POTENTIAL PROBLEMS OF GLOBAL SCIENTIFIC RESEARCH, TECHNOLOGICAL DEVELOPMENT AND INNOVATION

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Abstract:
In the commercial companies and autonomous administrations there are strong R&D units subordinated thereto, involved in the research activity, especially by free market competition, and not in the last place we need to highlight this creative technical activity with individual title by natural persons.

Key words: *research, development, innovation, patents, technology transfer, turning into value, economy.*

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INTRODUCTION

The 20th century was born when mankind shortened Earth time and space under the light of train wheels, was witnessed to transition from propeller plane, then to reaction plane, transmitting to the 21st century, the cosmic rocket and the way to the stars. In less than 100 years, human movement speed increased from 50 km/h up to more than 16 km/sec. and has all creative possibilities still open.

Human society development practice shows that in our age conditions, the most important wealth of a nation is precisely its own creative capacity, of obtaining certain technologies and products at a high level of scientific innovation, with exceptional performance and reduced expenditure. Therefore, development of knowledge, increased contribution of research and industry to technical - scientific progress gains a top priority.

Freedom of citizens to conduct research and creative activity, especially in the technical field, irrespective of the organization form for this activity represents the progress trend, especially for those members of society who are born with a developed inventive spirit and have technical knowledge in the field they create. Of course, these creative activities can be carried out and made in optimal conditions in institutions of research and development regardless of the type or form of their organization.

Thus, there may be mentioned: National Institute of Research and Development, or units organized as public institutions under the coordination of central specialized bodies of public administration, higher education institutions or sectors of research and development in higher education, for example, departments, research centres, laboratories and R&D units of the Romanian Academy or branch academies, organized as national institutes of research and development.

CONTENTS

In the commercial companies and the autonomous administration, there are strong R&D units subordinated thereto, involved in the research activity, especially by free market competition, and not in the last place we need to highlight this creative technical activity with individual title by natural persons. And if – as mentioned above – the inventive spirit that some society members

manifested, as well as their knowledge on previous state-of-art, represent a basis for developing new technical, valuable solutions, we should mention also the creativity factor, especially in masses, that is linked to the specialty or job of the person who has made a valuable new technical solution. It is not strictly necessary as a technical solution capable of being invention to appear as a complex work with a complicated structure design, but mainly its technical and economic effects obtained by applying this solution shall be highlighted.

In a free market economy, an invention is a commodity that may be negotiated freely and whose value is directly proportional to the increase of economic advantaged on the free market. An outstanding contribution to the development of patentable technical solutions have, of course, research-development institutes with technical profile from all areas of economic life, which are able to know the state of the global technics. Thus, developing research in all fields of activity and approaching boldly the major problems of contemporary science, researchers need to start permanently from the requirements in our times and especially the ways of economy development.

Scientific research, technology development and innovation activities represent integrated stages of activities that are inextricably linked together for a modern economy and industry. In the conditions of achieving these stages, which normally would be placed in a modern industry field, they contain new original items, fruit of the experts' constructive spirit who elaborated the project, and then there are all the probabilities that such solutions contain new patentable solutions that are subject to inventions and by patenting them to be protected as values, in the property of those who have achieved them, having of course the right to negotiate them when the market requires as such, due to their economic efficiency.

The creativity of all the elements that lead to new original technical solutions will need to focus on solving problems arising from major orientations of economic and social growth, such as superior capitalization of natural resources, enhancement of new energy sources, upgrading technology in accordance with the latest achievements of science and technology, production mechanization and automation, creating new materials and substances of high economic value, new ways to improve human life, lifting the degree of civilization of human society, ensuring a balance between the world created by man and the environment.

The pace of development of modern science and technology has a particular focus on electronics and nuclear energy fields that will be permanently in the attention of creators of new, both by closer knowledge of state of the art in technics, as well as of protection by patenting the new, original solutions.

By analysing these elements, the need for patent advisors becomes obvious, who by their activity of advisor in the field of industrial property has an essential contribution to the analysis and patenting of inventions.

INDUSTRIAL PROPERTY

As mentioned previously, industrial property is part of the Intellectual Property and includes within its sphere, in the first place the "invention" that will still be the main subject of this paper. Also, at "Paris Convention for the Protection of Industrial Property" it was considered that part of the industrial property objects beside the inventions are also utility models, industrial designs and models, trademarks, factory marks and service marks, commercial denomination, indications of origin and original denominations, as well as repression of unfair competition, and by the treaty of Washington DC on 26th of May 1989, in the field of industrial property was also integrated the Protection of Integrated Circuit Topography.

PATENTABLE INVENTION

The invention is considered as the main engine of science and technology development and is the one containing the most advanced notions of human intelligence, representing the main link to the introduction of technical progress in economic and social life. It is generally observed that in countries with highly developed industry, the number of inventions is particularly high as compared with other countries, such as those under development, where the number of inventions is lower, being directly correlated with the degree of technical development.

THE UTILITY MODEL

The utility model is a technical solution that covers construction, assembly or manufacturing process of an object that has practical applications in industry or in other areas of economic and social life.

Under this definition, between inventions and utility models there are no differences in terms of content, but in terms of level of creation, the utility model has a lower inventive level, its novelty being at the known level of the technics, but of course higher to the known stage of technics, in the enterprise where it was made. It is considered as a technical achievement under invention's level, and therefore was called "small invention".

In our country, the utility model has not been legislated, being replaced by innovation which has largely replaced the utility model. It is regulated and protected in a few countries where innovation is not regulated or innovation is regarded as a new achievement in the organization where it was created. For example, the utility model law is found in countries like Brazil, Italy, Japan, Poland, Germany, Spain etc.

The period of protection for utility models is generally between 3 and 5 years with possibility of extension, rarely.

In some countries, the protection period is slightly higher (e.g. in Japan it is 10 years and in Spain 20 years).

Sometimes, protecting a technical solution by a utility model has some advantages, as fees for registration, examination and maintenance in force are lower than in the case of inventions, protection achieving is more operative and novelty examination is limited to what is known in the country where protection is sought. In some countries like Spain or Italy protection is granted only on declarative principle (i.e. without considering the novelty). In this respect, the **patent advisor** has a word to say after analysing the technical solution.

It is advisable that whenever somebody seeks protection of a technical solution abroad to choose the most rational way in all respects.

INDUSTRIAL DESIGN

Industrial design and model are linked to the ornamental or aesthetic aspect of an article. They are characterized by an original presentation of a product, such as a new model or a new installation.

Ornamental or aesthetic aspect refers to the appearance of the product, which can be achieved by shape, pattern, colour, etc., or through an arrangement of colours. The appearance of this item shall be reproducible industrially, fully preserving the initial effect of the design.

A more complete definition of the concept of industrial design shows that it is a new design presented in plane (two-dimensional) such as designs on fabrics, carpets, drawings on other objects, ornamental seams on the different types of clothing (e.g. seams on an traditional shirts) and by industrial model we mean a new form of space presentation (three-dimensional) of an object such as for example a new type of car, a new form of an ornamental container or a new form of household appliances.

It should be noted that in the current language the term "design" is frequent, and it renders the notion of design.

Between these two notions there are no differences in fact, both expressing the same concept except only that "design" is taken from English, whereas industrial design is taken from French.

Both concepts express in fact the same thing and are protected by a protective document, granted under national law. Another characteristic element that should be emphasized is the fact that ornamental or aesthetic aspect is achieved through a new agreeable form or a special colourful appearance but it must be reproducible by industrial means. This is the reason why the design is called industrial.

If this element is missing, creation falls into the category of works of art whose protection is ensured by law of intellectual property protection and not by law of industrial property protection.

A relatively small number of states have regulated legislation for the protection of industrial designs.

Among such countries, we mention: Germany, Belgium, Spain, France, Indonesia, Liechtenstein, Morocco, Monaco, Netherlands, Egypt, Vatican, Switzerland, Tunisia, Vietnam, Poland etc.

Conditioning of protection is different. According to legislation, the design must be new and under other laws, original.

Their examination, where protection is granted in base of attributive system, is compared with previous national deposits. If the State in which protection is sought is a party to the Hague Agreement Concerning the International Deposit of Industrial Designs and is an international registration, the examination is performed and compared with previous applications filed on international route.

Designs or industrial models are usually protected against unauthorized copy and imitation, and protection can last 5-15 years, as provided by law of the country.

The document certifying protection of design or industrial model can be a registration certificate or patent.

If the protection document is a patent, it must be distinct from the invention patent, specifying that it is a patent for industrial design.

Introducing protection of designs design or industrial models has a positive role in stimulating creative activity in the field of industrial aesthetics, in order to enhance the utility of the products and in particular of large consumption ones, and to diversify products, improving their quality and ergonomic properties through their outer forms.

In our country, protection of design and industrial models was legislated by Law no. 129/1992, published in Official Journal on January 8th, 1993.

FACTORY, TRADE AND SERVICE MARKS

Factory, trade and service marks are distinctive signs used by enterprises to distinguish their own goods, works and services from those identical or similar belonging to others, and to stimulate and improve product quality, works or services (according to the provisions of Law no. 28/1967 on factory, trade and service marks at the date of the elaboration of the paper).

Factory marks appear printed on goods produced by the factory that is the mark owner. But mark will not only appear on such good, but also on containers or packaging in which goods are sold, on store windows, in newspapers, on television etc.

A brand serves many purposes, namely:

a) To contribute to a buyer's decision when he wants to buy an object whose quality is superior to other similar objects. In general, supported by intensive advertising, factory marks producing higher quality goods are known and then the buyer will be oriented towards goods that have this brand.

b) Recognition of factory producing these goods even when they are sold in other stores or sometimes in other countries. In this regard, it is sufficient to mention a few brands of cars such as Fiat, Mercedes, Citroen, etc.

c) Allows professionals with responsibilities in quality control of goods sold under a mark to identify the trademark owner by searching the registry where trademarks are registered.

d) The function of a trademark is to distinguish goods produced by a factory from those produced by another, but sometimes the mark includes the manufacturer’s name and more many products are known in trade even with the manufacturer's name included in the contents of the mark or near it.

e) Brand itself sometimes is merchandise, i.e. transaction object for which licenses may be granted on favourable terms. Thus, if the products sold in the market under a trade mark are highlighted by special qualities, gaining priority on market, another producer who manufactures similar products can buy that brand for its products.

f) In this way, the brand itself becomes an object of advertisement for products, competing other products made under other trademarks or without trademark.

g) In some cases the label may be an element of organization of the market by its contributing to the correlation of supply and demand.

In all cases, a mark known in the market will stimulate its owner to achieve continuous improvement of products made under this brand.

In some situations, however, it is possible that one or more qualities of the product made under the protection of the mark to decline. The causes are multiple, so it is possible that the manufacturer to produce goods of poor quality, sometimes lower quality being progressive, but to continue to use the same brand. The market will react immediately by reducing product procurement, and even worse, by that the brand loses its market value, which is difficult to repair in the future.

Another unpleasant situation is that when a third party produces goods of dubious quality using the mark without the knowledge of the trademark owner.

This will require an investigation and finding the person who violated the trademark rights, and especially made products of this brand to be impaired. Of course, in these cases the owner would go to court which will determine the compensation to be given.

As for trademarks, they have similar functions but applicability in commercial field. Sometimes, some companies use the same mark when marketing products is done in the manufacturing plant. In the event that another company sells, it may have another mark. And finally, service marks are used by companies offering services such as hotels, restaurants, airlines, travel agencies etc.

COMMERCIAL DENOMINATION

The commercial denomination of occupation or company, in the sense of expressing industrial property object, expresses the denomination or the indication identifying a company and allowing its easy distinguishing from other companies. The commercial or company denomination is an industrial property right to be individualized in order to avoid confusion. The commercial denomination may be totally or partially recovered in the respective mark.

The laws of different countries contain provisions regarding registration and protection requirements. In general, it is shown that the commercial denomination of an undertaking must not be used by another undertaking, but the owner, nor can be something similar or misleading the public.

The commercial denomination is recorded in the national register and will be used in exactly the same form. Paris Convention confers effective protection to commercial denomination in order to avoid unfair competition. Usually, commercial denomination is registered in the country of origin and protected in the countries participating in the Paris Convention on the day of its passage in the register of commercial or company denominations or the time of its introduction in the economic cycle, regardless of the date of registration.

Similar to trademarks situation, commercial denomination registered subsequently may be cancelled if there is evidence of a previous trade name in any of the countries participating in the Paris Convention. Ceding the commercial denomination to a third party could be done only in the same time with ceding the company.

INDICATIONS OF ORIGIN AND DENOMINATION OF ORIGIN

Indications of origin or denomination of origin are geographical names of the country, region or a specific place that allows highlighting the originality of a product, its quality and characteristics which are due exclusively or essentially to the geographical surroundings, including natural or human factors. They show where a product was produced, processed or marketed, as it has acquired a great reputation in a while.

It is necessary to make a distinction between the indication of origin and denomination of origin (Năstase, 2013). The essential difference between these two types of geographic names, is that while indications of origin simply indicate the real place of origin of goods or services, highlighting certain traditions, denomination of origin, in addition to the origin products, marks certain qualities or characteristics of those products that are due exclusively or predominantly to natural and human factors specific to the geographical environment in question.

Thus, some geographical areas, due to natural factors such as climate, topography, soil composition, etc., allow products to enjoy wide acceptance. Also, human factors influence the

quality or characteristics the products in a given area due to the long experience and special skills for a certain kind of work, tradition in the manufacture of certain products etc.

From these points of view, we must make a differentiation between specific properties of products from a given region. Thus, some are exclusive result of natural factors, climatic conditions, others are related to soil composition such as Carara Marmora and other water compositions such as mineral waters (Borsec, Vichy etc).

Other products are connected both ny natural factors and human factors such as Solca beer, Cotnari wine or Braila cheese.

Finally, there are widely recognized products whose quality is linked to the skill and prowess of producers, inherited from generation to generation, such as different types of carpets Buchara, Siraz, Tebriz etc., or new Oltenia carpets.

The use of denomination of origin is generally linked only to individuals and collectives living or existing in the country or region, or if used as raw material, products made in the area or using that method. Because the denomination of origin is linked to a specific geographic region, which gives the products made special qualities, due to natural and / or human in the area that cannot be replicated in another geographical area, the denomination of origin cannot be replicated by organizations in other geographical areas.

REPRESSION OF UNFAIR COMPETITION

Unfair competition acts are those violations the rights acquired by a holder of an industrial property right or any other acts committed contrary to fair practice in commercial production activities or services. Repression of unfair competition is linked to all industrial property objects. It is the object of industrial property mentioning prohibition under civil or criminal sanctions or measures, by natural or legal persons for violation of the rights acquired by the holder of an industrial property right in the territory of a member country of the Paris Convention for Protection of Industrial Property.

Acts of unfair competition are considered some of the actions specified below, without being deemed to cover the full scope of such activity. Thus, creating confusion by any means on products, services or activities of other organizations, particularly products manufactured, design and industrial models, or trademarks of a factory, elements mentioned previously.

We will detail some elements in the following chapters and will analyse in more detail the conditions for the use of inventions. Regarding the denomination of origin, an example of violation of this condition would be for example to market a French perfume, when in reality it was made in another country. Even if for example it bears the name Paris, this is nothing but a small town in another country that bears the name of Paris. The same if the product says "Made in China" and it was produced by a manufacturer in Europe. And closer to us using a label that says "Cotnari wine" or Murfatlar for the content of a bottle containing different kind of wine, this is an act of unfair competition.

Another act of unfair competition is the false statements in the exercise of trade which are liable to discredit another organization’s products or services or activities.

One may advertise its products or services but without stating untrue things about the products of other manufacturers. Thus, there are indications or allegations, the use of which in the exercise of trade are likely to mislead the public as to the nature, mode of manufacture, quality, characteristics or quantity of the products and about the nature, quality or characteristics of the services.

In general, disputes arising due to unfair competition are resolved in the courts dealing with these problems, making decisions binding.

Before concluding the chapter on industrial property, we will have to present an object that is not mentioned in the Paris Convention for the Protection of Industrial Property and is not provided in the new legislation in force in Romania, namely innovation.

INNOVATION

Innovation is an object of industrial property recently regulated at national level only in some countries, particularly those in Eastern Europe, as in other countries there are local regulations, at the level of economic organization (Mathew and Mukherjee, 2014).

When we talked about utility models, we have shown that, for example, in our country utility model protection has not been legislated but innovations were legislated, that have many ties with utility models.

A new legislation will be able to regulate utility models, and innovations will be regulated at the level of economic organization. To know the content of that concept, we present two definitions, namely:

The definition given in the laws of countries like the former Soviet Union, Bulgaria, Czechoslovakia, etc. that specifies: "*Innovation is a technical solution with industrial applicability useful to society, presenting novelty at the level of the organization that applies it".*

In our country, Law 62 /1974 on inventions and innovations defined innovation as "*It is innovation the technical solution that presents novelty at national level, social progress and social or economic benefits, solves a problem in industry or in any field of science, culture, health and defence of the country or in any other area of social and economic life and has not been applied in the country ".*

The contents of this definition render clear the closeness between invention and innovation, the difference between them being only for the level. In the invention, the novelty will be analysed globally, whereas according to this definition, the novelty must be analysed nationally.

CONCLUSIONS

Therefore, there are many cases when patent applications refused by the Office of Inventions for lack of novelty in the world were admitted as new innovations nationally, as they were technical solutions which are showing progress and economic advantages as compared to previous solutions applied in the country and can be applied in useful scopes for society.

Another issue to be highlighted by the fact that any comparison relating to novelty should be done between Romanian technical solutions known, as opposition to a foreign technical solution known is a **confirmation** and not denial of the novelt**y character at national level** for a proposed innovation. By the treaty concluded in Washington D. C. on 26th of May 1989 on Intellectual Property in Respect of Integrated Circuits, it was decided to protect within Industrial Property also the integrated circuits, by which we understand a product under its final form or in an intermediate form, the elements of which at least one being active element and interconnections, totally or partially, are part of the body or surface of a material piece and which is intended to perform an electronic function, the notion of topography indicating that configuration scheme has a three-dimensional arrangement of the elements out of which, as we shown, at least one is an active element.

In Romania, law on integrated circuits protection no. 16/1995 came into force in 1995. This law provides the necessary documentation for setting up the regulatory deposit, examination mode, topography registration fees and decision and sending it to the applicant together with the topography registration certificate. Since the beginning, this form of protection has few applications to the State Office for Inventions and Trademarks of Romania, and in the future, along with the development of electronic and computing industry the number of such requests is expected to increase.

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