

Research on Optimization of National Defense Patent Implementation

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1. Introduction

Applying national defense patents to practice and serving the national economic construction is the embodiment of the value of national defense patents and the ultimate goal of achieving coordinated development of military, scientific, and economic. With the deepening of the national military-civilian integration strategy and the national defense intellectual property strategy, the promotion and application of national defense patents in the civilian field has made great breakthroughs. However, there are still many practical problems and constraints in the implementation of national defense patents. In general, the promotion of national defense patents for national defense construction and economic construction is not obvious enough, and the allocation efficiency in the process of property rights circulation is relatively low.

2. Problems in the implementation of national defense patents

2.1 Low percentage of defense patent implementation

About 5% of the technological achievements produced by national defense R&D projects apply for national defense patents, and the core technical know-how is protected in the form of technical secrets. The implementation of defense patents includes two categories: one is implementation that meets the objectives of the project plan; and the other is implementation outside the project plan. The national defense patents that meet the objectives of the project plan are clearly defined in the project, and the technical results produced are used for a certain project or some kind of weaponry. Therefore, the implementation rate of such defense patents is relatively high. Based on the national defense patents generated outside the project, many of the applied defense patents have low technical content and lack of application value. After the application is completed, the defense patentees do not use these defense patents.

2.2 Single patent defense implementation method

Most of the national defense patents applied by the application are implemented by the national defense patent holders, which accounts for more than 90%. In the self-implementation, due to the relatively clear relationship between national defense patent property rights, the distribution of interests is relatively clear, and there are few disputes and they are widely used. The proportion of national defense patent licenses and transfers is lower. In many defense industrial enterprises, the license and transfer rate is zero.

2.3 Low proportion of defense patents

China's national defense patents are mainly from defense industrial enterprises, the number is large, but the conversion rate is very low. The patent conversion rate for the aerospace and weapon industry is 15-20%, the aerospace industry is about 10%, and the nuclear industry is about 8%.^[1] According to statistics, the conversion rate of defense science and technology achievements in the developed countries such as the United States to the civilian sector is 70%-80%, which has obvious economic benefits, but the conversion rate in China is only 30%.

2.4 Small-scale defense patent market development

Due to the lack of effective and accurate evaluation and analysis of the market, the defense patent holders have not been able to meet the actual needs of the market, and the value of national defense patents has not really come into play. In addition, some defense patents have no or lack of military technology advantages in the process of transformation, lacking the core competitiveness that reflects the technical characteristics, resulting in the transformation of technological achievements similar to the popular products of other civilian sectors. This has not only lost market competitiveness, but also caused waste of resources and repeated allocation.^[2]

3. Factors affecting the implementation of national defense patents

3.1 Quality of defense patents

As mentioned earlier, the implementation rate of defense patents generated outside of the project plan is very low. The generally low quality of this part of national defense patents is a fundamental factor. The quality of national defense patents is low and the implementation value is not high. The application for patents is to complete the quantitative indicators prescribed by the higher authorities. In addition, the implementation approval process is cumbersome, which makes the defense patentees unwilling to implement these partial defense patents.

3.2 Willingness to trade

First, the potential defense patent transferee is more inclined to develop on its own after weighing the advantages and disadvantages of implementing other people's patents and self-development. On the one hand, it is possible to obtain considerable research and development funds through application for the project, and on the other hand, the implementation of patents of others will be subject to some restrictions and restrictions. The self-developed behavior may lead to repeated project establishment, repeated research and development, resulting in resource limitation and waste, which affects resource allocation efficiency.

Second, when national defense patents are used free of charge, the innovative labor of defense patent holders is not rewarded, and the enthusiasm for implementing patents is gradually lost, and the implementation of transactions is unwilling. When a national defense patent is designated for implementation, many cases are used free of charge. At this time, the developers are very reluctant when the military asks the developers of defense patents to provide technical information. Moreover, most defense patent developers believe that national defense patents should be used for compensation. The departments that produce and use patented products should pay the patent use and implementation fees to the patented units. The patent fees are included in the equipment cost when the equipment is reviewed.

4. Strategy for the implementation of national defense patents

4.1 Establish a supervision mechanism for the quality of national defense patents

First, We should explore and establish a national defense patent quality evaluation index system. Ordinary patents are evaluated for quality through three dimensions: technology, law and benefit. Based on this evaluation method, we need to study and explore the evaluation system of national defense patent quality based on the characteristics of national defense patents. The first-

level indicators for the quality evaluation of national defense patents can be divided into three categories: technical, legal and profitable. Technical evaluation indicators can be subdivided into creative contribution rate indicators, importance level indicators, and substitutability indicators; legal evaluation indicators can be subdivided into effectiveness indicators, protection scope indicators, and stability indicators; benefit evaluation indicators can be subdivided into economic benefit indicators, social benefit indicators and military efficiency indicators.^[3]

Second, while a defense patent is authorized, we should assess the quality level of the authorized defense patent. Established a specialized quality evaluation agency within the national defense patent management department. When they authorize a national defense patent, they should issue an opinion on the evaluation of the quality of the patent as the basis for determining the quality of the national defense patent.

Third, the quality of national defense patents should be linked to the performance of the national defense intellectual property work of the unit. At present, the number of national defense patents is only used to evaluate whether to complete the work of national defense intellectual property rights, and the quality of national defense patents is not included. The quality of national defense patents should be included in the evaluation of the important content of the development of intellectual property rights, and it is also an important factor in the evaluation of the unit.

4.2 Strictly review the establishment of defense research and development projects

Since the potential transferee of the national defense patent prefers to develop and refuse to accept the license and transfer, we should strictly control the research and development of the technology, avoid technical research and development activities similar to the patent defense technology that has been realized, and avoid repeated research and development and re-establishment. First, this will enable existing defense patents to be fully utilized, give full play to its functional value, and achieve the best use. Second, it can enable scientific and technological resources to invest in new research and development fields and enrich the number of national defense patents. Third, this will enable R&D activities to build on existing achievements and promote the upgrading and development of defense patent technology.

We should strictly review the establishment of defense research and development projects. First, when people apply for R&D projects, the defense patent management department should issue the check information of the proposed research and development technology. Only when there is a significant difference between the technology planned to be developed and the existing patent defense technology, the technology planned for research and development can be included in the scope of project evaluation. Second, if the technology to be developed is only a peripheral change to the original technology, but the technology itself is not significantly innovative, then there is no need for research and development, and it cannot be approved by the project. Third, the application prospects of the proposed research and development technology should be strictly examined. The purpose of R&D technology lies in theoretical innovation and, more importantly, in applying technology to maintain national security and promote economic development. For those R&D projects that are only theoretically innovative but have no application value, they are not approved.

4.3 Paid use of national defense patent technology

At present, the use and implementation of national defense patents are usually free, which greatly damps the enthusiasm of the inventors. We should follow the general rules of intellectual creation and reward, and insist on the paid use and implementation of national defense patents.

Ordinary patented technology is produced by the investment of the investor and the intellectual creation of the inventor. After the patent technology is authorized, it is licensed by the patentee to others. The patent implementer applies the patented technology to the production and operation of the product, and then sells the product containing the patented technology to the consumer. The consumer pays the price of the patented product to the patent implementer. The price includes the patent royalty paid by the patent implementer to the patentee. This means that consumers are the ultimate payers of royalties. The patentee will allocate the usage fee in two directions, part of which is paid to the investor as a return on investment; part of it is paid to the inventor as an intellectual

return. This kind of payment method for ordinary patents can mobilize the enthusiasm of both investors and inventors, and form a benign mechanism to promote economic development and technological progress.

The investors and final consumers of national defense patents are countries. If the price of the ordinary patented product is formed, the state should pay the price of the patented product, and the patent royalties obtained by the national defense patentee should also be distributed in two aspects. However, the state as an investor in defense research projects is not for the purpose of obtaining economic benefits, nor does it require defense patent holders to return on investment. Therefore, the defense patent royalty does not include the return on investment for investors, but only the intellectual reward for the inventor's intellectual creation. Compared with the royalties of ordinary patents, the royalties of defense patents should be relatively low. It is not used to cover the investment cost, but should include the part that stimulates the inventor's intellectual creation. That is to say, as long as the national defense patent is licensed, the implementer should pay the use fee to the national defense patent owner. The main purpose is to reward the inventor's intellectual work and encourage him to further innovate.

5. Conclusion

In order to solve the problems in the implementation of national defense patents, we need to adopt a series of strategies. Through the establishment of a quality supervision mechanism for national defense patents, the quality of national defense patents will be improved; the new defense technology research and development projects will be strictly controlled to avoid duplication of projects and low-level research and development; and the inventors will be encouraged to further create through the use of patented defense technology. Only in this way can we increase the use rate of national defense patents and give full play to the value of national defense patents.

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References

- [1] Li Ping, Ma Yuhui, Wang Meng, Research on the Construction of National Defense Intellectual Property Promotion and Transformation Platform, National Defense Science and Technology Industry, vol.9, pp.28, 2013.
- [2] Zhang Jindong, Yang Yunxia, Analysis on the Strategy of Intellectual Property Conversion and Application in National Defense Science and Technology Industry, Journal of Hunan University (Social Sciences), vol.1, pp.146, 2010.
- [3] An Li, Wang Weijun, Yang Chunying, Ren Linchong, Research on National Defense Patent Quality Evaluation System, National Defense Intellectual Property Papers, National Defense Industry Press, pp30-38, 2015.