PERUVIAN PATENTED INVENTIONS

AND THEIR SUCCESSFUL COMMERCIALIZATION

Indecopi
NATIONAL INSTITUTE FOR THE DEFENSE OF COMPETITION
AND THE PROTECTION OF INTELLECTUAL PROPERTY

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FOREWORD

The National Institute for the Defense of Competition and Protection of Intellectual Property (Indecopi) has undertaken a strong institutional commitment to proactively promote the patent system as a mechanism to support and promote research, invention, innovation, and technological endeavor in Peru. As part of this commitment, the Inventions and New Technologies Directorate (DIN) of Indecopi considers that the development of a local culture of patens is highly important for the Peruvian community of scientists, inventors, and technological entrepreneurs - current and new generations- to understand the scope, uses, and advantages of the patent system leading to the development of new products and procedures, as well as to directly safeguard the protection of the intellectual property thereof.

Within the framework of the promotion of a culture of patents in Peru, we are pleased to offer the public interested in this matter this document called **"Peruvian Patented Inventions and Their Successful Commercialization."** This publication, the only one of its kind up to date, shows 12 experiences of Peruvian inventors or residents in Peru, who, thanks to their tenacity, perseverance, dreams, motivation, effort, inventiveness, and entrepreneur spirit, conceived and developed innovative products or procedures with a high level of commercial success.

These cases have in common that their protagonists decided to trust and use the patent system in order to register their inventions as part of their business strategies, giving them exclusive rights to decide the future of their creations. Many of these experiences highlight the work carried out by Indecopi –present and past, particularly underscoring the contributions brought by the National Invention Contest, held since 1996, that has been useful as a major platform for inventors to show, disseminate, recognize, and share their creative projects seeking the so wanted commercialization.

Many researches indicate that out of all the patented inventions worldwide, only 5% to 7% actually reach the market in an effective and sustainable way. These figures are not

as high as we wish. Nevertheless and beyond the fact that they show the commercial potential of developed products, the strong competition in the global business world, and the frequent use of the patent system to register all kind of inventions (highly developed practice in industrialized countries), such figures prove that the 5% to 7% of inventions that do reach the market will be protected, with exclusive rights, a fundamental factor to foster innovation and technological progress.

For this reason, we congratulate and pay tribute to those Peruvians and residents in Peru who, with their talent and creativity, are now part of this global group of inventors who, thanks to their efforts, successfully achieve a commercial impact with their patented inventions, developing new enterprises based on their inventions, generating jobs -directly and indirectly, solving problems or tackling latent needs in different segments of the population and manufacturing export quality products "Made in Peru".

We are sure that this publication of Indecopi, "Peruvian Patented Inventions and Their Successful Commercialization," is a positive contribution to the international promotion of a culture of inventions, and reaffirms our commitment to the current context of globalization and competition in which patents are important intangible assets for companies, along with technological innovation and protection of intellectual property.

Hebert Tassano Velaochaga
Indecopi Chairman of the Board

INTRODUCTION

Technology and technological innovation involved and bring about development. This phrase is so blunt and simple. Ever since man has inhabited the earth, man has resorted to of his talent, creativity, and ingenuity to devise all kinds of instruments and products through the creation of tools that would allow hunting in the early times, the invention of gunpowder and paper in ancient China or windmills in Greece, to the development of the machines in the so-called industrial revolution in England and, more recently, the invention of the electricity, the telephone, computers, cell phones, among other inventions that are associated with progress and modernization. In everyday life, wherever we look, we always find a product, article, object or device that at some point in history were first invented for the first time by a certain individual, or adapted to other situations, uses or particular condition. Hence, we can say that all inventions and technological innovations have something in common: they were developed to solve a particular problem or to address a specific need, whether aimed at making easier a chore, increasing productivity of a company or improving the quality of life of individuals, among others.

It is from these human creations that the patent system has played a major role in the constant innovation since it was formalized for the first time in Italy by the Venetian Patent Statute of 1474, by which new inventions, once implemented, had to be communicated to the Republic to obtain legal protection against potential infringers. Hence, the spirit -inherent to the patent system- is to facilitate the appropriation of the benefits and results of technological innovation activities in all areas of technology. This system grants the creator of inventions (inventor) the right to exclude others from exploiting such creation on predefined conditions, generating an exclusive right over protected inventions.

In this way, the patent system is today widely spread globally, being also used as an instrument that encourages and contributes to the progress of society, giving inventors the possibility of returning their investments -time, money, and creative effort- incurred

in developing an inventive process. It is therefore not surprising that each year the number of patent applications in the world increases and are counted by millions. In fact, the World Intellectual Property Organization (WIPO) estimates that only in 2012 more than 3 million applications seeking protection of inventions were processed among all patent offices worldwide. Of this total, 80% of them occurred in patent agencies of China, the United States, Japan, South Korea, and Europe.

Admittedly, it has been in developed or industrialized countries where traditionally there has been a greater recurrence of innovation actors in the patent system as a result of higher degree of institutionalization of science, technology, and technological innovation, yet, developing countries –like Peru, albeit to a lesser extent- have undertaken successful innovation processes for which the patent system is one of the main pillars in achieving positive results.

Precisely, in order to highlight these national experiences and in the context of a strategy for the promotion and encouragement of a culture and use of the patent system in Peru, the National Institute for the Defense of Competition and Protection of Intellectual Property (Indecopi) has sought to bring together in this publication twelve success stories of commercializing local inventions after the grating of the patent registration in Peru. The cases described in this book were selected on the basis of several variables, among which the number of patents granted (whether presently in force or expired), the commercial use of a particular invention (units sold, royalties received, etc.), the story behind the creative process, and the growth projections of patented products.

Through this publication, Indecopi wishes to convey and communicate the degree of effectiveness of patents in introducing a product to the market; disseminate and pay tribute to the individual stories of each inventor and the strategies they adopted to successfully market their inventions; and show that patenting can become a key vehicle for development and implementation of successful business proposals based on invention and innovation, among others.

To this end, the publication has been divided into two main chapters. In the first chapter, we address the general foundations of patents, provide an overview of the context and characteristics of the patent system in Peru, demonstrating the importance of patents for invention and entrepreneurship, as well as the strategy actively implemented by Indecopi to promote this system in the coming years.

The second chapter is dedicated to present and discuss in detail each of the twelve selected experiences of Peruvian or Peruvian residents (whether individuals or firms) that have achieved major commercial success thanks to their inventions and to the protection of their intellectual property.

Silvia Solis Iparraguirre
Indecopi Inventions and New Technologies Director

I. PATENTS

A. PATENT CONCEPTUAL FRAMEWORK

A patent is an exclusive right granted by the State for an invention that is new, involves an inventive step, and is capable of industrial application.

It gives its owner the exclusive right to prevent others from making, using, or selling the invention, i.e. preventing its exploitation without the owner's prior permission. Exploitation means manufacturing, negotiation, marketing or any activity yielding benefits from the patented invention. In other words, the patent holder is the only person who can decide on the use and destination of the invention.

The patent system is internationally governed by the 1883 Paris Convention for the Protection of Industrial Property in which it was agreed to develop the national treatment principle, that is, to grant upon nationals the same protection level to citizens from the countries signing the Convention. It also established the right of priority, that is, a patent filing in a given country has up to 12 months to be filed in another signatory country of the Convention, and that the patents granted in different member countries of the Convention for the same invention are independent one from another. Granting a patent in one country does not oblige the other country to grant the patent for the same invention.

Another legal instrument ruling the patent system is the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS) signed in 1995, which is considered the main international instrument for the protection of intellectual property and it is the basis for international regimes on this matter. This multilateral treaty established, for the first time, the minimum protection standards that cannot be downsized by signatory countries. In fact, it indicates the patentability requirements (novelty, inventive step, and industrial application) that were not included in the Paris Convention.

A patent is granted by the national patent office of a country and is valid for a limited period of time -20 years as from the filing date of the patent application. A patent is a territorial right, limited to the geographical boundary of the relevant country; it is known as the territoriality principle of patent.

In return for the exclusive right provided by a patent, the applicant is required to disclose the invention to the public so any specialist in the respective technique can redo or even improve the invention. By doing so, knowledge on a specific area is increased enriching the technological and scientific heritage, avoiding duplicating efforts to achieve new findings. Thus, the entire society obtains a benefit.

In Inventing the Future: An Introduction to Patents for Small and Medium-sized Enterprises, the World Intellectual Property Organization (WIPO) indicates that "in patent jargon, an invention is generally defined as a new and inventive solution to a technical problem. It may relate to the creation of an entirely new device, product,

method or process, or may simply be an incremental improvement to a known product or process. While most current inventions are the result of considerable efforts and long-term investments in Research and Development (R&D), many simple and inexpensive technical improvements, of great market value, have yielded significant income and profits to their inventors or companies."

Hence 'invention' and 'innovation' are different concepts. An invention may be an innovative idea or – set of ideas- which put into practice, can solve a technical problem in any field of technology. An innovation refers to the translation of the invention into a marketable product or process. Therefore an invention may not become an innovation if is not used for the purposes it was conceived[1].

Today, in an increasingly competitive environment among companies, innovation plays a major role in determining their future sustainability, performance, and growth. According to WIPO, some of the main reasons why companies innovate include:

- To improve manufacturing processes in order to save costs and improve productivity;
- To introduce new products that meet customer needs;
- To remain ahead of the competition and/or expand market share;
- To ensure that technology is developed to meet actual and emerging needs of the business and its clients;
- To prevent technological dependence on other companies' technology.

It is true that in business innovation companies must have appropriate knowledge on the intellectual property system and, specially, the patent system in order to implement strategies facilitating the company drawing maximum benefit from the inventive process. As part of this strategy, it is necessary to see beyond patents and understand there are other instruments included in the intellectual property system enabling to protect creative expressions:

- (Patent of) Utility Models. A type of patent protecting inventions that constitute improvements, adjustments or adaptations of existing products. Not all countries have utility models. Where it does not exist, the patent (also known as patent of invention) includes in its scope the protection utility models[2].
- Industrial Designs. This refers to particular ornamental or aesthetic aspects of a product resulting from any combination of colors, or any dimensional o tridimensional external shape, line, outline, configuration, texture or material, without changing the

1 Pursuant to the Oslo Manual, an innovation is the introduction of a new, or significantly improved, product (good or service), process, commercialization method, or organization method, to the company's internal practices, workplace organization or external relations.

2 See countries with utility models: http://www.wipo.int/sme/es/ip_business/utility_models/where.htm

destination or purpose of such product. In some countries these are referred to as drawings, industrial models or design patents.

- New Plant Varieties. This title is granted by the State and affords holder the exclusive right of commercial exploitation of new plant varieties for a given period of time and within a specific territory. The exclusive right of commercial exploitation is for 25 years for vines, forest trees, fruit trees, – including their rootstocks –, and 20 years for the other species. In both situations, the term is counted from granting the breeder's rights certificate.
- Trade Secrets. Inventions composed of secret information, which commercial value, – effective or potential – can be protected. These are precisely based on the secret nature of the invention. Reasonable steps must be taken by its legal owner to keep the confidential information.
- Layout-Design of Integrated Circuits. This refers to an integrated circuit of a product – whether an end-product or intermediate product- in which at least one of its elements is active and any or all of its interconnections are integrating parts of the body or surface of the material piece. Besides, its purpose must be to perform or meet an electronic function.

B. THE PATENT SYSTEM IN PERU

In Peru, the regulatory framework on patents is set out in Decision 486 - Common Industrial Property Regime.

Decision 486, approved in 2000, is regional and valid in the countries that are part of the Andean Community (CAN). In accordance with TRIPS, general provisions ruling industrial property are set forth and it also regulates the following: i) patents of invention; ii) utility models; iii) layout designs of integrated circuits; iv) trademarks; v) advertising slogans; vi) collective marks; vii) certification marks; viii) trade names; ix) labels; x) geographical designations; and xi) business secrets. For each one, there are requirements for protection, procedures, licenses, rights, and obligations of the holder, among other.

On the other hand, Legislative Decree 1075 dated 2008 (as amended by Law 29316) provides some precisions on Decision 486, for instance, it determines the maximum amounts of penalties imposed for infringing industrial property rights or obstructing procedures. It also develops some procedural aspects and time limits for granting patents. In this document, we shall only use the term legislation to emphasize its development in Peruvian comprehensive legal framework.

Pursuant to legislation, there are two types of patents granted in the country: Patents of invention, and (patents of) utility models. The main differences are the type of inventions protected by each one, the assessment of requirements, and the periods of time for protection when granted.

Patents of inventions are granted for any product or procedure in any field of technology as long as these are new, involve an inventive step and are capable of industrial application. An invention is considered new if it is not included in the technique (or state of the art) including anything that has been accessible to public by oral or written description, commercialization or any type of disclosure before the filing date of the patent. Moreover, inventive step is determined considering if such inventions was neither obvious nor evidently derived from the state of the art by anyone skilled in the same technical field. Finally, industrial application is determined considering if it can be produced or used by any industry; an industry is understood as any productive activity including services. The duration of a patent of invention is 20 years from the filing date of the respective application.

Table 1

EXAMPLES PATENTS OF INVENTION
Ten latest patents of invention granted upon nationals in Peru

	Name	Applicant	Filing Date
1.	Process for obtaining manure from fish waste processing	Regional Bureau of Production of the Lambayeque Regional Government	2014
2.	Tool for assembling and disassembling exciter counterweights of vibrating screens	Sociedad Minera Cerro Verde S.A.A.	2014
3.	Long-acting oral bioadhesive endoparasiticide gel based on doramectin	Agrovet Market S.A.	2013
4.	Propellant device for enhancement of mechanical power in wheels	Reyes Guzman, Walter Antonio	2013
5.	Process for the application of a luminous pigment in paints, plastics or resins	Wildwoods International Trading E.I.R.L.	2012
6.	Procedure for the elaboration of *surimi*, protein concentrated made of giant squid muscle or cuttlefish	Peruvian Institute of Fish Technology - I.T.P.	2012
7.	Method for the production of omega-6 and omega-3 enriched eggs, adding *sacha inchi oil* (*plukenetia volubilis L*) to chicken food	San Fernando S.A.	2012
8.	Process for the elaboration of grape liquor	National University of Engineering; De la Cruz Azabache, Mario Ricardo; Marcelo Astocondor, Dionicio Adolfo	2012
9.	Single disk fertilizer planter	Robinson Serra, Rodolfo	2012
10.	System and method for continuous casting by partial immersion of an internally refrigerated cylinder into liquid steel	Bragagnini Alonso, Enrique Rodolfo	2012

Source and preparation: DIN of Indecopi

On the other hand, patents of utility models protect products related to a new form, configuration or layout of elements of any artifact, tool, instrument, mechanism or another object or part thereof, enabling an improvement or different performance, use or fabrication of the object, or providing any new use, advantage or technical effect. Requirements for granting a patent of utility model include novelty and that the invention meets the definition specified by law. The applicant of a patent of utility model can request that the application become a patent of invention application or an industrial design application, provided that it is permitted. The duration of the patent of utility model is 10 years, also from the filing date of the application.

Table 2 EXAMPLES OF PATENTS OF UTILITY MODELS
Ten latest utility models granted upon nationals in Peru

	Name	Applicant	Filing date
1.	Parametric security system composed of a wire fencing and razors improved by electrification and alarm	Grupo ST S.A.	2014
2.	Improved sliding lock-bar	Cánepa Llanos, Victor Raúl	2014
3.	Water supply valve with incorporated bidet for low-tank toilets	Merel Vergara, Alfredo	2014
4.	Dog pooper scooper	Figueroa Casanova, Jose Francisco	2014
5.	Pool saving life chair	Sosalva-Vidas S.A.C.	2014
6.	Pieces stamped in low relief with subdivided polygons	Uribe Pomareda, Eduardo Enrique	2014
7.	Protected mechanism against extraction of blocking elements in an overlapping cam lock	Grupo Forte S.A.C.	2014
8.	Toothbrush with integrated intraoral circular mouth mirror	Reátegui Santos, Williams Gary	2014
9.	Vertical carbon oven	Gonzalez Gómez, Filiberto	2014
10.	Water-saving faucet with single or double holes and automatic flow regulation	Herrera Velasquez, Cesar	2014

Source and preparation: DIN of Indecopi.

It is important to mention that there are some cases that cannot be protected despite meeting the patentability requirements stated by law because they are listed under the exclusions and/or exceptions indicated by Decision 486. Arguments for such limitations are moral, ethical, social or philosophical instead of legal grounds, and are

geared towards protecting the public interest in a given society. Exclusions are those cases in which the elements are not considered inventions because they do not have a technical effect, i.e., they are not solutions applied to solve particular problems. Thus, the following are not considered inventions and a patent cannot be granted:

a. Discoveries, scientific theories, and mathematical methods;

b. The whole or part of living beings as found in nature, natural biological process, biological material existing in nature or that can be isolated, even the genome or germplasm of any living being;

c. Literary and artistic works or any one protected by copyrights;

d. Plans, rules, and methods for performing any intellectual, economic or commercial activity, or games;

e. Computer programs or logic programming; and

f. Ways to present information.

Likewise, there are also patentability exceptions for certain elements that despite being inventions are not protected because they are contrary to public order or morals, society's values or beliefs, health, life, environmental reasons, among others. In accordance with article 20 of Decision 486, the following are not patentable:

a. Inventions whose commercial exploitation within the territory of the respective Member Country needs to be prevented to protect public order or morals. For such purpose, a commercial exploitation of an invention will not be considered contrary to public order or morals just because the existence of an administrative or legal provision prohibiting or regulating such exploitation;

b. Inventions whose commercial exploitation within the territory of the respective Member Country needs to be prevented to protect animals' or people's health or life, or to preserve plants or the environment. For such purpose, a commercial exploitation of an invention will not be considered contrary to animals' or people's health or life or plant or environment preservation just because there is an administrative or legal provision prohibiting or regulating such exploitation;

c. Plants and animals other than micro-organisms, and essentially biological processes for the production of plants or animals other than non-biological and microbiological processes;

d. Diagnostic, therapeutic, and surgical methods for the treatment of humans or animals;

As a summary for this section, it is worthy pointing out that if an invention is patented, it does not necessarily follow that it will result in a commercially viable product or commercial success. As previously described, the analysis for determining whether or not an invention is patentable depends on an exclusively technical aspect of the product to be protected. In fact, an invention can be protected and may never become an innovation (i.e. is, being introduced to the market). Therefore, according to WIPO "…a careful weighing of pros and cons and a market analysis of the product whose intellectual property is to be protected showing the potential commercial is essential before filing a patent application. It is true that a patent may be expensive and difficult to obtain, maintain and enforce. To file or not to file a patent application is strictly a business decision. It should be based primarily on the probability of obtaining commercially useful protection of the invention that is likely to provide significant benefits from its potential business use".

C. IMPORTANCE OF PATENTS

Although it is true that the exclusive right derived from protection of inventions through patents is the main reason why independent inventors, companies, universities, research centers, and other organizations decided to use the patent system, there are solid elements why these actors pursue such expected right. A patent must not be considered an end in itself, i.e., patenting merely to obtain a title; on the contrary, patent should be a means so any actor reaches one or several subsequent goals. That is why patents are important. Among these goals the following can be listed:

- Strong market position: A patent prevents others from using the product or procedure, thereby restricting new competitors and creating a market entry barrier for competitors in respect of the invention.
- Boosting the organization's value: Many companies embrace invention processes so patents become a company's assets. A patent is an intangible asset. As such, it can be more valuable and be included in the organization estate. For instance, a company patent holder can not only receive income from licensing the patent, but also increase its stock price, or increase the company's market appraisal in the future based on the estimate value of the patent.
- Incomes derived from the title: As is the case of a house, car or any other product, the rights granted by a patent, i.e. a title, can be totally or partially assigned in exchange for lump-sum payments or periodical payments (royalties). Selling or assigning a patent implies transferring ownership whereas licensing implies only permission to use the patented invention.
- Decision-making about an invention: The patent holder is the only one who can make a decision about the future of the protected invention. The holder can decide, for example, to intrinsically appraise the patent as a social recognition to be

accumulated to his/her professional background; monetarily appraise the patent to negotiate the granted rights; or directly exploit the protected invention by directly producing or marketing the product. The final decision will depend on different aspects considered by the patent holder, such as his/her expectations, management capacities, resources (money, time, and partners), and intellectual property strategy, among others.

- Access to new technology: If the patent holder is interested in technologies patented by others, the patent holder can use it to negotiate cross-licensing agreements, by which the patent holder and the other party agree to authorize each other to use the patent.
- Protection mechanism: In order to take action against imitators and free riders, and to effectively enforce the exclusivity provided by a patent, it may be necessary to litigate, to take successful legal action against copiers of the protected invention, and/or claim for damages occurred. It would not be possible for an inventor if he/she decides to exploit his/her product or procedure outside the patent system. To prove the infringement, the illegal use of the invention rights must be undoubtedly proven.
- Networking with strategic partners: An invention protected by a patent and with an interesting market potential represents a 'seductive' asset for potential strategic partners that can inject capital to a company or to build strategic alliances increasing the value of the invention, and the opportunities of commercial success. Through strategic partners, the patent holder can even take his/her invention abroad, a one-man venture almost impossible (due to costs, size, among others). For this last one, it is clear that the product or procedure necessarily must be protected abroad.
- Diminished risks of infringement: A patent is synonym of a protected invention and reduces the chances of infringement of intellectual property rights of a product or procedure; therefore the patent holder may freely exploit it during the protection period of time. There are exceptions to this rule (correctable by a nullity contentious proceeding); however, thanks to technology, database integration, and patent office interaction, among others, these exceptions have been increasingly reduced.
- Positive image for the company: In many cases, strategic partners, investors, shareholders, in some countries more than others, may perceive patent portfolios as a demonstration of the high level of innovation and technological capacity of a company. Some companies, in lieu thereof of hiding information on their inventions, publicly disclose their patents to project a leadership image to the public.

D. INDECOPI´S PATENT PROMOTION STRATEGY

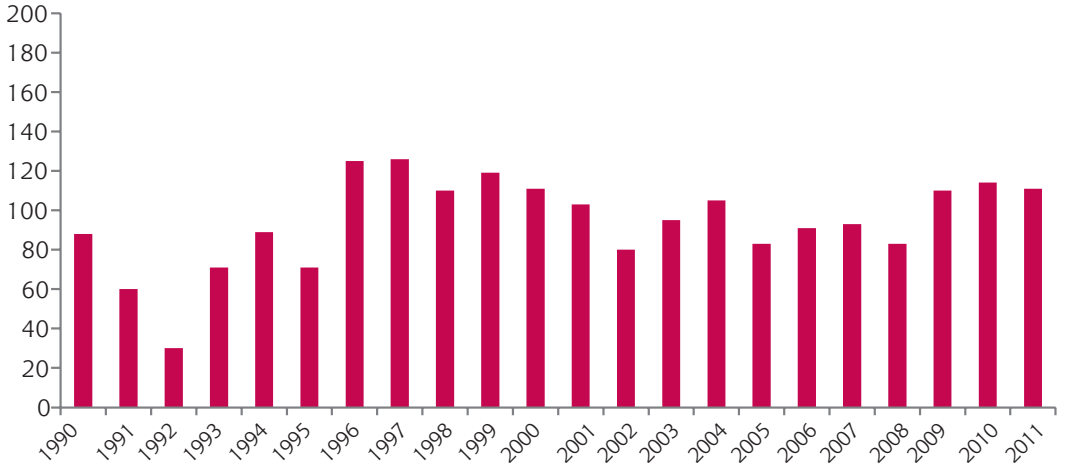
In the international context, experiences in which the patent system have developed along with strengthening the science, technology and technological innovation ecosystem are broadly known; and hence have become international technological benchmarks: the United States of America, Germany, Japan, South Korea, England, Switzerland, Sweden, among others.

In Peru, it is no secret that the lack of support, promotion, and investment in developing this ecosystem during decades has resulted in a limited inventive capacity and the lack of culture-country of patent protection of intellectual property of creations. Despite the importance, benefits, and advantages that could be obtained by this system, including inventions and innovations already noted in the previous sections, only a minority has resorted to and exploited the patent application, appropriately, in Peru.

From 1990 to 2011, although there were a total of 18,900 patent of invention applications and utility model applications, only 11% were filed by nationals (individuals or corporations); while the remaining 89% were filed by foreign citizens. In such period of time, there was an average of 94 national applications per year, with a peak of 126 applications in 1997 and the lowest of 30 applications in 1992.

Graph 1

Patent of Invention Appplications and Utility Model Applications Filed by Peruvian Residents (1990-2011)



Source and preparation: DIN of Indecopi

These figures show that per 100,000 inhabitants in Peru, only an average of 0.36 patent applications were filed by local residents from 1990 to 2011. This indicator (known as the 'invention coefficient'), compared to other Latin American countries, places Peru in an unfavorable position, behind Mexico, Colombia, Chile, Cuba, Costa Rica, Uruguay, and Argentina, among others.

To face the reality of patents, along with the new scenario in which the country has recently fostered to promote, develop, and strengthen the national science, technology and technological innovation ecosystem (in huge part thanks to the participation of

public organizations considering this field a priority for national, social, and economic development sustainability), the National Institute for the Defense of Competition and Protection of Intellectual Property (Indecopi) made the decision in 2011 to adopt a proactive strategy and to boost interagency synergies in favor of the promotion of a culture and use of the patent system in Peru.

It is important to highlight that the National Institute for the Defense of Competition and Protection of Intellectual Property (Indecopi) was created in November 1992, by Law Decree 25868. Its main functions are market promotion and protection of consumers' rights. In addition, it promotes fair and honest competition in the Peruvian economy, safeguarding all forms of intellectual property: from distinctive signs and copyrights to patents and biotechnology.

Within the organizational structure of the institution, the Inventions and New Technologies Directorate (DIN) is the competent body for examining and resolving applications for patents of invention, patents of utility models, industrial designs, protection certificates, indigenous peoples' collective knowledge, layout-designs of integrated circuits and new plant breeders' rights.

The Inventions and New Technologies Directorate established in 2012 the Innovation Support Deputy Directorate (SSI) aimed at promoting culture, use, and dissemination of the patent system and other ways of protecting intellectual property, in an articulated way within the science, technology and technological innovation ecosystem. Thus, the Directorate's strategy has been focused on highlighting the double value of the patent system; that means, on one hand, it is an instrument contributing and supporting the activities of invention and innovation, and on the other hand, it is a tool for fostering and stimulating new processes related to research, technological development, and innovation. In this sense, the institutional strategy is focused on four guidelines based on INDECOPI's efforts and initiatives:

- Guideline 1: *Promotion of the culture-country related to the patent system*, aimed at bringing the patent system closer to the community in general, and in particular, to the main direct innovation actors (independent inventors, universities, research centers, and companies).
- Guideline 2: *Implementation of the service platform*, oriented to prepare, guide and/or reinforce direct innovation actors in the permanent use and benefits of the patent systems and innovation and invention processes. Such platform is composed of two axes:
  - *Information Services*, with the main objective of using the patent documents as a source of technological information for the development of inventive activities;
  - *Guidance, Consultancy and Capacity Building Services*, aimed at improving the competences of direct innovation actors to make effective the protection of their creations and fully exploit the patent-related tools.

- *Guideline 3: Improvement of the Local Patent System*, oriented to tackle the bottlenecks in the patent system in the country, whether reducing time limits in filing patents or boosting the development of the market of service providers related to patenting, among others.
- *Guideline 4: Interagency Articulation,* focused on including and positioning the patent system in several activities, programs, and institutions of the ecosystem promoting technological innovation among universities and academic centers, public institutions, private organizations, among others.

Below is a brief summary of the initiative and programs implemented since 2012 by the Inventions and New Technologies Directorate in order to develop the patent system in Peru:

a. *Quick Patent:* The main goal of the program is to guide and provide consultancy, free-of-charge, to people interested in filing a patent, to properly prepare the patent of invention applications or utility model applications to be lodged with INDECOPI. The purpose is to foment the correct use of the patent system and minimize the observations, to the form and content, to the applications. After smoothly completing the procedures, Quick Patent increases the chances of obtaining a patent reducing time limits compared to the regular proceeding: from an average of 40 months to 18 months, for patents of invention; and from an average of 20 moths to 12 months for utility models. For further information about using the Quick Patent Program, visit: http://www.indecopi.gob.pe/0/modulos/jer/jer_interna.aspx?are=0&pfl=10&jer=1564.

b. *Identifying Patentable Inventions in Universities:* An initiative implemented from 2011 to 2012 supported by funds coming from international cooperation that allowed to identify and analyze the patentability potential of research projects conducted in the fields of sciences and engineering by researchers, professor, and/or students from Peruvian universities.

c. *Inventor's Thursdays:* An initiative aimed at developing and fostering a patent culture in Peru. Inventor's Thursdays are talks, free-of-charge, about concepts, information, and relevant guidance on several aspects and subjects of the patent system, addressed to the community of inventors, researchers, entrepreneurs, and people interested in this system. For further information, visit www.indecopi.gob.pe/din/charlas.

d. *National Invention Contest:* Recognized as one the main spaces for showing inventive activity in Peru. This annual contest aims at increasing the number of patent applications in Peru, promoting and rewarding the creativity and inventiveness of Peruvians who develop patentable products; as well as at creating a culture of invention, and the use and advantages of the patent system in the innovation processes.

e. *Electronic Technological Reports (RET):* Periodical and systematized documents on technologies, inventions, products and/or processes with patents of public domain about different industries and/or sectors considered of national interest. These reports gather the large amount of technological information available worldwide from patent documents, for the benefit of users of INDECOPI, to be used as a tool for consultation/ reference in processes for the improvement of productivity, business ideas, differentiation of inventions, among others. For further information, visit:

   http://www.indecopi.gob.pe/0/modulos/JER/JER_Interna.aspx?ARE=0&PFL=10&JER=224.

f. *Inventa, Patente, Innova Bulletin (IPI):* Monthly publication spreading topics related to patents and other forms of protection of intellectual property. The bulletin provides the inventors with a wide range of novelties, news, articles and information, interesting materials for inventions and innovations. For further information, visit:

   http://www.indecopi.gob.pe/0/modulos/JER/JER_Interna.aspx?ARE=0&PFL=10&JER=224.

g. *Annual National Convention of Patents and Inventions (CNAPI):* From 2014, the National Institute for the Defense of Competition and Protection of Intellectual Property (INDECOPI) will organize the Annual National Convention of Patents and Inventions (CNAPI) within the framework of the institutional commitment in promoting filing patents in Peru, as well as to promote the inventive spirit locally. 2014 CNAPI will include three main activities and more in the following years:

   i. *Invention Expo,* initiative conducted within the framework of the National Invention Contest as an space for showing and disseminating national inventions to satisfy the needs of the market.

   ii. *International Patent and Invention Contest,* an event that gets together the community of inventors of the country with presentation of local well recognized professionals and international experts related to matters on patents and technological innovation.

   iii. *Annual Award to Commercialization of the Patented Invention*, a recognition given to the Peruvian inventor that successfully introduces his/her patented product into the market.

   For further information visit: www.concursodeinvenciones.pe/cnapi

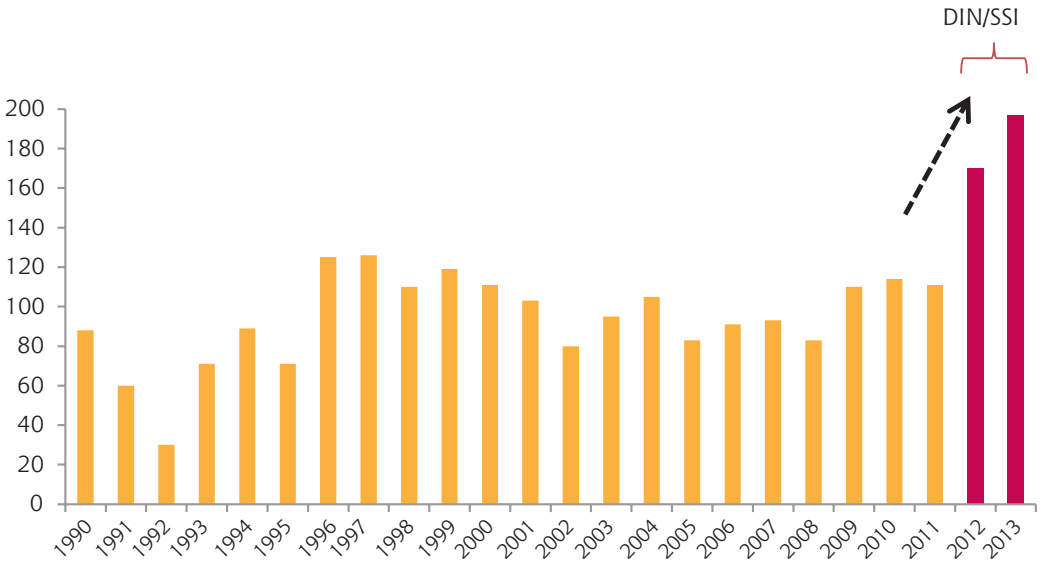
   It is important to mention that the promotion of the patent system fostered by the Inventions and New Technologies Directorate of INDECOPI has obtained so far important outcomes leading to a future with bigger challenges, goals and achievements in order to consolidate the relation between the inventive and in-

novation activities and the use and benefits of this system. The following are the main outcomes:

- Increase of an annual average of 184 national applications from 2012 to 2013. It is worth pointing out that from 1990 to 2011 the annual average was 94 national applications. From 2012 to 2013 the average growth of national patent applications was 96% compared to the 22 preceding years.

Graph 2

Peru: National Patent of Invention Applications and Utility Model Applications (1990-2013)

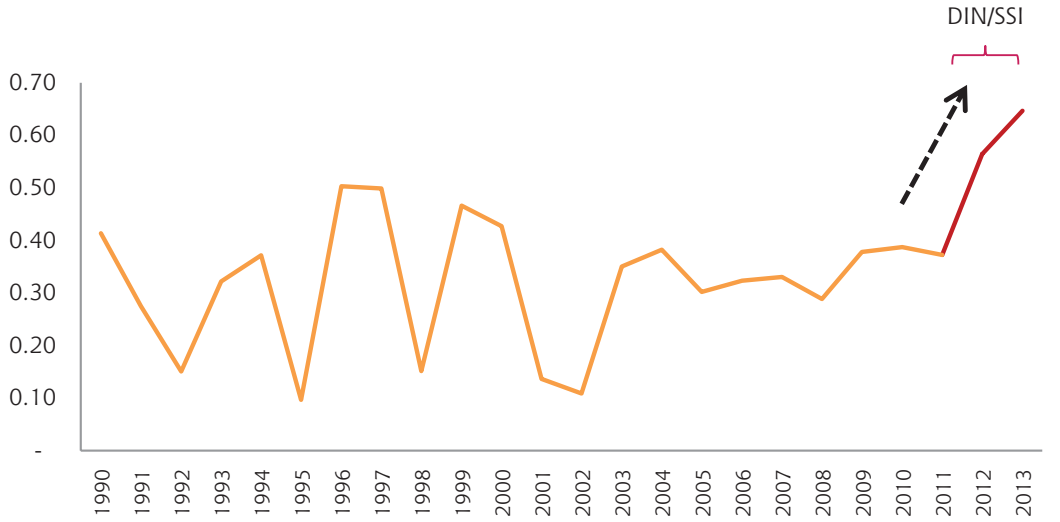


Source and preparation: DIN of Indecopi.

- Increase of Peru's invention coefficient (defined as the number of national applications by residents per 100,000 inhabitants) to 0.61 as annual average from 2012 to 2013. It is worth mentioning that from 1990 to 2011 the annual average of the national invention coefficient was 0.36; hence, from 2012 to 2013, the growth of this average was 69% compared to the 22 preceding years.

Graph 3

InventionCoefficient Evolution - Peru
(1990 - 2013)

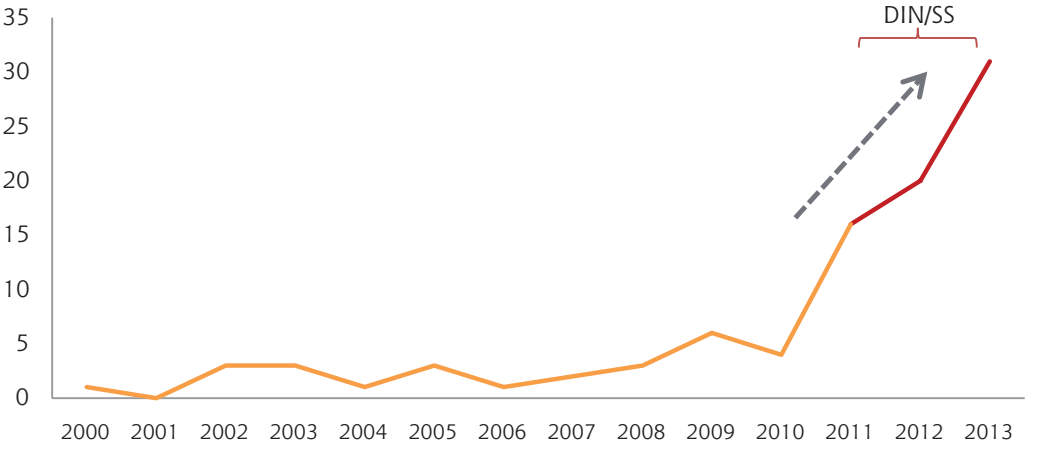


Source and preparation: DIN of Indecopi

- The growth of the number of patent applications by Peruvian universities was an annual average of 3.5 from 2000 to 2011 and an annual average of 25.5 applicants from 2012 to 2013.

Graph 4

Patent Applications by Peruvian Universities
(2000-2013)



Source and preparation: DIN of Indecopi

What other services does DIN provide?

Background Search

After searching the national database of patents of inventions, utility models, industrial designs, and new plant varieties, a standard report on the current situation of applications on a product, process or design, among others, filed with INDECOPI, is issued. The fee is S/. 124.25. For pharmaceutical products, the fee is S/. 252.05.

Technological Information Search

International databases (USPTO, OEPM, LATIPAT, JPO, EPO, among others) are browsed to issue a report on the documents on patents for a product or process that are public domain in Peru and abroad. The fee is S/. 223.63. For pharmaceutical products, the fee is S/. 337.25.

Customer Services

Free-of-charge face-to face, over the phone or virtual orientation on patents, industrial designs, among others, rendered by the Inventions and New Technologies Directorate to the public. Working hours: From Mondays to Fridays 8:30am – 4:30pm

Copy of the Complete Patent Documents

The Directorate provides users with a complete copy of the patent document requested. The fee is S/. 1.00 per page payable upon receipt of the document.

For further information, click on **www.indecopi.gob.pe/din**

II. SUCCESSFUL CASES:

Peruvian patented inventions

Editor's Note:

The order in which appear the inventions are according the application date of patent registration

Date format used in the tables is: DD/MM/YYYY

VÍCTOR RAÚL CANEPA LLANOS

Víctor Raúl Canepa Llanos

DOOR KNOB DRIVEN LOCK BAR

VÍCTOR RAÚL CANEPA LLANOS

1. THE INVENTOR

a. His History

Víctor Raúl Canepa Llanos was born in the province of Huánuco on April 5, 1943. He has committed his life to look for experiences and events to satisfy his curiosity. He founded the company Cerraduras Cantol in 1973, and up to date, he is committed to designing and manufacturing several kinds of security products.

He studied high school in a technical school, in the Regional Polytechnical of the Center of Huancayo, where he received a balance between theory and practice which helped his formation. During his childhood and youth, his father and aunts took him under their wings, mainly because his mother died when she was very young.

When he arrived in Lima, he did college, however, he drop out because he was disappointed since there was only theory in the classrooms. He always thought that educating means to get the best from people, to bring out what is inside; however this does not happen. Educating is not pouring knowledge inside students, instead it is to awake their potentialities, to be themselves, it is the only way to achieve the goals of their lives.

He aspired to receive education for life and he was not going to give up. He then decided that he would become his own university. His goal was to learn public speaking and he studied in Lozada Publishing House, in book selling, where he was trained. There he learnt to speak out and developed oratory skills.

Later, he wanted to learn about hydraulics and he worked in the company Marco Peruana in Callao; he worked with fishing boats that are fishing vessels belonging to the businessman Luis Banquero Rossi. When he was interested in fine mechanics, he worked in Casa Murdoch where he learnt about printers and voice recorders, and about staff identification and attendance control system, among others.

Afterwards, his goal was to determine if he was able to convey what he had learned and if he was able to teach to others. So he worked as a teacher in the Industrial Institute José Félix Iguaín. Although, he enjoyed a lot, he only stayed there for three years. He knew later it was time to continue learning in other fields.

Suddenly, he was very excited about studying mechanical and industrial engineering because he felt more comfortable but the university was closed by the military government during those years. Víctor says that to make ends meet he also manufactured and sold handcrafts obtaining a massive number of clients.

During this phase, the inventor started picturing his future. Many of his clients were worried about burglary in their homes and businesses, they thought it was a problem needed to be solved and nobody was paying attention to. Young Víctor would never forget such complaints.

b. An Inventor is Born

According to Víctor, all people have certain amount of creativeness and inventiveness, but some people have more than other, then these become a talent. He confesses he is lucky because the ideas always flowed spontaneously in his mind leading him to reach quickly solutions.

He reminds that since he was a child he could not avoid dissembling toys to see how they worked. For him, discovering was much more important than playing, and he always did all he could to satisfy his curiosity.

Young Víctor was growing up and he was amazed by the things he run into. The first time he saw a man walking on the loose rope he was not happy until he tried it and checked that it was pretty simple.

He also says that it occurred to him to use in a different way the hot air blowing from the engine of his motorcycle. He thought that instead of discharging it, the hot air would be suctioned and brought to the front part through hoses. The result was a heating system that allowed him to travel through the coldest areas in the country such as Ticlio (or Antícona Pass), wearing just short pants and T-shirts. People looking at him were shocked and did not understand that it was possible.

The inventor cherishes two characters that were his first masters when he lived in Huanta, Ayacucho. Francisco Pino, a watchmaker, and Francisco Acevedo, a mechanic, both introduced him into how appliances work, teaching him how important each part was, repairing many objects, and mainly, innovation, so many products can perform their best.

Besides, he had the chance and he was lucky to meet Iván Socolich, other person helping him develop his skills as person in charge of the Hydroelectric Power Plant in Huanta. Thanks to him, the inventor knew turbines containing huge blades spinning while the water falls down generating electric current.

That is why; he started creating since he was very young. When he was only 8, he made a cushioning system for his bicycle; later he built a double traction bike enabling

him to pedal and keep it moving using feet and hands; a steam engine, a phonograph (gramophone) with echo and reverberation, a machine to generate electricity with water from the rivers or irrigation channels, a wave hulled boat, which was the opposite of conventional, among others. That is why, Víctor very proudly affirms that he was born as an inventor.

c. The Inventor and His Other Passions

The inventor from Huánuco has been interested in several topics, embracing and renewing them through the years. Nevertheless, until now he keeps his desire to communicate his knowledge and experience to other people, particularly young people.

Víctor has been conducting motivational conferences and meetings for 28 years in Peru and abroad, in schools, institutes, colleges and municipalities. He has published a self-help book explaining people that wounds and failures in life can be transformed into the basis for success. *"We must think about being the leading characters and not only actors in our existence"* he adds.

d. Inventor's Motivations

Víctor states that the inventor focusing on money only does not go too far. He confesses that in his case, his internal fears have hugely boosted to invent. The absence of his mother was sad, because he missed her protection. He identifies to other inventors, that just like him, wanted to solve their own personal issues through their creations.

For Víctor, Peruvians are genetically creative and hand skilled more than others. He has observed that his own workers, although having secondary education only and that have never used a single tool, are strongly skilled.

He states that inventing was not scheduled, the ideas just occurred to him. It has generally happened to everyone who has a problem, but only the person that finds the solution becomes an inventor. The world has many problems to be solved; unfortunately, due to this distortion of education, humanity is systematically forgetting how being participative and creative, they are getting used to be only receptive.

Moreover, Víctor thinks that the inventor needs much self-esteem and that has to be fostered. He adds that the inventor also has to understand that he is the leading character in his life. Institutions train but the person must educate himself/herself for life; therefore, he always enjoys participating in everything and not only being a spectator.

> *"Everyone has problems, but only the person who finds the solution becomes an inventor".*

2. THE INVENTION

a. Data Sheet

TITTLE	DOOR KNOB DRIVEN LOCK BAR
Application No.	000976-1971
Title No.	12005
Type	Patent of invention
Patent holder	Víctor Raúl Canepa Llanos
Filing date	15/06/1971
Expiration date	16/11/1981
Telephone	(511) 349-4209 / 349-4414
Summary	The lock-bar is a lock incorporating a unique technology, easy-to-open and easy-to-work. It is not dissembled like other locks, with a two-line of pins. It has a fixation plate as external protection offering resistance when the lock is forced through the external cylinder.
Technical characteristics	It is made of laminated steel, brass (copper-zinc alloy, a material similar to bronze), baked-on paint with electrostatic painting and an electroplating process, with a 12cm x 7cm x 3cm lock mechanism and its bar fits the width of the door since its ends are located crossly on both sides of the doorframe.

b. The Invention

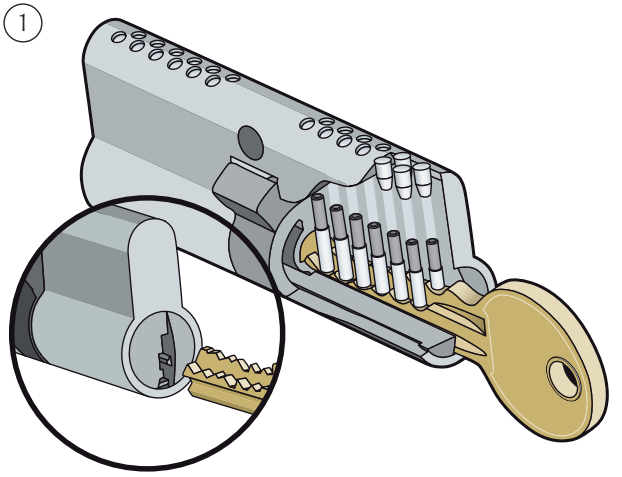
It is a lock consisted of 1.5 mm wide on the outside, 2.0 mm internal mechanism, laminated steel bar, especially designed for wooden doors. This lock has an internal and external bronze cylinder, a conventional key with a conventional drum pin offering

280,000 different combinations, or flat key drums with locks, with two-line of pins, and telescopic pins offering 3'000,000 combinations.

It has a bar or through bar located in one of its ends in a hinged fixation support securing the lock with four bolts completely crossing the door, from end to end, making easy move and rotate it, enabling to be key driven from the outside and besides it offers resistance when the lock is forced through the external cylinder using a lever such as "crow bar", frequently used in burglaries.

Many of its components are manufactured using laminated steel matrixes (dies), the main bar is a rectangular tube, its key mechanisms are made of brass (copper-zinc alloy, material similar to bronze). Bolts, screws, rivets, and nuts are used for assembling and fixing it to the door; related to the finishing of its components: Lock and bar baked-on paint with electrostatic painting, and the rest of its components have an electroplating process.

1



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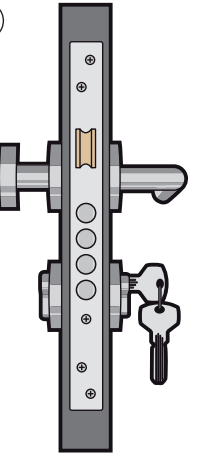

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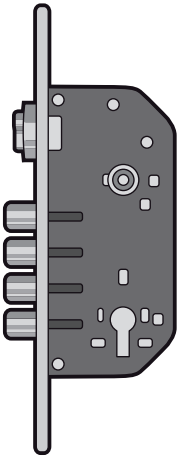

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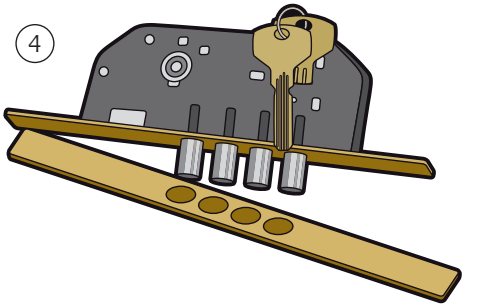


c. Innovative Solution to a Problem

This mechanism was developed to solve a constant problem for Peruvian population, their homes were vulnerable due to an increasingly insecurity in the cities. Víctor finished his creation in 1971, after three years of hard work.

The door knob driven lock bar also solved the inconvenient of previous bars, it does not only provides internal security, but also it can be driven from the outside using a key. Thus, home alone was now possible, because it was no longer necessary to activate the security device from the inside as done before.

He explains that his invention, besides overcoming failures of conventional locks, thanks to incorporated improvements, is even more secure than the previous bars.

3. FROM THE IDEA TO THE MARKET

a. Origin of the Invention

The lock-bar was brought as a solution to a security problem that happened in Víctor's aunts' house. They were afraid of trespassers; they continuously asked him to double check if the door was well locked. This led him to develop a product solving the problem that worried his family as well as the country's population. It was the 70s.

He adds that many times he was locked inside the house when his aunts were out because he had to lock the door. That is why he was so thrilled when he finally was able to lock it from the outside.

b. Developed Strategy

Víctor indicates that in a country where burglary is common, he was sure that his product would have an important demand. He then decided to register the patent for his invention to market it and then to boost his small-sized company.

He adds that in his phase, he only used his common sense, because he did not require market researches about this topic. However, he remembered those regrets and claims of his clients when he started working in activities different from the security business. Definitely, his door knob driven lock bar satisfied a need left unattended.

The main challenge for the inventor was to manufacture the industrial model of his product, in order to market at large scale. He was very keen to build his company and requested a loan in the Banco Industrial. Víctor explained his situation and showed his patent as the only valuable possession supporting him at that time.

Despite hesitation, the executives of the bank finally accepted to grant the loan upon him in order to carry out his projects. The intellectual property was not very well developed in the country at that time, but luckily some people did understand it well and decided to trust in the business potential of the patent and the invention.

An error of calculation did not enable him to make a budget for other expenses that were also needed, but anyway, Víctor was already on board on one of his biggest adventures, the company Cantol. He rented a workshop and purchased basic equipment, he had to manufacture the rest of the machines, and they worked and are operating so well until now in his company.

During these years, Cerraduras Cantol has been consolidated as a leading company in innovation as Víctor has patented new inventions and models of the bar incorporating significant improvements. Such products are being marketed by the company he founded, and have gaining prestige in the Peruvian security product market.

Besides the people that helped him grow up as an inventor, Víctor says he also was supported by his friends to pay the fees to register his patent, and the bank granted a loan upon him to start his own business.

He truly cherishes one of his first collaborator, a very multi-task skilled butcher. At that time, he hired 18 people to manufacture bars only; today he counts with 100 workers and a broader line of products; and his four professional children work in the company to continue Víctor's legacy while he is more focused on invention.

c. Business Information

Table 3

PRODUCT	YEAR SINCE COMMERCIALIZATION	COMMERCIALIZATION LOCATIONS	UNITS SOLD PER YEAR
Door knob driven lock bar	1971	Nationwide	9000

Preparation: The Author.

4. THE INVENTION AND THE PATENT

a. Why Patent?

For Víctor, legal protection, free-risk product trading and the value of the country's rules, as a teaching to others, are the main reasons to patent his inventions.

The inventor states that despite people trying to copy and imitate his creations, he cannot be impeded from innovating and inventing. Patent gives you the certainty that you are the owner of the invention you create. It is a protection offered by the State, but sometimes people try to not to respect this rule.

b. Challenges

In regard to the patent process, Víctor says that at the beginning it was complex, and that the intellectual property system is just emerging in Peru, like baby steps.

c. Opinion about the Patent System

Víctor affirms that the patent process for his inventions was worthy. He is confident that the intellectual property system will be upgraded and ongoing implemented so the process will be easier for the inventor.

Among the main benefits of patenting, he indicates he can use his rights as inventor to, for instance, market his products abroad risk-free. Although the lock-bar was marketed in Peru only, Víctor has filed the patent application for other of his inventions in the United States of America, Spain, Switzerland, and China.

After selling his first bars in Nicaragua and USA, Víctor obtained sufficient resources to build part of his factory and implement it with more machinery, he expects to enter into other markets such as Bolivia, Ecuador, Costa Rica and Mexico where he already sells some products.

> *"I am negotiating to form an alliance with another security product company to sell this line of products abroad".*

PATENTS GRANTED UPON HIM IN PERU

Table 4

N°	TITLE OF THE INVENTION	TYPE OF PATENT	FILING DATE	EXPIRATION DATE
1	Door knob driven lock bar	Patent of invention	15/06/1971	16/11/1981
2	Lock with a new rear drum fixation	Utility model	19/04/2000	19/04/2010
3	Overlapping lock improved by a security element embedded inside its rear facade	Utility model	20/06/2001	20/06/2011
4	Overlapping lock with a new rear drum ring fixation	Utility model	19/07/2005	19/07/2015
5	Overlapping lock improved by a new design in the component and the rear façade	Utility model	07/04/2008	07/04/2018
6	Lock cover improved by fixation plate	Utility model	10/11/2008	10/11/2018
7	One-single piece rear façade for overlapping locks	Utility model	13/07/2009	13/07/2019
8	Improved lock-bar	Utility model	16/12/2009	16/12/2019
9	Blocking component determining to spin the key in the lock cylinder	Utility model	11/04/2011	11/04/2021
10	Interior cylinder case supporting guide with built-in clamp for overlapping locks with one-single piece bulk case	Utility model	17/06/2011	17/06/2021

Preparation: The Author.

Contact Information

Inventor/Company: Cerraduras Cantol

Telephones: (511) 349-4209 / 349-4414

Website: http://www.cantol.com.pe/

Email: vcanepa@cantol.com.pe

IR AL INDICE

HERNÁN JESÚS GARRIDO-LECCA MONTAÑEZ

Hernán Jesús Garrido-Lecca Montañez

ORIGINAL RECTANGULAR BUCKET

HERNÁN JESÚS GARRIDO-LECCA MONTAÑEZ

1. THE INVENTOR

a. His History

Hernán Garrido-Lecca Montañez was born in Lima, in 1960. He studied economics in the University of the Pacific and then a master's degree in Public Administration in Harvard University complementing his formation with a master's degree in Public Policies in Science and Technology in Massachusetts Institute of Technology (MIT). He also obtained a master's degree in Literature in the National University of San Marcos, and a PhD in Applied Economics conferred by the University of Seville.

He came back to Peru in 1985, after completing his studies in the United States of America. He started working in the company Apoyo S.A, engaged in consultancy services, and then as executive vice-president in Banco Interbank, executive of the IFC (World Bank), and later as Minister of Housing and Minister of Health of Peru.

He shares his interest in inventions with his family, his wife and older son have also patented inventions and they trust in the intellectual property system. For Hernán, it is all about the ideas, and it has been his motto in life, encouraged by his interest in promoting invention in the country, he founded the Peruvian Association of Inventors (SPI) in 2000.

b. An Inventor is Born

Hernán always admired inventors such as Graham Bell, Tesla, Leonardo Da Vinci and the Wright brothers. *"They have been a source of inspiration and have thus contributed to analyze the world we live today. Each time there is more money than ideas and more technology than content"* he adds.

He says that when he was admitted in the University of the Pacific, Javier Pulgar Vidal with his work on Peru's natural resources and genetic material was a huge influence on him. He embraced Pulgar's ideas since years later he worked certain inventions related to aquaculture and biotechnology; on the other hand, Emilio Castañón opened the inventor's mind into other possibilities such us the use of airship in the country for transportation purposes.

Such experience and others not necessarily related to invention, showed him that the ideas can be a source of wealth and that Peru is not in a disadvantage position against other country, reaching the economy that is fundamental so Peruvians believe in us.

c. Inventor's Motivations

One of Hernán's main motivation is to claim creativeness as part of the local culture, because he says Peruvians have invented stuff throughout history, for example, Andean terraces and irrigation systems used in ancient times to cultivate staples, the dyes used for blankets by the Paracas people preserved and endured during time; urban planning organization discovered in the city of Caral, among others.

This all helps Peru recognize itself as a creative country. Furthermore, the inventor states that to perform activities, an inventor must be able to question how things are made, identify recurrent and daily problems, have global vision, analyze cost-effectiveness and last but not least, develop tenacity to persist in the idea, instead of challenges popping up.

> *"An inventor must be able to question how things are made, to identify recurrent problems, have global vision, analyze cost-effectiveness, and develop tenacity".*

d. The Inventor and His Other Passions

For Hernán, his sides are the "same sides", he defines himself as creative in economics, politics, and business; besides economist, politician, writer and inventor, he is a sailor and a pilot. He was interested in learning how to fly aircrafts and studied aviation in the United States of America and Peru, piloting an aircraft for the first time in 1984.

He is a child literature writer, with more than 20 published books with references to the world of inventions. Likewise he currently works as a professor in the Continental University of Huancayo. The courses are related to innovation and invention, always promoting this agenda in the country. His goal is a course-workshop in which attendants patent their inventions as part of the final grade.

Hernán is also an entrepreneur and made the first animated movie in Latin America released in 23 countries. In the artistic field, he produced a ballet piece based on one of his short stories.

2. THE INVENTION

a. Data Sheet

TITLE	ORIGINAL RECTANGULAR BUCKET
Application No.	000215-1997
Filing date	19/03/1997
Expiration date	19/03/2007
Title No.	0139
Type	Utility model
Holder	Hernán Jesús Garrido-Lecca Montañez
Telephone	(511) 441-7154
Summary	A rectangular ice bucket with a sliding top enabling to use ice cubes one by one as the user needs.
Technical characteristics	It is composed of 16 trapezoidal ice-cube compartments. The bucket and the top are made of plastic. Measurements: 30 cm length x 13 cm width

b. The Invention

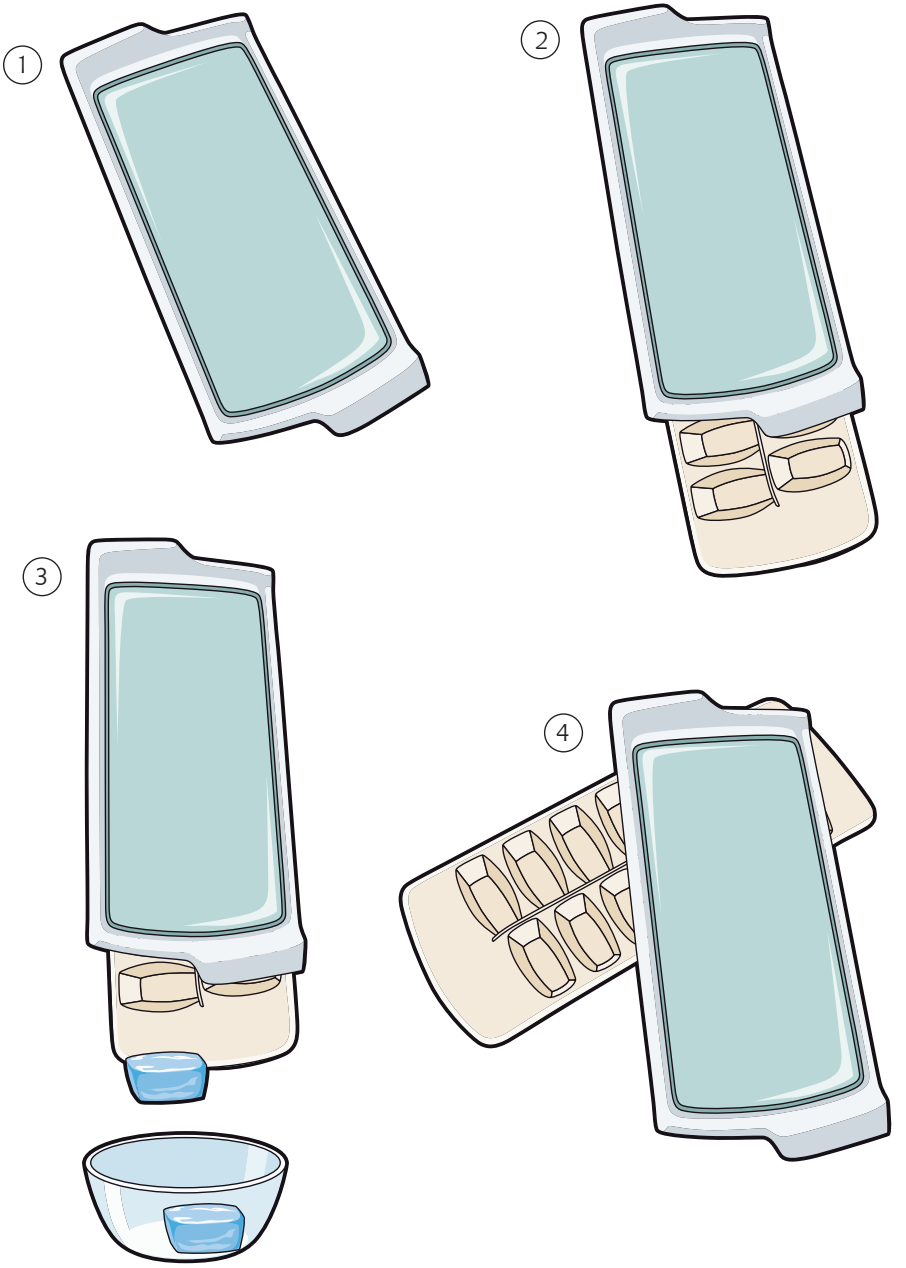
The topped ice bucket invented by Hernán is provided with a rectangular top inserted in order to isolate the ice from smells and prevent the water from spilling when the bucket is put in the refrigerator. Each one of the compartments counts, at the bottom, with a softer plastic circular area placed in its central area enabling to take off the ice without the others falling down.

On the external lateral side of each one of its rails, there are several dentate protuberances enabling to support and stack several buckets. On the upper side of the tap, an 'L' shaped slot dispenses the cubes one by one.

c. Innovative Solution to a Problem

The topped ice bucket is a solution to a problem affecting many people worldwide. In summer, when heat rises, and people needs refreshing, it is usual to look for a cold beverage and add some ice to mitigate heat. However, ice cubs sometimes are not put into the glass we want, against our will, they feel out to the table or the floor.

Hernán found that it was a daily and recurrent problem affecting many Peruvians; in fact, affecting many people around the world. Therefore, after some thinking, he realized a topped ice bucket was needed, so ice cubes are dispensed one by one, to finally meet the chosen beverage.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3. FROM THE IDEA TO THE MARKET

a. Origin of the Invention

The idea for his most famous invention, the topped ice bucket, enabling to dispense ice cubs one by one, occurred to Hernán in 1996, when he was working in an investment bank, and he fell down in his kitchen due to ice cubs that fell down to the floor and not into the glass. He deeply analyzed the problem, then his idea and he realized it had many benefits, not only saving water, but also energy; that is why it is an ecological product.

That same year, he submitted his invention to the II INDECOPI National Invention Contest, and he ranked first with his "1x1 ice bucket". In 1997, as part of the recognition given by the Contest, he won a travel to Geneva, Switzerland, to the XXV International Exhibition of Inventions, where he won the Golden Medal for the same product.

b. Developed Strategy

After thinking about his topped ice bucket, the inventor looked for resources to manufacture the prototype and get an end-product. He thought that the best alternative to use his creation was to register his patent as a utility model; this would enable him to market through several channels and obtain an economic benefit as a result of his efforts. And so it was.

Hernán highlights that to realize the ice bucket was an important invention, he did not use any research market, and he was convinced in manufacturing it because it solved a daily and recurrent problem. In this sense, he adds that sometimes the outcome of a market research does not show a demand for a product, because consumers are not necessarily aware that they have an unsatisfied need for a product (that does not even exist) to be solved.

> *"Sometimes, the outcome of a market research does not show a demand for a product, because consumers are not necessarily aware that they have an unsatisfied need".*

When he developed his idea in Peru, the main challenge was to manufacture his product, to manufacture the prototypes. Luckily, the businessman Orlando Federici, of IDIESA, believed in his invention and invested in the first molds.

Nevertheless, after having the product on his hands, the inventor had to overcome other barriers to market it. He indicates that it was very difficult to convince other people that the bucket was good since companies usually think products from abroad are better. In this sense, it was also difficult to explain why his invention was more expensive than the conventional bucket. They did not understand that it was a superior product; therefore, its price should be more expensive.

Finally, Hernán recalls gratefully that only Erasmo Wong of the company Wong gave him the chance to sell his bucket in its stores. However, the expected success did not happen because of the price Then, it occurred to him to sell them in the United States of America, in a more global and extensive market, that was what he needed for his product.

In the United States of America, the inventor found two more challenges. The first one was that patent registration fees were highly expensive; the second was that the bucket design did not meet global quality standards; that means, it did not match what the market was looking for.

Fortunately, thanks to Eduardo Deneumostier of BASA, he contacted some companies and after identifying the one he considered a strategic ally, he decided to license his patent for 20 years with the company Oxo Good Grips (belonging to General Housewares Inc.). Thanks to the interest shown by this company, it was agreed that this company assumed the patent registration fees to be later discounted from his royalties; the company also paid for redesigning the bucket considering the opinion of specialists in industrial design of this company; a huge achievement for the inventor who was able to successfully overcome both barriers, economic and technical.

He was advised by the company's advisors who chose the proper material, color and style so the product becomes alluring to the public. Currently, the ice bucket is marketed worldwide by the American company Oxo, devoted to a wide range of household products. It is worth mentioning that Hernán successfully patented the bucket in the United State of America where a patent is only protected during 20 years.

The inventor born in Lima is convinced that a daily and recurrent problem must be solved by an invention so it is widely and successfully accepted by the market; from the business point of view, it is unusual to find the support from businessmen; and from education institutions, they are just learning about this subject.

Hernán recognizes as actors intervening in developing his invention his wife and kids because they always supported his work and dedication. Furthermore, he considers INDECOPI a major actor, since he ranked first in the II National Invention Contest in 1997, he was encouraged to continue developing his ideas and turning them into inventions.

Likewise, he considers that Orlando Federicci also contributed to his success because he was the first Peruvian backing up his invention, the company Wong that helped him market it in Peru and the American company Oxo to which he licensed his patent; this company trusted in him and in his product.

c. Business Information

Table 5

PRODUCT	YEAR SINCE COMMERCIALIZATION	COMMERCIALIZATION LOCATIONS	UNITS SOLD PER YEAR
Topped ice bucket	1997	Nationwide and worldwide	210,000 (2013)

Preparation: The Author.

4. THE INVENTION AND THE PATENT

a. Why Patent?

Hernán decided to patent his idea in 1996 because he always trusted in the intellectual property protection system. Although such subject was brand new at that time, he was sure that it could be more developed in the country because the concept of creativity is quite broad.

Currently, he has three patents granted by INDECOPI, and one granted by the United States Patent and Trademark Office (USPTO). Besides the bucket, another protected invention is a Guinean pig food trough identified as a need of the market, because chicken food troughs were used and many Guinean pigs chocked. He has also produced a vertical birth chair, a bio-pencil composed of seaweed and a sieve instead of wood to wash vegetables inside the object, among others. Patent filing is ongoing for some of these inventions.

b. Challenges

To file a patent, Hernán contacted lawyers specialists in the matter, and other inventors friends in Peru. INDECOPI also provided timely information on patent application, which made easier prepare the technical document.

He says that although registering a patent still is too long, the system has been improved and some major variations have already been implemented, patient is needed sometimes, but obtaining a patent is a title highly valuable for the inventor.

c. Opinion about the Patent System

Hernán recognizes that thanks to the prize, he obtained new and more opportunities; although nowadays his incomes as an inventor impedes him to cover all his expenses, he does receive significant incomes from intellectual property. He comments, with humor, that the royalties from his children's books and inventions will be higher than his pension from the AFP upon retirement.

Currently, his product –also patented in the United States of America – is still sold, and during these so many years, he still received royalties quarterly and promptly. The amount is related the product sales; therefore he never knows exactly how much it is. In a quarter, he gladly received 6.500 American dollars.

"I picture myself in more inventions in the future. I have several developed ideas and more others are coming. I consider that the inventor's work ends licensing the patent and then the inventor must move on and continue creating."

PATENTS GRANTED UPON HIM IN PERU

Table 6

No	TITLE OF THE INVENTION	TYPE OF PATENT	FILING DATE	EXPIRATION DATE
1	Topped ice bucket	Utility model	08/11/1994	08/11/2004
2	Original rectangular bucket	Utility model	19/03/1997	19/03/2007
3	Fluorescent match box (*)	Utility model	04/07/1997	04/07/2007
4	Safe electrical outlet (*)	Utility model	13/03/2003	13/03/2013
5	Guinean pig food trough (*)	Utility model	15/05/2006	15/05/2016
6	Compact radial decoupler (*)	Utility model	12/04/2007	12/04/2017
7	Vertical birth chair-bed (*)	Utility model	21/06/2010	21/06/2020

(*) In the case of these inventions, the patent corresponds to joint inventors.
Preparation: The Author

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JOSÉ MARÍA VIDAL MARTINA

José María Vidal Martina

GLASS PERFORATING DEVICE AND GLASS PERFORATING METHOD

JOSÉ MARÍA VIDAL MARTINA

1. THE INVENTOR

a. His History

José María Vidal Martina was born in December 25, 1955 in the city of Pucallpa, located in the department of Ucayali. He considers the invention captured him, the rest was just to realize that he had always been looking for alternative to make his task simpler. He founded the Inventors' Virtual Network in 2002, and through the virtual group and an email, he could preside such group during its first three years.

He arrived in Lima and studied Business Administration in Inca Garcilaso de la Vega University. Later, he worked in one of the largest gold and silver factories in South America, located in Chorrillos, performing as logistics head for several years. He had access on a daily basis to many artifacts and tools used by other workers, and José María understood the usefulness and importance of a quality product.

The inventor-to-be was very curious about the functioning and difficulties of the arriving equipment, and he realized they lack of accurateness during performing their work. He though and the reason was that these products were not manufactured in Peru but it was possible to do that and upgrade them.

In his search of more freedom to run his own business, he was engaged in semi-precious stone buying and selling, leading this business for 20 years. He marketed necklaces, turquoise, opal and other stones highly demanded in those years. The business thrived and he was happy with the achievements obtained by his efforts.

b. An Inventor is Born

José María was always very observer and was focused on the ongoing processes around him. Curiosity led him to analyze the artifacts and tools arriving to the company's warehouse where he worked. After noticing how important these things were for workers, he was intrigued to know more about why not make these things better, why not manufacture them in the country, so we no longer depend on the spare parts arriving from abroad.

After changing his activity and engaging in the semi-precious stone buying and selling business, José María found himself in the situation of working with expensive ultrasound

machines to perforate stones, these machines were not practical or accessible enough for his requirements. Suddenly, searching for alternatives for this already mentioned equipment, he managed to improvise a diamond bit for helping him perform his activities. Although the product he designed and built for the first time performed better finishing, to manufacture it was still quite expensive. The inventor had to keep looking for other alternatives.

c. Inventor's Motivations

José María states that the main motivations driving him towards inventions are to be different from others, to be an outstanding businessman, and achieve a success translated into a better economic situation, all thanks to his creativity and inventiveness.

He considers all people have geniality, particularly those that specialize themselves. In the case of inventors, they have to focus, develop a product, be fully confident, research about the state-of-the-art technology and persevere until reaching goals.

> *"All people are ingenious, particularly those who specialize. Besides concentration, an inventor must be confident, must have capacity to engage in research and must be persistent to achieve his goals".*

d. The Inventor and His Other Passions

José María has proven to be a strong man, not only as an inventor and entrepreneur, but also as a sportsman. He has been practicing boxing since he was 15, being a champion in 1972.

He is also deeply interested in researching and documentation, technology and, of course, intellectual property.

2. THE INVENTION

a. Data Sheet

TITLE	GLASS PERFORATING DEVICE AND GLASS PERFORATING METHOD
Applilcation No	000306-1999
Title No	2560
Type	Patent of invention
Patent holder	José María Vidal Martina
Filing date	15/04/1999
Expiration date	15/04/2019
Telephones	(511) 992050162 / 949780525
Summary	A device used to perforate glass, tile, ceramics, marble, and semi-precious stones; composed of three elements: a tubular bit of circular section, a template guide and an abrasive mixture.
Technical characteristics	The metallic section is made of carburized steel and the complementary section is made of plastic and is microporous; mixture is made of silicon carbide and water.

b. The Invention

A longitudinal incision bit, an aperture at the top and an internal device distributing the abrasive mixture with a 1/4" diameter rod located on the rear side enabling to be used with the most conventional drills. On one end of the tubular bit there is a central axial shaft used to be attached to the drill. On the other end, it has a slot distributing the abrasive mixture during use; there are also inside trowels distributing the abrasive material towards the slots.

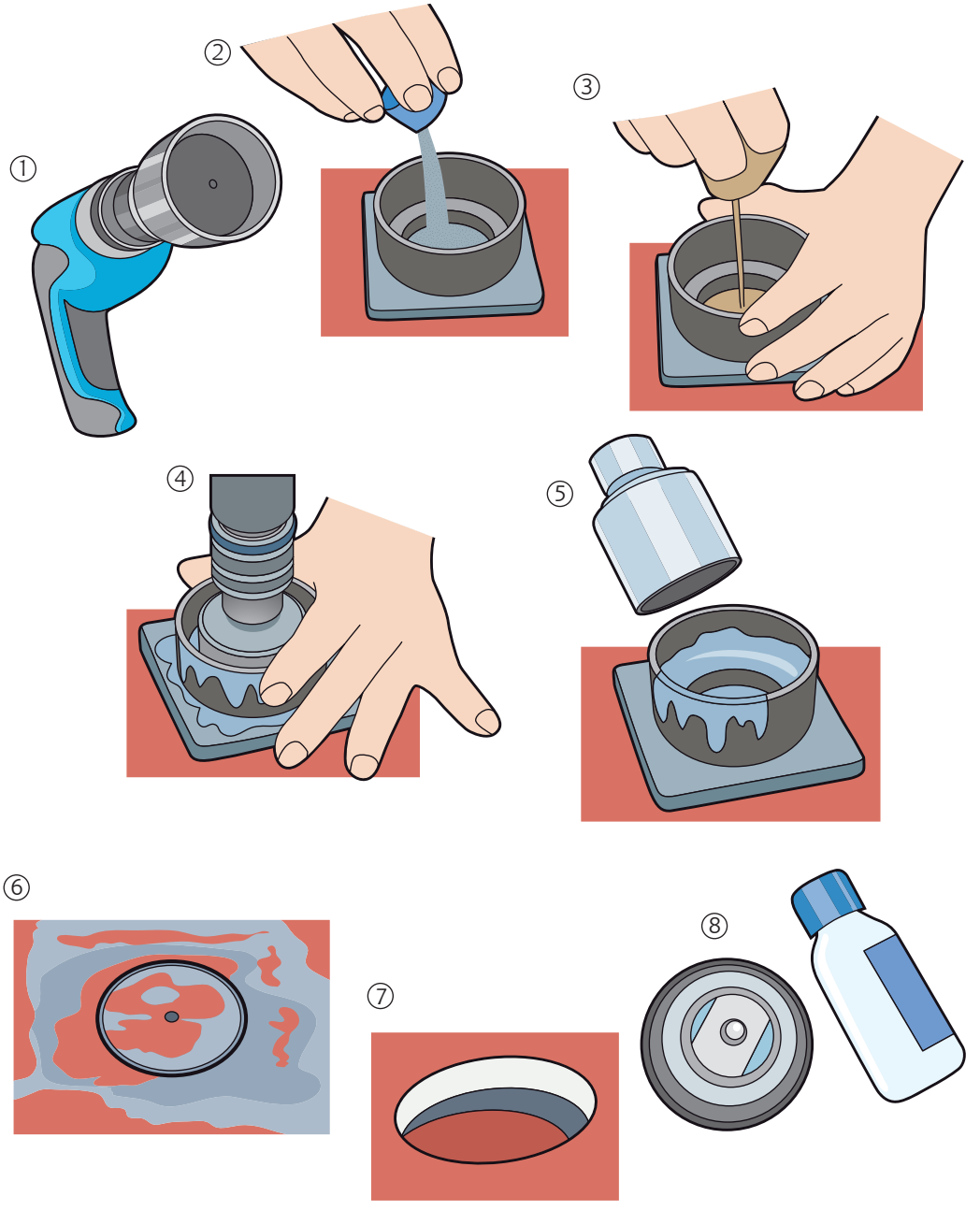
The template includes a central aperture and a slightly conic hole located on a section of the rim of such aperture; the central aperture diameter is equal to the external diameter of the tubular bit. This bit is used to perforate materials such as glass, tile, marble, porcellanato, ceramics, and granite.

c. Innovative Solution to a Problem

In the 90s, José María saw a gloomy panorama for business. In his case, country's internal conflicts made hard keep average production of the semi-precious stone business. He worked with ultrasound machines to perforate stones without cracking; this cost periodically three thousand dollars. Times were difficult, he did not only need more machines, but also he needed to replace the damaged ones.

The idea of the glass perforating device and its method came as a solution for these problems. He though that the drill, one of the most common tools, should be the basis for this new product; and then he added a bit. He was right and thanks to this vision the device was not awkward for the workers of the productive sector; they have been waiting for such product.

The need of many people in the construction business such as builders, carpenters, glass workers and other craftsmen was now satisfied. This tool imitates the work performed by ultrasound machines, making quick and smooth cuttings, from the most fragile glass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PERFORAFACIL
PORCELANATO

to hardest porcellanato, stones, and granite, without cracking them and preventing them to lose their sharpness and durability.

3. FROM THE IDEA TO THE MARKET

a. Origin of the Invention

The inventor found himself in a complicate situation; he had to continue working with neither the same incomes nor the same production level. Using his entire experience and deeply researching all perforating systems existing at that time (with diamonds, ultrasound machines, abrasive and water cutting systems, among others), one night he was working late in his workshop and an idea suddenly came to him.

He though that to solve the perforation problem, he needed a product working just like the expensive machines he could no longer afford, but at the same time, a product adaptable to a tool used by everyone such as a drill. As a result, he created a drill that in less than one minute could perforate materials such as glass, marble or ceramics in different sized holes. And the best, it was not such expensive for users.

It was not difficult to come with the idea and then prove the efficacy of his invention, putting it into practice, he made several demonstrations and even his own friends were surprised by the results: accurate cuttings, record time, and several well-done and smooth holes in different kinds of materials. It was the invention that would make easier many people's work and José María's ups and downs journey has just began.

b. Developed Strategy

José says he was convinced that his product could reach many people. There was a market of craftsmen, glass workers, and builders left unattended, while he had a product that was quicker, cleaner and cheaper than any other existing at the time. And, as an additional advantage, it offered several applications in one single tool.

He had identified a huge market niche in this area since there was neither an economic method nor product for drilling or perforating materials such as glass, marble, ceramics, granite, and semi-precious stones in general. It is as simple as watching on the streets or buildings cracked walls and floors due to an inappropriate tool. The world looked so cracked to the inventor, but he had the solution. José María immediately understood that to commercialize his invention he had first to protect it through the patent system.

> *"There was market sometimes left unattended, and I had a product that was quicker, cheaper and cleaner than those existing at the time."*

Among the main challenges this inventor faced, there was transforming his first prototype into a commercial product accepted by consumers, international promotion to contact multinational companies, product marketing and advertising, and technical assistance required to enhance the inventions' benefits. At the beginning, he knocked on several companies' doors, but he soon realized that it was not about the quality of the product but some people of the market was not that interested in new products. These companies currently receive great profits from manufacturing lower-cost products because they are known in the market and they prefer not to take any risk with new products or recent inventions.

Luckily, after managing to distribute the product through specialized stores, he finally reached his goal in 2002 in Maestro Home Center; shortly after Sodimac and Promart started marketing the product in 2012 and 2013. However, he also realized advertising was needed, so he had to make a significant investment in visual material and a permanent exhibition and training center. It was a major decision enabling him to defeat people's resistance to a new product, whether due to lack of information or natural suspicious.

Another difficulty was to make understand companies and allies that the super bit require a training material addressed to users in order to perform a quality work because it is a different system that needs to follow instructions from the beginning. José María adds that manufacture at industrial scale is needed to obtain an economical, efficient and effective product; therefore, prices could be lower, the material and product presentation could be improved making the product attractive for clients.

José María indicates that having won the 1999 National Invention Contest encouraged him to protect his invention also in other countries. Along with the experience and such recognition, he knew a large number of invention events held worldwide.

In another Indecopi contest where the inventor participated, he had the opportunity to negotiate with important companies interested in his perforating equipment. They wanted to be part of the success of the super bit and were looking to promote it, financing the participation of this product in international fairs.

Nowadays, the bit is manufactured in Lima by the outsourced workers and a close group of assistants. The main part, which is metal, is manufactured by a few workers at small scale; while sealing and assembly the parts is done by outsourced workers. Two companies are in charge of packing the product; one is in charge of printing the carton film, and the other provides the protection transparent plastic blister.

José María founded the small-sized company Brocas JVM E.I.R.L that receives purchase orders from distribution stores. Beside such mentioned channels, he directly sells his invention in a stand specialized in construction products in a shopping mall located in Lima downtown.

Afterwards, José María obtained some partners to market his product in the United States of America but there are still no expected results cause of inadequate promotion and sales system conducted by them, and not considering training the client in order to use the new system.

c. Business Information

Table 7

PRODUCT	YEAR SINCE COMMERCIALIZATION	COMMERCIALIZATION LOCATIONS	UNITS SOLD PER YEAR
Glass perforating device and glass perforating method	2000	Nationwide and worldwide	15 000

Preparation: The Author

4. THE INVENTION AND THE PATENT

a. Why Patent?

According to José María, patenting was the corresponding next step after inventing the super bit because registration provides a 20-year protection for his invention, and a higher value widely appreciated by any entrepreneur.

His friends convinced him to patent preventing others from copying it. They saw how the product worked and were amazed by the results obtained, and by the creativeness and inventiveness of the inventor from Pucallpa. He also patented his invention in the United States of America because he considers such country a major market that can open doors to other markets.

b. Challenges

José María considers people believe in the patent system but then it takes too long. The first thing he did was to obtain information about how the intellectual property system works in the country. Luckily, in Indecopi he received even free of cost advisory service.

The inventor adds that the system includes fees considered expensive, and sometimes the beginner cannot afford to pay them; there are many researchers with little resources that think they have a shot but remain stuck.

c. Opinion about the Patent System

For José María, any person discovering something must protect it; the system shows patenting as the only way. Thanks to Indecopi, he was instructed on protecting intellectual property. He thinks learning was huge heading this product far way.

For instance, he currently sells his equipment to 70 major stores in the country and just sold 2,000 equipment to Sencico. During all this time he has earned more than one million dollars with this product, but he had to invest in advertising, promotion and fairs. Nevertheless, there is no doubt that as he keeps working, the product is more profitable.

> *"I wish the country becomes again a nation of gifted people for the world. I believe that one single example is sufficient for all Peruvians to transform their roofs into laboratories, or their garages into production workshops."*

Table 8

N°	TITLE OF THE INVENTION	TYPE OF PATENT	FILING DATE	EXPIRATION DATE
1	Glass perforating device and glass perforating method	Patent of invention	15/04/1999	15/04/2019
2	Bulletproof glass and ceramics perforating equipment for vertical or horizontal perforations	Utility model	20/11/2007	20/11/2017

Preparation: The Author

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SMALLVILL S.A.C

Carlos Villachica León

PROCEDURE FOR ACID WATER NEUTRALIZATION, DISSOLVED METAL PRECIPITATION AND PRECIPITATE SEDIMENTATION RESULTING FROM MINE TAILINGS

SMALLVILL S.A.C

Carlos Villachica León was born in the province of Chanchamayo, on February 5, 1949. He studied Metallurgical Engineering in Lima, in the National University of Engineering (UNI), then he obtained a Master of Science abroad. Throughout his career, he was digging to find a clean solution to environmental problems arising from mining; therefore, he was ahead of his time creating products for country's needs related to mining without negatively affecting our biodiversity.

After graduating in the UNI, he received a scholarship for metallurgical post degree studies in the United States of America. Thanks to his good performance, he also received a scholarship for training, graduated with honors. During those years, he was devoted to study keeping his environmental approach. As part of his thesis to receive his professional title in engineering in 1974, he designed a Countercurrent Washing Plant that reduces pollution in the Mantaro river, still operating in La Oroya.

Afterwards, he worked for 10 years in the Metallurgical Complex of La Oroya, in the prestigious Metallurgic Research Center where besides extracting, fabricating and reusing metals, he also received works from other countries to refine complex ores; he worked with A-professionals and highly skilled technicians.

While working with metallurgical technology since he started, he always provided a plus for the companies. With the experience obtained in his professional activity, he founded in 1996 the company Smallvill S.A.C, committed to develop "clean" technologies for the mining sector. Currently the company renders consultancy services and the profits are invested in researches. The company employs 12 engineers and 8 people composing the administrative staff. Thanks to the experience acquired during work, he personally runs the research area in the company.

a. An Inventor is Born

According to Carlos, the inventor needs sudden ideas to become and inventor. He recalls some these sudden ideas when he was a child playing soccer with one of his brother. His father gave them as a gift a ball, but sometimes they were not allowed to play because they should focus on studying.

So, to keep his brothers focus on his studies, his older brother hid the ball in the low area of the closet, where he usually kept the shoes, and locked it in. The kids were desperate and unable to find their favorite toy until they could see it through the upper drawer of the furniture. There was an urgency, and the kids had to use his creativity to find a solution.

Of course, firstable, they unsucceeded, but little Carlos though he should deflate it. A ball with no air was easy-to-take, and finally, they could play again and enjoy their age. Once the game finished, the ball was introduced again from the outside into the closet, was blown again, the older brother was clueless about what was going on.

After exams, they got such good grades that they told their older brother about the prank. He understood the kids and told them it was needed to schedule activities, a time for studying, and a time for playing.

Years later, while working in La Oroya foundry and refinery, he got closer to researching. He says that one invents picking parts and that is the way to make connections. He adds he is lucky for being in Peru with so much diversity and where nature challenges us all the time.

The Metallurgical Complex of La Oroya had a Research Center where he collaborated; additionally there were three other pilot plants where he tested all processes; and 7 concentrators where he studied all Peru's complexity. When he retired, this center had already obtained several patents on invented procedures as a result of researches conducted by talented Peruvian and foreign engineers and technicians whom he was lucky to work with.

b. Inventor's Motivations

For Carlos, inventing is almost like an entertaining sport. In Peru, there is no longer much time to generate science and be at the same level of other countries, but leaping forward is possible. He is convinced that people must change the chip and think about finding another solution to problems.

He finds himself as a workaholic and he is hook up to research. He adds that the inventor must keep, mainly, enthusiasm, believe in himself, and often, think backwards to innovate.

> *"The inventor must keep his enthusiasm, believe in himself, and think backwards to see what others missed. This is the only way to innovate."*

c. The Inventor and His Other Passions

Carlos was always an outstanding student. He has written articles since the second year he started working in the metallurgical field, and has been a professor in UNI. He currently makes enough time for lectures because he is interested in bringing young people into research.

The inventor has also other interests such as finding more suitable mechanisms to permanently help poor population in the Andes and in the jungle through mining endeavors at an adequate scale in a sustainable and solidarity way.

As a good Peruvian, he loves his country and believes that being committed to inventing for the Peruvians and its environment's sake is the best way to thanks for being born here. He also likes soccer that he sporadically plays to keep contact with friends, and he also enjoys traveling in the country and abroad.

1. THE INVENTION

a. Data Sheet

TITLE	PROCEDURE FOR ACID WATER NEUTRALIZATION, DISSOLVED METAL PRECIPITATION AND PRECIPITATE SEDIMENTATION RESULTING FROM MINE TAILINGS
Application No	000901-2000-OIN
Title No	3506
Type	Patent of invention
Patent holder	SMALLVILL S.A.C
Filing date	01/09/2000
Expiration date	01/09/2020
Telephone	(511) 481-8530
Summary	The NCD procedure (Dynamic Neutralization and Coagulation) is used for the treatment of acid effluent from mines. It uses tailings as coagulant to accelerate sedimentation and reduce the room for solid storage. It is obtained after total sulfide mineral flotation and tin recovery.
Technical characteristics	The process is based on the electrostatic attraction existing among the colloids of metallic precipitates, with positively charged surface, and the cryptocrystalline particles of the tailings (generally carbonates and silicates) with negatively charged surface to achieve a solid-solid coagulation of the first ones on the surface of the particles of the tailings. The neutralization capacity of the carbonate particles abundant in mine tailings is also used.


KYNTEL
2000ml


354
2000
1600
1200
800

b. The Invention

The patented procedure is used for treatment of mine's acid water effluents. First, the tailings (waste) are used to neutralize reducing the lime consumption, and most important, it is used to coagulate. When lime is used, very thin precipitates are formed and these are hard to settle. But, tailings, due to the cryptocrystalline particles, 200 times higher with negatively charged surface, absorb the negatively charged colloids, taking the combination to a charge near zero, expulsing then the water molecules that compact the precipitates that are usually huge.

This NCD process (Dynamic Neutralization and Coagulation) makes possible that colloids from precipitates remain attached as a painting, and are settled much more rapid than in conventional systems; besides an extra storage tank is no needed, that is, it helps get high speed sedimentation and slurry high density.

c. Innovative Solution to a Problem

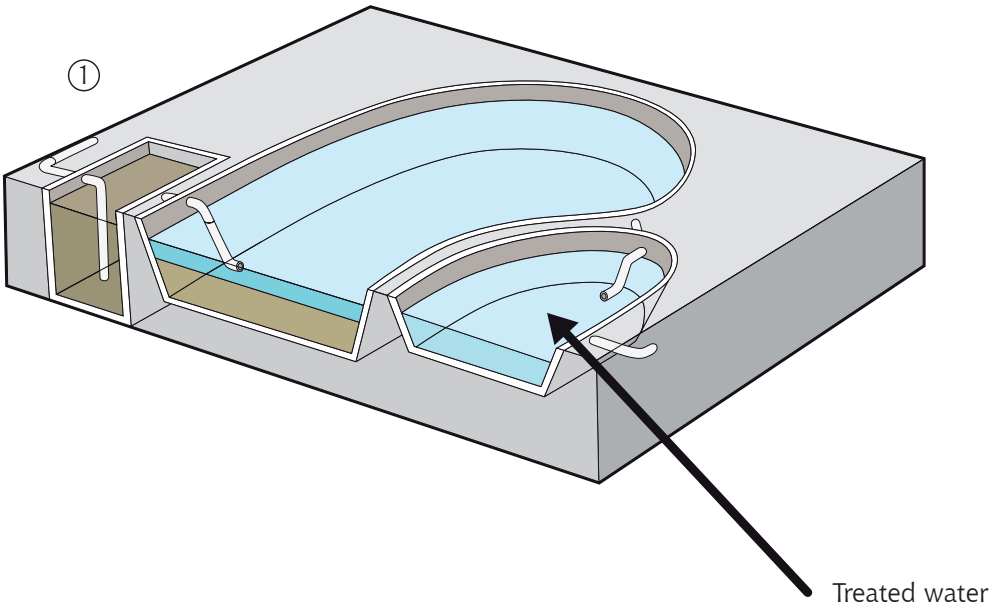
Peru is a well-known mining country. Along with mining positive aspects, there are many times negative aspects where these companies conduct business, such as mine tailings containing highly concentrated chemical pollutants. Many communities, institutions and organizations are constantly searching instruments, devices and new researches to mitigate these negative effects.

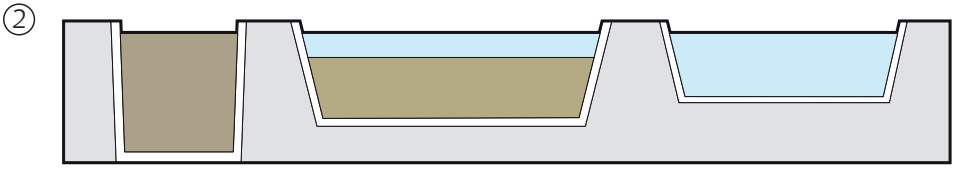
That is why mining companies require for operating not only an ore processing plant using chemicals to obtain the expected product as an indispensable part, but also an effluent treatment plant is needed to reduce waste and avoid affecting natural resources such as water and soil, and therefore, human's health.

The NCD process, patented by Carlos, uses tailings, a common mining waste, as an input. Thanks to this invention, tailings are coagulated and settled quicker, thus effluent treatment plants more compacted and less expensive, with less room for

storage, are needed; therefore, the company's capital cost is from 8 to 10 times cheaper than in conventional plants. Besides, it reduces the operating cost in 60% and, environmentally it does not need more land since the area is smaller and construction is quicker.

On the other hand, this invention solves a frequent problem in the mining sector, the extensive use of land for exploration and exploitation that has been negatively affecting during years the land production for agriculture and population engaged in this productive activity.





2. FROM THE IDEA TO THE MARKET

a. Origin of the Invention

Carlos indicates that it is necessary to have an accumulated technical culture for inventing. The idea of the invention occurred to him when he was looking for solutions for effluent acid water treatment in mining. There were technologies developed abroad but highly expensive, and most times inapplicable in altitudes and small land available in the mining sector.

Nevertheless, he reminded another process he developed for a previous job, a traditional metal recovery process. At that time, he observed that slime, colloids attached to the ore, gave a dirty product, in which the metal recovery was not possible. As part of the work back then, he developed practices to avoid that.

The idea matched exactly to what he needed with acid water effluents, but now he needed to keep the particles joint together. He reminded that property and related it to the tailings, then he decided to apply it so sedimentation does not longer produce slowly and the particles of the tailings stick together. He conducted some tests and then he succeeded.

Carlos analyzed better the "why" factor, and realized that the critical factor was the low speed of sedimentation of colloid precipitates and the huge volume of water retained due to very tinny electrically charged particles.

The inventor says he though backwards, and what was then a problem, became now in the solution. Sometimes ideas occur because they were already seen somewhere else. *"The inventor, having the idea, looks for the problem, and other times, having the problem, looks for the ideas"*, he adds.

b. Developed Strategy

The NCD procedure was the first of all Carlos' inventions and has been the most sold. This technique has been created thinking, mainly, in the Peruvian situation characterized by its wide range of diversity in its three regions, mountain range or chains, and difficult topography, variety of minerals, climates, altitudes and mining (large-sized mining, medium-sized mining, small-sized mining, and traditional mining) as well as illegal mining and informal mining.

When the mining company Volcan Compañía Minera S.A.A requested proposals for acid water effluent treatment in large streams, Carlos proposed them the innovating idea he had already developed and that its application would hugely save operating and capital costs; Carlos competed with foreign companies and technologies, but he offered, bearing the expenses, to manufacture and operate a Pilot Plant that proves the process efficacy and narrows down client's skepticism. Once the NCD process efficacy was proven, the procedure was patented.

Back then, the NCD Plant of Victoria Tunnel was at global level, operating the largest volume of effluent acid water stream over 4000 meters above sea level. It is currently and successfully operating during 10 years.

Carlos is aware that it is important to track environmental standards and be ahead of their repercussion. This has helped develop technology in accordance with market trends, ensuring the sales of their products. As a company, he has chosen to bill engineering first and then the aggregate value corresponding to his services.

"I competed with foreign technology and companies, that is why I offered, bearing the costs, to fabricate and operate a Pilot Plant that proves the process efficacy and narrow down client's skepticism. Once the NCD process efficacy was proven, I patented the procedure."

The challenges faced by the inventor natural from Junín were and are related to implement his product. Barriers and difficulties appear because Peruvian government and businessmen do not still believe in local inventors' capacity and they still prefer product from abroad. *"This perception and limitation has been very common among authorities"*, he adds.

There are some companies willing to buy his product, but at the same time there are arrangements made by foreign consultancy firms or mining and building companies. Luckily these arrangements have not impeded Smallvill to grow up, that has no reduced their prices to be competitive; on the contrary, the premise is "the more you pay for design, the more you save for construction". In general, they choose to focus on solving complex problems in which technical proposal weights much more than other factors such as a low cost or "lobbies".

The company was founded in 1996 and was opened for business providing environmental solutions to companies with several brand new ideas, until 2000, when Carlos came to the idea of the NCD procedure and they made a difference.

Currently they offer services and supply products in an integrating way. It is all included in an overall payment, and engineering is billed first to ensure a good implementation. They are still looking for a manufacturer to develop their patents at a large scale and low cost.

Although they developed their invention by themselves, they recognized the support given by Volcan Compañía Minera S.A.A that trusted in this new Peruvian technology for solving such important problem. Thus, the company saved more than 6 million dollars in capital, and an annual saving of 1.5 million dollars corresponding to operating cost.

Other companies such as the Glencore Group and the Hochschild Group have also incorporated this and other Smallvill's technologies. Carlos highlights the support given by the Fund for Innovation, Science and Technology (FINCyT) for other projects in contests; although 6 of their proposals ranked first, two were finally chosen that are related to developing clean technologies for mining.

Likewise, in 2011 Smallvill conducted the "Ecological Gold" project in Upper Marañón region (Bagua-Condorcanqui) using its own resources, staff and technology. For this work, a team with members of the native communities Awajún in Amazonas was formed. This proposal,

accepted by inhabitants of such community after some conversations, does not pollute and ensures full people's participation in the economic benefits arising from production.

In 2014, it is scheduled to start the ECO2 Process, to be patented, enabling simultaneously lime production and CO2 concentrate capture; this gas, obtained at low cost, will be used to accelerate crops in the Andes in order to significantly increase productivity and profitability of Andean communities.

c. Business Information

Table 9

PRODUCT	YEAR SINCE COMMERCIALIZATION	COMMERCIALIZATION LOCATIONS	UNITS SOLD
Procedure for acid water neutralization, dissolved metal precipitation and precipitate sedimentation resulting from mine tailings	2000	Nationwide and worldwide	8 designed and built plants

Preparation: The Author

3. THE INVENTION AND THE PATENT

a. Why patent?

Carlos Villachica León considered important to patent, mainly for protection purposes. In mining although it is difficult for others to copy, in some cases such as his ecological gold patents other people intended to show that it was a simple process. These bad practices can damage the inventor's prestige, he adds.

In the case of mechanical chemical leaching of silver, gold, arsenic and antimony complex ores, the patent allows to precise and to protect attributions of the invention against similar processes offered by competitors. Finally, Carlos says that obtaining registered patents shows the company's capacity to innovate.

Up to date, the company Smallvill counts with 6 patents granted and 6 more pending.

b. Challenges

At the beginning, the inventor says that the filing process was so complex, but now thanks to guidance, he can do that before noon.

Indecopi's guidance has been fundamental in the process. He explains that as a company they knew about the subject but did not understood the process. Fortunately, they are thankful for the guidance and follow-up. He thinks that the process could be improved if deadlines are more flexible and the risks for losing the patent are reduced.

He adds it would be a good idea some kind of insurance covering the fees in case of emergency, or negligence in deadlines, and then to charge a higher percentage with interests; otherwise people lose valuable time. In this sense, he states that when a Peruvian patent is lost, the country also loses.

c. Opinion about the Patent System

Patenting has been the best decision the company made, indicates the inventor. The benefits exceed the fees because patents are always permanent. It is a good investment, and the patent is one of a company's most important assets, he considers it is even more valuable than a mining concession.

For Carlos, the patent has become an attribute for the company, a business card contributing to build a brand because not everyone obtains a patent, and only what is useful can be patented.

He currently operates his ecological gold project in Bagua with the Awajún community, and the company implements three more projects in this area. They expect to generate a new development model based on such experience. Smallvill has obtained recognition and is contacted from other countries. He adds there is interest in their products but financing the construction of plants showing how his new procedures work is still lacking.

> *"We are close to implementing a new development model based on our patented invention used in Bagua. We believe this will be a new way of working in mining without jeopardizing the community or the environment".*

PATENTS GRANTED UPON HIM IN PERU

Table 10

N°	TITLE OF THE INVENTION	TYPE OF PATENT	FILING DATE	EXPIRATION DATE
1	Procedure for acid water neutralization, dissolved metal precipitation and precipitate sedimentation resulting from mine tailings	Patent of invention	01/09/2000	01/09/2020
2	Procedure for controlling water polluted by solutions containing chromium by reduction and precipitation	Patent of invention	05/12/2000	05/12/2020
3	Procedure for metallic sulfide recovery using polymetallic ores by flotation and effluent environmental management and tailings produced	Patent of invention	20/12/2001	20/12/2021
4	Procedure for mining and industrial effluent treatment to precipitate dissolved metals and settle precipitates obtained	Patent of invention	28/04/2013	28/04/2033
5	Procedure for ore mechanical activation and then arsenic and antimony elimination or selective dissolution of metals contained in ores	Patent of invention	19/09/2007	19/09/2027
6	Procedure for total metallic sulfide concentration to facilitate proper environmental closure of underground and open pit mines	Patent of invention	24/02/2009	24/02/2029

Preparation: The Author

Contact Information

Inventor/Company: Carlos Villachica León / Smallvill S.A.C.

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DAGOBERTO TRUJILLO DE LA PUENTE

Dagoberto Trujillo de la Puente

MAGNETIC KEY DRIVEN LATCH

DAGOBERTO TRUJILLO DE LA PUENTE

1. THE INVENTOR

a. His History

Dagoberto Trujillo de la Puente was born in 1940, in his parents' tea farm, in the province of Pachitea, department of Huánuco. His parent sent him to Lima to study finding that the young man had so much potential since he helped them in the family business. Besides an inventor, he has been a pilot and a writer, a man constantly worried about his countries' issues. Therefore, it is common to find among his main inventors several ones related to water supply improvement, a resources lacking in many Peruvians' homes.

Young Dagoberto arrived in Lima and studied during three years aircraft mechanics in the Peru Aeroclub School of Instructors, located in Collique. Later, he worked in an aviation company repairing engines, and some Germans witnessed his good performance and hired him to work as Maintenance and Operations Head in their company. He had to make some arrangements, because he was not even 21 years old.

Later, he had the chance to come back to study and he learnt how to fly becoming an outstanding pilot. At that time, he felt better in the air than on the ground. His life just took off.

Peru was ruled by a military government, and the president was Juan Francisco Velasco Alvarado, the government passed some rules and the Germans had to leave Peru. Then, he came back to work in Faucett Perú airline, where he started his working experience but now he was a pilot.

After five years flying to many destinations and with the experience gained, he started working in Aeroperú airline where he worked for 25 years. During this time, he was happy flying, but mechanics was always in his heart, and his mind kept looking and finding solutions for problems he ran into.

b. A Inventor is Born

As many people coming from the provinces, Dagoberto remarks that since he was a little child, ideas came to him to find solutions to surrounding problems. It was possible to make things different and obtain better results, his mind showed it clearly.

He developed his first of all his inventions when he was 14, in his parents' tea farm. His mother, who run the farm with almost 400 workers, was in charge of all of them. There, the young man found a problem deeply affecting him, and it was the rise of the inventor.

At the end of tea elaboration, it should be toasted, on a brass tray to be put first on the fire, then put on the table, shake the tea, and back to the fire so it is toasted both sides. When young Dagoberto was taking the tray out of the fire, his face was so close to it, it was almost burning. He immediately realized there should be other way.

He used a pole, with a shaft in the middle, and two brass tray, so it was possible to spin it around avoiding heat exposure. While, the other tray remained on the fire and the tea was evenly toasted, the only consequence was the fresh and energizing smell of toasted tea.

He wowed her mother who gave him 1,000 soles to buy materials and make the first prototype. Then, the young inventor built such prototype. It worked so well that he had to build ten more upon his mother's demand.

c. Inventor's Motivations

His main motivation to become an inventor was to solve people's needs. When he was a child, he looked for creating tools making easier the work in the farm. As an adult, he looked for solution to water needs in rural populations.

In the aircraft cabin, an idea was growing up for an invention to obtain water from air compressors. He always thought that a similar system could supply water.

It was always constant in his life, he reminds that one of his grandchildren tried to pour soda, but he failed because of the weight of the bottle. Then, he thought "something" was needed and little kids were able to help at home, so another invention was born: "the bottle handle", making easier to use bottles even in aircrafts.

Dagoberto says another of his motivations is that other people found solutions in his inventions. Despite his age he is in constant activity. After working 8 o 9 hours on a daily basis in the company, he keeps working at home, as he was 20.

He considers that although there are difficult situations, it is possible to make ends meet as an inventor. He adds that creativity is in the universe, and is natural born, but it only develops with proper encouragement and the need for creation. For Dagoberto, an inventor has the capacity to identify a problem, thinks about the answer and makes everything possible to concrete it. The inventor is also some kind of manufacturer to carry out the whole process. He says as a joke than the invention you design and do not build is like an unborn child.

> *"An inventor identifies a problem, thinks about the answer and makes everything possible to concrete it. The inventor is also some kind of manufacturer to carry out the whole process because an invention you design and do not build is like an unborn child."*

d. The Inventor and His Other Passions

Along with invention, Dagoberto loves to pilot aircrafts and to write short stories and novels. He worked as a pilot for more than 25 years flying several types of aircrafts; as happens with many passions, without intending, he dreamt of these vehicles at night.

About literature and invention, he says that an inventor makes thing more practical, and in literature, with fantasy, it is possible to jump into such remote places like Mars. He notes that *"there is no motivation, it is all pure creativity; it is there where creativity does not require parameters to create, it is fed just with illusion"*.

2. THE INVENTION

a. Data Sheet

TITLE	MAGNETIC KEY DRIVEN LATCH
Application No	000540-2004/OIN
Title No	0357
Type	Utility model
Holder	Dagoberto Trujillo de la Puente
Filing date	28/05/2004
Expiration date	28/05/2014 (previously waived)
Telephone	(511) 464-8824
Summary	A latch composed of a "U" shaped metallic base with a bronze cylindrical rod bolt, a washer constituted by a metallic rod supporting in one of its ends a highly efficient permanent magnet wrapped with plastic.
Technical characteristics	It is composed of a "U" shaped bronze rod (2.3 mm thickness x 20 mm width x 78 mm length) and a bronze bolt (10 mm dia. x 65 mm length and a 6 mm dia. stainless steel insert)

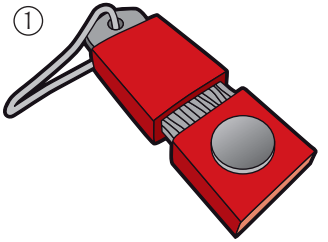
b. The Invention

The invention is a latch composed of a "U" shaped metallic base, a bolt constituted by a bronze cylindrical rod with an iron ends running from two holes on the base and driven, when closed, by a spring and an washer.

A key is composed of a metallic rod supporting in one of its ends a highly efficient permanent magnet wrapped with plastic, enabling a magnetic isolation and an easy-to-use device. Such key penetrates into the hole located on the household water meter box cover. Then a lateral movement moves it through the slot of the top so the magnet matches the security rod, the opening is done by magnetic traction of the rod, remaining in a position enabling to pull the top.

c. Innovative Solution to a Problem

Dagoberto says that creativity appears when there is an everlasting problem which pushes you to think harder. These may have been the circumstances leading him to a major innovation: The magnetic latch for water meter box covers.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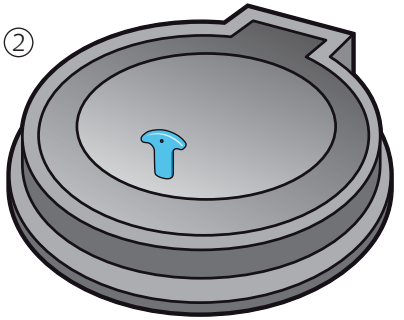
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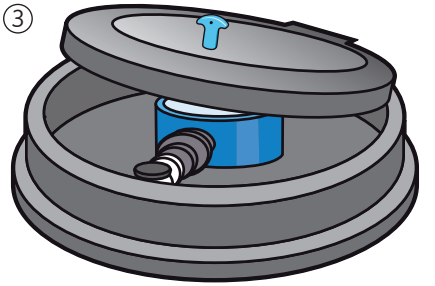
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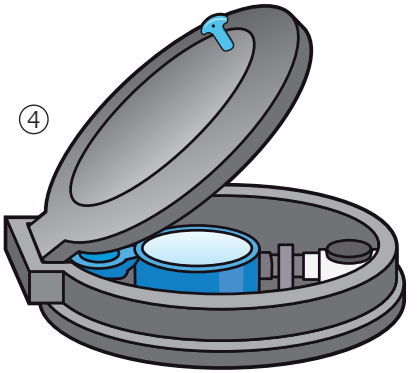
④

The problem affecting houses in Lima was that household water meters were suddenly and constantly stolen. The security system of those covers was easily forced by thieves who easily removed them, negatively affecting families and the supplier company.

The inventor, thanks to his creation, stopped the spate of water meters stolen in Lima, and population was able to pay a fair price for their water consumption, and the company could charge what was consumed. Dagoberto says that the invention does not only avoid stealing but also enables water saving.

3. FROM THE IDEA TO THE MARKET

a. Origin of the Invention

In 1996, he participated in an invention contest to find the most secure latch for household water meter covers installed by Lima Water Supply and Sewage System (Sedapal). This water supply company had not considered the risks involved in stealing or tampering water meters.

Dagoberto participated in the contest with an innovation: The magnetic key driven latch, and ranked first. The inventor recognizes that it happened more than once, when a company has a technical problem and looks for a solution.

b. Developed Strategy

Dagoberto thought in patenting his invention as a utility model in 2004 and market it through his company and other proper channels. But when Sedapal asked him to become its security system provider, he had to obtained a technical standard for his product in the National Society of Industries, then he had to waived his patent which is from 2011 of public domain.

For the inventor, he started inventing when he identified a given problem for a given group and found the solution that provides a guaranteed demand for his product, so he keeps inventing. He realizes that the magnetic latch was a breaking point in technology therefore he is now focused on sanitary engineering, on drinking water.

> *"I started inventing when I identified a given problem for a given group; it allowed me to find a solution to a guaranteed demand for my product."*

This is how Dagoberto's company was born in 1985, a one-man company, but he was lucky for always been backed up by his family, having time to educate his children first, and then to train them in the company. His children are currently in charge of the company and he is engaged in inventing, designing and making his ideas come true.

The inventor has now a staff in his company. He creates, designs and his staff makes the drawings and matrixes; he adds everyone brings their contributions and intervenes in improving the concept like teamwork.

He is happy for teaching this working system because when the product is sold, he does not celebrate alone, it is a victory for the team. This is the biggest success for the product, and the process is just the opposite from writing a novel, when the writer is a lone rider and does not allow seeing his work in progress.

Dagoberto indicates that he only has been recognized as an inventor by Indecopi four years ago when he received a prize and was recognized as the person with the largest number of patent applications in the country at that time, and the most enthusiastic defender of patents. It was rewarding for him that the ministers and Indecopi's chairman attended.

Among the massive challenges he dealt with to market his invention, at the beginning, there were the higher costs to develop it making difficult to market at large scale. He

also had to face some vendors that realizing that the product was necessary and useful, replaced the original materials using cheaper ones to sell them.

The inventor recognizes that those people saw a business opportunity in his product and did copy it. Despite he agrees that the product is used for the purpose he created it, the quality and warranty of a well-made product must not be dismissed.

c. Business Information

Table 11

PRODUCT	YEAR SINCE COMMERCIALIZATION	COMMERCIALIZATION LOCATIONS	UNITS SOLD PER YEAR
Magnetic key driven latch	2004	Local and nationwide	153 000 (2012) 92 000 (2013) 28 000 (2014)

Preparation: The Author

4. THE INVENTION AND THE PATENT

a. Why Patent?

The main reason why Dagoberto decided to patent his inventions was to protect his rights in the country and abroad. Up to now, he truly believes in the benefits of the patent system and he considers it is necessary to sell his products also abroad.

When he had to participate in public bids for State's providers, he is aware that he has to assign his rights first, as happened with the technical standard and Sedapal. As protection, he had patented some of his inventions also in USA.

Dagoberto has filed 12 patent applications in Indecopi, although his first patent was granted by the no longer existing Institute of Industrial Technology Research and Technical Standards (Itintec). These patents range from devices for electrical outlets, bottle handle, piping system valves, to floating hinges, among others.

Throughout his years as an inventor, Dagoberto has specialized in sanitary engineering, mainly in inventions related to drinking water. Some years ago, he was in the plastic business and developed a device that cut electricity passing through the outlet when

spun, the idea came to him when he saw his nephew was playing close to the outlet in his home, trying to put objects inside.

b. Challenges

The inventor from Huanuco says it took six times the first time he filed a patent. At the beginning preparing the document was so complex to him because he did not know how to fill in the documents; besides drawing up the context was difficult because of his lack of experience.

Luckily for him, after reading a publication that explained the proceeding, problems were gone. While the patent filing was on going, he was already manufacturing his product because he knew people needed it. Patenting took him some years, but it was worthy; he also suggests that the proceeding can be simpler to help inventors.

c. Opinion about the Patent System

Dagoberto indicates that the patent system offers rights to inventors that register their products. He highlights mainly two things: Product protection at several levels and obtaining the exclusive rights to commercialize the product in the market where it is protected.

Among the benefits of patenting, the inventor mentions the bottle handle, (with female thread down and male thread up), that was acquired by airlines. He also says that an American business man discovered the product when he was in Peru, he was interested in his handle and when he intended to market it, he was informed it was patented in Peru. So he contacted the inventor, and after few talks, the inventor became his provider selling many handles that season.

> *"I picture myself getting into everything I can satisfy a need in the future; I am sure I will offer more solutions in the making. The more prepared I am, the more technology I create, and the more problems I solve".*

PATENTS GRANTED UPON HIM IN PERU

Table 12

N°	TITLE OF THE INVENTION	TYPE OF PATENT	FILING DATE	EXPIRATION DATE
1	Magnetic key driven latch	Utility model	28/05/2004	28/05/2014
2	Expansion ends for automotive batteries	Utility model	18/03/2008	18/03/2018
3	Floating shaft hinge for manhole cover and frame	Utility model	03/09/2010	03/09/2020

Preparation: The Author

Contact Information

Inventor/Company: Dagoberto Trujillo de la Puente / Aislamiento Inka S.A.C.,
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Website: http://www.aislamientoinka.com/
Email: ventas@aislamientoinka.com

IR AL INDICE

BIOSERVICE S.R.L.

From left to right: Robert Tinoco Romero, Ysabel Koga Yanagui and Arnaldo Alvarado Sánchez

PROCEDURE FOR PREPARATION OF A NUTRITIONAL COMPLEMENT COMPOSED OF PROBIOTIC, PREBIOTIC, PHYSIOLOGICAL REGULATING, STIMULATING, IMMUNOMODULATING AND ENERGIZING FRACTIONS

BIOSERVICE S.R.L.

1. THE INVENTORS

a. Their History

Arnaldo Alvarado Sánchez, Robert Tinoco Romero and Ysabel Cristina Koga Yanagui met in the National University of San Marcos (UNMSM) where they studied Veterinary Medicine. They were always focused on researching so in 1996 they founded the company Bioservice aimed at rendering microbiological and serological diagnosis service to poultry companies in Lima.

Robert and Arnaldo were born in the provinces of Talara and Leoncio Prado, departments of Piura and Huánuco, respectively; Ysabel was born in Lima. These three friends affirm that have found out the perfect formula for a 54-year team, although each one of them has their own perspective, from the beginning they agreed to focus on research.

They studied Veterinary Medicine in UNMSM and Arnaldo is a professor in such university for 25 years; Robert Tinoco started working as a sales executive for a laboratory, being quickly promoted, then he got more involved in sales and marketing, until becoming now a manager. Ysabel has been a professor in Veterinary Schools, for degree and post degree courses, in several universities such as UNMSM, Peruvian Cayetano Heredia University, and Peruvian Wings University.

b. Inventors are Born

Since he was a child, Arnaldo has kept the invention seed. As a child born in a province, the needs and lacks of his hometown pushed him to be more creative and inventive to look for solutions to such needs. He started creating his own toys and conducting water to his house, the light of invention was born.

Ysabel was always curious about knowing and learning subjects to help her develop something she was looking but she still did not know. As years passed, she had an eye in research in veterinary, in specialized journals and internet. She dreamt of creating something new that makes her different, and of course, of creating something inexistent until then in the market. She longed that this "something" helps solve any problem in her field, plus a benefit.

In Robert's case, his outgoing personality and good rapport, helped him know better the needs of each person he talked with. This virtue led him to understand that he should find first creative, new, but at the same time, useful, solutions to help in the working area.

The first steps as inventors were hard for Arnaldo, Robert and Ysabel. After meeting in the National University of San Marcos (UNMSM) in the Veterinary Medicine School, they graduated and they split. Arnaldo remained in his alma mater as professor, Ysabel traveled to Japan to pursuit a master's degree, and Robert started gaining experience in marketing, he discovered it was one of his interests.

But they were not apart for so long, they spontaneously got together. In 1989, Ysabel came back from Japan. Peru was under the administration of the president Alan García Pérez, so she felt frustrated by the poor economic situation and she even though to come back to the land of the rising sun.

Nevertheless, there was a serious problem in the poultry industry, the avian viral hepatitis, a highly deadly viral disease. Existing treatments were very ineffective for the viral disease causing alarm in breeders and veterinaries.

The impact was increasingly, some small-sized breeding companies broke. At that time, large companies such as Redondos asked the UNMSM laboratory for a solution and a vaccine as soon as possible.

The need and interest in elaborating a product to overcome such situation was so huge that the businessmen gave them a fund gathered among them. So that was the beginning of these three friends in the invention field.

Guided by the laboratory head, a doctor who also studied abroad, Arnaldo, as part of the Clinical Pathology team, and Ysabel were enlisted in the project. Arnaldo and Ysabel found then the sparkle in veterinary research they needed.

They developed a hyperimmune serum that worked well against the viral disease. Part of affected livers were taken, adding to the poultry's serum, that was heavily charged with antibodies against the disease, with immunoglobulin previously fractioned, it could be used as a cure. The result was a temporary remedy because later vaccines were imported, but at that time it was strongly important for the industry.

Back then, there were few researchers and laboratories in the country. The laboratory where Arnaldo and Ysabel worked was neither well-equipped nor specialized in poultry disease diagnosis or research. Although there was an avian pathology laboratory, it was not well-implemented. Nevertheless, they have already started in researching and were not willing to stop.

It was difficult at the beginning, but they decided to separate from the university and started their own business Bioservice S.R.L., in 1996. They did have neither all equipment nor resources for researching. Ysabel, Arnaldo and Robert looked for support in the country and abroad. Only IFS (International Foundation for Science), was the NGO that financed some of their projects to study the hepatitis virus with embedded corpuscles. They received seven thousand dollars for one year, but it was only enough for buying equipment.

Considering these difficulties, it occurred to them to diagnose disease in general to obtain incomes to finance their researches. Therefore, they did not have to worry about money and could focus on doing what they most liked. Besides they were confident with the new techniques brought by Ysabel from Japan.

They began operations only with six people; three professionals, two laboratory assistants and one secretary. They had the basic equipment, a refrigerator, a heater, an autoclave, a microscopy and other simple laboratory equipment. Later, the business grew up and they were recognized even by some university students preparing their thesis. They also helped conduct tests and the own breeders and farm owner supported them by enabling them conduct tests in the field.

c. Inventors' Motivations

These inventors have found motivation for researching and creating in unsatisfied needs and demands they found in their work experiences. As a developing country, some people get used to look abroad for solutions only, they were convinced that researching can bring alternative to locally progress.

Somehow, they say becoming an inventor is inherent to all, but sometimes circumstances do not pop up and the interest is lost. But with recognition comes satisfaction.

They consider that the inventor must be clear-eyed to identify certain conditions in which an idea is born, to have attitude to look for knowledge, to dig to obtain all existing information on the subject, to have moral attitude to be honest and present his research with the true, to have a reflexive attitude to take a breath and think, to analyze and have persistence to go on because we could not score the first time.

They also think that it is highly important to be creative and rebel. Creativity pushes them to keep innovation, and rebelliousness allows them to break waves. It is vital to remain a rebel because, in general, the new always generates opposition, and following theories or tendencies are very strong in sciences.

"The inventor must be clear-eyed to identify certain conditions in which an idea is born, to have attitude to look for knowledge and to dig to obtain all existing information on the subject".

d. The Inventors and Their Other Passions

Robert is interested in, besides researching, subjects related to marketing, and that is why that after discovering such other passion, he started running their company's marketing area. He also is into sports and he is a fan of soccer and baseball. But he is more than a baseball fan, he is the father of Sebastian Yoshitomi, one of the main players of the national baseball team. He permanently cheers him up and goes with his son to the matches. He shares this passion with Ysabel, who is also his wife, and with his good friend Arnaldo. These three musketeers have traveled to several countries with the single purpose to support Sebastian and the team.

As another of his passions, Arnaldo loves to teach and he has been a professor for 25 years. It is very important for him to convey knowledge to others, in his case, to university students. His non-intellectual hobby is to watch soccer on TV, and if possible, to go to the stadiums. He also enjoys listening different music styles on his spare time.

Ysabel has also another side; she loves languages. She is fluent in five so far: Spanish, English, French, Portuguese and Japanese. It is a skill enabling her to talk with non-Spanish speakers and also to understand different cultures since she always learns something new. For such same reason, if she has a break, she enjoys travelling to know different cultures, stories and people. Like Robert, she is a fan of her son's baseball matches. She confesses she introduced his son in the sport and then Robert followed their steps.

2. THE INVENTION

a. Data Sheet

TITLE	PROCEDURE FOR PREPARATION OF A NUTRITIONAL COMPLEMENT COMPOSED OF PROBIOTIC, PREBIOTIC, PHYSIOLOGICAL REGULATING, STIMULATING, IMMUNOMODULATING AND ENERGIZING FRACTIONS
Application No	000390-2005
Title No	5344
Type	Patent of invention
Patent holder	BIOSERVICE S.R.L
Filing date	07/04/2005
Expiration date	07/04/2025
Telephone	(511) 2812943
Summary	A nutritional natural compound or additive containing microorganisms and metabolites of beneficial microorganisms and vegetable ingredients
Technical characteristics	It is administrated orally to modulate and/or reactive the physiological immunological status of animals; veterinary use Presentation in powder, as additive and also liquid 500 ml and 1 liter bottles 1, 5 and 10 kg sacks Composition: It is composed of the following fractions: a. Prebiotic compounds b. Probiotic compounds (lactic bacterias and yeast) c. Immunostimulant compounds (bacteria lysate plus a vegetal compound: cat's claw) d. Energizing compounds (maca, camu camu)

b. The Invention

The invention is a procedure for a nutritional complement elaboration. It is a natural nutritional additive based on active principles obtained from Peruvian native plants (cat's claw, maca, camu camu, among others) that are mixed up with beneficial bacterias that have a prebiotic, probiotic, immunomodulating, stimulating effect for all species of birds and mammals. It is used for breeding poultry, porcine, and mammals such as cattle and South American camelids.

Its action mechanism works thanks to the prebiotic fraction enabling the viability and strengthen the action of probiotic microorganisms used in the formula; probiotic fractions that enhance the action of bacterial microorganisms in the gastro-intestinal tract excluding pathogen bacterias. The microbial metabolites present in the product have a bacteriostatic action blocking microbial toxins such as Salmonella, E coli and Clostridium, as well as mycotoxins altering immunity.

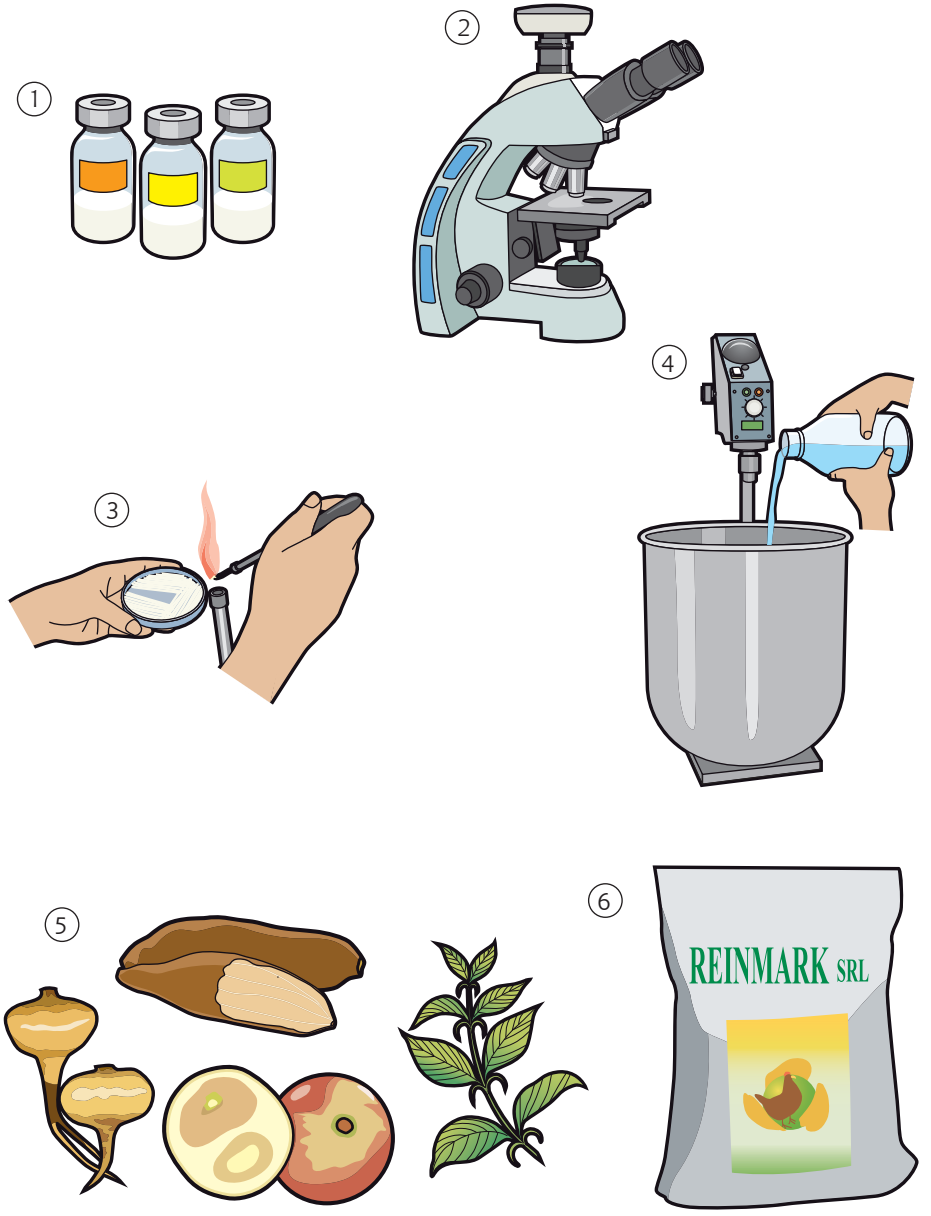

300
200


400
300

Likewise, the inmunomodulating fraction increases the production of immunoglobulin A that protects mucosa and stimulates nonspecific cellular immunity activating the antigen-presenting cells.

A complementary effect is the increase of production of cytokines, interferon and antibodies in general when added to the food after vaccination. In young animals, the development of primary lymphoid organs (thymus, spleen, bone marrow, bursa, GALT), is stimulated preventing the immunosuppressant effect of pathogen bacterias virus and mycotoxins. Finally, its energizing fraction provides recognized energizers and vitamin complex.

Among the main benefits of the product, it protects and regularizes the immune system, maximizes the effect of vaccinations, reduces immunodepression preventing infections, minimizes the risk of toxic diseases, and regularizes the activity of the nervous, gastric, intestinal, hepatic and hormonal systems.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REINMARK SRL

c. Innovative Solution to a Problem

At the beginning of 2002, the country's economy started getting better, as a result, poultry and pig breeders started exporting their products. Although in Peru, using natural product for feeding animals was not an important subject, in destination countries of export, using organic and ecological product was on the spotlight.

Breeders in Peru did find no alternative offering natural products as active principles, as requested by the destination countries. Then, Bioservice, that has already studied such demand, showed its product uses a nutritional additive obtained from native plants replacing synthetic and chemical elements, to be used in breeding poultry, pigs and mammals such as cattle and South American camelids.

Up to date, there are products in the market with one of the properties of their product, but their product is more complete and original. No other product contains a nutritional additive with native plants such as cat's claw, camu camu and yacón.

3. FROM THE IDEA TO THE MARKET

a. Origin of the Invention

The idea was born in 2000, when the team decided to research the existing line of natural products for animal food, sanitation and hygiene. The researchers found a high level of chemical ingredients in such line.

At that time, the tendency was the use of growth promoters, chemical agents that stimulate the accelerate growth of poultry or pigs. They immediately though that they should offer a natural alternative satisfying this need.

b. Developed Strategy

The Bioservice research team analyzed the world market and found an increasingly tendency towards ecological and organic products. In Peru there was no legislation on such matter, just some standards. They were convinced that with no rigorous legal framework, synthetic and chemical products were still being introduced into the country.

At the same time, due to the economic growth of the country, many breeders had already started exporting some of their products. Abroad the country, a tendency towards natural and organic products had already begun, so their natural products will be needed.

Robert, Arnaldo and Ysabel identified such need as an opportunity to develop and market a product satisfying such demand left unattended. They did researches, tests and

the results were encouraging. Finally, they obtained the product and decided to file a patent application to obtain the exclusive right of commercialization.

As a company, they began first sending cover letters explaining the services and products they offered. Then, they requested meeting with executive professionals of potential clients to directly introduce their line of products.

As part of their strategy, they offered customized technical consultancy services including the company's analysis laboratory that was an area underdeveloped by the competitors. They invited clients to conduct test protocols in the field for their products free of charge and with 50% of the product cost to prove their efficacy, assessing the results and then determining the cost-benefit of including the product in animal breeding.

With more clients, they continued investing the company's profits in continuing researches, and they were lucky to count with the collaboration of researchers because at the beginning they did not have many resources. But after clients recognized their serious and scientific work, they started billing the laboratory analysis and were able to reinvest in research and development.

Their products are currently well received in the market because of the benefits offering to the industry. Their client portfolio includes Avinka, Avícola San Luis, Avícola Yugoslavia, Agropecuaria Vallecito, Avícola Avivel, Avícola Yagui, Avícola Rolmai, Avícola Rico Pollo, Avícola Toyama, Avícola Roma, Avícola San Miguel, Técnica Avícola, Ganadera Santa Elena, Avícola Kawajara, Avícola Haley, among others. They sell their product by tons and the 10% of the domestic market is already using their product. Nowadays, they export to Bolivia and have registered their products in Brazil and Chile; the proceeding in Ecuador is pending. They are looking for a strategic partner to enter into other markets.

> *"The research team analyzed the world market and found an increasingly tendency towards ecological and organic products. Although in Peru this subject was not on the spotlight, we knew it was only matter of time to increase the demand".*

The first difficulty the team faced was to find information on native products to elaborate their product. Since it was unavailable, they had to conduct some research in the field, to carry out tests, to research contents, active principles and vegetal compounds to be used. Another challenge was to prove that these active principles under research generated functional nutritional effects, and of course, a similar effect or to be better than the conventional products in the market.

Another complication was to achieve a synergy of the ingredients; that is, to enhance the effects of each component in the mixture, because that was their personal signature. Finally, one barrier was left, the most difficult, that the cattle industry noticed innovative

products with biotechnology, being sure that these are as effective or better than the previous ones, and are 100% natural as an aggregate value.

c. Business Information

Table 13

PRODUCT	YEAR SINCE COMMERCIALIZATION	COMMERCIALIZATION LOCATIONS	UNITS SOLD PER YEAR
Procedure for preparation of a nutritional complement composed of probiotic, prebiotic, physiological regulating, stimulating, inmunomodulating and energizing fractions	2002	Nationwide and worldwide	3,000 (liquid presentation) 3 tons (powder presentation, as additive)

Preparation: The Author

4. THE INVENTION AND THE PATENT

a. Why Patent?

One of the main reasons for patenting was protecting the invention rights. They were aware that they had an innovating idea that could be marketed, and it would not take too much time for competitors to copy it. Luckily, after 20 years it could not be copied.

Bioservice has the patent only in Peru, and the research team indicates the goal for patenting was to add a scientific value to their commercial products, as well as a backup for a newly incorporated company with a personal signature to meet international standards. Thus, they gained credibility with the clients despite being a new and small-sized company.

The Bioservice team has also two additional patent of invention: A bird vaccine against a bacteria causing reproductive and respiratory disease to poultry, and a natural insecticide based on endotoxin toxins and spores controlling external parasites affecting animal breeding.

b. Challenges

The team had to learn the steps to patent their inventions. At the beginning their applications were rejected because they contained errors, but thanks to the objections and observation, they learnt how to write the document.

They had problems in tracking their applications having delays and difficulties. They consider that it is required to strengthen the communication channels about the ongoing applications.

c. Opinion about the Patent System

The team says that the process to patent their inventions produced results and currently the company is widely recognized and respected. Facing the problems of the system, especially at the beginning, was worthy and they will continue doing so.

They noticed that INDECOPI has improvement, for instance, there is a larger number of staff to guide inventors and more events and publications on patents. But they think that the State is not the single actor. Private companies should be one of the columns supporting research and innovation in the country.

> *"We are entering into the molecular area and we will like to work in the nutrigenomics field, an area of genetics related to nutrition that aims that components in the diet contribute to people's health through altering or the structure and gene expression."*

PATENTS GRANTED UPON THEM IN PERU

Table 14

N°	TITLE OF THE INVENTION	TYPE OF PATENT	FILING DATE	EXPIRATION DATE
1	Methods for isolation, identification, purification of the seed, obtaining antigenic components and preparation of the end-product called vaccines of local strains of ornithobacterium rhinotracheale (ort)	Patent of invention	27/12/2001	27/12/2021
2	Procedure for preparation of a bio-insecticide composed of bacillus thuringiensis strains	Patent of invention	28/03/2005	28/03/2025
3	Procedure for preparation of a nutritional complement composed of probiotic, prebiotic, physiological regulating, stimulating, immunomodulating and energizing fractions	Patent of invention	07/04/2005	07/04/2025

Preparation: The Author

Contact Information

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IR AL INDICE

CORPORACIÓN SEALER'S S.A.

Jaime Rafecas García

FIXED SECURITY SEAL WITH SIMPLE LOCK

CORPORACIÓN SEALER'S S.A.

1. THE INVENTOR

a. His History

Jaime Rafecas García was born on September 01, 1941 in Buenos Aires, Argentina. He is a mechanical engineer graduated from the University of Buenos Aires with a master's degree in Business Administration conferred by the University of El Salvador. Jaime immigrated to Peru during the time of guerrillas and dictatorship in Argentina, due to the unemployment situation and the economic crisis.

When Jaime was 35, he signed a labor contract in the district of Ventanilla, in a tin-plat packaging factory. During that period of time, he traveled to Europe for networking to buy and sell second-hand machinery. After repowering them, he was able to have some incomes. Coming back to Peru after a few years, he worked in a factory located in Callao during four years.

Gaining experience in the seal business, Jaime decided to form his own company with his partner Mario Salvatierra Vargas, and they founded Corporación Sealer's, a company with more than 26 years engaged in the production, commercialization and export of several types of security seals according to different needs to the American countries.

b. An Inventor is Born

Jaime affirms that all started when he was a child because he liked to disassemble any kind of things. When he was 15, he began to drive motorcycles and cars and enjoyed to disassemble and reassemble some parts to repair the vehicles.

He decided then to pursue a mechanical engineering career to better understand the design, building and repair of mechanical equipment and installations. He was able to master new and different technologies and to analyze several elements currently used for different purposes.

c. Inventor's Motivations

Jaime says that the American and European markets hardly understand the Latin American spirit. Due to their culture, Americans and Europeans have an eye for details and have strict evaluations; on the contrary, Latino people are always pushing forward without looking back, despite adversities. This works because the efforts they make. It is definitely another way to reach a goal.

The inventor says that his motivation was always to be an entrepreneur leader, and it was clear from the moment he got a partner and founded his company. From there, to have leverage, he just has to keep inventing.

In his area, an inventor must also be a good technician and have knowledge on mechanics and security. He also must be intelligent enough to be ahead of his time and to innovate. In this sense, his 26-year-old company not only provides security but also is involved in countersecurity.

> *"To work in the security seal industry, an inventor must be a good technician and have knowledge on mechanics and security. He also must be intelligent enough to be ahead of his time and to innovate".*

d. The Inventor and His Other Passions

Jaime loves mechanics and to drive motorcycles and cars such as BMW, Audi, among others since he was 15. Jaime says that technically he has invented artifacts for cars and motorcycles.

He also likes to play tennis, a sport he shares with his Peruvian partner. Moreover, as good business director and manager, he is highly interested in the future and the modernity of his company, therefore he has made some security-related inventions.

2. THE INVENTION

a. Data Sheet

TITLE	FIXED SECURITY SEAL WITH SIMPLE LOCK
Application No	001160-2007/OIN
Title No	0411
Type	Utility model
Holder	Corporación Sealer's S.A
Filing date	28/08/2007
Expiration date	28/08/2017
Telephone	(511) 713-8800
Summary	A security device used to momentously seal and close containers, boxes, doors, meters, valves, pumps, bags, sacks, pots, etc., preventing valuables from being stolen or lost. Uses in Customs, power companies, banks, poultry laboratories, warehouses.
Technical characteristics	The product is composed by a drum and a zinc steel pin, polycarbonate wrapped; 1400 Kg traction resistance. The total length of the pin is 78.12 mm and its total width is 20.36 mm; with a 10.1 mm diameter. The total length of the drum is 34.5 mm and its width is 21.97 mm.

b. The Invention

A security seal designed to detect tampering or to protect articles being transported and preventing them from being stolen or damaged. This device allows to double check that the seal is fully closed. There are several types of seals, made of different materials (polypropylene, polycarbonate, nylon and metal) and classified by the security level.

The seals may also have an own correlative numeration and a company's logo "Hot Stamping" (bas-relief hot stamping) ink injection or laser printing, upon request. They are usually easy-to-install and can be used in different applications.

Jaime invented the fixed security seal with simple lock, a steel device wrapped in plastic and laser engraved. There are currently many types of this product according to the demands and needs of the market. For example, time ago the pin, which is part of the seal, was not engraved; now it is. The products based on this security seal have also changed their commercial name: From Forza, Securelock and Zeus, known as the "God of the Seals" because of its properties.

The Zeus is composed of two clearly identified elements: A drum with a padlock that locks the seal; and a pin, the element inserted into the drum for blocking. This type of seal has a 1400 Kg traction resistance. It is one of the most easy-to-use and quick seal for closing and opening.

This product is highly demanded by Customs to ensure the control of export containers. The product avoids unblocking seals; unblocking is only possible if seriously tampered with or cut, which will be a clear evidence of tampering.

The security seal is useful because it prevents "pilferage" *(smurffing)*, which is stealing in almost unperceived small amounts. However, thieves have come with new ways of

beating the security systems and now they clone the seals, they cut the original, steal stuff and then switch the seals.

Others operate different and they try to scratch them and engrave on the top of them. Sealer's manufactures tamper resistant seals in haut-relief. Jaime adds there is an everlasting fights with thieves who also develop new instruments, but it is possible to be aware of this situation and to reduce the incidence of cases.

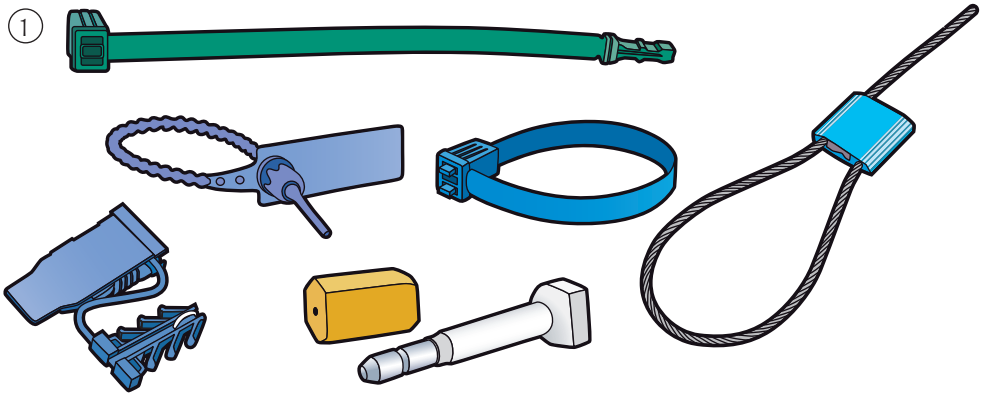
Jaime says there is a broad market demanding seals because in South America few countries develop them because of the high investment in purchasing special manufacturing machinery. Nowadays, he has clients in Ecuador, Puerto Rico, Colombia and Uruguay. He constantly participates in public bids in many countries having being awarded due to the competitive prices and deadlines. He says his company is the only one in Peru that can customize them obtaining customer loyalty.

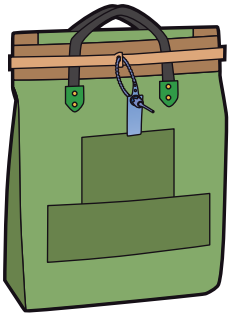
c. Innovative Solution to a Problem

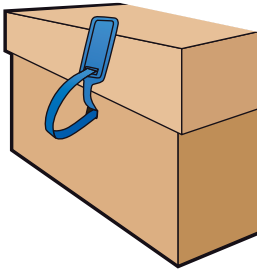
People and companies need to trust that a package, container or luggage will arrive to destination without being tampered, handled or its content replaced; they deserve to securely transport their goods, product or valuables.

The market has been growing up in the last years with the development of several industries and companies such as exporters, importers, logistical transport, telephony, electricity, casinos, supermarkets, among others. Sealer's has gathered during its experience the needs of its clients to adapt the seals according to their specific needs.

For such purpose, Jaime mentions that they take into account the operating mechanism of goods on the logistics network in each country, that is, the company works in the practice as a factory adapted to each place, timely responding needs with competitive prices.







In this sense, the fixed security seal with simple lock invented by Jaime matches a specific demand since it is mainly used in Customs because it is easy-to-use and quick in closing and opening. The resistance of the device, thanks to the steel and the plastic wrap, has been also important to secure loading and unloading, avoiding damaging the security system and guarantying that the product arrives in optimal conditions.

3. FROM THE IDEA TO THE MARKET

a. Origin of the Invention

There is a wide range of security seals, depending on the material and the security level. The idea of the fixed security seal with simple lock was the result of Jaime's gained experience in the security seal business, and his capacity to innovate in materials such as the Zeus security seal, made of metal steel and with plastic lining.

This invention was designed with the purpose of providing a device with several applications and easy-to-use. First, he developed a drawing and then a prototype that was tested; then small samples made with molds were sent to potential clients; and finally the final approval was obtained.

b. Developed Strategy

Jaime says that with Corporación Sealer's four companies were developed, the first one manufactures the metallic parts, the second one makes part of the hologram of the products, the third one manufactures the plastic parts, and the fourth one was founded with his partner in the USA. They kept this last one during three years and a half and then it was bought by a Greek businessman. Then they merged two of the four companies (Better's and Sealer's).

Sealer's began doing business selling imported security seals, but step by step they did molds. Jaime says that as part of sales they visit their clients to maintain production programs they perform during the years; based on that they estimate volumes and prepare a market research.

But the most important things are two: The offer must be different from all existing in the market, they must be sure that the device is unbreakable, and to work with trustworthy clients which are usually large-sized companies.

In this sense, the use of security seals is spread in several industries due to the security and warranty they deliver. Sealer´s and its products are increasingly known by more companies, that is why he estimates the sales will be increased, thanks to his state-of-the-art equipment enabling to manufacture multiple models and colors in record time and with competitive prices.

Jaime remarks that Peru has the upper hand being the single manufacture of this kind of devices with warranty of use. The products of competitors are imported and the companies cannot customize them and satisfy the needs of clients. He always recommends using seals according to the risks of the business activity. If the client asks for exclusivity, they make the mold and at the same time they build customer loyalty.

The main challenge he faced was to be one step forward, not only ahead of the competition arriving from abroad, but also the thieves trying to figure out how to tamper security seals. He also had to face people trying to copy his product leading him to make bigger efforts because clients may be misled with low quality seals.

Jaime says he has only work with the team that formed the company. They were in charge of designing, inventing, producing and manufacturing. They clients know that the products they bought and sometimes they co-design as an inside job.

Regarding strategic alliances, Jaime recognizes that in some occasions he worked with competitors to participate in bids, because it was kind of beneficial. Nevertheless, he considers that the success reached up to date is to have found a business partner who has also been a friend for 26 years.

Jaime remarks he had not requested funds because he works with four major banks for financing and also has his own capital.

c. Business Information

Table 15

PRODUCT	YEAR SINCE COMMERCIALIZATION	COMMERCIALIZATION LOCATIONS	UNITS SOLD PER YEAR
Fixed security seal with simple lock	1992	Nationwide	25'000,00

Preparation: The Author

4. THE INVENTION AND THE PATENT

a. Why Patent?

Pursuant to Jaime, patent means protection against copies. But he adds there are several companies in the market that have tried to copy his products, some have launched similar models, but he and his partner make efforts to maintain and disseminate the authenticity of their products.

b. Challenges

Jaime remarks that thanks to INDECOPI, except for small delays in filing patents, he managed to patent and he is convinced it was fully worthy. He has been empowered in this process, and now he is confident in patenting at least 10 inventions per year based on these experiences.

That is why, Jaime says the company must work from 8 hours from Monday to Friday and 24 hours on Saturdays and Sundays. Now they only work one shift but in high production they work two or three hours overtime if needed, and extra staff is hired for one or two months.

Jaime considers that filing patents could be quicker, but he knows that delays are due to checking information on the fabrication of products requested to be patent in other countries; such documentation is not always in Spanish, so translations take time.

c. Opinion about the Patent System

Jaime thinks that the political situation in Peru is complex, and does not generate an adequate climate for continuing generating investments in the country; he says fostering inventions strongly depends on the current government's agenda.

Therefore, Jaime recognizes that INDECOPI has accompanied him and his partner and has provided them a permanent guidance. He considers the institution performs a highly technical job and patent guidance. In this sense, the support has been significant.

> *"I am entering into the area of toxicological control and domiciliary certifications addressed to companies. Thus, human resources are optimized and productivity is increased."*

PATENTS GRANTED UPON HIM IN PERU

Table 16

N°	TITLE OF THE INVENTION	TYPE OF PATENT	FILING DATE	EXPIRATION DATE
1	Fixed security seal with dual lock	Utility model	13/11/1997	13/11/2007
2	Rigid metallic seal with dual lock for containers	Utility model	04/10/1999	04/10/2009
3	Fixed security seal with triple lock	Utility model	13/08/2001	13/08/2011
4	Adjustable security seal with hidden fastener	Utility model	28/05/2002	28/05/2012
5	Security seal with multiple fasteners	Utility model	27/09/2004	27/09/2014
6	Security seal with four anchor seal	Utility model	01/12/2005	01/12/2015
7	Invisible ink barcode reader	Utility model	21/07/2006	21/07/2016
8	Fixed security seal with simple lock	Utility model	28/08/2007	28/08/2017
9	Security seal adaptor for electric meter holder case	Utility model	07/09/2007	07/09/2017
10	Adjustable security seal with steel cable wrapped in plastic	Utility model	15/06/2011	15/06/2021

Preparation: The Author

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T.J. CASTRO S.A.C.

Teodulo Julián Castro Villaroel

ELECTRICAL PANELS FOR DIN RAIL THERMAL MAGNETIC CIRCUIT BREAKERS MOUNTING

T.J. CASTRO S.A.C.

1. THE INVENTOR

a. His History

Teodulo Julián Castro Villarroel was born in the province of Jauja, in the district of Huaripampa (Junín), on February 17, 1937. Now, he is 77 years old and is the General Manager of his own company, T.J Castro S.A.C. Due to the success obtained for his tenacity and inventive spirit, he has been able to offer his children university studies: one of his daughters is an economist, the other an account and the one working with him is the sales manager, who is as well an architect; his only son is an electric engineer, who studied in the United States.

Teodulo studied basic technical studies during primary school and part of the secondary in Jauja. Wiling to find new opportunities for his life travelled to the city of Lima and started working in a materials factory, as worker. At this time, his contribution was the development of some support matrices and shielded guides, which mold was used to produce thousands of parts in series, which tripled the production of said company.

Time passed, and soon the young inventor reflected on how fast he was learning his profession, answering himself that sometimes needs you go through, are the ones that force people to take up new projects. Thus, he turned himself into an autodidact.

b. An Inventor is Born

Teodulo is convinced that inventors are not made, they are born. He, for example, comments that every year during his studies obtained diplomas, in spite of belonging to a poor family. His mother was basically devoted to house chores, and his father was a builder. He states that his grandfather, a survivor of the Chilean war, always encouraged him to keep going forward.

However, despite the economic situation his family was going through was complicated and did not allow him to fully accomplish his school tasks for not being able to buy notebooks, it was not a hinder to obtain satisfactions and develop his various abilities; or to acquire the talents for fast learning, something that took into account only in the city of Lima.

Teodulo narrates that when he was working in the factory he was intrigued about why so many electrical panels were imported; those were the years of Manuel Prado's government. Factory workers explained him that panels could not be manufactured in Peru, and this was when he started to germinate the idea that they needed to be built in the country.

Meanwhile, eager to put his knowledge in practice, he continued manufacturing instruments that would make his job, as worker, easier, as he had to be very efficient, and for that he used his creativity. He developed different innovations, even one for painting walls in a faster way; as well he invented tools, that first his colleagues did not believe he could have built them.

One day, he came up with the design of a machine (known as donkey) where many matrices were put to make different types of cuts and folds on metallic plates, as part of the manufacture of panels. When Teodulo's boss saw it, he realized he was in front of a very talented and capable young man and involved him more in other areas that allowed Teodulo to develop and exploit little by little his abilities.

c. Inventor's Motivations

Teodulo is permanently searching for solutions to solve daily problems; and in this task, be different from his competitors. Seeing them using his inventions also motivates him to continue creating new things, because he thinks he has to stand out, to be the best.

Additionally, he states that an inventor must be observant to identify unmet needs and solve them, be creative to propose various alternatives in order to get over a specific problem, be a researcher of subjects related to the scope of his job and perseverant until achieving the objectives he has set.

> *"Every inventor must be observant, creative, an active researcher, perseverant and work in a team".*

d. The Inventor and His Other Passions

Teodulo has made inventions in the areas of mechanical and electronic development. There are at least 10 inventions that he has invented and built up, but due to ignorance, he could not patent the first ones. Additionally, he has two or three projects in mind that have not been duly tested, but he is always thinking about simplifying processes and systems in every aspect.

In the 90s, he was part of this country's politics when he became a member of the Congress for the Popular Christian Party (PPC) for a period of two years; but when the Congress was closed during that decade, he was asked to collaborate with the Provincial

Council of Jauja in power. Among other of his facets, is the sportsman, because Teodulo enjoys very much running outdoors in the mornings for a great start to the day. As well, he loves reading and investigating about universal history in order to understand the processes mankind has been through.

2. THE INVENTION

a. Data Sheet

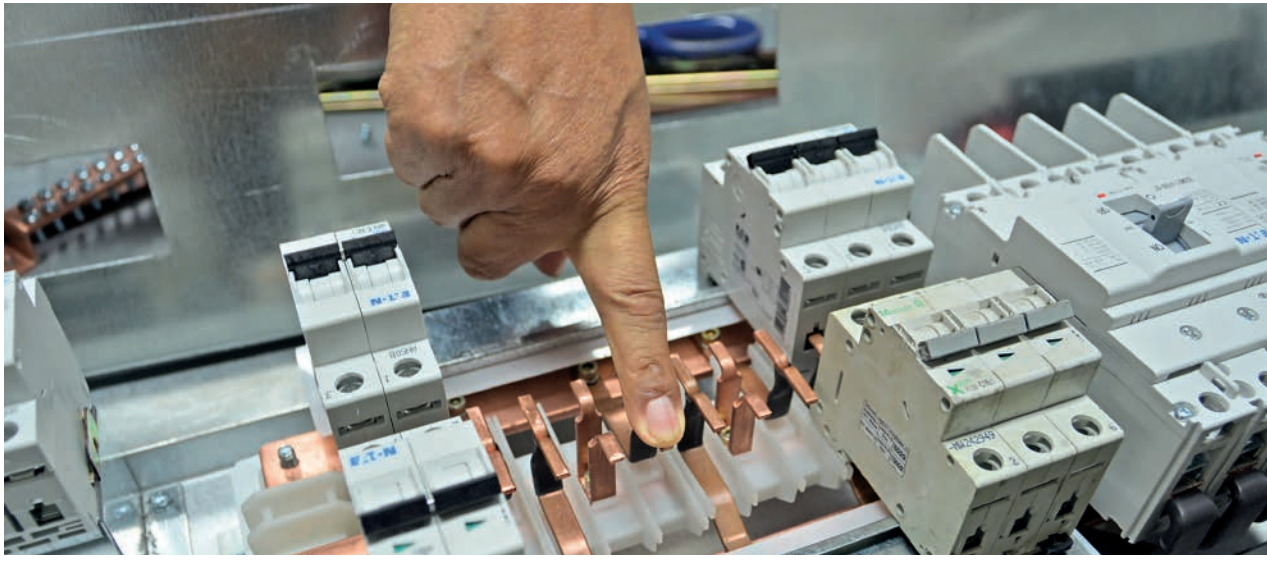
TITLE	ELECTRICAL PANELS FOR DIN RAIL THERMAL MAGNETIC CIRCUIT BREAKERS MOUNTING
Application No.	1552-2008
Title No.	0470
Type	Utility model
Patent holder	T.J Castro S.A.C
Filing date	05/09/2008
Expiration date	05/09/2018
Telephone	(511) 472-3848
Summary	A power supply connection panel type for input and output of circuit breakers. Added copper bus bars allow more amperage capacity over other products.
Technical characteristics	Bus-bar panels are manufactured in electrolytic copper in dimensions depending on the number of poles (4, 8, 12, 16, 20, 24 poles in single-phase and 6, 12, 18, 24, 36 poles in three-phase), vertical bus bars for horizontal mounting of opposed circuit breakers. The mounting bases for copper connectors, as well as the support heads of the principal bus bars are made of Mylar (insulating material that supports 1000 Vac), and are part of the inventions with registered patents. These components provide the necessary separation distances pursuant to the standards and proper insulation for execution.

b. The Invention

It is an electrical panel for DIN rail thermal magnetic circuit breakers mounting, which are arranged on main copper bus bars feeders, which allows the variation in thickness of the main copper bus bars without varying the separation between said bus bars, neither the panel dimensions. Each of the connectors is a means of support, fastening and alignment of circuit breakers.

As well, the panel has a thermo retractable sleeve enclosing the intermediate part of each connector of the lateral bus bars; a connector formed by a single body to connect electric circuit breakers terminals to central and lateral bus bars. Said connector comprises a conducting strip that includes an intermediate longitudinal cut to make two conducting segments of equal section; these segments are fold in opposite sides to connect each circuit breaker terminal set in parallel to the same phase of the bus bar.

Said panels, unlike the others found in the market, have a copper bus bars panel for circuit breakers that have been designed under the International Electrotechnical Commission, IEC, standard, which is the standardization organization for all electrical, electronic and related technologies. Copper connectors are mounted on one of the main bus bars through a screw and a spring washer; while principal bus bars are electrically insulated through a Mylar insulated base. The free end of the connector is connected to each circuit break through a screw; and the fastening means of the circuit breakers through a guide support that fits in a DIN type mounting base for circuit breakers; and are fastened on a detachable profile.



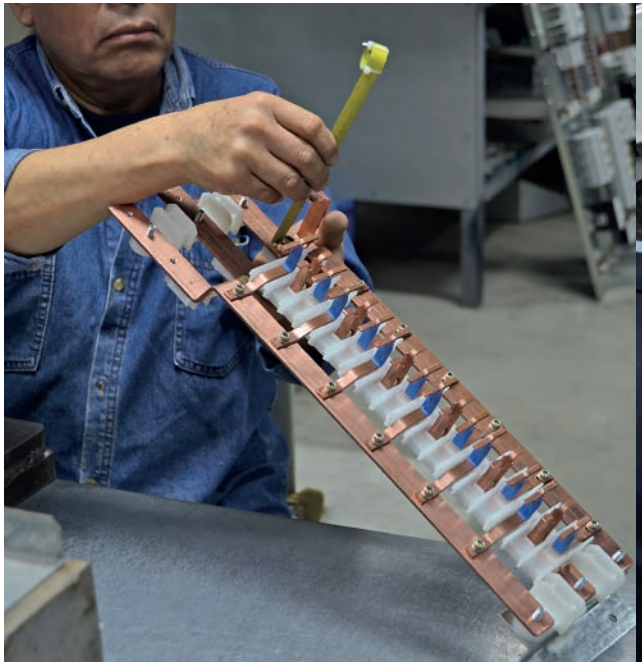
c. Innovative Solution to a Problem

Teodulo comments that copper bus bars added to the electrical panel for DIN rail thermal magnetic circuit breakers mounting allow a higher amperage capacity as compared to other products. Furthermore, the use of thermal magnetic circuit breakers provides good resistance to support and protect people from electrical overloads and short-circuits, without any damage or losing its capacity.

As well, T.J Castro's electrical panel provides a solution to the problem of many users when facing flaws in their facilities; before, they had to cut energy of all the facility, affecting other daily activities. However with this invention, that uses the functionality of the execution of NEMA (National Electrical Manufacturers System) system, the panel has a fixed panel and is possible to demount, add and/or replace a circuit breaker from the damaged circuit and without intervening in the rest of the components, without requiring a power disruption.

In this sense, this type of panel fuses in one product the best of NEMA and IEC European standards (International Electronical Commission), because uses the design of parallel bus bars with modular equipment and avoids the use of circuit breakers with connection racks. Hence, the great market acceptance owed to its attractive presentation and the compactness of the product, due to the DIN system incorporated in the manufacture and to the simplicity of the final wiring on site, being, as well, cheaper than other panels using the NEMA system.

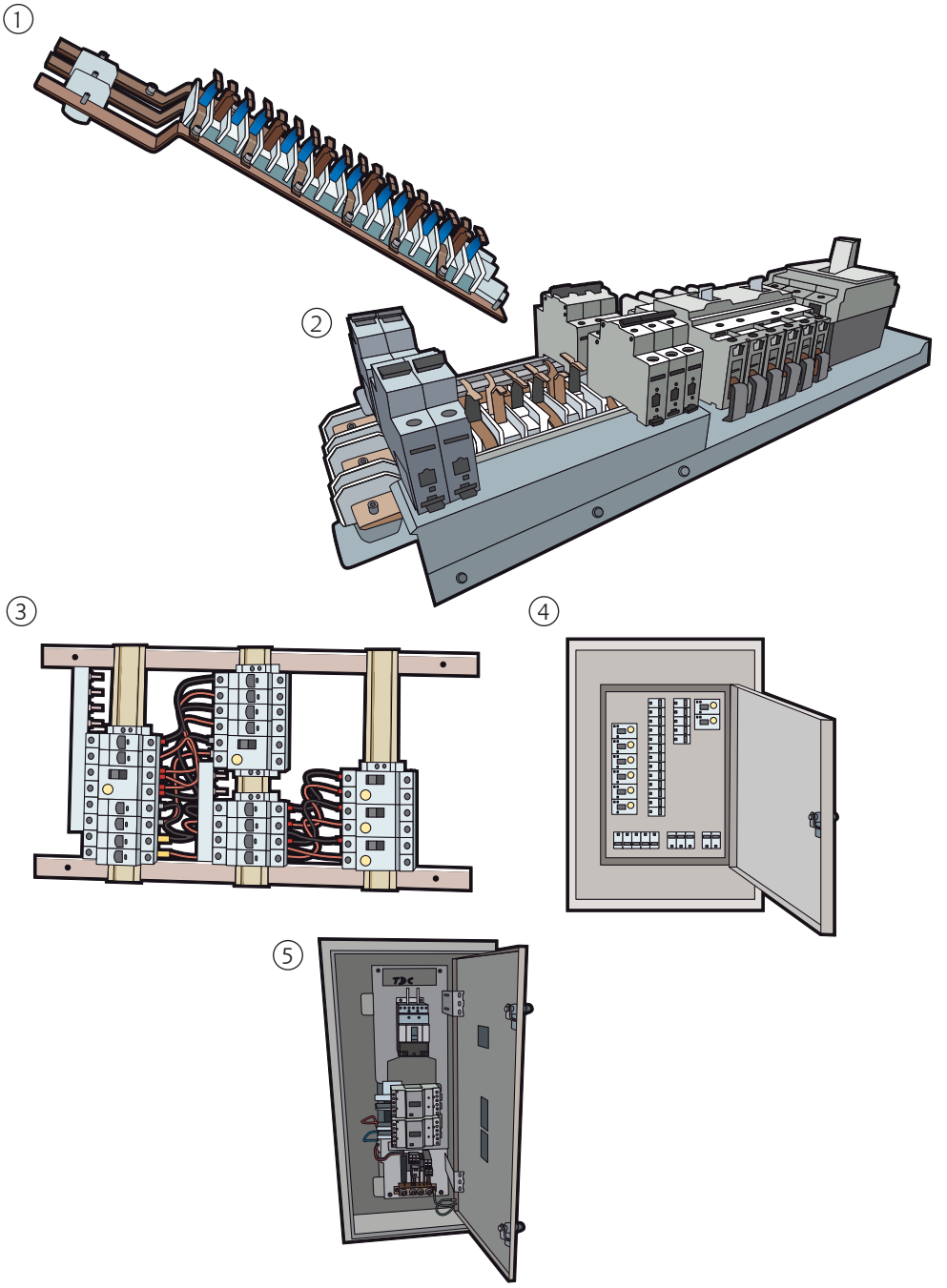
It is worth mentioning that the traditional DIN system compelled users to use connection racks as energy distribution element, which originated that when replacing one of the circuit breakers or removing an element the entire panel had to be de-energized to remove the rack, handle the component and then connect the rack again to



finally energize the panel. Teodulo comments that in general, his inventions offer apart from the advantages mentioned and the attributes of his technique of preparation like functionality, effectiveness and higher durability, that they are developed under his own quality controls.

Among other of his inventions that also is remarkable is the first invention patented by him, the metallic divisions for bathrooms. He performed them by request of the Brescia Group, company that explicitly requested to have the floor completely free; this is to say, without structures or supports in the lower part. He thought about it for five nights and carried out tests until he found the solution and designed the metallic division for bathrooms with supports at the top. The client was very satisfied and Teodulo got happy for a new creation, which arose from a specific necessity that required urgent attention, because his divisions, helped hygienic services to be cleaned more effectively and efficiently.

That same product has been sold in great quantities to the Surquillo market (300 meters of metallic divisions), and to a Chilean group that carries out works in the cities of Arequipa, Tumbes and Tacna. This was the group which asked him for a set of metallic divisions for Chile, and when the set arrived, they confirmed with their own eyes that the Peruvian product was of the best quality in the market, made of galvanized sheets



and glass wool fiber filling, a mineral fiber fabricated with millions of glass filaments that enhance the resistance to heat transmission; and at a better price.

As well, he made a saw cutter and some panels for Tecsup. He was asked for help to avoid panels to be removed easily and stolen, thus Teodulo implemented a mechanism for screws to be handled from inside. The client was very satisfied with the result, but the inventor did not patent his idea and now there are other manufacturers that have, as well, taken his product.

3. FROM THE IDEA TO THE MARKET

a. Origin of the Invention

Product of an ever-increasing curiosity and new knowledge through years of experience, Teodulo was called by a businessman to engage into a new entrepreneurial venture. They worked together for ten years and developed products as lights, junction boxes and other metallic carpentry products.

Mr. Teodulo comments that, in the case of electrical panels, he always thought that to be a manufacturer of said type of implements it was only necessary to import some parts, because Peru was already a copper producer. Then, following his reasoning, he started applying his own concepts to others developments that were coming, such as range hoods and wire ducts.

Concretely, the idea of the electrical panel for DIN rail thermal magnetic circuit breakers mounting came to Teodulo's mind in 2006 when he was analyzing mounting systems which were used in those times, and observed that NEMA system highlighted for its security, so he thought about implementing improvements to optimize the system with DIN rail circuit breakers, so they are equally safe.

b. Strategy Developed

It was 1959 and Teodulo started noticing that every day a greater number of companies related to the electrical sector were entering the country, but that they were not offering quality products and only were buying obsolete machines to sell them in Peru. Back then, he had the opportunity to meet and investor and they agreed on a partnership to set up a small company to manufacture metallic carpentry and electrical products.

The inventor contributed with his expertise and experience accumulated through the years and the products were well accepted in the market. They worked together for ten years, until Teodulo says he discovered bad financial management from his partner. Seeing all his efforts being in danger worried him, so decided not to take any more risks

and broke the partnership. However, he could not leave his entrepreneurial phase built in those years, thereof he started a new business venture and this time both were alone: he and his inventive ability.

Hence T.J. CASTRO S.A.C. was founded in 1969. Teodulo was very animated because now he could feel confident to set the basis of a new company, which will offer products prepared with creativity and excellence. Little by little he managed to diversify his products and incorporate panels and boards for electrical distribution, among others.

On the other hand, the duty to identify an initial market for the inventor was favored by the economic conjuncture of those times: the government of Juan Velasco Alvarado closed the imports market, protecting national industry. Teodulo remembers that his Public Relations Manager was as well, the Secretary of State, and it was through him that requested a meeting with the President to explain him that the State was acquiring products that were obsolete.

That is how, fifteen years after his company was founded, and under the government's protection, to the extent that he has already developed thermal electric circuit breakers, westinhouse meters, among others; he could sell to Electrolima (public electricity company in those days) 50 thousand thermal electric circuit breakers to replace old fuses that were becoming obsolete. In this context, he was clearly different from other businessmen that were only distributors of foreign products, who put the "Made in Peru" label to their products to catch clients.

The inventor from Jauja carried out more innovations in the use of materials considering that they not only have a good finish, but also resistance and effectiveness. Then, he registered his inventions as a patent of utility model and decided to make advantage of them by commercializing the products through a company that he set up.

Currently, he exploits patented products and sells them directly to different companies that require his services and to distributors. His abilities are still helping him solve technical problems in the manufacture of electrical equipment, mainly electrical panels and other pieces that are now developed in his company T.J. Castro S.A.C.

His abilities are still helping him solve technical problems in the manufacture of electrical equipment developed by his company.

Teodulo always thought to take his creation forward against all odds, without staying behind, despite the fact that many mocked him. Perseverance and insistence on making his invention a reality, his intuition and creativity made his product to be commercially successful. He affirms that other companies just think about reducing costs and making more profits, but they should think more in the product.

Normally an inventor creates and designs in accordance with the market's necessity. In this sense, his principal commercialization strategy was noticing the problem the country was facing, all products were arriving from outside, thus there was the necessity to support the material made in Peru.

Now he has achieved his products diversification and states that he produces the best panels in the country. Among his clients there are well-known companies such as Graña y Montero, JJC Contratistas Generales S.A, the Brescia Group, Cosapi and even the Jorge Chávez International Airport has his technology.

As well, Teodulo narrates that among the actors involved in his inventions he also recognizes the work of some street mechanics that helped him, in the beginning, when he requested hardened parts to afterwards assemble them together. Now he has the support of his company's staff, engineers and technicians with wide experience, who are capable of contributing with the company's growth with solutions.

The inventor points out that during his lifetime he has seen many presidents pass through; but that adequate encouragement for more inventions to be developed has not been given yet. He states that general situation of inventors in Peru is not the best because practically any government has dedicated to invest in technology in the country, nor in treating raw material that is produced and give it an aggregated value to export it.

c. Business Information

Table 17

PRODUCT	YEAR SINCE COMMERCIALIZATION	COMMERCIALIZATION LOCATIONS	UNITS SOLD PER YEAR
Electrical panel for DIN rail thermal magnetic circuit breakers mounting	2009	Nationwide	More than 2000

Preparation: The Author

4. THE INVENTION AND THE PATENT

a. Why Patent?

Teodulo comments that he decided to patent his idea because of the necessity to protect himself from been copied by others; besides he was interested in exercising an economic power on the patent and obtain the temporary exclusive right of the product in the

market through his company. His invention, patented only in Peru, allowed him to exploit his products without risk.

Teodulo's friends, seeing he was always willing to innovate his products, also reinforced the idea to patent so that other traders would not get advantage of his work, without investing anything. Even he was worried that copies do not meet the same quality standards needed to be safe and not cause damages to users. Being different from competitors and that products offered would not be confused with others as well motivated him to patent.

Throughout the years, he has developed various inventions that have been very useful for the task he had to perform in said moment. From all of them, five have become patents of utility model.

b. Challenges

To patent his invention, the first time he did it only with his company's technicians, but drafting the technical document was difficult. Observations were made to the application and then he had to look for advisors specialized in the subject. In that moment, the thought the process was complex and thinks it could be simplified.

Fortunately, with the adequate support for the patent application he could materialize his idea for obtaining the patent. However, he considers that the periods of time to patent are relatively long and that steps may be shortened for those who undertake the creation of new technologies and new basis to improve production in the country.

He also refers that it was difficult to determine if his product met the novelty requirement, because even though he knew it was new in the country because he worked several years in the metal mechanic and electrical panels industry, he still needed more information.

c. Opinion about the Patent System

Even with the difficulties he faced, he states that the process was worth the effort and he would do it again because is very useful. He is happy, even, with those who imitate his products because that helps him continue innovating and not staying in the same point.

Now his products are sold without problems and he cannot cope with the tasks he has to perform. As well, he exports his products to Chile and to many Peruvian companies and institutions that confirmed the superiority and quality he offers.

> *"I envision myself continuing in the electricity and metal mechanic industry and also to get involved in medium voltage. I am planning to build a plant with greater capacity to handle different projects the country needs.*

PATENTS GRANTED UPON HIM IN PERU

Table 18

N°	TITLE OF THE INVENTION	TYPE OF PATENT	FILING DATE	EXPIRATION DATE
1	Partitions with suspended dividing panels for bathrooms	Utility model	19/05/2006	19/05/2016
2	Electrical panel for QC-type Thermal Magnetic Circuit Breakers Mounting	Utility model	01/12/2006	01/12/2016
3	Electrical panel for DIN rail thermal magnetic circuit breakers mounting	Utility model	05/09/2008	05/09/2018
4	Insulating basis for Thermal Magnetic Circuit Breakers Mounting	Utility model	25/01/2010	25/01/2020
5	Electrical panel for Thermal Magnetic Circuit Breakers Mounting	Utility model	23/05/2003	23/05/2013
6	Automatic door lock system or similar	Patent	06/10/1976	22/08/1989

Preparation: The Author

Contact information

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Website: http://www.tjcastro.com.pe/

Email: ventas@tjcastro.com.pe

IR AL INDICE

FRITZ EIKENBERG JENNESSEN

Fritz Eikenberg Jennessen

UNIVERSAL ADAPTER FOR FLAT AND ROUND PINS FOR PLUGS WITH OR WITHOUT GROUND

FRITZ EIKENBERG JENNESSEN

1. THE INVENTOR

a. His History

Fritz Eikenberg Jennessen was born in 1942 in Germany. He studied engineering, with specialization in production in the city of Berlin. Currently he is the General Manager of Industrial EPEM S.A, a Peruvian company with more than 40 years of professional activity in Peru and abroad.

The company he runs is engaged in the production and commercialization of electrical accessories for home, such as switches, electrical outlets, bulb sockets, sockets, among others.

b. An Inventor is Born

Fritz tells that he started inventing with the only desire to improve and make things easier in daily life things. The inventions he has developed are mainly in the electricity industry and meet household needs.

c. Inventor's Motivations

Fritz considers that the motivation to invent arises from the real necessity to improve a situation or to solve a problem; that depends as well on the moment, the place and the job is performed. These ideas that arise may be used, most of the times, to meet a nationwide necessity.

Under said conditions, the inventor through his initiative and creativity ideates forms, figures, mechanisms, among others, which interrelate in order to find the best solution for the necessity. For that, the problem had to be investigated in depth. When the idea is expressed in a drawing, he searches for manufacture alternatives with the help of his group of collaborators and for that uses adequate materials and processes that allow obtaining the physical product, also called prototype.

"The inventor through his initiative and creativity ideates forms, figures, mechanisms, among others, which interrelate in order to find the best solution for the necessity. For that, the problem had to be investigated in depth."

d. The Inventor and His Other Passions

Now, for Fritz his main passion is creating and is one of the tasks he enjoys the most. As well, he states that he is always carrying out improvements to products o thinking about new uses for them.

2. THE INVENTION

a. Data Sheet

TITLE	UNIVERSAL ADAPTER FOR FLAT AND ROUND PINS FOR PLUGS WITH OR WITHOUT GROUND
Application No.	000246-2009/DIN
Title No.	0475
Type	Utility model
Patent holder	Fritz Eikenberg Jennessen
Filing date	20/02/2009
Expiration date	20/02/2019
Telephone	(511) 326-3093
Summary	It is a device that allows adapting different types of plugs of electronic and electrical equipment to facilitate the connection to home electrical outlets.
Technical Characteristics	The universal adapter is made of 4 parts: the body, the plug, the contact and the pin. The first two are made of thermoplastic engineering material and the contact and pin are made of copper alloy.

b. The Invention

This universal adapter for flat and round pins for plugs with or without ground belongs to the group of low voltage electrical equipment. It is designed and manufactured to allow electrical connection to a flat or round pin plug, with or without ground, of any electrical appliance or apparatus.

Fritz says that his adapter is made of virgin and high quality raw materials, whereas there is a lot of disloyal competition in the market, that prefers to introduce low quality adapters and very cheap without caring on the security criteria of the product established by international standards, thus creating a risk for users.

c. Innovative Solution to a Problem

Around the world there are different electrical outlets and plugs configurations used in each country for their corresponding electrical systems. In Europe 4mm or 4.8mm round pins plugs are used with or without ground depending on the current capacity. In North America and Central America flat pins plugs with or without ground are used. As well, there are also countries that present a proper configuration for their electrical outlets and plugs, for example Argentina and Brazil. Due to this and to globalization, now electrical appliances and apparatus from different parts of the world are entering our country.

Therefore, most of the plugs of these apparatus are not of the same configuration or type, but they adjust to the configuration of manufacturing countries.

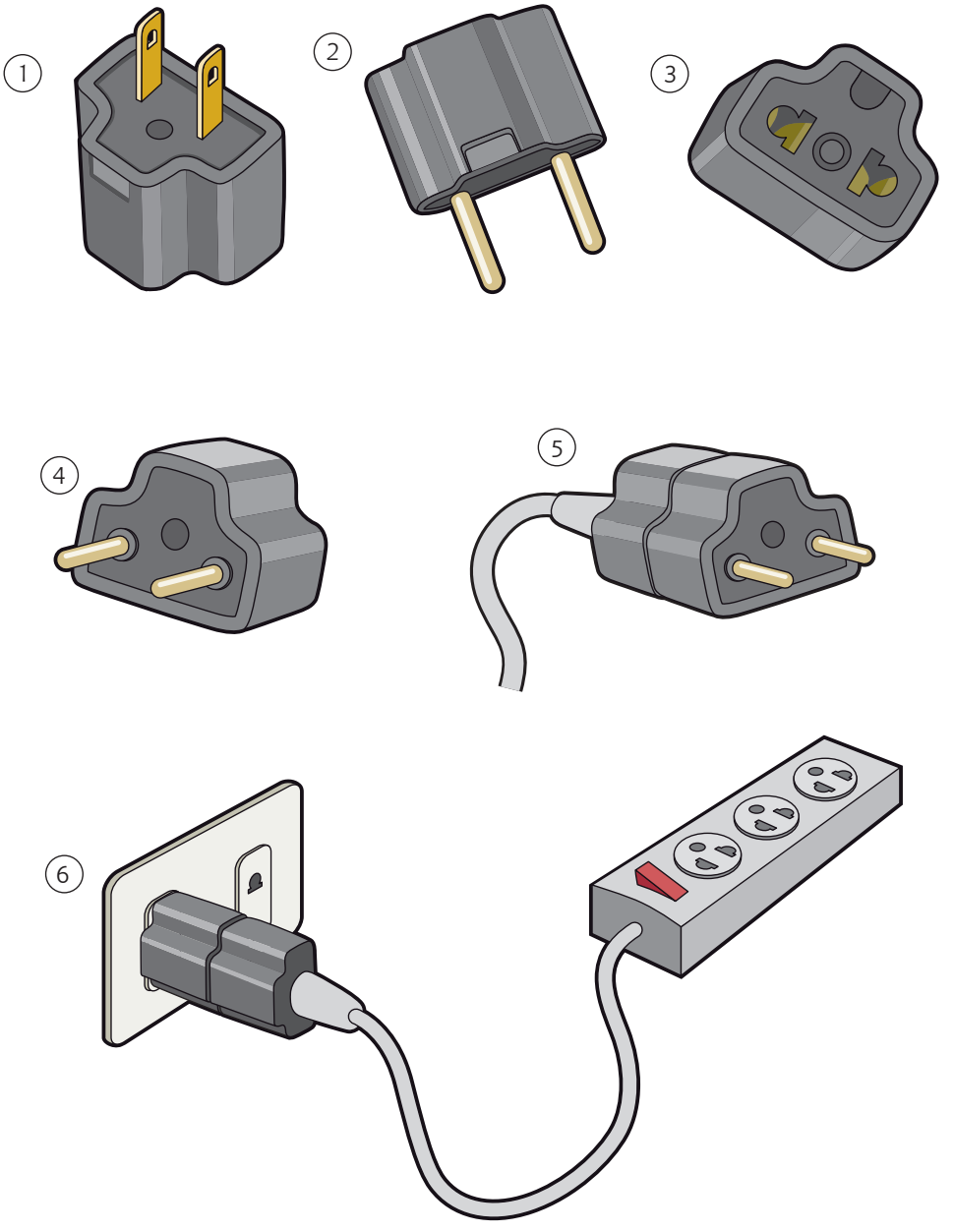
For Fritz, this was the context that allowed the universal adapter development, which solved the problem of using any type of electrical apparatus from any part of the world because it was used by Peruvians, as well as by foreigners, who were able to acquire a low cost product of good quality and very easy to use.

3. FROM THE IDEA TO THE MARKET

a. Origin of the Invention

Under the aforementioned, Fritz comments that although the necessity had been already identified, the product was invented newly in year 2006, as a result of the discussion of the necessity to establish a type of electrical outlet configuration through its regulation and the update of the National Electrical Code carried out in that year.

The inventor analyzed the situation, and after searching in the market products used to adapt plugs to different electrical appliances noticed there existed some, but without covering the complete range of plugs available in the market. Thus, he thought that with his invention he would make easier the use of different plugs in the new configuration while the period of adaptation of the apparatus to this configuration lasts.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b. Strategy Developed

Once the necessity was identified in the market, everything starts with the sketch of the first drawings. Together with Fritz, a group of people, who belong to the development department, collaborate. Then, samples are produced and with these models the first tests are carried out to evaluate if they comply with their aim and if they work correctly. Immediately, the manufacture of molds and matrices start, among others.

Fritz states that for him it is of first importance to continue developing new projects, and that for now the company is concentrated in working with electrical accessories for home.

Table 19

PRINCIPAL CHALLENGES FACED BY THE INVENTOR
1. Obtain quality supplies and material from suppliers working under international standards.
2. Find balance between the use of cheap materials, prioritizing the assurance of users' security.
3. Compete with very low cost imported products and produced with material not suitable for its use.

Preparation: The Author

c. Business Information

Table 20

PRODUCT	YEAR SINCE COMMERCIALIZATION	COMMERCIALIZATION LOCATIONS	UNITS SOLD PER YEAR
Universal adapter for flat and round pins for plugs with or without ground	2009	Nationwide and worldwide (countries from CAN and the Caribbean)	1 200 000

Preparation: The Author

4. THE INVENTION AND THE PATENT

a. Why Patent?

Fritz affirms that what has motivated him a lot during these years is the legal protection granted by the patent because, it can certainly define your welfare as inventor due to the custom in our country to imitate what is good and works. For that reason, the decision to patent the adapter has been one of the best decisions he had made up to now.

Nowadays he exports this product to countries form the Andean Community of Nations and countries from the Caribbean. The sale is carried out through distributors located in each of the aforementioned destinations.

b. Challenges

For the inventor, the main challenge faced to patent is dealing with the time taken to grant the patent. He says that it was not fast to do it and took about two years approximately.

c. Opinion about the Patent System

Fritz comments that the patent system in Peru has still improvements to make. However, he considers that INDECOPI does it job and that they have validated the efforts carried out to patent. At least, in the business plans of Industrial EPEM SA is to continue implementing and protecting the innovation of electrical accessories.

As well, the inventor thinks that it is also necessary to have rules that sanction those people who only wait for a product to be launched into the market to copy it. This fact has taught him to keep several of his creations with a low profile, in order to be able to commercialize them before they are copied.

PATENTS GRANTED UPON HIM IN PERU

Table 21

N°	TITLE OF THE INVENTION	TYPE OF PATENT	FILING DATE	EXPIRATION DATE
1	Mixed contact	Utility model	07/04/1995	07/04/2005
2	Split threated ring	Utility model	19/04/1995	19/04/2005
3	Round pin	Utility model	25/06/1997	25/06/2007
4	Circular fluorescent device	Utility model	25/02/2000	25/02/2010
5	Flat pin bracket for universal triple joint plug	Utility model	09/01/2001	09/01/2011
6	Flat pin with anchor	Utility model	24/10/2002	24/10/2012
7	Rectangular and/or round blank cover with hinged lugs for electric boxes built-in walls and roofs.	Utility model	08/08/2005	08/08/2015
8	Structural frame with sliding little caps	Utility model	08/08/2007	08/08/2017
9	Universal adapter for flat and round pins for plugs with or without ground	Utility model	20/02/2009	20/02/2019

Preparation: The Author

Contact information

Inventor/Company: Fritz Eikenberg Jennessen / Industrial EPEM S.A

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Email: informes@epem.com.pe

INDUSTRIAS MINCO S.A.C (GRUPO FAMESA)

From left to right: Beppi Piero Bernard, Gerente and Pio Francisco Pérez Córdova, Gerente de Investigación and Desarrollo de Famesa

FACTORY TRUCK TO GASIFY A MATRIX EMULSION

INDUSTRIAS MINCO S.A.C. (GRUPO FAMESA)

1. INNOVATIVE COMPANY

a. Its History

FAMESA is a business group characterized by the importance it has given to its technological and commercial development. It was founded in 1953; the company is engaged in the manufacture and commercialization of explosives, accessories and blasting agents. Its products are aimed to cover the necessities in the mining and civil construction industry, as well as in oil and gas prospecting, and in other important segments of the productive sectors. Currently it offers cutting edge products, developed in its own facilities.

Beppi Piero Bernard, current Manager of FAMESA (although he mentions is temporary), was born on June 21, 1974 in the city of Lima and spent his childhood and his early youth in the district of Chaclacayo. He studied business administration at Miami University, and then studied and MBA at the Peruvian University of Applied Sciences (UPC). His father, also Peruvian, was in charge of Famesa since 1980; however, some years ago he decided to retire after a long and productive trajectory in charge of the aforementioned company.

FAMESA is a family business and Piero remembers visiting it since he was eight. He points that according to the company's corporate management protocol, it will go through a process of professionalization, a joint decision made by all directives.

b. An innovative company is born

FAMESA started in the blasting accessories industry in 1953, and then, in the beginning of the 80s moved forward to manufacture explosives. In this decade, the company was focused more in researching and decided to focus in the development of key products. Throughout this time, it has been clear for Piero that the presence of creative people was necessary.

For example, Piero comments that the current Research and Development Manager, Pio Francisco Pérez Córdova is 57 years old, from which 29 has been working in the company and 18 in the area of research. He states that the great successes and the

greatest growth occurred after patenting several inventions, which were the company's backbone.

c. Innovation's Motivation

Piero believes that among the main motivations they possess to innovate, is to maintain a competitive advantage over other companies, being leaders, reserve niches that may be exploited by FAMESA, ensure profitability and, of course, satisfy curiosity, as a natural emotional part. As part of the work developed with staff, they raise awareness, motivate and train them to maximize their creativity, but always with the protective equipment required and under security standards required.

He points that they have a great work team of electronic, chemical and mechanical engineers in the area of research; apart from other experts in the area of quality control, with whom they always work closely. For Piero, the person who invents is very particular, and was born with a different spirit; he wants to know the why of things and looks to find those answers with which he develops or undertakes things permanently.

Considers that the abilities an inventor shall possess are curiosity, the why question; think outside the box, practicality (the idea has to lead to something practical because you are in a company) and discipline. It is very important to have developed those qualities because someone creative would not be accepted in production, because for security reasons they should follow an established pattern; and on the other hand, in the research area he would have to adapt, because is the area with more security revisions, since experiments with chemicals and explosives are performed, and therefore there are characteristics that are not probably known.

> *"The inventor must be curios, ask the question why and think outside of the box; consider the practicality of the idea (it has to lead to something practical) and be disciplined with his work".*

FAMESA business group has other companies in the area of infrastructure and metal mechanic construction, engineering and food. Among the companies of this group are FAMESA EXPLOSIVOS S.A.C, INDUSTRIAS MINCO S.A.C., FAMESA TECNOLÓGICA S.A and AGRO CORPORACIÓN S.A.C.

2. THE INVENTION

a. Data Sheet

TITLE	FACTORY TRUCK TO GASIFY A MATRIX EMULSION
Application No.	000751-2009
Filing date	29/05/2009
Expiration date	29/05/2019
Title No.	0520
Type	Utility model
Patent holder	INDUSTRIAS MINCO S.A.C (GRUPO FAMESA)
Telephone	(511) 613-9821
Summary	It is a system that generates bubbles (gasification) in a dispersion of water in oil (matrix emulsion) which is performed after it passes through the pump and allows that a chemical sensitization reaction is performed inside the drill, where it has been pumped.
Technical Characteristics	All materials are made of stainless steel.

b. The invention

The factory truck to gasify a matrix emulsion is a configuration that provides a technical advantage in comparison to current gasification designs in factory trucks for blasting in open pit mines. The factory truck allows the gasifiable matrix emulsion to combine with a sensitizing solution in a mixer. Then, the homogenization with the gasifying solution is carried out after passing through the screw pump, while it is loaded into the drills.

Unlike conventional units, these trucks are provided with a gasification system that possess an online programming unit (PLC), which allows to program the quantity of gasifying solution to dose in function of the temperature of the matrix emulsion; it makes it possible to visualize in the PLC panel the parameters of the gasification process and program the quantity of product to be dispatched into the drill.

As well, it has an injection system of the gasifying solution in atomized form or fine spray, where a nozzle or a high-pressure piston pump, with a solenoid valve and a check valve for automatically shutting-off the injection flow of the gasifying solution, may be used, when the loading is stopped; it has a system that carries out a homogeneous mix of the gasifying liquid solution with the matrix emulsion, using static mixers arranged in series, thus allowing chemical sensitization reaction to be carried out inside the drill, where it has been pumped.

Its water ring system allows reducing friction resistance of the matrix emulsion homogenized with the gasifying solution, during the loading of the drill in pit mine, by reducing operating pressure to high security levels. For example, the truck is the tractor, and on it there are some emulsion tanks where SAN-G (aqueous solution of gasifiable nitrate) and a sensitizing solution may be combined. Thus, the factory truck joins other product of FAMESA, the SAN-G, to form a single procedure.


FAMESA
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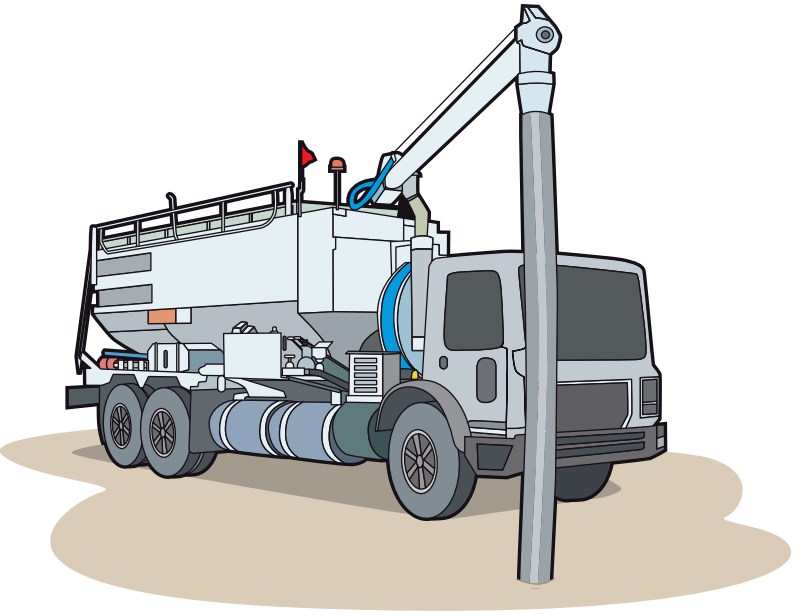

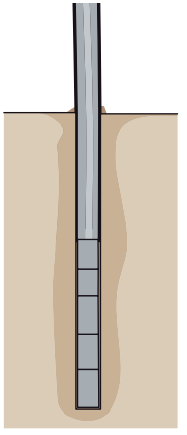

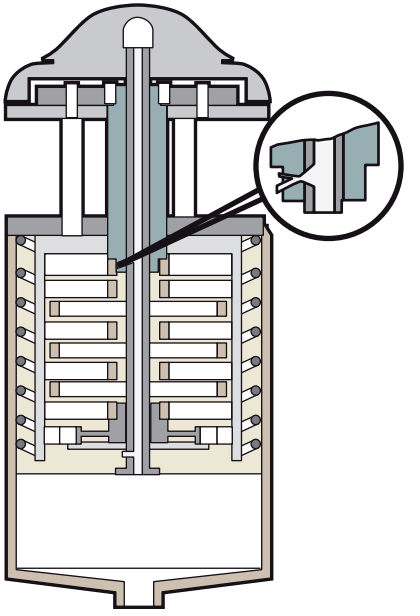

SAN-G is a gasifiable emulsion, product of FAMESA, which is charged into the company's factory trucks. It is an aqueous solution of gasifiable nitrate for surface mining, formed by a microscopic oxidant solution dispersed in a continuous combustible phase and stabilized by an emulsifier. SAN-G is sensitized in mining operations before loading the drills, through a gasifying solution dosage, producing an explosive mixture of lower density, water-resistant, very viscous and with higher detonation velocity than heavy ANFO (mixture of ANFO and matrix emulsion)

In that sense, Piero comments that the creator of the inventions developed is recognized in the patent as the inventor, and FAMESA as the proprietor, as the company to which the title was granted. The inventors of the patent who developed the invention are Pio Francisco Pérez Córdova and Luis Alfredo Cárdenas López. As is the company's custom, the inventors are presented to directors for their recognition.

c. Innovative Solution to a Problem

The General Manager of FAMESA comments that in Peru heavy ANFO (Ammonium Nitrate plus Fuel Oil) has always been used for works, which is ANFO (ammonium nitrate plus fuel oil) plus an emulsion. This emulsion stays inert until is mixed with ANFO, at the same time, the ammonium nitrate prill has low density and sensitizes the emulsion.

It has been used for blasting and demolition operations because they are safe and cheap. However, one of the problems detected at the beginning of 2000 and up to 2007 was that since the ammonium nitrate was brought from Russia, the heat and movement may make the material fragile and cause technical problems.

That led the company to look for a solution to that problem, and it was when they decided to deal with the root of the problem; this is to say, replace ammonium nitrate prills with other input. Thus, they thought of using a gasified emulsion that reacts to a basic solution that sensitizes it chemically, just before the drills are loaded.

Using gasified emulsion was not something new, because it had been tested many years ago in other countries without success. The main problem was that a pumping system was used in an area where the product was already active. Emulsions remained in the pump, heating was produced and then they exploded, causing accidents.

FAMESA thought about solving the problem to make the product feasible and developed an invention in which the product is combined with a sensitizing solution inside a mixer, in the last part of the process, and becomes active once it is outside the mixer truck. Like this, risk will disappear in 100% because the mixture of the component that makes it to explode is at the end of the hose and not inside the pumping system.

3. FROM THE IDEA TO THE MARKET

a. Origin of the Invention

Piero says that for them researching is also identifying a product that does not work properly and find alternatives for its solution. This was how, in 2007 the idea of using gasified emulsions arose, as a proposal from the research area to try to replace the ammonium nitrate used to produce ANFO, and which was as well difficult to get.

After a year and a half of testing the new modifications, they could start selling it among their clients. Despite the questioning of the security system, they were confident that the emulsion was a non-explosive solution; it would not react until is combined inside a mixer, which was now carried out in the final part of the process. It was how, by the end of 2008, they tested it in a mine and by June of the following year, the mine was already using the product at 100%.

Piero points out that the company develops all its technology by itself and for itself. FAMESA does not pay any royalties to anybody, that is why when they tried to replace the ammonium nitrated brought from abroad, a draft and an economic analysis were carried out, and they noticed that using gasifying emulsions will require less explosives, which was convenient for both, the consumer and the company.

So, they took this idea and thought about modifying the way it was used years ago and about the reason why it did not work. Changes in the design of the truck factory were carried out, some tests were made and when the good results were confirmed, they decided to patent it as utility model.

Piero points out that every year the person in charge presents to the shareholders the impact generated by the Research Department with its developments, due to a new product, cost reduction or others. All costs involved in the research have been assumed only by FAMESA, and, in this sense, states that at company level when costs reduction is made, the department of research and development is not affected; as the percentage of the budget aimed for research is determined by the sales volume of the budget.

> *"If at any time the context for our company was adverse and we were compelled to eliminate some areas, the last area to be affected would be the Research and Development area, because our present and future are there"*

b. Strategy Developed

When launched to the market, at the beginning, the product was considered as too risky, due to the negative backgrounds that gasifying emulsions had before. What happened is

that FAMESA, with the changes made in the way of working with emulsions, through the invention patented, changed a consumption habit in the market and was different from its competitors by presenting an offer that was not ammonium nitrate prills. During three or four years they were the only producers of gasified emulsions in the country, and that gave their customers security.

Before, everybody used to buy trucks, but they took so much time in manufacturing and delivering them, so the technical area of the company decided to make the truck, the factory part, and like that the prompt delivery problem was solved. Nowadays, a factory truck has been sold and they are close to sell another. They have eleven factory trucks, from which, 10 possess the utility model invention, three only produce SAN-G and seven can work with SAN-G or heavy ANFO.

Thanks to this patent, also more than 94´000,000 Kg of SAN-G (aqueous solution of gasified nitrate) were sold in five years, "as help to" the factory truck. Currently, as commercialization strategy, Piero says that through the technical management, the central commercialization management sees the exports subject. The modality is to have direct clients; and in some countries through distributors.

Among the principal factors that have contributed to the success of the product are the price, quality, on-time delivery, better quality of blasted rock and technical assistance to refine ongoing operations. At least in Peru, he says they work alone and that they have some important agreements and maintain a good relationship with competitors. FAMESA is a local manufacturer and gets advantage of this proximity; therefore accessories which are not produced by other companies have higher costs if they are imported.

Currently they sell to Panama, South Africa, Arab Emirates and to several countries in America. For the quality of their products they can compete with any other manufacturers in a global level. He states that each product is different. They have complete lines and for example, they are the only ones that manufacture detonators in the country, among other products.

Table 22

PRINCIPAL CHALLENGES FACED BY THE INNOVATIVE COMPANY

1. Revert negative perceptions generated by the misuse of a product, gasified emulsions, as part of its new patent.
2. Generate a change in consumers' habits, because as clients they were used to buy products based on ammonium nitrate prills.
3. Comply with product delivery, because first trucks manufacturers took long to make the delivery.

Preparation: The Author

c. Business Information

Table 23

PRODUCT	YEAR SINCE COMMERCIALIZATION	COMMERCIALIZATION LOCATIONS	UNITS SOLD
Factory truck to gasify a matrix solution.	2009	Worldwide	1 factory truck sold 18'800,000 kg of SAN-G (per year)

Preparation: The Author

4. THE INVENTION AND THE PATENT

a. Why Patent?

The decision to patent arose when the company decided to have a product or proceeding that helps them have a competitive advantage over other companies. Piero affirms that little by lithe, they have been discovering, in opportunities, a property or characteristic that was not necessarily the ones followed, but that maybe, said discovery may open the doors to other possibilities.

It is clear to the company that the objective of the patent is that in exchange for transmitting knowledge to humanity, the inventor obtains the exclusive right of the product for a specific period of time, in a specific place. For example, he says that if he patents in Peru and not in Chile, others may copy its product there. *"I would have a year to patent outside Peru, and if that time is exceeded, they will say that it is not a novelty and that is of public domain because it was already published"*.

Piero comments that FAMESA, as economic group, has about 12 patents applications since 2009. They have implemented an integrated management system and as part of it they have the objective to present at least two patents per year, with inventions related to the areas of accessories, explosives, electronic and emulsions. So far this 2014, an application has been filed before Indecopi and they are still working to increase the number to two by the end of the year.

After the factory truck patent was granted in Peru, they requested it in Bolivia, Ecuador and Panama. However, Piero warns that - in relation to SAN-G, another product that complements the factory truck – that if someone has something that is difficult to copy, maybe it may not be worth to publish and would be more convenient for the inventor, to keep it and register it as an industrial secret.

b. Challenges

Piero states that the process to patent is perceived as complex and that implies working with a human group capable to contribute to the construction of a document of said nature. That is why, in regards to the proceeding to patent, he comments that what they normally do is a draft that is discussed with the legal area. Then, discuss it with the engineers in charge; it is revised, and when the patent application is ready, they share it with other professionals from the team to find any weaknesses. Of course, he points out that special care should be put in what is sent in the original patent, because it cannot be modified afterwards.

c. Opinion about the Patent System

Despite the challenges they face as a company to patent, Piero recognizes that although the first time there are mistakes, they have been learning. Also, he considers that periods of time may be reduced to facilitate the process. But above everything, he is convinced that it is worth the effort to patent in the country to leverage competitive advantages offered by the system.

Piero comments that in Peru, there is an absence of investment in research and development, due to lack of confidence in us. It is an evolution, but it requires companies to give more importance to research and development.

There is a potential that has not been used by companies, because they take research and development as an expense, and not as an investment; they do not realize that it can ensure their future. Besides, there is lack of faith that Peruvians can do something, and that a new idea can arise. Several times that blocks, but you should go ahead and be a little obstinate with what you believe.

> *"We want to venture into blasting accessories that allow us to reach the whole world due to their small size. In the coming years, we would like to grow also in civil construction and be more oriented to seismic prospecting and oil extraction."*

PATENTS GRANTED UPON THE GROUP'S NAME IN PERU

Table 24

N°	TITLE OF THE INVENTION	TYPE OF PATENT	FILING DATE	EXPIRATION DATE
1	Factory truck to gasify a matrix emulsion (INDUSTRIAS MINCO SAC)	Utility model	29/05/2009	29/05/2019
2	A device for connecting and transmitting signals (INDUSTRIAS MINCO SAC)	Patent of invention	27/06/2002	27/06/2022
3	Programmable Time Interval Generator (INDUSTRIAS MINCO SAC)	Patent of invention	31/05/2002	31/05/2022
4	Hybrid electronic accessory to generate predetermined time sequences. (INDUSTRIAS MINCO SAC)	Patent of invention	18/04/2002	18/04/2022
5	Quick junction block for non—electric signal conductors (FAMESA TECNOLOGICA SA)	Patent of invention	21/11/2000	21/1/2020
6	Time-controlled Initiation System for blasting (FAMESA TECNOLOGICA SA)	Patent of invention	25/07/1994	25/07/2014
7	Shock wave coextruded hose and a manufacturing process (FAMESA TECNOLOGICA SA)	Patent of invention	09/02/1993	09/02/2013
8	Assembly machine of non-electrical ignition system (FAMESA TECNOLOGICA SA)	Patent	17/07/1990	29/04/1998*
9	Automatic machine for fixing detonators (FÁBRICA DE MECHAS S.A)	Patent	28/12/1984	15/10/1996
10	Manually operated machine for fixing safety fuse (FÁBRICA DE MECHAS S.A)	Patent	10/08/1984	27/08/1995
11	Ignition cord or quick fuse for blasting (FÁBRICA DE MECHAS S.A)	Patent	11/12/1985	12/07/1998
12	Wick connector or ignition cord with safety fuse (FÁBRICA DE MECHAS S.A)	Patent	04/12/1985	19/07/1998
13	Delay corrector for explosive baits (FÁBRICA DE MECHAS S.A)	Patent	28/11/1984	25/11/1996
14	Non electrical antistatic deflagrating fuse (FÁBRICA DE MECHAS S.A)	Patent	12/11/1984	23/10/1996
15	Water in oil explosive emulsion (FÁBRICA DE MECHAS S.A)	Patent	16/10/1984	21/01/1991
16	Safety guides and detonators (FÁBRICA DE MECHAS S.A)	Patent	12/07/1979	30/07/1990

Preparation: The Author

(*) Patent expiration date

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Email: contacto@famesa.com.pe

IR AL INDICE

CÉSAR HERRERA VELÁSQUEZ

César Herrera Velásquez

WATER-SAVING FAUCET WITH SINGLE OR DOUBLE OPENINGS AND AUTOMATIC FLOW CONTROL

CÉSAR HERRERA VELÁSQUEZ

1. THE INVENTOR

a. His History

César Herrera Velásquez was born on October 25, 1957 in the Constitutional Province of El Callao. He studies industrial electricity in the National Service for Industrial Labor Training (SENATI). He got married while working in Cusco and had three children. He taught all of them, above everything, to have the vision to go beyond their training, not to be only professionals, but to become part of the reinvention needed in Peru.

He worked for 25 years in different companies, seeking for better opportunities for professional development; this is how he knows more than fifteen companies, and in all of them learnt about the operation, repair and optimization of different equipment and machinery.

b. An Inventor is Born

César developed an early curiosity to discover how different artifacts from his house worked, and all those found in his way. He did the same with his toys as a child, so it was always a challenge to continue working after the scrutiny to which they were subjected.

During his youth and the times he started gaining professional experience, he found repeatedly technical problems, due to lack of spare parts to replace parts or little availability of necessary tools to fulfill his work.

For him, being in front of a machine implied to devote his full attention to it. He observed its details, how it was manufactured, and analyzed both, the manufacturer and the inventor's philosophy. In turn, when a machine arrived to replace an old one, he observed what new things had been incorporated, what was missing and what possible improvements could be brought in the future. It was in those tasks that the desire to invent and discover the fundamental reason of things arose.

He remembers that one time, while working in the construction of the Cusco-Abancay highway, the team, carrying out its work, required a spare part that was only sold in the city of Lima. Travelling to the capital city was very difficult, so they decided to use their collective inventiveness to solve the problem with the limited resources available.

The inventor states that creativity has always been with him, so that in opportunities like the abovementioned, he has sought to help in the identification of alternatives or possible solutions, until finding the most appropriate. In this case, the team prepared and improvised parts, proved them, and if they worked just continued to work with other cases or similar problems. They were also there to create solutions.

However, this fact was the one that pushed him to enter completely into the inventions world. Downsizing of the labor force caught him by surprise when he was working in a mining company in Cusco. Already married and with two children, César decided to use his creativity and devote it to invent solutions for recurring problems. This marked the beginning of a successful fight.

c. Inventor's Motivations

Among César's main motivations to invent, is to educate his children in achieving their biggest objectives than settling for having a profession. For the inventor, everybody should have the objective to leave a contribution to their country, contribute to make it better and then be proud of themselves with a legacy to humanity.

He affirms that invention and creativity are abilities he was born with, but that circumstances in which his work put him, allowed him to develop them more. He considers that to be an inventor, vision cannot be lost to know where you want to be, and that perseverance should be kept in each thing you do.

> *"An inventor is the person who does not lose vision, he needs it to really know where to go; while remaining perseverant in every endeavor".*

d. The Inventor and His Other Passions

César says that his experience as inventor has been the most beautiful of his life, because he could meet very interesting people thanks to that profession; however, one of the principal motivations that led him to continue inventing day by day, is his commitment as human being to build a better world.

When he is not inventing, the inventor from El Callao enjoys very much of the math game Sudoku. Also, he likes going out and cycling. He assures that streets in El Callao are not still safe to walk or play sports, but he loves being surrounded by his people; he says those people can make you really happy at times and sad in others. They are as well, the force to keep creating solutions; I would like to demonstrate them that great things can be made, by studying and developing the scientific part.

2. THE INVENTION

a. Data Sheet

TITLE	WATER-SAVING FAUCET WITH SINGLE OR DOUBLE OPENINGS AND AUTOMATIC FLOW CONTROL
Application No.	1031-2010
Title No.	0571
Type	Utility model
Patent holder	César Herrera Velásquez
Filing date	04/11/2010
Expiration date	04/11/2020
Telephone	(511) 990 300 624
Summary	It is a water-saving faucet with a double opening system. It allows having in one faucet a momentary opening and a permanent opening, through a control rod.
Technical Characteristics	It is made of extruded bronze rods and tubes at 1600 pounds of force with an alloy of 60-38-2, which is the international standard for bathrooms fittings; and the poppet for double opening is made of stainless steel. This magnetic system is based on a Neodymiun magnet of rare-earth of 9 mm of diameters by 2 mm of thickness guaranteed by its manufacturer for 100 years. It includes a 3.5 mm sealing packing and a regulating diaphragm, both made of Nitrile. The lock of the automatic control system is a stainless steel Seeger ring. The chroming has a copper, nickel and chrome base properly said of 10 microns. Each water-saving faucet is tested at 100 pounds of force.

b. The invention

It is a water-saving faucet (commonly known as "tap") that has a unique double opening system of its kind, because it allows to have at the same time, in the same faucet, a momentary opening and a permanent one. For example, the faucet is opened by pushing the rod in the horizontal direction and closes automatically when leaving the control rod. As well, the permanent opening is carried out by lifting the control rod until the upper stop, and will remain in said position allowing a continuous flow of water, until it is decided to put the control rod down.

It comprises a faucet spout and a water inlet system, wherein the faucet spout on its inner bottom part has an opening for the exit of a control rod which is coupled to a disc valve. The water inlet system comprises an automatic control flow system, which is composed of a bronze regulating disc, a spacing ring, a flow regulator diaphragm and a Seeger security ring. The essential faucet system is based on a magnetic line, thus there is not friction among the parts, which prolongs the system's durability.

c. Innovative Solution to a Problem

Everyday activities like personal hygiene and shower, passing through cooking and cleaning at home, are only some of the circumstances in which it is used and, many times water is wasted. César says that his idea came from the necessity to conserve water and even before achieving the prototype he did not understand why a faucet preventing liquid waste had not been invented.

In this sense, the innovation carried out by Herrera enables, not only that a faucet closes automatically but that is the only one that offers another way to open it (permanently), depending on the activity that is being performed. The water-saving faucet is also useful in other environments such as companies, businesses, institutions, at any place where there is still lack of awareness on the responsible use and handling of water. In all cases, the invention facilitates users to save water.

According to the estimates made by Sedapal, the saving-water faucet, in comparison to a conventional tap, enables to save from 85% to 90% of water when carrying out

personal hygiene or any domestic chore. Due to its characteristics and benefits, this public water company in Peru granted him a certification stating his faucet was a water saving-equipment.

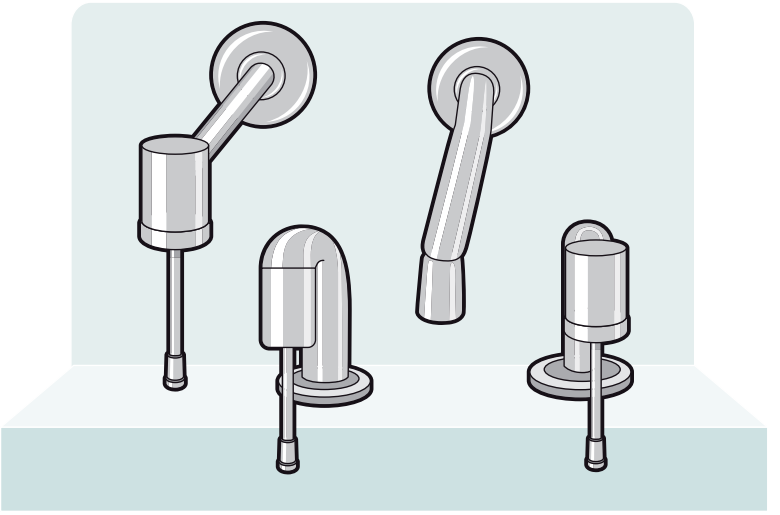
3. FROM THE IDEA TO THE MARKET

a. Origin of the Invention

One morning in 1998, while César was shaving in the bathroom of his house, stopped to think about the steps his career as inventor will follow, after presenting innovations in the electricity field to some public institutions, without much success. His products, despite being novel, did not seem to get the interest he expected.

A little worried about his future, he was thinking about all the problems that needed and were hoping for a solution. When he was about to shave, like every morning, and in

1



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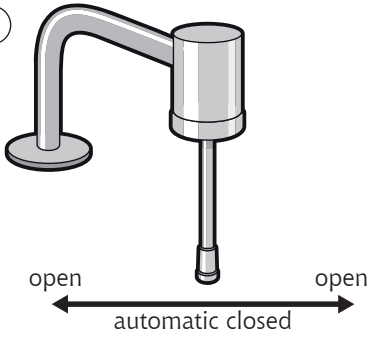

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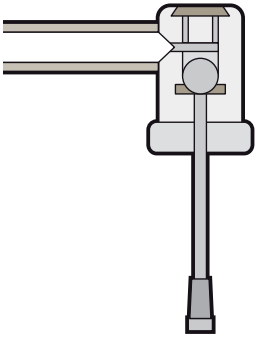

4

that spirit he noticed that water was running along the sink. He could not recall exactly at what point he turned on the faucet, but he saw water going out tirelessly. He thought immediately that many people in the world had the same problem, and they need to save water, but stayed many times in the attempt. Everyone expected a tap to help them save and preserve this important resource. So, this is how the idea first appeared.

After César presented what he called the double opening water-saving faucet in the VI INDECOPI National Invention Contest in 2000, with which he obtained the second place, he noticed the recognition of his invention as a product of great utility for everyone. So, he decided to apply for a utility patent and look for the means to commercialize it. Thus, he began like that a daily battle to achieve one of his greatest objectives.

The inventor comments that he knew his product will have a warm welcome among the public because it covered a necessity on mass level, and besides it allowed saving money by paying lower water rates. He refers that, in that sense, it is convenient that when the user uses a new product, a great difference in terms of complexity is not found when using the device it replaces.

The water-saving faucet does not have a handle. It only has a hanging rod and shall be pushed for washing hands or face; at first, it may seem a little annoying until the user gets used to it and notices that it is easier to use it than a faucet with a handle.

> *"I knew my product would be welcomed by the public because it covers a necessity on a mass level, and also allowed a significant saving of money".*

b. Strategy Developed

The challenges faced by the inventor to make his product see the light were not a few. Back from Geneva in 2001, where he attended as the Peruvian representative, as a reward for obtaining the second place in the VI National Invention Contest, he knocked a lot of doors searching for partners willing to join him in this battle to manufacture and commercialize the water-saving faucet.

He contacted companies in the plumbing industry, but César states that due to an issue of safeguarding their own market, they were not interested in supporting other product that may emerge and may reduce their profits. Then, thought in other possibilities to manufacture his product and after several attempts he found the owner of factory of bronze bars and tubes, with whom was able to reach to an agreement for their production.

With the invention manufactured, he started battling to present and sell it to institutions and companies in the country. It was not an easy task and many companies preferred

using other products because they were imported or they had a better presentation than the water-saving faucet. After many efforts, the company Maestro Home Center gave him the opportunity that he had longed for: display his product as part of the merchandise they offer to its clients.

Later on, he would notice that his invention would not have the same selling opportunities than others that were being promoted with advertising. *"The company has a limited capacity to promote the benefits of all products displayed in their stores, so you have to support your product with strategies that encourage the public to purchase"*, states César.

For that reason, the inventor continued visiting private and public institutions, always reminding them that it is the product that saves more water; like that he could make some direct sales to those users. As well, with the ingenuity that characterizes him, César did calculations on how much water can be saved with this faucet and found that if a person spends on average 600 liters of water a month, at that same time it is possible to save 540 liters by using the water-saving faucet, so if you get a million people to use this product, it would be possible to obtain 540 million liters of water to be distributed to places where they need it most. With this news story, he presented himself to different media and obtained a good response from them and provided information on the benefits of the water-saving faucet and at the same time got advantage of a great opportunity to advertise his invention.

The "Chalaco" inventor narrates that after looking for a partner who believes in his product as much as he does, it was this partner who found him. It was a system engineer, José Juárez Dextre, who bought the water-saving faucet in a store and after testing it for several months in his house, decided to look for the inventor and join him to promote the commercialization of the invention. José, 45, was confident that with his abilities on internet sales system, activity in which he already had a lot of experience may be the partner César had been looking for.

Both met and agreed on working together. With a team already established, César and José set up a small company called Grifo Ahorrador Enterprise, created a website and a profile in Facebook and through these channels began promoting the product more and attended the orders in a more dynamic way. The inventor affirms that companies and institutions are the ones that buy more, 95% and they do it due to the profitability, because the product is the faucet that saves more water in the market, and also is the cheapest.

Its principal clients include some companies in the hospitality field, private education institutions like SENATI and the Peruvian University of Applied Sciences (UPC) and public institutions like La Molina Municipality and Indecopi, among others. At present, is César's partner who helps him with visits to institutions to present the benefits of the water-saving faucet and promotes its use, apart from helping him in marketing tasks and product diffusion.

Table 25

PRINCIPAL CHALLENGES FACED BY THE INVENTOR
1. Find a business partner who believes in the benefit of the invention.
2. Identify companies that manufacture the water- saving faucet.
3. Face the prejudice of retailing companies in relation to the absolute superiority of foreign products against national products.
4. Compete with products that assign great investments in advertising.

Preparation: The Author

c. Business Information

Table 26

PRODUCT	YEAR SINCE COMMERCIALIZATION	COMMERCIALIZATION LOCATIONS	UNITS SOLD PER YEAR
Water-saving faucet with single or double openings and automatic flow control	2000	Nationwide	3000

Preparation: The Author

4. THE INVENTION AND THE PATENT

a. Why Patent?

César's main reason to patent consists in legal protection. He comments that the product is copied when is very good and fairly commercialized, and that is a big risk for inventors, so the best thing to do is to patent the invention. He considers that he would not have made the achievement he has gained up to now, if he had not made that decision, now he feels he is no alone.

b. Challenges

The inventor believes that the challenges to patent are mainly in the patent application process. He notes that many mistakes are often made when drafting the technical document (patent application) since the forms include and require the use of technical words and the tendency is to make mistakes. However, he assures that he was able to present early draft versions of the document to Indecopi for some queries or orientation; and the staff who helped him was patient to revise his application point by point. *"Like that you understand and the proceeding is faster"*, he states.

c. Opinion about the Patent System

For César, INDECOPI plays an important role and he appreciates its work, because he feels protected by a property title. He points out that he is not alone anymore, and that in the event of any problem make by company or third party, considers he is backed by the patent system, and now, thanks to the institution, he has learned much more about the rights granted by a patent.

> *"I wish to continue developing more innovations in the water-saving field and, above all, to have the opportunity to continue making inventions. There are many things to do".*

PATENTS GRANTED UPON HIM IN PERU

Table 27

N°	TITLE OF THE INVENTION	TYPE OF PATENT	FILING DATE	EXPIRATION DATE
1	Water-saving faucet with double opening	Utility model	28/09/2000	28/09/2010
2	Water-saving faucet with single or double openings and automatic flow control	Utility model	04/11/2010	04/11/2020
3	Electrical device for overload protection	Patent	25/06/1996	21/01/2003*

Preparation: The Author

(*) Patent expiration date

Contact information

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IR AL INDICE

JOSÉ OSTAICOECHEA GONZÁLES

José Ostaicoechea Gonzáles

SECURITY SYSTEM WITH ADJUSTABLE HEIGHT FOR WICKET DOORS

JOSÉ OSTAICOECHEA GONZÁLES

1. THE INVENTOR

a. His History

José Ramón Ostaicoechea Gonzáles is a young entrepreneur and renowned racer who is currently in one of the most important competition of his life, to be an inventor. Passionate about his work and speed lover, he has also been worried for looking for solutions for one of the biggest problems in our country, insecurity.

He was born in Lima in 1977. He studied his primary and secondary studies at Issac Newton College and at a school in Spain. He finished his business administration career at the University of the Pacific and is just 37 years old.

Currently José works as General Manager of Donosti S.A.C., family company engaged in the manufacture of doors, opening systems or security access controls for the industry in general and home. Donosti started its operations in 1956, as one of the first companies in the lifting and roller equipment, being one of its successes the electronic garage doors.

b. An Inventor is Born

For José, being an inventor is not a profession, is a gift you are born with. He comments that he has always liked "gilding the lily" and thinking or doing more than other people usually would do. He enjoyed thinking about things happening around him and about the details that accompanied them.

States that throughout his life he has witnesses many times how small problems have been resolved through small or simple solutions. As well, he remembers that since he was a child he was fascinated by dismantling his toys to see how they could be improved. Inventing was an art for him, and José is convinced he could do it by beginning with the simplest.

c. Inventor's Motivations

José tells that one of his main motivations to invent has always been trying to develop solutions to solve problems seen in the country. Also, he affirms that a lot of perseverance and optimism is needed to move ahead with a project. Sometimes critics of third parties may affect him, but he knows that it is important to know how to handle them, because they would always exist.

The young entrepreneur from Lima states that an inventor must be perseverant to keep his attitude to his original idea, optimistic to have a favorable mind that the idea will move ahead, must have strength not to fall in front of critics, vision to think that his product shall be positioned in the market and dreams because dreaming does not cost a thing.

> *"An inventor shall be perseverant, optimistic, have strength, vision; and dreams, because dreaming does not cost a thing".*

d. The Inventor and His Other Passions

José affirms that one of his greatest passions is to manage the company he currently has. He has no children, but thinks that business is like a baby that you have to feed every day, and be behind him. Moreover, in its development, *"you realize that many people depend on you, and it is necessary to know how to take care of them and repay the trust and efforts they placed".*

On the other hand, Jose has always like race cars. He says that has participated in rallies since 2006 and with his team and sponsors (the Gildemeister group and Hyundai) managed to be the national champions in 2010 and 2011. But, since his father died, some years ago, responsibilities in the company have increased and he had to leave it for an indefinite period of time. However, he remembers it as a wonderful experience.

2. THE INVENTION

a. Data Sheet

TITLE	SECURITY SYSTEM WITH ADJUSTABLE HEIGHT FOR WICKET DOORS
Application No.	002647-2012/DIN
Title No.	Pending
Type	Utility model
Patent holder	José Ramón Ostaicoechea Gonzáles
Filing date	28/12/2012
Telephone	(511) 336-6590 / 336-6630
Summary	It is a locking mechanism that has active security. It is made up of a system of partial opening of the door and a crossbar or extension bar of constant longitude and rolling, which is fixed to the lock-bar.
Technical Characteristics	It is formed by a metal lock-bar with two locks, one internal and the other external, where the lock's drums are connected through a device made of metal or cast iron. As well, it has an external metallic crossbar.

b. The invention

The invention is a lock cam or metallic device that prevents lifting in case of leverage or trespass of a door. It has also an internal system that makes it possible to open the lock-bar from inside, an anti-panic system that facilitates to unblock it with a simple knock and without a key, through a rolling handle fixed to the metal lock-bar. Said crossbar may be used in case of emergencies or fire, because it is fire retardant.

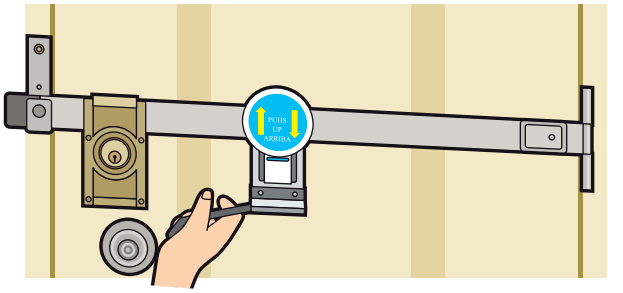
As well, this product is ideal for users with limited mobility or children due to its height adjustable mechanism, that allows unlocking it and provides a quick exit (other crossbars are installed normally at 1.60m height). It also has a tag with signs in Braille for blind people, to facilitate its use.

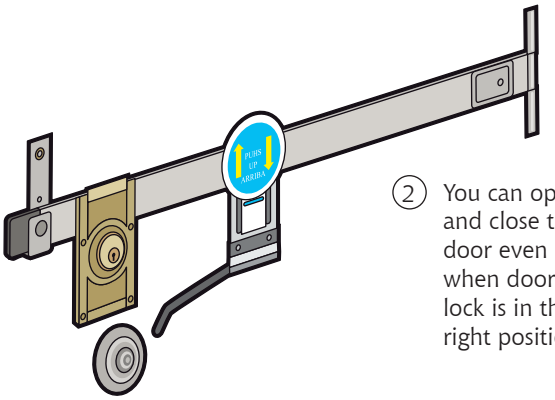
c. Innovative Solution to a Problem

José's invention provides a solution to many people willing to protect their homes and other property from trespassers. One of the main features of this mechanism is the active security offered by its design, because is always in the closed position, thanks to a cam that locks the door without needing to be opened to place the lock-bar in the right position. This feature facilitates, as well, its operation, because it would not be necessary to put the lock-bar, but turning the key only.

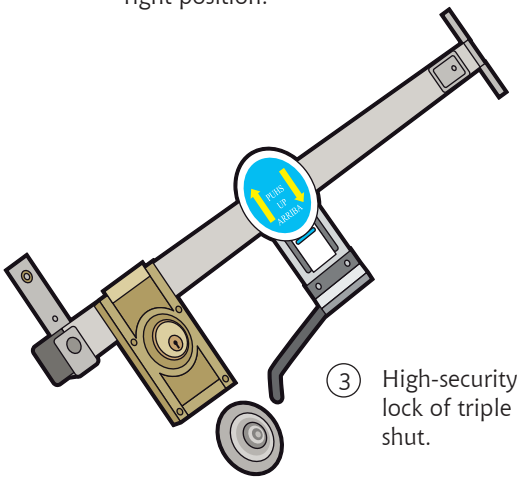
In that sense, this system is ideal for a more cautious public and who anticipates an emergency situation; it also has the advantage to be regulated according to the most convenient height, allowing being handled by vulnerable people such as children or people with limited mobility. Finally, he says, that it has a handle that deactivates security allowing a quick exit in case of accidents or other unexpected risk events.

1 Without unlocking we can go out





2 You can open and close the door even when door lock is in the right position.



3 High-security lock of triple shut.

3. FROM THE IDEA TO THE MARKET

a. Origin of the Invention

For José all started with the idea of giving a solution to the insecurity problem afflicting Peruvian society, considering that the alternatives found in the market do not facilitate the work of firefighters or doctors when entering homes in cases of an emergency.

At the same time, the idea was also to develop a product that meets international standards and that could be sold abroad, according to his comments.

He remembers that based on that he decides to make progress, develop matrices and everything related to the launch of a new security system; however, when he was abroad, he noticed that the entrance of the product he has been working on would be denied. The reason was it was forbidden to use security mechanisms in places with people, because is considered practically as confinement. At that moment, José noticed that his invention was solving a solution to a recurring problem in Peru, but the situation in other countries was different.

Then, when he had a prototype, Indecopi was in full diffusion of the XI National Invention Contest in 2012, strongly encouraging the appearance of new inventors. José presented his prototype, won the contest in the utility model category and with that the right to go to Geneva, to the International Exhibition of Inventions. He comments that there, he liked a lot the dynamic operation of the lock he had invented.

b. Strategy Developed

José narrates that he develops the initial idea and the design sketch, and then usually with the company's professional team work on the scope they want to give to the product and the niche market is defined for its positioning. All members contribute with ideas on several fronts, adjust the objectives and improve the strategy in every meeting. That is how the security system with adjustable height for wicket doors was conceived, developed and crystallized.

José points out that despite the great demand his security system has had, it has been momentarily withdrawn from circulation to solve some pending issues related to promoters and installers training; as well as an after sales system in order to check and service a product already installed. These aspects are very important for the young entrepreneur, because apart from allowing the client to recognize its presence in the market, it will ensure to establish the prestige of the brand from the beginning.

He also states that was lucky to put his invention in view of an institution that supported him to promote it, as Indecopi, and to have the necessary capital to develop his project and make it reach his final destination, the public.

Table 28

PRINCIPAL CHALLENGES FACED BY THE INVENTOR	
1.	Obtain clients' trust and credibility with a new product.
2.	Promote the product, so that people know it and buy it.
3.	Work with retails to sell his product.
4.	Train clients on product differentiation against others.

Preparation: The Author

c. Business Information

Table 29

PRODUCT	YEAR SINCE COMMERCIALIZATION	COMMERCIALIZATION LOCATIONS	UNITS SOLD PER YEAR
Security System with Adjustable Height for Wicket Doors	2013	Nationwide	4000

Preparation: The Author

4. THE INVENTION AND THE PATENT

a. Why Patent?

For José creativity and imagination will always be present and never decrease; however, he affirms that sometimes the possibilities to make an invented product known are limited. He considers that inventors shall think about solutions which are directed to a niche market by developing a suitable product to obtain better results in the area of invention.

In his case, what motivated José to patent his invention was, above everything, the security that the invented product could not be copied by third parties. He decided to patent to protect himself here and is also evaluating to go to the Patent Cooperation Treaty (PCT) to file an international patent application.

In that sense, the inventor considers necessary, first to plan carefully all the steps to follow to avoid problems derived from the proper application of international laws that in patents matters, may differ from the ones prevailing in Peru.

b. Challenges

José recognizes that the granting of a patent may take long time, if the application filed has many observations to correct. He considers that the patent process may be accelerated a bit more to avoid that once the invention is brought to light, and during the waiting time, other people try to make advantage and develop a similar product, and also try to bring legal actions that damage the one who started the proceeding first.

c. Opinion about the Patent System

José thinks that Indecopi is promoting inventions in the country and that seems pretty good for him. He states that there are people, who possess innovative ideas, that may solve many problems, but they do not always have the necessary tools to set a project or maybe they lack of financial means.

In his case, he comments that he had great support from many people to achieve the idea of the product he expected. However, the situation of other inventors is that even though they have the idea of the inventions, they lack of knowledge about how to implement and promote it. These are still complex subjects in the country, he states.

> *"I am pondering on the possibility of reaching out to high-consumption destinations such as the USA and Europe. For that, I seek to join other companies with similar products and launch a complete line specialized in satisfying clients' security needs".*

PATENT APPLICATIONS

Table 30

N°	TITLE OF THE INVENTION	TYPE OF PATENT	FILING DATE	EXPIRATION DATE
1	Security system with adjustable height for wicket doors	Utility model	28/12/2012	In process
2	Lock-bar security system with a device for partial opening with optional extension.	Utility model	15/10/2013	In process

Preparation: The Author

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