item). In this case, the examiner must identify the technical problem to be solved and verify whether the application directly or indirectly claims the fusion or fission process itself (prohibited by the Item), or whether it has as its objective the technologies associated with the confinement, energy generation from the use of particles or heat emitted in the nuclear reaction, containment materials (not sealed by the Item).

1.50 Furthermore, it should be noted that said Item does not prohibit patenting devices, machines, equipment, or arrangements associated with nuclear technology. The aforementioned magnetic confinement can be performed from an experimental arrangement which may be patented. Similarly, other examples of these technologies are particle and electromagnetic radiation detection equipment, gas pumping, vacuum chambers and pumps, sensors, control systems, etc.

1.51 Other examples of subject matters that are prohibited in accordance with the provisions of Item II of Article 18 of the Brazilian Patent Statute are cited below.

Example 1:

Method for enriching radioactive isotopes in which the excitation of the nuclei is carried out by electrons and high-energy photons (in the form of X-rays) or even by a laser;

Example 2:

Method of production of radioactive isotopes using particle accelerators;

Example 3:

Nuclear fusion method to produce light elements to be used as fuel in a second nuclear reactor.

1.52 Below are examples of matters that are not prohibited in accordance with the provisions of Item II of Article 18 of the Brazilian Patent Statute.

Example 1:

Method of internal control of a reactor through an electrical device.

Example 2:

Automated depressurization system in a nuclear reactor.

Example 3:

Shutdown system of a nuclear reactor.

Example 4:

Compact pressurized water nuclear reactor (PWR).

Example 5:

Reactor for producing controlled nuclear fusion.

Living beings, whole or in part, except for transgenic microorganisms that meet the three patentability requirements – novelty, non-obviousness, and industrial application – provided for in Article 8 and which are not mere discoveries – Item III of Article 18 of the Brazilian Patent Statute

1.53 With regard to transgenic microorganisms, the sole paragraph of Article 18 (III) of the Brazilian Patent Statute defines that "For the purposes of this Statute, transgenic micro-organisms are organisms, except for the whole or part of plants or animals, which exhibit, due to direct human intervention in its genetic composition, a feature that cannot normally be attained by the species under natural conditions."

1.54 According to this definition, the term transgenic micro-organism includes microorganisms that are obtained from any technique that results in the alteration of the genetic composition not achievable by the species under natural conditions through direct human interference. This definition is not limited to microorganisms that have inserted exogenous genes and/or genes from other organisms.

1.55 For the examination of claims for transgenic microorganisms, it must initially be verified in the application's description whether the term "microorganism" includes animal and plant cells, which is not eligible for protection, since plants and animals, whole or in part, even if transgenic, are not patentable.

1.56 The generic term "microorganism" is used for bacteria, archaea, fungi, single-celled algae that are not classified in Kingdom Plantae, and protozoa. Thus, among all or part of living beings, natural or transgenic, the Brazilian Patent Statute only allows patenting transgenic microorganisms.

Chapter II – Industrial Application

2.1 Article 15 of the Brazilian Patent Statute determines that the invention is considered eligible for industrial application when it can be used or produced in any type of industry. The concept of industrial application must be analyzed with due flexibility regarding its meaning, also being applicable to agricultural and extractive industries and to all manufactured products, provided they are endowed with repeatability.

2.2 The term industry should be understood as any activity of a technical nature that is not individualized, i.e., personalized and/or specific to a single individual, without repeatability.

Example:

A method of throwing a basketball by an individual has no industrial application.

2.3 Considering the fact that an industry does not exist in the sense of making or using something that does not have a known purpose, the claimed invention must have a utility and the specification must identify any practical way to exploit it. Thus, purely abstract conceptions or speculative indications do not meet the industrial application requirement.

2.4 The concept of industrial application does not necessarily imply the use of a machine or the manufacture of an article.

Example:

Conversion of one form of energy into another has industrial application.

2.5 An invention that has no industrial application is also one that is operable in a manner clearly contrary to established laws of physics.

Example:

Perpetual motion machine.

2.6 Test methods should generally be considered as inventions capable of industrial application and therefore patentable if the test can be applied to improve or control a product, apparatus or process which itself is considered capable of industrial application, such as, for example, testing industrial products or some other phenomenon (e.g. for determining air or water pollution), is considered capable of industrial application.

Chapter III – State of the Art

Definition and general concepts

3.1 According to the first paragraph of Article 11 of the Brazilian Patent Statute, the state of the art consists of everything made accessible to the public before the filing date of the patent application, by written or oral description, by use or any other means, in Brazil or abroad, subject to the provisions of Articles 12 (grace period), 16 (unionist priority), and 17 (internal priority) of the Brazilian Patent Statute.

3.2 There are no geographic restrictions, languages or means by which the relevant information was made accessible to the public, and no time limit is stipulated for the documents or other sources of information.

Relevant date for prior art search

3.3 The date to be used in searches for prior art should be considered the relevant date, i.e., the filing date or the priority date, if any. It should also be remembered that different claims or different alternatives pleaded in a claim may have different relevant dates. The patentability requirements must be analyzed for each claim or part of a claim when having several alternatives. Prior art relating to a claim or part of a claim may include subject matter which may not be enforceable against another claim or part of a claim because the latter has an earlier relevant date. Evidently, if all prior art documents were available to the public before the earliest priority document date, the examiner should not be concerned with assigning priority dates to each claimed subject matter.

3.4 A written description, such as a document, shall be deemed available to the public if, on the relevant date, the document's contents were publicly available and if there were no confidentiality issues restricting the use or dissemination of such content.

Example:

German utility models are readily available to the public on their filing date, which precedes their official publication date.

3.5 The search report must not cite documents where there is doubt regarding their availability and the precise date of their publication.

Sufficiency of disclosure

3.6 A subject matter may only be considered accessible to the public and thus comprised in the state of the art, in accordance with the provisions of Paragraph 1 of Article 11 of the Brazilian Patent Statute, if the information made available is adequate for a person skilled in the art to put said subject matter into practice, considering general knowledge in the specific field of subject matter available at the time.

3.7 The prior art cannot be a simple abstraction, but it must be feasible to carry out.

Example:

A patent application claims a method for recovering sunken ships, which consists of inserting floating bodies inside the ship through a tube launched by a rescue vessel. As pert the method, these elements are inserted until the buoyant force is sufficient to lift the ship from the seabed and bring it to the surface. A 1949 Donald Duck comic book "The Sunken Yacht by Carl Barks" describing a method for recovering sunken ships using table tennis balls cannot be used as a state of the art for this application as the book does not provides enough information to implement the method described therein.

Documents in a non-official language

3.8 It is BRPTO's administrative practice to use foreign documents in searches carried out during patent examination. Therefore, there is no obstacle to the use of documents presented in languages other than Portuguese.

3.9 If the applicant or third parties submit documents in a foreign language that the examiner is not proficient in, a simple translation of these documents into Portuguese or in another language the examiner is proficient in will be requested, as well as a statement from the interested party that that said translation is true to the original document.

3.10 On the other hand, should the examiner submit a document in a foreign language other than English, a simple translation of the document, complete or partial, used in the opinion into English or Portuguese should be attached to the original document, the use of translation machines being accepted.

Prior art patent documents not yet published at the relevant date of the application under examination (Article 11, Paragraph 2 of the Brazilian Patent Statute)

3.11 The state of the art also comprises the complete content of applications filed in Brazil, the filing date or claimed priority of which is prior to the relevant date of the application, but which has been published, even if subsequently to this relevant date. Said documents serve only the purpose of assessing novelty. "Complete content" means the entire disclosure, i.e., the specification, drawings, set of claims and abstract, including:

(i) any subject matter explicitly disclosed;

(ii) any subject matter for which a valid reference to other documents is made, such as when a document is cited in an application as originally filed, the contents of this document are considered part of the prior art, provided that such reference has been made available to the public until the date of publication of the application filed in Brazil, and used as state of the art; and

(iii) state of the art as far as explicitly described.

For applications filed via PCT, the publication referred to in the above paragraph is the international publication. For such applications, the filing made in Brazil is considered from the notification of entry into the national phase of the international application.

Means of disclosure

3.12 The means for disclosure of prior art include published documents, disclosure by use, and disclosure by other means.

Example:

Oral disclosure.

3.13 It is important that such disclosures involve the following elements: certainty as to existence and date; sufficiency so that a person skilled in the art can properly understand the content of the disclosed subject matter; and publicity, i.e., that is available or likely to be known by third parties (general public).

3.14 The expression "accessible to the public" in accordance with the provisions of Paragraph 1 of Article 11 of the Brazilian Patent Statute represents situations where the information can be accessed by anyone. This information does not need to be effectively accessed, the possibility thereof being sufficient.

3.15 It should be noted that technical information under secrecy conditions is not part of the state of the art. Secrecy conditions include situations in which the obligation to maintain secrecy arises from regulations or confidentiality agreements.

3.16 However, if a person with an obligation to maintain secrecy breaks the regulation, agreement, or implicit understanding, describing the information and making the technologies available to the public, these technologies become part of the state of the art from whence they are made available.

Published documents

3.17 Published documents are means of dissemination that must indicate or present any other evidence that proves the date of publication.

3.18 Documents with the above definition can be printed or typed documents, such as patent documents, scientific and technical journals and books, records of events, such as congresses, symposiums, seminars and workshops, undergraduate, master's and doctoral theses, technical standards, specialized documents, textbooks, technical manuals, officially published technical procedures or reports, newspapers, product catalogs, and advertising materials. They may also be audio or video material obtained by electrical, optical, magnetic, or photographic means, such as microfiche, film, negative film, video tapes, tapes, DVDs, and CD-ROMs. They may also be documents on the internet or in the form of other online databases.

3.19 In the case of undergraduate, master's and doctoral theses, the relevant date to be considered for publication purposes will be the date of the defense, except in cases where such defense is carried out under conditions of secrecy, where the relevant date will be the publication date of the document.

3.20 The framing of a document as a description must not be affected by the place or language of publication, the manner of acquisition, or its age. The print run of the publication, or whether the applicant is aware of it, is also of no relevance.

3.21 Documents published with the words “Internal Materials” or “Restricted Publication” or other similar words, if they were indeed distributed in a restricted scope and needed to be kept confidential, are not considered as published documents, in the context of the Brazilian Patent Statute.

3.22 The publication date is considered to be the date of disclosure. When only the specific month or year is indicated as the publication date, the last day of the month or year shall be considered as the publication date. Usually, in original documents, dates are located on the cover page, i.e., at the beginning of the document. In some cases, the date is only mentioned at the end of the publication. However, when there is no description that allows identifying the date of the document, the BRPTO’s Library may be requested to investigate with the publisher.

3.23 The certainty as to the date and sufficiency of disclosure of the prior art document can be proven, for example, through a duly dated invoice that clearly specifies the product. Catalogs and factory drawings may be used with invoices in order to allow the characterization of the document as to its sufficiency of disclosure, so that the set of evidence – invoice and catalog/drawing – leaves no doubt that the object corresponds actually the one that is intended to be contested.

Oral disclosure

3.24 Any oral disclosure must be accompanied by evidence of its origin, its content through a record, and the date of disclosure, such as, for example, a transcript of a lecture.

3.25 Oral disclosure includes conversations, reports, lectures at symposiums, radio broadcasting, television broadcasting and cinematography, which may make technical information known to the public. For information by conversations, reports or lectures at symposiums, the date of action should be considered as the date of disclosure. For radio broadcast, television broadcast or cinematographic information, which may be received by the public, the date of transmission or display shall be considered as the date of release.

Disclosure by use

3.26 Disclosure by use means that a technical solution is put in a position to be evaluated by the public through its use.

3.27 Means of disclosure by use include producing, using, selling, importing, exchanging, performing, demonstrating, or displaying, which may make technical information available to the public. If the technical information is placed in a condition in which the public can become aware of it by the means described above, disclosure by use can be established and it is irrelevant whether the public actually became aware of it. However, if at the exhibition or demonstration of a product, no explanation of its technical content is provided in such a way that the structure and function or composition of the product is not made known to a person skilled in the art, the exhibition or demonstration does not constitute a disclosure by use.

3.28 When disclosure by use refers to a product, this can be established even if the product or device used requires reverse engineering to know its structure and function, as long as this does not imply undue effort. In addition, disclosure by use also includes disclosure on an exhibition stand or in a showcase of informational materials or directly visible materials that are understandable by the public, such as posters, drawings, photographs, copies, and samples.

3.29 The date on which the product or process is made available to the public will be considered the date of use disclosure.

3.30 In the case of a document (for example, a journalistic article) which reproduces an oral disclosure, for example, from a public conference or information given from a previous use in a show at a public exhibition, the oral disclosure or previous use having been made available to the public prior to the filing date of the application, even if the document itself was published after said filing date, the examiner must assume that the

document faithfully represents the public conference, display or exhibition and therefore consider such a document as part of the state of the art.

Material found on the internet used as prior art

3.31 The term "internet" refers to the system of interconnected computer networks that provide information that is made available to the public via telecommunications.

3.32 Contents from the internet can only be accepted as prior art when the publication date is proven.

3.33 Restricting access to a limited circle of people, such as by means of a password, or requiring payment for access – analogous to buying a book or subscribing to a newspaper – does not prevent a webpage from being part of the state of the art. It is sufficient that the webpage is, in principle, available without any degree of confidentiality. Web pages where information is encoded in such a way that it is generally unreadable – excluding cases where a decryption tool is widely accessible, with or without payment – is a case where information is considered not accessible to the public. If before the filing date or priority of the patent application, a document stored on the internet and accessible via a virtual address (1) can be found with the help of a public internet search engine via one or more keywords and (2) remain accessible at the address for a period of time sufficient to anyone, i.e., someone with no obligation to keep the document secret, has direct and unambiguous access to the document, then the document will be publicly available in accordance with the provisions of Paragraph 1 of Article 11 of the Brazilian Patent Statute.

3.34 Subject matter disclosed in e-mails may not be considered as a document accessible to the public, as they are understood as confidential documents.

3.35 Disclosures on the internet are part of the state of the art in accordance with the provisions of Paragraph 1 of Article 11 of the Brazilian Patent Statute. Information disclosed on the internet or in online databases are considered publicly available as of the date the information was publicly disclosed. Some information may only be available on the internet.

Example:

Online manuals and tutorials for software products or other products with a short lifecycle.

Establishing a publication date

3.36 Electronic technical information without an indication of the date of publication cannot be cited as state of the art.

3.37 Setting a publication date involves two aspects: It must be separately assessed whether a given date is correctly indicated, and whether the content in question was actually made available to the public as of that date.

3.38 The nature of the internet can make it more difficult to establish the actual date when information was made publicly available. Not all web pages mention when they were published. In addition, web pages are easily updated, but most do not provide records of previously submitted material or displays that allow the public to establish precisely what was published and when.

3.39 When an Internet document is cited against an application or patent, the same considerations must be held as for any other reference, including standard paper publications. In many cases, internet documents have an explicit publication date, which in principle is accepted. The burden of proving otherwise will be on the applicant and circumstantial evidence will be required to establish or confirm the date of publication.

3.40 While the content dates of internet releases may in principle be taken as valid, there are, of course, different degrees of reliability. The more reliable the date of the disclosure source, the more difficult it will be

for the applicant to challenge the disclosure.

3.41 When an internet disclosure is relevant to the examination but lacks an explicit indication of publication date therein, or if the applicant questions whether a particular date is unreliable, the examiner may attempt to obtain further evidence to establish or confirm the publication date. Specifically, they may consider using the following information:

(iv) Information relating to a webpage available from an internet archiving service, such as the Internet Archive, accessible via the so-called "Wayback Machine" – www.archive.org. The fact that the Internet Archive is incomplete does not diminish the credibility of the archived data. Legal reservations regarding the accuracy of the information provided, routinely used on internet pages, should not be considered to negatively reflect their accuracy;

(v) Date register relating to the history of modifications applied to a file or webpage such as available for wiki pages, such as Wikipedia, and in control version systems such as those used for distributed software development;

(vi) Computer-generated date registers as available from file directories or other repositories, or as automatically added to content, such as discussion groups, index dates assigned to the webpage by search engines, such as from Google's cache. These dates will be after the publication date of the document, since search engines take some time to index a new webpage;

(vii) Information on the replication of disclosures on various internet pages – mirror pages – or in different versions.

3.42 It is also possible to consult with the owner or author of the webpage when trying to establish the date of publication with a sufficient degree of certainty.

3.43 The following sections address the reliability of various types of internet disclosures.

Technical journals

3.44 Online technical journals from scientific publishers are of particular importance for determining the state of the art. The reliability of said publications is the same as that of traditional paper journals, i.e., very high.

3.45 It should be noted that the internet publication of a specific issue in a journal may be prior to the publication date of the corresponding paper version. In this case, the earliest document is considered as the publication date.

3.46 If the publication date of an online journal is vague, such as only the month and year is known, and the most pessimistic possibility – the last day of the month – is too late, the examiner may ask for the exact publication date. This request can be made directly through a contact form that the publisher can offer on the internet, or through the BRPTO's library.

3.47 The information published on the following internet pages are considered reliable:

(i) websites of publishers which have issued well-established publications, such as websites with the electronic data of newspapers, journals, which offer electronic publications of academic journals;

(ii) websites of academic institutions, such as pages of academic societies and universities;

(iii) websites of international organizations, such as standardization bodies that publish information on measurement standards; and

(iv) webpages of public organizations such as ministries and agencies that publish details of research activities, news on scientific discoveries, especially from research institutes.

Other publications

3.48 The internet is also used to exchange and publish information in other formats, for example, internet discussion groups, blogs, email archives of discussion groups or Wikipedia pages. Documents obtained from such sources also constitute state of the art, provided that the date of publication can be precisely established and the availability of the content to the public.

3.49 Timestamps generated by the provider of a given service – commonly seen, such as, in blogs, discussion groups, or the history version available from Wikipedia pages – can be considered reliable publication dates.

Technical details and general remarks

3.50 Websites are sometimes divided into frames, the content of which is created from different sources. Each of these frames can have its own publication date, which can be verified. If the examiner uses such a document, they must ensure that they are using the correct publication date, i.e., that the cited publication date refers to the intended content.

3.51 Some internet addresses (URLs) are temporary, for example, when they are designed to work only during a single session while the user is logged into the webpage. Long URLs with seemingly random numbers and letters are indicative of these. The presence of such a URL does not prevent disclosure from being used as a state of the art. For temporary URLs, the examiner must indicate how they have arrived at that specific URL of the respective webpage, i.e., which links were followed, or which search terms were used.

3.52 When printing a webpage, care should be taken that the full URL is clearly legible. The same applies to the relevant publication date on a webpage.

3.53 It should be noted that publication dates can be presented in different formats, especially in the Brazilian/European format dd/mm/yyyy, in the American format mm/dd/yyyy or in the ISO format yyyy/mm/dd. Unless the format is explicitly indicated, it will be impossible to distinguish between the Brazilian format and the US format for the 1-12th day of each month.

3.54 The examiner must always indicate the date when the webpage was accessed. When citing internet disclosure, they must present the data of the prior art document, such as how the publication date was obtained, as well as any other relevant information.

Example:

Where two or more related documents are cited, how they are related, and/or indicating that a particular link in the first document leads to a second document.

Example according to ABNT electronic format:

> KRUG, C A.; ANTUNES FILHO, H.. Melhoramento do cafeeiro: III - Comparação entre progênies e híbridos da var. bourbon. Bragantia, Campinas, v. 10, n. 11, 1950. Available at <http://www.scielo.br/scielo.php?script=sci_arttext&pid=S0006- 87051950001100004&lng=pt&nrm=iso>. Accessed 25 jul.2012. http://dx.doi.org/10.1590/S0006-87051950001100004.

Cross references among prior art documents

3.55 If a "primary" document explicitly refers to another "secondary" document as providing more detailed information about certain features, the teaching from the latter should be considered as incorporated into the primary document, if the document was publicly available on the date of publication of the primary document. The relevant date for novelty examination purposes, however, is always the date of the primary document.

Errors in prior art documents

3.56 Errors may exist in prior art documents, for example, a document describing a chemical compound with

pentavalent carbon. Using general knowledge, the person skilled in the art can:

(i) clearly see that the disclosure of a relevant prior art document contains errors, and

(ii) identify what would be the only possible correction.

3.57 Thus, errors in disclosure do not affect its relevance as a state of the art, and the document can be considered to assess its relevance for patentability.

Grace period – Article 12 of the Brazilian Patent Statute

3.58 The grace period establishes an exception to the prior art. Disclosures made by the inventor of the patent application, by the BRPTO without the inventor's consent, or by third parties based on information obtained directly or indirectly from the inventor, will not be considered as state of the art, provided that they occur within the 12 (twelve) months preceding the filing date of the application or its claimed priority, in accordance with Article 12 of the Brazilian Patent Statute.

3.59 Disclosures accepted for the grace period are non-patent documents.

Example:

Publication of a scientific article and oral communications, provided there is a record of them, such as a transcript.

3.60 The publication of a patent application by the inventor prior to the application under analysis, filed in any country, cannot be considered as a disclosure that falls within the terms of the grace period.

3.61 Therefore, once a document from the inventor was found in accordance with the provisions of Article 12 of the Brazilian Patent Statute, the examiner must not use the document as state of the art, but must mention it in the search report and in the written opinion, justifying in the latter, its non-use for objections, as it falls within the grace period.

Chapter IV – Novelty

Concept

4.1 According to Article 8 of the Brazilian Patent Statute, any invention for which a patent right can be granted must be novel, non-obvious, and have industrial application. Thus, novelty is one of the patentability requirements to be satisfied for an invention to receive a patent right.

4.2 In accordance with the provisions of Article 11 of the Brazilian Patent Statute, the invention is considered new when not included in the state of the art.

Steps for reviewing novelty

4.3 For assessing novelty, the examiner must follow the following steps:

(i) identify the elements contained in the claim;

(ii) determine if a document under analysis is part of the state of the art – Chapter III of these Guidelines;

(iii) determine and point out whether all elements of the claim have been explicitly or inherently combined in the document, to a person skilled in the art, in order to anticipate the claim.

Technical details and general remarks

4.4 The novelty requirement must be complied with for each claim of the patent application. If an independent claim is novel, it is not necessary to examine the novelty of its dependent claims, as they will all be novel.

4.5 Otherwise, if the independent claim is not novel, its dependent claims must be examined, as they may contain specific elements that make that subject matter novel.

4.6 The novelty required for a claim must be determined on the claim as a whole, and not only on the part that characterizes it, nor on the individual analysis of the elements that compose it, which may separately be covered by the state of the art. Thus, if the preamble defines features A and B, and the characterizing part defines features C and D, it does not matter that C and/or D are known, but rather that they are known in association with A and B - not only with A nor only with B, but with both.

4.7 The subject matter under examination will not be novel when all the features of a given claim (for example, elements of a product or steps of a process), including the features presented in the preamble, are disclosed in a single prior art document. Such features can be found in the prior art when they are clearly presented and/or when there is no doubt that the information is inherent to what was literally disclosed.

4.8 The delimitation of what technical information is deducible directly and without ambiguity from the state of the art document is also important. Thus, when considering novelty, it is incorrect to interpret the teachings of a prior art document as involving well-known equivalents which are not explicitly described in said document; this relates to the non-obviousness requirement.

4.9 The absence of novelty compared to a document found in the state of the art cannot be based on possibilities, hypotheses or speculations from the subject matter disclosed in the prior art. The compared documents must be strictly identical, which means that a single document must describe each element of the analyzed claim, either explicitly or inherently, otherwise the question shifts to non-obviousness analysis.

4.10 To analyze the novelty requirement, it is not possible to combine two different prior art documents. When such a combination is necessary, only non-obviousness should be discussed. However, more than one state of the art document may be cited for arguments against the novelty of the claimed subject matter, provided that these prior documents do not need to be combined to support such statements, as in the following cases:

(i) different documents may be used to discuss the novelty of subject matters of different claims;

(ii) for different alternatives in the same independent claim, such as Markush formulas, different prior art documents may be used, focusing on the novelty of the subject matter in the same claim, when each prior art document refers to different alternatives within the possibilities offered by the claim. It should be noted that in the analysis of claims with alternatives, a prior art document that discloses one of the alternatives is enough to remove the novelty of the claim as a whole. However, reformulations of the claim may be accepted in order to exclude the subject matter found in the state of the art.

(iii) a second document, such as a dictionary or similar reference document, may be cited when discussing the novelty of the subject matter of a claim, in order to interpret the meaning of a specific term, such as, to prove that cheese is a dairy product, or to demonstrate a synonymy, emphasizing that only the first cited prior art is an impediment to the novelty of the claimed subject matter;

(iv) when a prior art document makes reference to a second published document, the latter will be considered incorporated by reference to the first.

Specific term and generic term

4.11 When the subject matter is claimed in a generic and broad manner, and there is a document in the state of the art in which the subject matter is disclosed in a specific manner within the parameters claimed in the application under examination, the lack of novelty must be pointed out. For example, a product “made of copper” described in a prior art document affects the novelty of an invention for the same product “made of

metal." However, the disclosure of the product made of copper does not affect the novelty of an invention for the same product made of another specific metal.

4.12 When there is an overlap between the prior art and the claimed invention, and the remaining subject matter of the claim cannot be clearly and concisely defined with positive features, this specific subject matter of the prior art may be excluded, provided there is basis for the exclusion of this subject matter in the patent application as filed.

4.13 On the other hand, disclosure in generic terms does not affect the novelty of an invention defined in specific terms.

Example 1:

A product "made of metal" described in a prior art document does not affect the novelty of an invention for the same product "made of copper."

Numerical value and numerical range

4.14 If the claimed invention contains a technical feature defined by numerical values or a continuous numerical range, such as dimensions of a component, temperature, pressure, or the content of components in a composition, whereby all other technical features are identical to those of a prior document, then novelty must be determined in accordance with the following rules:

(i) When the numerical values or numerical ranges described in the prior art document fall entirely within the claimed range of the technical feature, the prior art document affects the novelty of the claimed subject matter.

Example 1:

The application claims a copper-based alloy comprising 10%-35% by weight of zinc, 2%-8% by weight of aluminum, and the balance being copper. If the prior art document describes a copper-based alloy comprising 20% by weight of zinc and 5% by weight of aluminum, this affects the novelty of said claim.

Example 2:

The application claims a furnace for heat treatment, where its linear arc has a thickness of 100-400 mm. If the prior art document describes a furnace for heat treatment in which the linear arc has a thickness of 180-250 mm, this document affects the novelty of said claim.

(ii) When the numerical range described in the prior art document and the numerical range of the technical feature partially overlap or have at least one end point in common, the prior art document affects the novelty of the invention.

Example 3:

The application claims a process to produce silicon nitride ceramics where the calcination time is 1-10 hours. If the prior art document describes a process for the production of silicon nitride ceramics where the calcination time is 4-10 hours, since the two ranges overlap at the calcination time of 4-10 hours, the prior art document Priority affects the novelty of said claim, but does not affect the novelty of said claim for the case of calcination time of 1-4 hours.

Example 4:

The application claims a process for spray coating, where the power of the spray gun is 20-50 kW during coating. If the prior art document describes a spray coating process where the power of the spray gun is 50-80 kW during coating, since the two ranges have a common end point, 50 kW, the prior art document affects the novelty of said claim.

(iii) The two extreme points of the numerical range described in the prior art document affect the novelty

of the invention, when the technical feature in question presents discrete numerical values including one of said extreme points, but do not affect the novelty of the invention when the technical feature in question is a numerical value at any point between said two extreme points. For further details regarding selection patents, see Paragraph 4.24 of this chapter.

Example 5:

The application claims a process for the production of titanium dioxide photocatalyst, where the drying temperature is 40°C, 58°C, 75°C, or 100°C. If the prior art document describes a process for the production of titanium dioxide photocatalyst where the drying temperature is from 40°C to 100°C, this disclosure affects the novelty of said claim for the case of drying temperature of 40°C or 100°C, but does not affect the novelty of said claim for the case of a drying temperature of 58°C or 75°C.

(iv) When the numerical values or numerical range of the technical feature in question falls within the range described in the prior art document and does not have any extreme point in common with it, the prior art document does not affect the novelty of the claimed invention. For further details regarding selection patents, see Paragraph 4.24 of this chapter.

Example 6:

The application claims a piston ring for an internal combustion engine, where the piston ring diameter is 95 mm. If the prior document describes a piston ring of 70-105 mm in diameter used in an internal combustion engine, this does not remove the novelty of said claim, as long as the 95 mm ring has not been explicitly cited and implemented in the prior art.

Example 7:

The application claims an ethylene-propylene copolymer, where the degree of polymerization is 100-200. If the prior art document describes an ethylene-propylene copolymer in which the degree of polymerization is 50-400, this does not remove the novelty of said claim, provided that the degree of polymerization of 100-200 has not been explicitly mentioned and implemented in the prior art.

Product claims defined by features or performance parameters, use, or manufacturing process

Product claims defined by features or performance parameters

4.15 Product claims defined through features or performance parameters may be permitted if the invention can only be defined in such terms or cannot be more precisely defined without unduly restricting the scope of the claims. For this type of claim, the examiner must consider whether the features or performance parameters in the claim imply that the claimed product has a certain structure and/or particular composition. If the features or performance parameters imply that the claimed product has a structure and/or composition different from the product described in the prior document, the claim is novel. On the other hand, if the person skilled in the art, based on the features or performance parameters, cannot distinguish the claimed product from that described in the prior art document, it can be assumed that the claimed product is identical to the product in the prior art document and, therefore, the claim is not novel.

Example:

One application claims a compound A in a crystalline state defined by a variety of parameters including X-ray diffraction data, and the prior art document also describes a compound A in a crystalline state. If the crystalline states of both cannot be distinguished from each other based on the description of the prior art document from these parameters, it can be assumed that the claimed product is identical to the product of the prior art document and, therefore, the claim lacks novelty.

Product claims characterized by use

4.16 Claims for a product characterized by their use, in which the product is already known from the state of the art, are not accepted due to lack of novelty. In the event that a product is not known from the state of the art, such claim formulation is not accepted due to lack of clarity, in accordance with Article 25 of the Brazilian Patent Statute, since the product must be defined in terms of its technical features.

Example:

Claim for a compound X for use as an antiviral would not be considered new in relation to the same compound X used as a dye described in a prior art document. Although the use of compound X may be new, the chemical formula that determines its properties has not changed. In this way, the invention of antiviral compound X is not novel.

Product claims characterized by manufacturing process

4.17 Product claims defined in terms of a manufacturing process are allowed only if the products comply with patentability requirements, meaning that they are novel and non-obvious, and provided that the product cannot be described in another manner. For this type of claim, the examiner must consider whether the feature of the manufacturing process results in a particular structure and/or composition of the product. If the person skilled in the art can conclude that the process will necessarily result in a product having a structure and/or composition different from that of the product in the prior art document, the claim is novel. On the other hand, if the claimed product, when compared to the product in the prior art document, has the same structure and composition despite the different manufacturing process, the product claim is not novel.

Example:

The application claims a glass cup obtained by process X, and a prior art document describes a glass cup obtained by process Y. If the glass cups obtained by both processes have the same structure, shape, and constituent material, the product claim is not novel. On the other hand, if process X comprises a cooking step at a particular temperature not described in the prior art document, which considerably increases the breaking strength of the glass cup in comparison to the glass cup in the prior art document, then this indicates that the claimed glass has a different microstructure due to the different manufacturing process, and has a different internal structure from that of the glass in the prior art document. In this way, the claim is novel.

Claims of second use

4.18 A claim for non-medical use of a known compound is novel if such novel use has not been previously made available to the public.

Example:

Consider a state of the art that discloses the use of an X alloy to manufacture given A part. An application that addresses the "use of an X alloy to manufacture given B part" is novel.

In "Swiss formula" type claims ('Use of an X formula compound, characterized in that it prepares a drug to treat Y disease), novelty is assessed in terms of the disease to be treated.

On the other hand, claims of the type "Use of compound X characterized for the treatment of disease Y" correspond to claims of a therapeutic method and, therefore, are not considered an invention according to Item VIII of Article 10 of the Brazilian Patent Statute.

Selection patents

4.19 An invention by selection consists of selecting individual elements, subsets or ranges within a generic description of the state of the art, whether among options for substituents in a compound, components present in compositions or ranges of process parameters, and that present particular properties and unexpected, compared to the closest state of the art. Selection patents can be found in applications for processes involving particular conditions not specifically disclosed previously in the prior art, and/or in applications for products

selected from among broadly defined products, typically in Markush-type product formulas, as well as, for example, in derivative compounds and compositions.

4.20 The selection patent must meet the following criteria:

(i) The selected component cannot have been specifically disclosed to meet the criteria of novelty;

(ii) The selected component must have some unexpected technical effect clearly demonstrated, to meet the criteria of non-obviousness (see the topic "Invention by Selection" in the chapter of non-obviousness).

4.21 It is understood that a specifically disclosed subject matter is one that is contained in the body of the patent application, whether in the specification, drawings, examples of preparation/use, sequence listings, or in the claims, clearly and concretely, without requiring the deduction by the examiner.

4.22 Thus, the novelty for such selection may be attributed if the description in a previous document is only generic, without the specific item being selected having been explicitly mentioned, i.e., textually and embodied in the form of examples, tests, results, lists and tables. In this way, a generic prior description by itself does not detract from the novelty of a specific claimed subject matter.

4.23 If a product was disclosed in a prior art document, for example, a compound, through its nomenclature, or its structural formula, among the so-called preferred compounds and embodied in the preparation/use examples, this cannot be the subject matter of a selection patent, as the compound is considered to be specifically disclosed and does not fulfill the novelty requirement.

4.24 In the case of process selection applications in which a sub-range of a broader range included in the prior art document is selected, in order to fulfill the novelty requirement, it is necessary that the selected sub-range has not been specifically disclosed and implemented in the state of the art.

Example 1:

The patent application addresses a process for obtaining a product, with temperature control, between 125°C and 130°C. The state of the art discloses the same process for obtaining the product, using temperatures from 120°C to 180°C, with tests presented using temperatures from 140°C and 150°C. In this case, the claimed process is novel in view of the fact that it addresses a specific selection of temperature in a comparatively wide range and different from that explicitly disclosed and implemented in the prior art.

Example 2:

The patent application addresses a process for obtaining a product, with temperature control, between 125°C and 140°C. The state of the art discloses a process for obtaining the product, using temperatures from 120°C to 160°C, with tests presented using temperatures from 140°C and 150°C.

In this case, the claimed process includes a temperature that was explicitly disclosed and implemented in the state of the art (140°C), and therefore, the selection of the claimed temperature range is not considered new.

4.25 The examiner must consider that numerical values related to measurements are subject to errors, which have limits on their precision. For this reason, the general convention in technical and scientific literature applies, in which the last decimal place of a numeric value indicates its degree of precision. In cases where no other margin of error exists, the maximum margin shall be determined by rounding to the last decimal place.

Example:

One claim is for an element with a length of 3.5 cm. The prior art discloses a document describing the same element with a length of 3.45 cm. Considering that it is common knowledge of the person skilled in the art that in a measurement of 3.5 cm, the margin of error is from 3.45 to 3.54 cm, the application lacks novelty.

Chapter V – Non-obviousness

Concept

5.1 The invention is non-obvious if, in accordance with the provisions of Article 13 of the Brazilian Patent Statute, considering the state of the art, it does not occur in an evident or obvious way for a person skilled in the art. Novelty and non-obviousness are different criteria and the question – "is it non-obvious?" – is only asked if the invention is novel.

5.2 The term "obvious or evident" means that which does not go beyond the normal development of technology, but only does so clearly or logically from the state of the art, i.e., something that does not involve the exercise of any skill or ability beyond what is expected of a person skilled in the art.

5.3 If the person skilled in the art can arrive at the invention only by logical analysis, inference or without undue experimentation based on the state of the art, the invention is obvious and, therefore, does not present any unexpected technical solution. If so, the application is obvious and thus not patentable.

The person skilled in the art

5.4 The definition of a person skilled in the art for the purposes of non-obviousness is the same for the purposes of assessing sufficiency of disclosure. A person skilled in the art may be someone with average knowledge in the art in question at the time the application was filed, at a technical-scientific level, and/or with practical operational knowledge of the subject. It is considered that the same had the means and the capacity for routine work and experimentation, which are usual in the technical field in question. There may be cases where it is more appropriate to think in terms of a group of people, such as a production or research team. This may particularly apply to certain advanced technologies such as computers and nanotechnology.

Assessment of non-obviousness

Overview

5.5 To assess non-obviousness, the examiner must consider not only the technical solution itself, but also the technical field to which the invention belongs, the technical problem solved, and the technical effects produced by the invention.

5.6 The claimed invention must be considered as a whole, considering the elements contained in the preamble and in the characterizing part. When determining differences between claims and prior art, the issue is not whether the differences are individually obvious but whether the claimed invention is obvious as a whole. Therefore, as a general rule, in the case of claims that combine several features, it is not correct to consider the claimed subject matter as obvious, under the argument that said various technical features, taken each separately, are known or obvious in relation to the state of the art. However, when the claim is merely an "aggregation" or "juxtaposition" of known features, i.e., a combination that results in an effect that is the simple sum of the individual effects of the features, this claim is obvious.

5.7 In general, if an independent claim is non-obvious, it is not necessary to examine non-obviousness of its dependent claims, since these incorporate all the limitations present in the claims on which they depend.

5.8 On the contrary, if an independent claim is obvious, its dependent claims must be examined, as they may contain specific elements that make that subject matter non-obvious.

Steps for reviewing non-obviousness

5.9 Three steps are followed to determine whether a claimed invention is obvious as compared with the prior art:

(i) determining the closest prior art;

(ii) determining the different features of the invention and/or the technical problem actually solved by the invention; and

(iii) determining whether or not the invention is obvious for a person skilled in the art in view of the technical problem considered and the closest prior art".

Determining the closest prior art

5.10 The closest state of the art consists of one or a combination of two documents, exceptionally three, related to the invention claimed in each independent claim, and must be the basis for assessing non-obviousness. The closest state of the art may be as follows:

(i) One or more documents existing in the same technical field as that of the claimed invention, in which the technical problem to be solved, technical effects or intended use are closest to the claimed invention; or describe the largest number of technical features of the claimed invention; or

(ii) One or more existing documents that, in a different technical field from the field of the claimed invention (see Item 5.4 herein), can act as an invention, and describe the largest number of the technical features of the invention. For additional information see "Invention by Analogy of Technical Field" subitem.

5.11 The closest prior art should be checked from the perspective of a person skilled in the art at the relevant application date.

5.12 It should be noted that, when determining the closest state of the art, one should first consider the state of the art in the same or similar field as the invention, before considering a different technical field.

Determining the distinctive features of the invention and the technical problem solved by the invention

5.13 The examiner must analyze the distinctive features of the invention and objectively determine the technical problem solved by the invention. Thus, the examiner must first determine the distinguishing features of the claimed invention in comparison with the closest state of the art and determine the technical problem that is actually solved by the invention.

5.14 Considering that the closest prior art identified by the examiner may be different from that presented by the applicant in the specification, the technical problem actually solved by the invention may not be the same as that disclosed in the specification. In such a circumstance, the technical problem actually solved by the invention must be reformulated based on the closest prior art identified by the examiner.

5.15 As a principle, any technical effect of an invention can be used as a basis for reformulating the technical problem, provided that the technical effect can be recognized by a person skilled in the art based on what is presented in the specification.

5.16 In the event of results/tests/assays or the like presented during the technical examination, even after the request for examination, intended to prove the technical effect of the invention, the presentation of such data in the applicant's argument must be inherent to the subject matter initially disclosed. In these cases, the technical effect of the invention must be described in the subject matter initially disclosed, even if not in a quantitative way.

5.17 In cases where these results/tests/assays or similar data deal with an undisclosed technical effect nor inherent to the originally filed application, such information shall be disregarded in the assessment of the technical effect of the invention.

5.18 Features that do not contribute to the technical nature of the invention are not considered for the

assessment of non-obviousness. Such a situation may occur if a feature only contributes to the solution of a non-technical problem, such as a problem in a field excluded by Article 10 of the Brazilian Patent Statute.

Example:

Consider a claim for a cup that includes an X stamp. The X stamp has no technical effect, merely an aesthetic one. In this case, the assessment of non-obviousness must disregard the print.

5.19 It should be noted that the objective technical problem must be formulated in such a way as not to include part of the technical solution offered by the invention in the definition of the problem, so as not to induce the examiner to conclude that the invention is obvious.

Example:

A vehicle has brake lights located outside the driver's line of sight of another vehicle following behind the first, which leads to collisions. Consider that the technical problem was defined by the lack of alignment between the brake lights of the first vehicle and the line of sight of the driver of the second vehicle, and that the solution to the problem consists in raising the position of the brake lights in order to achieve this alignment. The presence of part of the solution – alignment – in the definition of the problem could induce the examiner to consider it obvious. In this case, the technical problem could be better defined as "difficulty in alerting the second vehicle about the braking of the first vehicle."

Determining whether or not the invention is obvious for a person skilled in the art in view of the technical problem considered and the closest prior art

5.20 At this stage, the examiner should assess, based on the closest prior art and the proposed solution for the technical problem, whether the invention is obvious or not for a person skilled in the art at the time of the relevant application date. During assessment, what should be determined is whether there is motivation to apply said different features in the invention to the closest state of the art to solve the existing technical problem. Such motivation does not need to be clearly stated in state of the art documents.

5.21 A person skilled in the art should not be considered a mere automaton motivated only by the content disclosed in the documents, but rather as someone who has knowledge and experience in the field of the invention and can link and relate in a reasonable manner all technical aspects involved. If the prior art information leads a person skilled in the art to improve the closest prior art in order to reach the claimed invention, then the invention is considered obvious. It should be analyzed whether any teaching in the prior art as a whole would necessarily lead a person skilled in the art, given the technical problem, to modify or adapt the closest prior art, in order to achieve the solution proposed by the claim.

Combination of prior art documents

5.22 When determining whether the combination of two or exceptionally three separate disclosures result in an obvious one or not, the examiner should assess the following criteria:

(i) whether the content of the documents is such that a person skilled in the art would be able to combine them in view of the problem solved by the invention;

(ii) whether the documents come from similar, closely related technical fields, or whether the documents are pertinent to a particular problem with which the invention is related; and

(iii) whether the combination of two or more parts of the same document could be obvious whether there is a reasonable basis for a person skilled in the art to associate these parts with each other.

Specific situations in the assessment of non-obviousness

Invention that opens a new field

5.23 An invention that opens up a new field is non-obvious. The following are examples of these revolutionary inventions:

Examples:

Compass, paper, printing technique, gunpowder, steam engine, filament lamp, radio, radar, fiber optics, and laser.

Invention by combination

Overview

5.24 An invention by combination of elements refers to a new solution to a technical problem, obtained by combining certain state of the art solutions.

5.25 When determining non-obviousness of an invention by combination, usually the following factors must be considered:

(i) whether the combined technical features are functionally integrated;

(ii) whether there is difficulty or ease in the combination;

(iii) whether there is any motivation to carry out the combination; and

(iv) the technical effect arising from the combination.

5.26 It is not necessary to explicitly find in the state of the art some suggestion, motivation, or teaching for a combination of known documents. The motivation may even be in another branch of the art and refer to another problem, or if a person skilled in the art can be motivated to carry out this combination, once able to reasonably make connections and relationships between the technical aspects involved.

Obvious combination

5.27 If a claimed invention is merely an aggregation or juxtaposition of certain known elements, each functioning in its routine fashion, and the total technical effect is just the summation of the technical effects of each part without any synergy or functional interaction between the combined technical features, then invention by combination is obvious.

Example:

The invention relates to a ballpoint pen with an electronic clock, where the solution is merely to attach a known electronic clock to a known ballpoint pen. After the combination, the electronic watch and ballpoint pen still function as usual, without any functional interaction between them, and thus the invention is just an aggregation and is obvious.

5.28 Furthermore, if the combination falls within the scope of normal technology development, without any unexpected technical effect, then the invention is obvious.

5.29 On the other hand, if the documents identified as prior art directly mention that the solution proposed in the application under analysis should not be followed by the person skilled in the art, i.e., the prior art suggests that the person skilled in the art moves away from the solution now proposed in the application under analysis, it becomes clear that there is no motivation for the person skilled in the art to use such documentation to arrive at the proposed solution, which constitutes evidence of non-obviousness. In this case, the technical precept present in the prior art would distance the person skilled in the art from the solution found.

Non-obvious combination

5.30 If the combined technical features functionally interact with each other and produce an unexpected technical effect, or, in other words, if the technical effect after the combination is different than the sum of the technical effects of the individual features, then such a combination is non-obvious. The fact that any of the technical features in the invention by combination are known does not compromise the non-obviousness of said invention.

Example:

The technical effect of an individual transistor is essentially that of an electronic switch. However, transistors interconnected to form a microprocessor interact synergistically to achieve technical effects such as data processing. In this way, the technical effects lie beyond the sum of their respective individual technical effects.

Invention by selection

Overview

5.31 When assessing non-obviousness in selection patents, the selected element(s) or subrange should contribute to the prior art rather than being a mere arbitrary selection from the prior art.

5.32 The mere choice of arbitrary elements/subgroups/subranges does not guarantee the attribution of non-obviousness for the selection, as the effects/properties arising from such a choice will always be assessed from the viewpoint of a person skilled in the art. While assessing non-obviousness in selection inventions, the applicant should prove that the technical effect expected is not present in the elements/subgroups/subranges of the prior art. It is emphasized that supplementary data is acceptable to confirm non-obviousness.

Obvious selection

5.33 The following cases correspond to an obvious selection:

(i) If the invention consists merely of choosing among a number of known possibilities or merely choosing a number of equally possible alternatives, and the selected solution does not produce any unexpected technical effect, the invention is obvious.

Example:

In the state of the art, many heating processes are described when the invention lies in the selection of a known process, such as electrical heating for a chemical reaction, in case the selection does not produce any unexpected technical effect, the invention is obvious.

(ii) If the invention lies in the choice of particular dimensions, temperature ranges or other parameters from a limited range of possibilities, and if such a choice can be made by the person skilled in the art by normal design procedures and does not produce any unexpected technical effect, the invention is obvious.

Example:

The invention relates to a process for carrying out a known reaction and is characterized by a specific flow rate of an inert gas. Since the determination of the flow rate can be done by a person skilled in the art through conventional calculation, the invention is obvious.

(iii) If the invention can be obtained by direct extrapolation from the state of the art, it is obvious.

Example:

The invention consists in increasing the thermal stability of a composition Y, characterized by the use of a specific minimum amount of a component X in the composition Y, whereas, indeed, the specific minimum amount of the component X can be derived from the curve of relationship between the amount of component X and the thermal stability of composition Y. As such, the invention is obvious.

5.34 The following cases correspond to a non-obvious selection:

(i) When the invention involves a special selection of particular operational conditions, such as temperature and pressure in a process, within a known range, and such selection produces unexpected technical effects on the operation of the process or on the properties of the resulting product.

Example 1:

Process in which substances A and B are transformed at high temperatures into substance C, a process between 50°C and 130°C is known, with illustrative examples using temperatures of 110°C and 125°C. Now it is determined that in the temperature range between 63°C and 65°C, which was not previously explored, the yield of substance C was considerably higher than expected and with a higher degree of purity.

(ii) The invention consists in the selection of certain chemical compounds or compositions – including alloys, from a wide field, where these compounds or compositions have an unexpected technical effect.

Example 2:

The invention resides in the selection of a radical "R" from a set of possibilities defined in the state of the art (commonly in a Markush Formula). The selected compounds present non-obvious properties, without any indications that induce a person skilled in the art to carry out this particular selection. In general, such effects are proven through comparative tests presented.

(iii) If the invention is obtained from a selection that produces an unexpected technical effect, the invention is non-obvious:

a) In cases where the parameters vary, and the state of the art does not provide indications on the most critical parameters to be tested or on the most promising possibilities; and

b) In cases of exploration of a new technology that presents itself as a promising field of investigation, but its state of the art only presents generic indications about the possibilities of the invention.

Example 3:

In a prior art document describing the production of an acid, the ratio of catalyst to 1 mol of raw material is above 0 and below or equal to 100% (mol). In the example given, the amount of catalyst is from 2% to 13% (mol %), and it is indicated that the productivity starts to increase from 2% of the amount of catalyst. Furthermore, the person skilled in the art considers increasing the amount of catalyst in order to increase productivity. In an invention by selection referring to a process for the production of said acid, a smaller amount of catalyst is used (0.02% to 0.2%). However, throughput increases by 35%, far exceeding the expected throughput, and furthermore, reagent processing is also simplified. All of this shows that the technical solution selected by this invention produced unexpected technical effects, since from the previous teachings, the person skilled in the art would be led to increase the amount of catalyst to improve the productivity of the process, and not to decrease it, and, therefore, the invention is non-obvious.

Invention by analogy to technical field

5.35 An invention by analogy to the technical field refers to an invention that applies a technology known in one technical field to another technical field.

5.36 A person skilled in the art may be led to seek suggestions in other similar or remote technical fields. The review carried out by the examiner on whether the solution is non-obvious must be based on the knowledge and skill of the person skilled in the art at the time of the relevant application date.

5.37 When determining the non-obviousness by technical field analogy, usually the following factors need to be considered: (i) the proximity between the two technical fields; (ii) whether there is the corresponding technical motivation; (iii) the level of difficulty in adapting the known technology to the other technical field; (iv)

any technical difficulties to be overcome; and (v) the technical effect achieved.

5.38 If the technical field analogy is performed between similar or close technical fields, and no unexpected technical effect is obtained, the invention is obvious.

Example:

Application of a cabinet support structure to support a table is obvious.

5.39 If the technical field analogy produces an unexpected technical effect, overcoming difficulties encountered in the state of the art, then the invention is non-obvious.

Example:

The invention relates to submarine ailerons. In the prior art, a submarine remains in an arbitrary location under water by balancing its dead weight and water buoyancy, and rises by horizontal cabin operation to increase buoyancy. In a remote technical area like aeronautics, an airplane flies by the buoyancy of the air produced completely by the main wings. The invention makes use of the technical measures applied to airplanes and applies the idea of the main wings of the airplane to the submarine. As a result, under buoyancy or submergence forces created by the movable flaps that function as the submarine's ailerons, the submarine's climb and descent performance is significantly improved. Considering that many technical difficulties were overcome in the application of aerial technology to underwater technology, the invention produces unexpected technical effects and is non-obvious.

Invention of a new use of a known product

5.40 An invention of new use of a known product refers to the invention that uses a known product for a new purpose.

5.41 In determining the non-obviousness of an invention for a new use of a known product, usually the following factors need to be considered: the proximity of the technical field of the new use to that of the previous use and the unexpected technical effect of the new use.

5.42 If the new use merely uses a known property of a known material, the invention of the new use is obvious.

Example 1:

The use of a composition known as an aid for cutting materials (new use), in which the state of the art uses it as a lubricant, is obvious.

Example 2:

The use of a composition as an insecticide, compared to the use as a preservative for wood disclosed by the state of the art, produces the expected technical effect, and, therefore, is obvious.

5.43 If the new use has an observed property of a known product and can produce an unexpected technical effect, then the invention of use is thus non-obvious.

Example:

The use of a composition as an herbicide, compared to the use as a preservative for wood disclosed by the prior art, produces an unexpected technical effect, and therefore is non-obvious.

5.44 In "Swiss formula" type claims ("Use of an X formula compound, characterized in that it is for preparing a drug to treat Y disease"), non-obviousness is assessed in terms of the disease to be treated.

5.45 On the other hand, claims of the type "Use of compound X characterized for the treatment of disease Y" correspond to claims of a therapeutic method and, therefore, are not considered an invention according to Item VIII of Article 10 of the Brazilian Patent Statute.

Invention by changing elements

Overview

5.46 Inventions by altering elements include inventions that change the relationships between elements, inventions that replace elements, and inventions that omit elements.

5.47 When determining the non-obviousness of an invention by changing elements, usually the following factors need to be considered: whether there is technical motivation for changing the relationships between elements or for replacing or omitting elements and whether the technical effect would be expected.

Invention by changing relationships between elements

5.48 An invention by changing the relationships between elements means that, when compared to the state of the art, for example, the format, size, proportion, position, operational relationship, change of order of steps of a method, or the like, was changed.

5.49 If the change in the relationships between elements does not lead to a change in effect, function or use of the invention, or the change in effect, function or use of the invention can be expected, the invention is obvious.

Example:

A measuring instrument is described in the state of the art having a fixed dial and a rotating handle, and the invention is a similar measuring instrument, but containing a fixed handle and a rotating dial. The difference between the invention and the state of the art resides only in the change in the relationship between the elements, i.e., the reversal between movement and immobility. This type of reversal does not produce any unexpected technical effect and, therefore, the invention is obvious.

5.50 If the alteration in the relationships between elements produces an unexpected technical effect, the invention is non-obvious.

Example:

The invention relates to a lawn mower which is characterized in that the oblique angle of its blade is different from that of a traditional lawn mower, i.e., the oblique angle of the invention enables the blade to be sharpened automatically, while the blade angle in the state of the art does not have such an effect. The invention produces an unexpected technical effect by changing elements, and thus is non-obvious.

Invention by replacing elements

5.51 An invention by replacing elements refers to an invention that is obtained by replacing a certain element of a known product or process with another element.

5.52 The invention is obvious when, in solving the same technical problem, a known element is replaced by another with a corresponding function to obtain predictable results, i.e., without any unexpected technical effect being observed.

Example 1:

The invention relates to a pump that differs from the state of the art in that the driving energy in the invention is provided by an electric motor instead of a hydraulic motor. In this case, the electric motor acts correspondingly

to the hydraulic one and therefore achieves a predictable effect.

Example 2:

The invention refers to an automobile chassis made of aluminum, where the state of the art uses steel for this same chassis. In this case, the technical effect regarding weight reduction is predictable, as it is an inherent property of aluminum.

5.53 If the replacement of elements confers an unexpected technical effect, then the invention is non-obvious.

Example:

The state of the art refers to a process containing steps A, B, C, and D, and the invention replaces step C with a functionally corresponding step, but which surprisingly improves the yield of the process.

Invention by omitting elements

5.54 An invention by omitting elements refers to an invention in which one or more elements of a known product or process are omitted. If, after omitting one or more elements, the corresponding function disappears as a consequence, or if such omissions are obvious to a person skilled in the art, the invention is obvious.

Example:

The invention of an ink composition differs from the state of the art in that it does not comprise an antifreeze agent. If, as the only difference, the antifreeze effect of the paint composition is lost as a result of the omission of the antifreeze agent, the invention is obvious.

5.55 If, compared to the state of the art, after the omission of one or more elements (whether elements of a product or steps of a process), which may be associated with a reformulation of the invention, the technical effects are preserved or improved, then, the invention can be non-obvious.

Example:

The state of the art addresses a process to manufacture an alloy used in an engine cylinder head, where one of the stages of this process is the heat treatment of the alloy. An invention that addresses a process to manufacture an alloy to be used in an engine cylinder head changes the chemical composition of the alloy, making the heat treatment step unnecessary, is non-obvious since the final result was preserved.

Secondary factors to be considered in the examination of non-obviousness

Overview

5.56 The elements inferred in the previous sections make up the main criterion for evaluating the non-obviousness requirement. In many cases, however, they are not sufficient for a safe conclusion about the presence of the requirement and then they can be considered some evidence of the non-obviousness. It is emphasized, however, that such secondary evidence is important only in case of doubt, when the objective examination of the teachings of the state of the art does not result in a sufficiently clear conclusion.

Solving a long-known and unresolved technical problem

5.57 When an invention solves a technical problem that has existed for a long time and has not been solved, the invention may be non-obvious.

Example:

The problem of permanently marking farmed animals such as cattle without causing pain to the animals or damage to the animal's hide has existed since the beginning of animal husbandry. An inventor has successfully solved this technical problem by a cold-marking solution based on the discovery that leather can be permanently dyed by freezing without causing pain to the animal. This solution may be non-obvious.

Overcoming a prejudice or technical barrier

5.58 Overcoming a prejudice or technical barrier or proof that the invention followed a path contrary to the knowledge consolidated by the state of the art can strengthen an allegation of non-obviousness.

Example:

It was generally believed that in an electric motor, the smoother the interface between the commutator and the brush, the better the contact and the lower the current consumption. The invention produces rough micro-grooves on the surface of the switch, and the current consumption is even lower than with a smooth surface. Considering that the solution overcomes technical prejudice, there may be non-obviousness.

Achieving commercial success

5.59 When an invention achieves commercial success, such as technology licensing, if this success is directly related to the technical features of the invention, this may mean that the invention is non-obvious. However, if success is due to other factors, such as sales campaigns or advertising, this criterion should not be used as a basis for evaluating non-obviousness.

Obtaining prizes

5.60 When an invention receives some kind of recognition as to its technical merit, this may mean that the invention is non-obvious.

Example:

Award or mention of honor in congresses.

How the invention is created

5.61 The way in which an invention is created, regardless of how arduous or easy it is, should not affect the assessment of non-obviousness of the invention. Most inventions are the result of the inventor's creative work and the result of scientific research and long-term work experience, although there are some inventions that are created accidentally.

Example:

Motor vehicle tires have high mechanical strength and good abrasion resistance. This was obtained by a technician who mistakenly added 30% instead of 3% carbon in the preparation of materials for the production of black rubber. The facts show that rubber with 30% carbon has high resistance to abrasion which would not be expected beforehand. Although the invention was created by accident, this should not be considered when assessing non-obviousness.

Chapter VI – Markush-type claims

Introduction

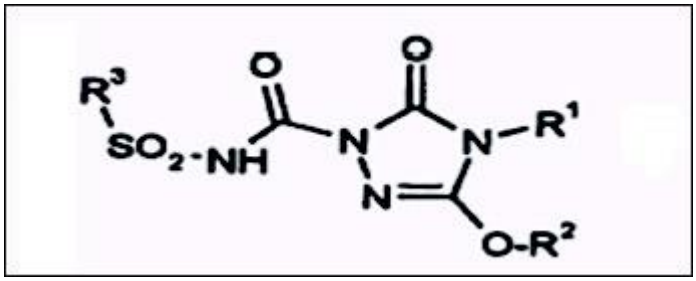
6.1 Markush formulas are a way of describing and claiming various alternatives in patent applications. Although more common in the areas of chemistry and biotechnology, the presentation of alternative inventions

in any technical area can be considered as a Markush formula. The use of such a resource dates back to an American patent from 1924, authored by Eugene A. Markush, presenting alternatives within a dye manufacturing process.

6.2 The "Markush formula" is a generic expression for a class of chemical substances, conventionally used in patents, and consists of a basic chemical structure that is replaced by one or more variable substructures, which are accompanied by a list of definitions of these variable portions.

Example:

In the figure below, R1 represents H, OH, amino; R2 represents H or CH3; and R3 represents a substituent radical from the group consisting of alkyl (between 1 and 6 carbons), phenyl and pyridine.



6.3 Thus, the expression "Markush formula" has been used to designate any chemical structure that contains a basic structure and one or more variable or optional chemical groups. For biological sequences, it is possible to delimit the base sequence of nucleotides or amino acids and the alternatives foreseen in several positions.

6.4 A Markush formula allows the election of a large number of substituents, which can be linked to the molecule in different positions, as well as through different arrangements thereof. As a consequence, a multitude of compounds can be protected from a single representation structure.

Novelty

6.5 Any unforeseen modification in a Markush formula known from the prior art leads to a new compound, thus meeting the novelty requirement.

Example:

When there is an invention that describes a compound with a basic structure of a heterocyclic ring with a propyl substituent group, and the state of the art describes another compound with the same basic heterocyclic structure with a methyl substituent group in the same position; the propyl and methyl groups, despite belonging to the same chemical class (alkyl with 1 to 6 carbon atoms), do not affect the novelty of the invention.

6.6 For different alternatives in the same independent claim, different prior art documents may be used, focusing on the novelty of the subject matter of the same claim, when each prior art document refers to different alternatives within the possibilities offered by the claim. Due to the numerous possibilities of compounds foreseen in a Markush formula, the analysis of the claimed subject matter may indicate that part of the compounds is not novel, while another part is. It should be noted that in the analysis of claims with alternatives, a prior art document that discloses one of the alternatives is enough to remove the novelty of the claim as a whole. However, reformulations of the claim may be accepted in order to exclude the subject matter found in the state of the art.

Non-obviousness

6.7 When evaluating non-obviousness in a Markush formula, it must be verified whether it follows in an evident or obvious way from the state of the art. The compounds defined in the new Markush formula will be non-obvious if, based on the knowledge contained in the state of the art, a person skilled in the art would not be motivated to carry out the proposed structural modifications. In cases where the state of the art presents subject matter very similar to the claimed one, the claimed compounds will not be obvious if there is an unexpected technical effect arising from their structural modification.

Example:

A modification of a molecule's radical existing in the state of the art that results in the reduction or elimination of a clinically undesirable side effect may indicate an unexpected technical effect.

6.8 In order to prove the technical effect disclosed or inherent in the application as filed, it may be necessary to present comparative tests between the effects caused by the claimed compounds and those of the state of the art, in order to prove the presence of an unexpected technical effect.

Sufficiency of disclosure

6.9 The sufficiency of disclosure of a group of inventions represented by means of a Markush formula is only satisfied if it allows each invention of the group to be executed by a person skilled in the art, based on the specification, and not just some of the alternatives present in the claim. In the case of compounds defined in a Markush formula, it cannot be predicted or extrapolated that compounds with substituents belonging to different chemical classes can be obtained by the same way of preparation, since the nature of the reactions is different. Thus, for all compounds of a Markush formula to be sufficiently disclosed, the specification must allow a person skilled in the art to carry out the invention without undue experimentation, based on the detailed description of the reactions and conditions involved in the preparation processes, including concrete examples for preparing at least one representative of compounds for each chemical class of the different substituents. Thus, the specification must present clear examples of how different substituents foreseen in the Markush formula can be incorporated into the final product.

6.10 If the preparation of the compounds and consequently the compounds themselves with substituents belonging to different chemical classes are not sufficiently disclosed in the specification, it will not be possible for a person skilled in the art to reproduce them, being in disagreement with the provisions of Article 24 of the Brazilian Patent Statute.

Example:

The specification refers to the alkyl substituent (C1 to C6) and the heterocyclic substituent at a certain position of the Markush formula. There may be doubt whether the compound containing heterocyclic radicals in the same position can be obtained by the same preparation process. Therefore, this group of heterocyclic substituents – for which preparation examples were not provided – is not sufficiently disclosed, since it cannot be assumed that the same way of preparing the described chemical classes can be applied to those whose preparation was not described. Therefore, when the preparation examples in the specification do not cover all the chemical classes of the claimed compounds, the examiner must present an objection in accordance with the provisions of Article 24 of the Brazilian Patent Statute.

Grounding, clarity, and precision of the claims

6.11 It is necessary that all possible substituents claimed in the compounds are grounded on the specification and are clearly and precisely defined.

6.12 An application having a compound X in the specification and a compound Y in the set of claims, not mentioned in the specification, lacks grounding in accordance with the provisions of Article 25 of the Brazilian Patent Statute. Generally, in these cases, including compound Y in the specification is hardly enough to sufficiently disclose the application, being in disagreement with the provisions of Article 24 of the Brazilian

Patent Statute, although it meets the criterion of justification in accordance with the provisions of Article 25 of the Brazilian Patent Statute.

6.13 Terms that lead to a lack of definition of the claimed subject matter must be better defined as much as possible during the examination process.

Examples:

"Carbocyclic aryl", "heterocyclic aryl", "biaryl", "lower alkyl", "cycloalkyl", and "substituted" are some expressions that lead to uncertainty and imprecision in claims of Markush compounds.

6.14 When substituents are presented in this way, important features are not defined, such as chain size, number and nature of heteroatoms, presence or absence of branches; they only indicate to which chemical group the compounds belong.

Chapter VII – Compositions

Introduction

7.1 A composition is a mixture of chemical and/or biological elements or components, which must be sufficiently clear so as not to allow ambiguities.

Example:

Detergent composition characterized in that it contains elements A, B, and C.

7.2 It should be verified, according to what is presented in the specification, which features must be present in the composition claim(s) in question, in order to precisely define the claim.

7.3 On the other hand, a composition claim defined by a single component and without quantitative delimitations is equivalent to a claim for the component itself, insofar as it includes the possibility that the "composition" contains 100% of said component. This means that a composition can be perfectly characterized by the presence of a single ingredient, provided that such development is verified to have been carried out, and that there are text elements in the claim that determine that it is indeed a composition. In other cases, the composition will need more precise details for its definition.

Novelty

7.4 Compositions not included in the state of the art are considered novel. The composition comprising component(s) already known from the prior art will be considered novel if it presents a new component in the composition or a new ratio between the components which is different from the prior art.

7.5 The effect, use, form of administration/application, or physical form per se do not confer novelty to a composition already known from prior art. However, these elements can be accepted in the wording of claims to provide the claimed subject-matter with clarity and precision.

Example:

A "pharmaceutical composition characterized in that it contains X and Y" is not novel in relation to a prior art document dealing with a detergent composition characterized in that it contains X and Y.

7.6 In the case of applications directed to new chemical and/or biological products, which contain a composition claim, it is considered that the novelty and non-obviousness of the product(s) will be extended to the composition containing them.

Clarity and precision: need for qualitative/quantitative definitions

7.7 The claim must have qualitative or qualitative/quantitative definitions to better define the composition of interest. A greater or lesser degree of precision may be required, as the case may be, to give greater clarity and precision to the claim.

7.8 For example, for a cosmetic composition in which the invention consists in the addition of a dye, regardless of whether this is known from the state of the art, the following situations are presented:

Situation 1: the specification shows that the invention actually lies in the use of dye in cosmetic compositions, and the state of the art discloses that such an addition was not known. In that case, an acceptable claim would be:

"Cosmetic composition characterized in that it comprises a dye associated with one or more cosmetically active ingredients".

Situation 2: the specification shows that the invention actually lies in the use of the dye and can be applied to any cosmetic composition. However, it appears that either the invention does not apply to any dye (or class of dyes), or the state of the art discloses that such an addition is already known for certain dyes (or class of dyes). In that case, the acceptable claim should be:

"Cosmetic composition characterized in that it comprises such and such dyes (or class of dyes) associated with one or more cosmetically active ingredients (or other text that implies the existence of one more component)"

Situation 3: the specification shows that the invention actually lies in the use of the dye and can be applied to any cosmetic composition. However, it turns out that the invention applies only to a certain dye concentration range. In that case, the acceptable claim should be:

"Cosmetic composition characterized in that it comprises from x% to y% of a dye associated with one or more cosmetically active ingredients (or other text that implies the existence of one more component)"

Situation 4: the specification shows that the invention actually lies in the use of the dye, but that the development was directed towards a certain cosmetic composition with well-defined active and non-active elements (even at the class level) including in their ranges of concentration. In this case, the claim must contain all these defined elements (qualitatively and quantitatively) according to what the examiner deems sufficient for clarity and precision of the claim.

Types of composition

Compositions defined exclusively by their use, form of administration, or mechanism of action

7.9 Independent claims of compositions defined exclusively by their use, form of administration or mechanism of action are not precise, causing a lack of definition as to the protected subject matter, and must be rejected in accordance with the provisions of Article 25 of the Brazilian Patent Statute.

7.10 Claims not eligible for protection:

Example 1:

Veterinary composition defined exclusively by the form of intramuscular administration (the composition defined exclusively by its form of application).

Example 2:

Composition defined solely by being to treat asthma (the composition defined solely by its therapeutic application).

Example 3:

Composition defined solely by being a serotonin reuptake inhibitor (composition defined solely by its mechanism of action).

Example 4:

Pesticide composition defined exclusively by being for application in soybean and cotton plantation (the composition defined exclusively by its application).

7.11 However, if an independent claim properly defines its components/constituents, dependent claims that establish the use, form of administration or mechanism of action of a composition are eligible for protection.

Kit including compositions

7.12 In these kits, the components, or groups of components, are physically separate, whether packed together or separately.

Example 1:

Kit comprising a vaginal cream and an applicator.

Example 2:

Kit comprising a composition for the treatment of asthma and a nebulizer.

Example 3:

Flu treatment kit comprising a tablet with decongestant function and another with antipyretic function.

Example 4:

Kit comprising amoxicillin powder for reconstitution and an ampoule with liquid for injection.

Example 5:

Adhesive kit comprising a composition with an adhesive function and another with a hardening function.

7.13 It is noted how the kit claim is defined: if the groups of components from the kit are defined, even if it is mentioned that they can be packed together or separated, the claim is subject to protection.

Compositions characterized by their physical form and/or form of application

7.14 A composition can be claimed for: its physical form (e.g., plaster, lozenge, gel, aerosol, granule, pill, tablet, solution, and suppository); and/or its form of application (e.g., intravenous, subcutaneous, and sublingual). In these cases, in addition to defining the components of the composition itself, the construction features must be present in the claim text (for example, format, thickness, granulometry and type of coating of the product).

7.15 A claim of "Composition characterized in that it is in a pill form", defined only by its physical form, must be rejected as it does not precisely define the claimed object. It should be noted that, in this case, the claim would not be clear since the protection would fall on any and all compositions in pill form. However, if the composition is defined in a specific and detailed way as to its constituents, this claim formulation could be accepted.

Example:

Composition consisting of X, Y and Z characterized in that it is in a pill form.

7.16 All the considerations made above regarding the other compositions are relevant here.

Combination of active ingredientes

Overview

7.17 A combination is the association of two or more active ingredients in the form of a product. The combination can be contained in a single form or in separate forms for simultaneous administration.

7.18 Regarding the novelty requirement for a combination, the same observations made for compositions generally apply.

7.19 A combination shall be considered non-obvious when, for a person skilled in the art, it does not derive in an evident or obvious manner from the state of the art. In this case, it must be observed whether the interaction between the active substances associated in the combination produces an unexpected technical effect, different from the expected one, for example a synergistic or supra-additive effect, in which it does not correspond to the mere sum of the individual effects of each substance active component of the association (additive effect), reduction of unwanted effects, among others.

7.20 However, the existence of a synergistic effect does not necessarily make the invention non-obvious, as it could already be predicted for a certain class of compounds.

Synergistic effect (or supra-additive effect)

7.21 The synergistic effect is a response obtained from the association of two or more active ingredients, whose result is greater than that presented by the simple sum of the effects when considered individually.

Claim Example – Chimeric promoter consisting of the fusion of promoter A and promoter B:

The application describes a chimeric promoter constituted by the fusion of two promoters already known in the state of the art. The presented results demonstrate that the expression of an X gene controlled by the chimeric promoter was superior to the expression of the X gene controlled by the promoters alone or together.

7.22 Compositions involving components with a synergistic effect can only be characterized qualitatively (without specifying the amounts of each component), provided that:

(i) combination of already known products for the same application in any proportions not foreseen in the state of the art;

(ii) synergistic effect is clearly demonstrated; and

(iii) synergistic effect can be observed in any proportion of the products involved.

Claim Example – Synergistic composition characterized by containing compound A and compound B:

The application describes an herbicidal composition consisting of compounds A and B, for use in combating weeds in cereal crops. Both compounds alone are already known in the state of the art, but not combined. The results of the composition were presented for several levels of the two compounds and clearly demonstrate the synergistic effect, given that it was superior to the herbicidal action of the two compounds alone or together.

7.23 Therefore, if any of the conditions defined above are not met, the claims must be quantitatively defined, clearly specifying the desired proportions of the present components, limited to those supported in the specification. Comparative data relating to the effect of the components alone and their combination must be presented, and all tests relating to comparative data must be performed under the same conditions.

7.24 In cases where the state of the art already comprises compositions that contain the components of interest, even if no synergistic effect between them is observed/described, or even if there is evidence of incompatibility between these components in the wide range of concentration claimed, the claims must be defined qualitatively and quantitatively, clearly specifying the desired proportions of the present components, limited to those supported in the specification, provided there is an unexpected technical effect.