Automation processes registration of intellectual property in the construction industry

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Abstract: Recently, the Russian construction materials market has been actively updated, with new types of goods appearing on it every year. This gave an impetus to the development of the entire construction industry in Russia, and also contributed to the technological renewal of construction sites. At the same time, the key stage in creating new technologies in construction is to protect products from unfair competition. The purpose of these studies was to develop a software product that could be used not only to quickly issue application materials for the grant of a patent of the Russian Federation for an invention or utility model but also to provide inventors with the necessary knowledge on the legal protection of intellectual property results.

1. Introduction

Currently in times of the transition to the information society, it is possible to note a significant impact of technological developments on standards and requirements of modern life, as evidenced by the emergence of new technologies, methods and management systems of different nature, the rapid development of the information economy, or knowledge economy. It is knowledge that serves as the basis of intellectual capital which is embodied in various results of intellectual activity (RIA) that ultimately form intellectual property objects (IPOs). The emergence of more and more new inventions, utility models, computer programs and other intellectual property items, especially those related to high technologies, has led to the increasing importance of intellectual property (IP) in the economy of many countries.

According to experts, the competitiveness index of any country's economic growth depends on financial and tax policies by 25% and on technology development by 50%; without technological progress, a country can only accumulate capital but cannot ensure sustainable economic growth [1,2]. At the same time, the key stage in creating new technologies is the protection of intellectual property. That is why it could be said that an effective system of intellectual property protection is an integral part of the national innovation system of any state.

Currently, a weak growth of the intellectual property market in Russia in comparison with foreign countries could be observed [3]. Many inventors have difficulties registering rights to the result of intellectual activity and obtaining a security document [4].
2. Theory

Recently, the problem of improving the literacy of citizens in the field of intellectual property as well as training a personnel reserve for the future of Russia, that is, increasing the competence of young Russians in this difficult area of legal knowledge, has become urgent.

The solution to this problem is possible already at the stage of general education, for example, through pre-professional or specialized training of young specialists. It is at these stages of training that young specialists most actively participate in research activities, work on innovative projects, and get involved in technical creativity and inventive activities. Legal protection of their utility models and inventions can serve as a good incentive to study the issues of intellectual property as a system-forming element in the development of an innovative economy.

In order for intellectual property in the activities of small innovative enterprises to be considered a key element of the company's development, it is necessary to focus the company's development direction on the following measures of activity [5]:

1. Improving competence in the field of intellectual property management. At the level of small innovative enterprises, priority tasks should be the following:
   - Creation of intellectual property management departments.
   - Staff training at the only university in Russia that graduates specialists in intellectual property - the Russian State Academy of Intellectual Property.
   - Participation in specialized scientific schools, seminars, and conferences on intellectual property issues.

2. Development of new ways and approaches of the company's activities. For this purpose, the following measures can be used:
   - Seeking new markets, including foreign ones, for the sale of their own products;
   - Searching for and attracting investors, including foreign sources;
   - Submitting applications to venture funds to attract venture investments;
   - Participating in state, regional, municipal competitions, grants on the terms of public-private co-financing;
   - Being able to use the results of intellectual activity as an intangible asset with a certain value for conducting their business activities.
   - Interacting and exchanging the experience with foreign companies.
   - Ensuring the interest of authors-employees of innovative enterprises in creating competitive results of intellectual activity;
   - Conducting marketing research before the start of inventive activities in order to identify the demand for future technologies as well as giving them properties that ensure high competitiveness in the market.

Currently, there is an increasing need to master the requisitioning skills for the issuance of patents of the Russian Federation for inventions and utility models. This is mainly due to the increasing number of research works performed, the outcome of which, as a rule, is protectable results of intellectual activity that are granted legal protection in accordance with the legislation of the Russian Federation [5].

In order to provide legal protection for the received innovation, it is necessary to submit application materials to the Federal service for intellectual property, patents and trademarks (Rospatent) and pay patent fees for performing legally significant actions in relation to the invention or utility model [6,7].

In order to submit application materials for the grant of a patent of the Russian Federation for an invention or utility model, it is necessary to know the composition of these materials and the requirements for application materials. In order to pay patent fees, there is a need to know which document they are registered in [7,8].

Therefore, inventors often face a lot of questions that they cannot answer on their own, because, as a rule, they do not have the necessary knowledge in the field of legal protection of intellectual property.
results. Either patent experts or patent attorneys of the Russian Federation can answer these questions and help authors in obtaining rights to the results of intellectual activity.

Unfortunately, not all organizations still have patent departments therefore inventors have to turn to patent attorneys who provide services for registration of rights to the results of intellectual activity on a fee basis. The cost of services of patent attorneys in different regions is estimated differently but, in any case, this is not a cheap pleasure thus not every inventor can afford them, and, consequently, the resulting inventions and utility models remain patent-free.

3. Results
The purpose of these studies was to develop a software product that could be used not only to quickly issue application materials for the grant of a patent of the Russian Federation for an invention or utility model but also to provide inventors with the necessary knowledge on the legal protection of intellectual property results [9,10,11].

This software product was developed as an Internet application well adapted to the corporate network and having an intuitive interface so it can be easily used even by a beginner. The program passed the state registration procedure in the Federal service for intellectual property and received a certificate of state registration of the computer program No. 2013612662 (application No. 2013610443, date of receipt January 29, 2013, registered in the roster of computer programs March 11, 2013)

Since the developed program provides for automated registration of application materials for inventions and utility models, therefore, first of all, it is necessary to know what conditions inventions and utility models must meet in order to obtain legal protection which is certified by a security document – a patent for an invention or utility model. And since inventions and utility models are objects of patent rights, therefore, they must meet the conditions of patentability.

In order to understand whether the result of intellectual activity meets the conditions of patentability (for inventions – novelty, inventive level, industrial applicability; for utility models – novelty, industrial applicability), it is necessary to search for analogues of the claimed invention or utility model. To do this, the free databases of patent documents of the Russian Federation published on the website of the Federal institute of industrial property (FIIP) could be used. In order to narrow the search area and improve its accuracy, it is necessary to classify the created result of intellectual activity in accordance with the international patent classification (IPC) and conduct a thematic search. To do this, the program provides a classification method in the IPC system, analyzes a specific example of choosing a classification index, and also provides a method for conducting a thematic search in the FIIP abstract databases [3,4,5].

After conducting a thematic search, screening analogues of the claimed invention or utility model and selecting a prototype from the analogues, i.e. the closest analogue, the next step is to start drawing up a description.

The description of the invention and utility model has a certain structure and consists of special sections. Thus, the description of the invention consists of the following sections:

1. The field of technology to which the invention relates (the scope of application of the invention is indicated).
2. Technological level (information about known analogues of the invention is provided with the selection of the analogue closest to the invention, i.e. the prototype).
3. Disclosure of the invention (describes a set of essential features sufficient to provide a technical result which is a characteristic of the technical effect, phenomenon or property that appears during the implementation of the method or during the creation or use of a product, including use of a product obtained directly by the method embodying the invention; the technical result may be expressed in particular in reducing or increasing the coefficient of friction, preventing jamming, improving blood supply to the organ, etc.).
4. A brief description of the drawings (this section provides a list of figures with brief explanations of what is shown on each of them).
5. Implementation of the invention (this section shows how the invention can be implemented with the implementation of the specified purpose, preferably by giving examples with links to drawings or other graphic materials if available) [6,7].

To each of the above sections of the description, there are requirements defined by the legislation of the Russian Federation and registered in the fourth part of the Civil Code of the Russian Federation [4], and also in administrative regulations of execution of the Federal service for intellectual property, patents and trademarks of the state function for arrangement of receiving applications for inventions or utility models and their review, examination and granting patents in accordance with established procedure of the Russian Federation for invention or utility model [12,13].

In this program, the description sections are divided into special blocks, i.e. each section is filled in independently, and the program provides special hints that specify the legal requirements for the description section to be filled in as well as examples of filling in the current section.

The program is based on the principle of compiling a table of features that characterize the claimed invention or utility model and features that characterize analogues.

Thus, after selecting analogues of the claimed invention or utility model from the technological level and conducting a comparative analysis, the next step would be filling in the table of features which serves as the basis for automated compilation of the formula of the invention or utility model.

Since in Russian legislation the formula of an invention or utility model, as a rule, consists of restrictive and distinctive parts, therefore, the decision to use the table of features to automate the preparation of the formula of the invention or utility model as well as to automatically fill in some parts of the description of the section "Technological level", is the most justified [14,15,16,17].

The restrictive part of the formula of innovation or utility model provides general features of the claimed invention or utility model with analogues, and the distinctive part – distinctive features.

The general sign of an analogue in the table of signs is filled in by putting the " + " sign in the column of the corresponding analogue and the row of the corresponding sign.

Thus, after filling in the table of features, it is easy to identify the closest analogue to the claimed invention or utility model which is also called a prototype. A prototype is an analogue that has the largest set of essential features inherent in the claimed invention or utility model.

After filling in all the necessary sections given in the program, the description of the invention or utility model, the formula and the abstract are generated.

The program has a built-in database of completed applications therefore adjustments to previously compiled application materials could be made at any time.

The main competitive advantages of this product will be as follows:
1. Reducing the time required to prepare the necessary documents by a specialist for registration of exclusive rights to technology, innovation.
2. Saving financial resources when registering the result of intellectual activity with the involvement of a third-party specialist.
3. Improving the quality of registration of intellectual property rights.
4. Getting unlimited use of the software product compared to the involvement of a patent attorney where each registration of a security document is paid for.
5. Simplifying the use.
6. Reducing the cost of the software product.
7. Getting the possibility of self-learning the basics of patent law [18,19].

4. Conclusion

Use of the program has shown that it can help not only to save time on preparation of application materials for the grant of a patent for invention or utility model but also to reduce errors in the formula of invention or utility model because it is generated automatically and it includes all the features that characterize the invention or utility model. In addition, it could be used to study the main legal requirements for application materials, learn the basics of classification in the IPC system, learn how
to conduct a patent search in the FIIP databases, and also see examples of creating a formula, abstract and the main sections of the description of an invention or utility model.

In the future, it is planned to expand the program’s capabilities by providing automated registration of application materials for issuing certificates of state registration of computer programs, databases, integrated circuit topologies, trademarks and service marks. In addition, the possibility of the program application materials creation is considered which aims to receive patents for industrial designs as well as to establish a training module on selecting the classes of goods and services in the international classification of goods and services (ICGS) which is necessary for the registration of trademarks in patent search databases of the European patent office, world intellectual property organization, in full-text databases of patent offices of USA, in abstract databases of patents and utility models of Japan as well as in the databases of patent documents of the Chinese patent office [20,21].

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