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SCIENCE AND TECHNOLOGY

FORMULATION OF CHINA'S

FIRST PATENT SYSTEM DEBATED

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21 February 1984

CHINA REPORT

SCIENCE AND TECHNOLOGY

FORMULATION OF CHINA'S FIRST PATENT SYSTEM DEBATED

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NATIONAL DEVELOPMENTS

FAST, EFFICIENT DISSEMINATION OF PATENT INFORMATION HELD CRUCIAL

Beijing GUANGMING RIBAO in Chinese 9 Dec 83 p 3

[Article by Shen Jialian [3947 0857 1670]: "Patent Information Is a Valuable Asset"]

[Text] It was like a stone being tossed into a tranquil lake. Most recently, a new question has burst into the minds of intellectuals who are normally digging into the natural sciences, and has led to a widespread association of ideas and discussions. It is the patent system which will be put into effect in China.

There are two primary reasons for intellectuals to welcome a patent system. One is that patent laws acknowledge the products of mental labor--inventions are wealth, and are given protection. The transfer of technology thus requires compensation. The inventors and their units receive payment, and there is compensation in value. This greatly reduces the phenomenon of "eating from the big common pot" in the realm of scientific research. The second is that a patent system can effectively promote the dissemination of technical information. Patent laws usually stipulate that all those who apply for patents must make public the substance of their invention in detail, after which it is circulated through society by the patent bureau. It is obvious that this major role of a patent system is extremely beneficial for the inheritance and development of S&T, and cannot be replaced by any other administrative method.

The knowledge and information contained in patent abstracts is very valuable. Some people feel that our cause will suffer a crushing defeat if we do not study patent information. The major aspects of patent information will be discussed below.

1. It is Multifaceted and Extremely Useful

Patent information includes technical, legal and economic information. The record of a patent abstract is a technical manual which sets forth the new invention, a legal statement which announces the property rights of the knowledge, and economic information which symbolizes a specific market scope. It can be seen that there is a broad range of users of patent information.

Examiners in the patent bureau must investigate and study patent information to decide whether or not the patent application conforms to patent conditions. Patent information can be a major reference when scientific research and design personnel are selecting topics, formulating plans, tackling key problems, and overcoming doubts, or when industrial and mining enterprises are undergoing technical transformations or updating products. Before reporting an invention or applying for a patent, S&T personnel and achievement management personnel must use patent information for scientifically evaluating whether or not their achievement is "a first ever" or "a world original." When planning to import foreign technology and equipment, there must first of all be comparisons of the concrete conditions of the technology of equipment of each country or company to select that which is appropriate for China. Patent information can provide answers in this area. In discussions with foreign businessmen concerning patented items offered by the other side, we must verify whether or not it is actually patented, who are the holders of the patent rights, whether or not the patent is in effect, how much longer it will remain in effect, and so on. It will be difficult to avoid being deceived and suffering losses if we do not rely on patent information and completely believe foreign businessmen. On the other hand, when we are planning to export technology or products, we should also collect patent information to clearly determine that the choices do not constitute an infringement of the patent rights of others. Hastily rushing into other people's markets can result in legal disputes.

In summary, because of the multifaceted nature of patent information, comrades in scientific research, production, design, administrative or foreign trade departments must use them to their benefit, to the extent that it must be said that they cannot do without patent information.

2. It Has Originality That Should Not Be Overlooked

New technologies are generally announced in patent abstracts several years before they are announced in other sources. Typical examples are televisions, jet engines, nodular cast iron, radar, hovercraft, float glass, carbon fiber, endoscopes, etc. Because most nations stipulate that the "first applicant gets the patent rights," as soon as there is hope of success, the inventor will rush to submit a patent application. In addition, for several years now many countries have utilized an "early publication" patent content system which further speeds up the dissemination of patent information. Furthermore, a primary condition for a patent is that the invention has not been reported previously in any form. This prerequisite naturally promotes the ability of patent information to provide a timely reflection of new progress in technology. Even more important is that only 5 to 10 percent of the technical content of a patent abstract can be found in other abstracts. It can be seen that neglecting patent information will lead to the loss of a large amount of new and useful information.

3. It Is Incomparably Systematic

After obtaining patent protection for an invention, uncompensated use by others can be prevented or reduced. Thus, research units and enterprises

usually take measures for patent protection for every step from creation to development of a new product or technology. In consideration of this, if all the patent information related to a particular topic is collected and analyzed, the developmental process for this item of technology can be seen, including the dynamic aspects, weak links and blank regions, and the next step of its movement can be predicted. Many countries currently pay a great deal of attention to research on this type of patent information. The U.S. Patent and Trademark Office established a technical evaluation and forecasting bureau in 1971 to do regular systematic analysis of patent information on very dynamic technologies, areas of concentration of foreign applications, trends in large scientific research units, comparisons of dynamic patent spheres and economic developments, patent activities in energy technologies, and so on. The results of analysis of this type of information are of obvious strategic importance and are often needed by policymakers. Patent information organizations in Japan, the Soviet Union, and other countries have also undertaken work of this nature. Patent information research of this nature has just begun in China, and the importance of this work is becoming increasingly understood by everyone.

Patent information also has its limitations, but its defects do not obscure its virtues, and it does not lose its value. Unfortunately, there are not many at present who completely understand this, and it is far from being fully utilized. Much of the scientific research work in China occurs without an understanding of current world technological levels. There is a great risk for duplication of labor, to the extent of falling into a disastrous rut. This situation demands prompt change, and the awareness of relevant personnel must be greatly strengthened.

After the implementation of a patent system, along with the establishment of a patent work system and the perfection of a patent abstract service network, patent information should achieve full development and widespread utilization, and play an important role in socialist construction.

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CSO: 4008/90

NATIONAL DEVELOPMENTS

SYSTEMATIC STUDY OF PATENT LITERATURE STRESSED

Beijing RENMIN RIBAO in Chinese 21 Nov 83 p 3

[Article by Huang Min [7806 2404]: "Patent Literature and Scientific Research"]

[Text] The word "patent" conveys two meanings: a kind of right and a kind of document or literature.

As a kind of right, patents can play a certain active role in exploring, fostering, and protecting those scientific inventions favorable to the development of the national economy and in making their application as extensive as possible. As a kind of literature, patents have not been given adequate attention by our people mainly because they still do not understand the nature of patent literature and do not recognize or pay special attention to whether patent literature has a strong influence on scientific and technical work. It is therefore necessary to place particular stress on the nature of patents.

Today, patent literature is a main channel that can quickly provide the world with information on the latest technology. The patent law in many countries has adopted the system of early publication, that is, announcing it within 18 months after application. Many important inventions are published in other scientific and technical books and journals a number of years after their publication is patent literature. The television invented by Baird was announced in patent literature in 1923 but was not published in other technical publications until 1928. The jet engine invented by Whittle was announced in patent literature in 1936 but it was not published in other technical publications until 1946. Each year, at least 300,000 different inventions obtain patents in the world and of these only 6 percent appear in technical publications. In other words, 280,000 inventions cannot be found in non-patent literature. Therefore, scientists and technicians must be good at using scientific and technical patent literature and promptly understand the information on the latest technology.

With the development of science and technology and the internationalization of the patent system, scientists and technicians in many countries are paying more and more attention to patent literature. The "Index of Scientific Proceedings" compiled by the U.S. Institute of Scientific Information shows that American scientists and technicians not only use technical publications

for reference but also check relevant patent literature. Since the patent of an invention can be applied for simultaneously in several countries, it is frequently announced in several languages thereby making it easier for scientists and technicians to select the languages they are familiar with in the course of checking. This is not readily available in other scientific and technical publications.

Gaining knowledge of patent information in scientific and technical work quickly, blind, indirect work can be avoided to get twice the result with half the work. Otherwise one may depuplicate research done by other people. For instance, after World War II, Japan, in an effort to develop new technology, introduced steelmaking by oxygen top-blown converter in 1956, which was invented by the (A-er-pi) Corporation of Austria in 1951. Later, Japanese scientists and technicians improved on this and now Japan's steel-making by converter lead the world. However, there has been the reverse situation. It was realized only after the completion of some projects on which Japan had invested enormous amounts of funds, used a great deal of human and material resources, and spent quite a lot of time that patent literature had recorded the research on these subjects long before. Such lessons deserve to be used as reference.

Patent literature can provide valuable materials for scientists and technicians to explore new frontiers technology. For instance, the working principles of high-efficiency deflection modulation and high-power microwave amplifier tubes were proposed as early as the 1940's, and beginning in 1946, the United States conducted research on and had received patents in certain related technical areas, but never succeeded in building a new and complete high-efficiency, high-power microwave amplifier tube. Soviet scientists and technicians focused on this topic and continually studied information on relevant patents and after many years of development they finally succeeded in 1973. On 24 August 1973 they applied for a patent on this new technology in the United States and in 1975 obtained the U.S. patent, thereby obtaining exclusive rights on this new technology in the United States.

Systematic study of patent literature can also inspire people to familiarize themselves with new inventions. For example, Carlson, the inventor of the duplicating machine, pointed out that thanks to a conscientious check of patent literature, he took less detours and developed the duplicating machine rather smoothly.

Patent literature also plays an important role in domestic and foreign trade and commerce as well as in the introduction of foreign technology. After World War II, in order to compensate for the technological gap during the prolonged period of war, Japan rushed to introduce a great deal of foreign technology. At that time, scientists and technicians were not paying special attention to studying and knowing the patent literature on the relevant technology but instead were paying high prices to introduce many ineffective patents which could have been used freely long before. Ultimately, it suffered rather heavy economic losses.

In short, as a kind of literature, patents can provide scientific and technical departments with a prompt understanding of scientific research developments both at home and abroad and can more accurately determine the orientation of scientific and technical work to avoid detours in such work. At the same time, patent literature can provide a conclusive and effective legal basis for promoting trade and commerce and for introducing technology. Patent literature will increasingly attract the attention of scientific and technological circles in China.

9586

CSO: 4008/78

NATIONAL DEVELOPMENTS

IMPORTANCE OF PATENT SYSTEM TO TECHNOLOGICAL PROGRESS

HK141250 Beijing RENMIN RIBAO in Chinese 7 Sep 83 p 5

[Article by Ge Bo [2047 3124] and Yao Yingmin [1202 5391 2404]: "The Patent System and Scientific and Technological Development in Our Country"]

[Text] Establishing a Patent System Is Objective Requirement of Social Development and Technological Progress

The patent system is a legal system which protects and promotes technological invention. The present patent system has had a history of more than 300 years of development since its establishment. As early as 1624, the patent law was enacted in England, the birthplace of the European industrial revolution. The patent system stimulated industrial development in England. Subsequently, the patent system was established and patent law enacted in many other countries, such as the United States, France, the Netherlands, Germany, and Japan.

Some people hold that in the era of imperialism, the patent system has become a tool for multinational corporations to monopolize technology and that it no longer has any progressive significance. This argument is incompatible with the real situation. Under capitalism, monopoly can never eliminate, on an overall scale and for a long time, competition in the world market. The increasing intensity of international competition forces the capitalists to extensively apply scientific and technological achievements to production, to continue to use the economically most beneficial methods, and to replace the existing generation of products with new ones. To maintain their own status as monopolies, the large monopoly enterprises do their utmost to achieve technological innovations. For example, the Siemens Company in West Germany has 40,000 employees specialized in achieving technological inventions. It annually submits nearly 700 applications for patents. To survive and develop amid fierce competition, medium-sized and small firms even more desperately try to achieve technological innovations. In West Germany, 70 percent of the applications for patents are submitted by medium-sized and small firms. In the modern capitalist world, the patent system is still a powerful motive force behind technological progress.

At the turn of the century, world capitalism had developed to the stage of monopoly, but the development of the patent system in the world has been most vigorous precisely during the past 100 years. From 1873 to 1973, the number of countries in the world in which the patent system had been established (and in which patent law had been enacted) increased by around 450 percent, from 22 to 120. In particular, the number of developing countries among them

increased by 750 percent. Both the number of countries adopting the patent system and the number of patented items have followed a trend of steady increase. By now, more than 150 countries and regions in the world have adopted the patent system. This shows that the patent system possesses viability.

The Patent System Is Also an Important Means for Promoting Continuous Scientific and Technological Development in Our Country

China is far behind the developed countries in its scientific and technological standard and in the annual achievement of scientific and technological progress. How can this problem be solved? First, we must adopt a policy of protecting technological inventions, and second, we must establish a legal patent system conducive to promoting technological invention.

The patent system has at least five advantages for our country's technological transformation and progress.

1. It is advantageous to obtaining the latest and most systematic scientific and technological information of the world. Patent documents constitute a source of the latest and most systematically organized information concerning various scientific and technological realms. Various countries in the world annually publish approximately 1 million patent documents. The accumulation of various countries' patent documents over time results in an invaluable, systematic, and complete collection of scientific and technological information. Compared with other sources of scientific and technological information, patent documents have great superiority. Patent documents are generally submitted to the authorities according to legal requirements and stipulations. They must not only explain the newness and advanced nature, in comparison with the existing technology, of the inventions whose patents are being applied for, but must also describe concisely the history of development of the technological inventions. Therefore, they can help people acquire a systematic and concise understanding of the history and present condition of the inventions. Patent documents generally transmit the latest scientific and technological information. Important inventions in history are usually made known in patent documents a number of years earlier than in other ways. The patent for the television set as a new invention was made known in 1923, but this invention was first made known in other sources of information 5 years later, in 1928. The patent for the jet engine as a new invention was made known in 1936, but this invention was first made known in other ways 10 years later, in 1946. Having established the patent system and acceded to the Paris convention and the Treaty of Cooperation Concerning Patents, our country will be able to exchange, without costs, patent documents with the patent offices of other countries or the International Patent Organization, and will thus be able to save a large sum of money currently spent on purchasing such documents. Patent documents furnish the most systematic and comprehensive information concerning science and technology. They also include a great deal of such information not yet published elsewhere.

2. The patent system is advantageous to the scientific management of our country's scientific and technological achievements. This system can help make new inventions known to the public, so that all important achievements in

technological invention and innovation can be mastered opportunely on a nationwide scale. By examining domestic and foreign patent documents concerning the relevant realms of science and technology and through systematic analysis and study, scientific and technological personnel can know what problems are being studied and what problems are not, and therefore, to a large extent, blindness and duplication in choosing problems for study can be reduced, futile or duplicate labor in scientific and technological work can be avoided, and the economic benefits of our scientific and technological work can be enhanced.

3. The patent system is advantageous to promoting inventions and popularizing the fruits of science and technology. Because the patent system legally assigns a property right to a technological invention, ensures that the inventor is entitled to a reasonable remuneration, and ensures that the unit where the inventor works is entitled to a refund of the expenses incurred in the invention process, therefore, the enthusiasm of the vast numbers of workers, enterprises, and research units in launching programs of technological invention and innovation can be fully mobilized. Moreover, with the implementation of the patent system, because the outcome of a technological invention is closely related to the inventor's economic interests, the inventor and his unit will more closely integrate the choice of the problem for study with the needs of economic construction and will be more deeply concerned about the application and popularization of the invention. To a considerable extent, this can help solve some current problems: the problem of inability to apply scientific and technological achievements to production and the problem of enterprises and units setting up technological blockades against each other. Thus, the popularization of scientific and technological achievements can be promoted.

4. The patent system is advantageous to the import of advanced foreign technology. Advanced foreign technology is generally protected by patents. If the patent system is established in our country, foreign firms will be more willing to sell their advanced technology to use because they feel that there is legal protection. In the signing of contracts involving a technological secret, the law has binding power only on the seller and buyer. If a third party imitates this technological item or acquires it by other means, the seller will incur enormous losses. Therefore, when transferring technology to a country without a patent system, the seller usually asks for a price several times higher than the regular price in order to compensate for any possible loss of control over the technology. For example, the steam turbine for industrial use produced by the Siemens Company was sold to us at a price of \$4.8 million but was sold to Japan, which has a patent system, for only \$1.2 million. The two prices differ by 300 percent.

5. The patent system is advantageous to protecting our country's advanced technology abroad. If the patent system is established and patent law is enacted in our country and, in particular, if we accede to in the Paris Convention and the Treaty of Cooperation Concerning Patents, it will be easy for us to apply to various major countries for patents for our country's technological inventions.

At present, because the patent system has not been established in our country, it is not convenient for us to apply to other countries for patents for our country's technological inventions. Some have been plagiarized by foreigners, who applied for patents abroad before we did. Consequently, the new products produced by our country and incorporating our new inventions could not be exported. The rice transplanter and the folding bicycle are two typical examples.

Two Kinds of Unnecessary Worries

Some comrades worry about whether the patent system would cause our country's scientific and technological development to be restricted by other countries. This worry arises from an inadequate understanding of the patent system. Our future patent law would provide for the granting of patents only to those technological inventions which are new, advanced, and of practical use in industry. Here, whether something is new and advanced is judged according to world standards. Even if our patent system is not open to other countries, in examining and approving our domestic applications for patents, we must also comply with world standards in deciding whether something is new and advanced. In other words, we cannot grant patents for technological inventions whose patents have been published abroad. Otherwise, we would be protecting, as new technological items, those technological items which have been accomplished abroad. Therefore, whether foreigners would come to apply for patents or not, our country would have only one criterion for granting patents, that is, whether something is new, advanced, and of practical use in industry according to world standards. For nearly 60 years since the promulgation of its "Law of Patents for Inventions" in 1924, the Soviet Union has not thereby lost control over its technological inventions. For more than 10 years, since its adoption of a unified patent system in 1968, until now, Romania also has not thereby lost control over its technological inventions. On the other hand, if foreigners come to our country to apply for patents, we can thereby more accurately know the present situation of various technological realms and the trends of their development.

Some comrades worry about whether the adoption of the patent system will hinder our country's manufacturing of some products in imitation of foreign ones. This worry is unnecessary. Those technological inventions for which patents are applied for are generally the latest achievements in various technological realms. There is a considerably long time between the application for patents and organized mass production in industry. Therefore, the question concerning newly approved patents is not one of imitation. It is a question of signing contracts with the patent holders and importing new technology. For example, the time between the granting of patents to the commencement of production for commercial purposes was 39 years for the helicopter, 41 years for the magnetic tape recorder, and 31 years for radar. That is to say, for many patented products, when their production starts, their patents have already expired. Under this condition, anyone is absolutely free to imitate them. The products currently

imitated by our country are mostly old products which have been sold on the international market for over 10 years. Their patents have already expired. In the future, if our country has enacted the patent law, if we accede to the Paris Convention, which protects individual property rights, and if we thus acknowledge the principle of priority, then, among foreign inventions, our country will protect only those for which applications for patents are submitted to our country within 1 year of their patents being approved in their own countries and to which our country subsequently issues patents after granting approval. As for other products, our country will continue to be able to freely imitate them. However, such manufactured products will not be able to be exported to countries in which these products enjoy the protection of patents. (Actually, this point would still be true even if our country would not practice the patent system.)

CSO: 4008/223

NATIONAL DEVELOPMENTS

RENMIN RIBAO CALLS FOR PATENT SYSTEM TO SPUR TECHNICAL PROGRESS

HK310752 Beijing RENMIN RIBAO in Chinese 24 Jan 83 p 5

[Article by Wu Heng [2976 5899], Huang Kunyi [7806 0981 4135], and Lei Ji [7191 3423]: "Establish a Patent System To Promote Technical Progress"-- passages within slantlines published in boldface]

[Text] In his report on the Sixth 5-Year Plan, Premier Zhao Ziyang clearly pointed out that we must "formulate and execute a patent law." There is no question that establishing a patent system in our country is an important economic and technical policy and that it will play a positive role in technical progress.

A patent system comes into being and develops under the conditions of the commodity attribute of the achievements of science and technology. It admits the economic benefit of the inventor and acknowledges that the achievements of science and technology have their intellectual property rights, which must be protected and not encroached upon for a certain period of time, as an exchange for the publicity of the invention and creation, and to enable it to become social wealth and promote the development of social economy and the progress of science and technology. Therefore, it is a kind of management system flowing from management science and technology. In the past 3 or 4 centuries, a wider and wider range of patent systems has been applied and developed in the world. At present, there are 158 countries and regions in the world that have established patent systems, among which are developed as well as developing countries, and capitalist as well as socialist countries. Only a very few countries among the member states of the United Nations have not yet established a patent system.

It is unquestionable that the public ownership nature of China's socialist system demands that inventions and creations become the public wealth of the whole society. The problem is what kind of policy and method must we adopt at the present stage to attain this purpose. Historical experience teaches us that we cannot exploit the labor achievements of the workers and peasants or practice egalitarianism and indiscriminate transfer of resources. Similarly, we cannot adopt the use of coercion or egalitarianism with the inventive and creative labor achievements of intellectuals. While strengthening ideological and political work, we must also eliminate the ideological influence of the "leftist" deviation, proceed from the reality

of our country, and establish a socialist patent system with Chinese characteristics. This will play a significant role in promoting the four modernizations.

//It [a patent system] is advantageous to arousing initiative on all sides, promoting invention and creation, and adopting new techniques.//

In the past we emphasized merely that the achievements of science and technology were owned by the state and any unit could gratuitously apply them. This frustrated the initiative of many enterprises, scientific research institutes, and universities and colleges in creating scientific and technical achievements. Given China's present situation regarding science and technology and economic development, there is also a pressing need to establish a patent system. Recently, there have been more than 3,000 major scientific research achievements emerging throughout the country every year. There have been more than 10,000 new products trial-produced and new techniques experimented with by the various industrial departments in 1981. Since 1979, the 44 scientific research units, universities and colleges, and enterprises of Shanghai signed a total of 528 transfer contracts and undertook 2,347 scientific research projects, of which the results of over half were transferred to the other provinces, cities and autonomous regions. The pertinent leading departments and scientific and technical units of Shanghai municipality have strongly demanded the rapid solution of the problem of legal protection, that is to say, they hope that a patent system can be established quickly in China. This is an objective need.

China is a developing socialist country and its economic and technical level is generally rather backward, but China has attained originality, in certain respects, in some scientific and technological spheres and has even taken the lead internationally in a few. China already possesses scientific and technical ranks and scientific experimental means of a fairly large scale. We also have the abundant production experience of the broad masses of workers and peasants. Provided we arouse the initiative of scientific and technical personnel and the broad masses, there will be more and more scientific and technical inventions and creations at an ever higher level. Much foreign experience shows that most of the patent systems were established during the early stages of industrial development, thus promoting the development of science and technology and the economy.

A patent system includes an enormous patent abstract system. Every year, there are approximately a million patent instruction manuals published throughout the world. Statistics compiled by some people show that over 90 percent of the technical contents in the patent instruction manuals are not found in other abstract publications. Patent instruction manuals are usually issued 2-3 years earlier than other informational data, and are the fastest and most effective news on scientific and technical information in the world. Therefore, establishing a patent system is also a means of exchanging scientific and technical information. It is a very important treasure house of knowledge that is extremely necessary for building the four modernizations in China.

//It is advantageous to strengthening scientific research and production management.//

A patent law is directly related to the many scientific research and production management entities. The phenomenon of blindly repeating scientific research tasks has existed for a long time in our country, whereby if a task was assigned, several units or tens or even hundreds of units swarmed in to do the job. There are certainly many reasons for such a phenomenon, but one of the most important reasons is that we have not had systematic and economic constraints. After establishing a patent system, if a research unit intends to tackle a certain item, it must first of all consider whether the item has already been done by others, what results other units have achieved, and which patents have already been registered and approved. In this way we can avoid wasting energy and prevent repetitious and ineffective labor. Moreover, it is often difficult to accomplish the registration of scientific and technical achievements and the compensated transfer of technology at present, because we lack legal protection and do not have strict scientific and technical examination and public circulation of notices. Those units engaged in research and experiment and those enterprises that need to apply new techniques are not informed about inventions and creations by various departments and in various localities throughout the country. They often do not even know about new techniques and inventions achieved by units near at hand. Therefore, it is hard to avoid the waste of manpower and material resources. The establishment of a patent system would contribute to solving this sort of problem.

For a long period, the popularization and application of scientific and technical achievements in China have been organized mainly by administrative means. Although we have achieved certain results, in the end, too much effort has been expended and, what is more, it has been difficult to disseminate them to the units that needed them. Both the unit that supplied the scientific and technical achievements and the one that accepted and used these achievements have lacked a clear understanding of their own rights and duties. Popularization became a mere formality because there was no connection to economic advantages and disadvantages. With the establishment of a patent system, the inventor of the scientific and technical achievements gets his lawfully earned profit and recovers and compensates for his investment; and the user unit which has paid a certain amount for the rights will certainly assimilate and master it earnestly, and, through the exchange, technology will be improved and production will be developed. The final result is that the science, technology and economy of the entire society develops. At the same time, by establishing a patent system, we can raise the level of management of scientific research and cause scientific and technical personnel to view seriously the integration of scientific and technical research with economic construction and pay attention to the economic results of research achievements. It is also advantageous to the expansion of the sources of funds for scientific and technical research. Half of the salaries of scientific research personnel of the national scientific research center of France is obtained from the transfer of ownership of patented technologies. The problem of protecting scientific and

technological secrets has been a hard nut to crack for a long time in China. The establishment of a patent system, making inventions public promptly while at the same time legally protecting them, is advantageous both to confidentiality and to exchange, within the range of compensated transfer.

//It is advantageous to strengthening cooperation in international exchange and technology transfer.//

In the technology transfer and trade carried out among the countries throughout the world at present, patent systems have become laws that must be abided by. China has practiced an economic policy of opening itself to the outside world and stimulating the domestic economy. Whether in our foreign trade or in economic cooperation, scientific and technical cooperation, import and export of technology and so on, we are bound to come across the question of patents, especially as the import or export of technology is in fact a trade in patented technology. The "Regulations on Sino-Foreign Joint Ventures" of China stipulate that a patent can be regarded as an investment, and the "individual income tax law of the PRC" stipulates that an income tax must be paid on earnings from royalties (including patent rights). In the technical cooperation agreements and trade relations agreements signed between China and foreign countries, there are also provisions requiring that both parties protect patents. In March 1980, China formally acceded to the world intellectual property rights organization of the UN. All these facts prove that China has recognized and is prepared to establish a patent system.

International trade in technology is usually carried out in the form of licencing contracts, of which the transfer of patented technology accounts for a major share. According to an investigation conducted by the commission of the European Community on the 3,500 licence contracts issued during the period 1962-1970, 56 percent involved patented technology. From 1950 to 1960, patented technology imported by Japan made up 62.4 percent of its total imports of technology, and this figure increased to 77 percent in the period 1965-1966. Patented technology also makes up a major proportion of the technology imported by China. According to our investigation of 10 technological import contracts entered into by the machinery and chemical industries, patented technology was included both in the technology transfer arising from the purchase of whole sets of equipment and also in signing technological licencing contracts on single items, and we have paid for the utilization of the patent rights. That is why patent rights are an unavoidable problem in the importation of technology.

One of the important questions considered by the patent-holder with regard to technology transfer is whether the country which imports the patented technology can provide legal protection for his patent. If it is not protected, and he fears its being copied by a third party, he may not agree to a transfer or he may charge the losses which could be brought on by improper protection as an addition to the transfer expenses. These worries are reduced in a country that has established a patent system. Therefore,

by establishing a patent system in our country, we can also reduce the expense of importing technology.

On the other hand, we also need the patent protection in exporting the new products and new technology of China. Otherwise, China's rights of invention could be stolen by foreigners who purchase products or technology invented in China and then apply for patents on same in other countries. Our export of these products could even then be restricted. If we were then to continue to export our own products, we would be, paradoxically, "encroaching upon" the patent rights of others, and we would have become "offenders" and would have to indemnify them for the losses. Such circumstances have occurred quite often in the past. Must this not arouse our vigilance?

As in everything else, there can be both advantages and disadvantages to establishing a patent system. If we enact a patent law, we thereby undertake an international duty and must naturally stay within certain bounds, but we can also stimulate the initiative of the people of our country in their inventions and creations. This is the main factor, and we must have confidence. When the initiative of the masses is aroused, we must try to formulate a better patent law in every possible way, promptly sum up our experiences in enforcing it, and constantly improve it. We have every confidence that a patent system for New China will make its due contribution to opening up a new phase in the building of socialist modernization.

CSO: 4008/43

NATIONAL DEVELOPMENTS

EARLY ENACTMENT OF NEW PATENT LAW URGED

Beijing FAMING YU ZHUANLI /INVENTIONS AND PATENTS/ in Chinese No 2, 1982 p 1

/Article by Lu Shiqian /4151 0013 6870/, senior engineer: "China Should Enact a Patent Law as Soon as Possible"

/Text/ Some people believe that to demand patents is to demand fame and profit, to demand extra rights and interests, which smacks of bourgeois attitudes. In my opinion this is wrong. Our is a socialist country, and the principle of distribution in a socialist country is distribution according to work. Our socialist society can therefore give expression to this principle by way of granting or not granting patent rights. If you have many achievements in scientific research, you have more chances to apply for inventor's patent rights; if you have fewer achievements in scientific research, you will get fewer patent rights. Prior to the Cultural Revolution, I worked for a long time in a factory. At that time we also had bonuses, awards, etc. The bonus or award was figured at a percentage of whatever you invented or of the amounts of savings you achieved, but I am not very clear about the present system of awards. Actually, however, most workers in the field of science and technology who make a contribution by their achievements in scientific research are not after fame and fortune, but their achievements should receive recognition and protection from society. To achieve this presently there should be a process of evaluation to evaluate whether something is really a scientific achievement. The procedures and standards of patent examinations must also be most accurate and equitable, for only then will we truly realize the method of seeking truth from facts. Our country has already established a Patent Office and all that is required is the enactment of a patent law, to achieve the public recognition and protection of patent rights that would be granted after a process of strict examination at the patent office. If this were done, it would mobilize the enthusiasm of the large number of scientific personnel and of the masses for research and inventions and would promote the development of science and technology in our country.

Some people think that the implementation of a patent law will have an adverse effect on the free interflow and spread of scientific and technological information because of the mutual secrecy and shielding of things from each other it will entail, but actually the direct opposite will be the case. The enactment of a patent law can promote publicity and interflow of information. It will not only spread news of the inventor's particular technical invention, but can also

stimulate others to discover and create new technologies, explore new spheres of scientific research, and penetrate certain fields of research in greater depth. At present the duplication of certain items of scientific research is very frequent, causing a tremendous wastage of manpower, material resources and funds, all because of the lack of open channels for information guaranteed by a patent law and the resulting secrecy and shielding of information from each other. If a patent law exists, a person engaged in scientific research gets to know that someone else does research on the same topic, furthermore has been successful and has been granted a patent, the first person will definitely not go on working on this item, but will immediately use his time to breach another topic. This would prevent duplication of work and save manpower, material resources and funds, and also save that most valuable item in scientific research: time!

Moreover, scientific research is not an easy matter; it requires a large amount of human energy and all kinds of equipment and ample funds. A person engaging in scientific research must not only satisfy the requirements and expenses imposed by the plan for his topic, but must also meet his own personal requirements. For instance, as to professional books, he will have to develop his own knowledge according to the research he is engaging in and will have to penetrate various related branches of learning and systematically gather data for all the expenses of which he should of course be reimbursed by the state. However, as with books borrowed from a library, which cannot be kept for long periods of time and consulted whenever the occasion demands most people are willing to buy some at their own expense. Their own salaries will obviously not be enough to satisfy the needs, and also cannot possibly be sufficient to do so, and this then limits the effectiveness of the research personnel. That is why scientific research personnel should have certain funds which they can allocate themselves. The only way to solve the problem is to allow them to obtain supplemental funds from the rewards they may get from their work achievements. Implementation of a patent law is in my opinion a just and equitable system of rewarding according to work performance.

Presently, many factors have an adverse influence on the enthusiasm of the scientific research personnel, and one of them is that a successful scientific research brings the scientific or technical personnel little or no reward. If the research remains unsuccessful or even ends with loss, they will incur censure or contempt, and will have to face a heap of responsibilities and questions. It is therefore a feeling among scientific and technical personnel that the least undertaken the better, and that it matters little if little work is done. How can our country's scientific undertakings be speedily developed in this way, to overtake the advanced level of world developments? Judging from the experiences in other countries around the world and considering the specific national conditions in our country, a most effective solution to the problem would be to establish patent rights. We feel it is a matter of great urgency to speedily draw up and put into effect a patent law, as this would act like a potent medicine in promoting the speedy development of our country's science and technology.

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CSO: 4008/20

NATIONAL DEVELOPMENTS

FACILITATING FOREIGN APPLICATION FOR CHINESE PATENT RIGHTS BACKED

Beijing FAMING YU ZHUANLI /INVENTIONS AND PATENTS/ in Chinese No 2, 1982 p 2

/Article by Gong Zutong /7895 4371 0681/: "The Advantages of Instituting a Patent System in China"/

/Text/ As soon as the topic of a patent system is brought up, many people connect it with capitalism, the system of private ownership, and individual fame and gain. As soon as a patent system is suggested for our country, many people cannot help worrying: how can our socialist state go in for a patent system?! These comrades consider only two aspects of the situation:

First, we are a socialist state, and socialism is based on public ownership, which, very obviously, is opposed to private ownership. How can we then institute a patent system which would legalize the private ownership of knowledge? I think this is a very onesided way of looking at it. Our country is at present just at the stage of building socialism, when the principle is "from each according to his work." We have not yet entered the stage of communism, and it is therefore still necessary to afford protection to such achievements of brain work as inventions and creative work, and that means to protect them by a patent system. This is the only way that will stimulate the enthusiasm of our scientific research personnel and that will promote the emergence of new inventions and creations.

Second, how are we to deal with foreign scientists and engineers if they apply for Chinese patent rights? Would that not place restrictions on our activities? In my opinion we need not worry on that account. It would be a good thing if foreigners would apply for Chinese patent rights and thus bring new technologies right up to our doorsteps. Patent rights are of a limited duration, and after their expiration they become public domain, let alone the fact that the patents will more or less reveal some facets of advanced science and technology, and that our country's patent agencies could shorten the time limits for foreign patents as far as possible and condense the scope of the patents through a strict examination and approval procedure. Based on the patents that foreigners will apply for, the intelligence and wisdom of our people will develop further patents for new inventions that will be of service to our country's four modernizations.

Patents have many advantages: New knowledge can immediately be made public, there can be a free interflow of ideas and mutual stimulation, and new achievements

will be created, beneficial for mankind and for society, which after all would be much better than concealing things by hiding them away in remote places where they finally fall into total oblivion!

When I was a student in Germany, I visited the German State Patent Office several times and saw their patent abstracts reading room and patent stacks, just like a library, where one can freely examine the patent manuals of the whole world. One may also request the Patent Office to supply copies or transparencies of whatever document one needs. This is more convenient there than in some libraries and their fees are low. A patent office is a rich treasury of the world's scientific and technological inventions, and as such is of the greatest usefulness for an understanding of conditions and trends in the world's science and technology, and also for the enrichment of one's own technological knowledge. I wish Beijing had a patent organization of this kind, which could do so much more to promote China's modernization.

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CSO: 4008/20

NATIONAL DEVELOPMENTS

RECOMMENDATIONS FOR FILING PATENT APPLICATIONS ABROAD LISTED

Beijing FAMING YU ZHUANLI /INVENTIONS AND PATENTS/ in Chinese No 2, 1982 pp 3-4

/Article by Xin Geng /2946 5087/: "Views on Filing Patent Applications Abroad"

/Text/ Recently, China has begun to export such new technologies as coal dust injection in blast furnaces and top-fueled hot-blast stoves. After examination and approval, some inventors have applied through certain channels for patents in Britain, West Germany, Australia and other countries. Once approved, they will secure patent rights and the invention could be used, invested, transferred, sold and inherited in the country where the patent had been obtained. However, in societies with intense capitalist competition, it is not at all a simple and easy matter to have an invention pass the series of procedures, such as application, publication, dealing with objections, re-examination and approval.

Since the establishment of New China, no patent system has yet been instituted, and there is a general lack of knowledge on the subject of patents. It requires a conscientious study and examination as to whether an invention fulfills the conditions to be patented, whether it is something that can be patented, whether there is a need to apply for patents in foreign countries, what purpose will be achieved, whether it will be worth spending foreign exchange on the application, in what country or countries the application should be filed, etc. Only after gathering ample information should an application for a foreign patent be considered and decided upon.

First of all it must be clarified what our relations are with the country in which we intend to apply, what its patent laws are, what is the sphere of patent protection for inventions, and how its patent protection functions. After filing the application, it is important to understand the examination system. The requirement of examining the "three characteristics" is actually a way of carrying out a technical assessment of the invention. In this process a close cooperation between the patent lawyer and the inventor is indispensable. In general the applicant must always first spend quite some time on examining the originality of his invention. To facilitate patent information, the Chinese Patent Office has readjusted the patent documentation bureau and has now opened it to the

public, welcoming anyone who wishes to inspect their holdings. It will also organize facilities to train examiners in a plan to provide examination services for the public as much as this would be in its power. Moreover, our Ministries of Railways, Communications, Chemical, Petroleum and Metallurgical Industries and the First Ministry of Machine-Building will jointly establish a computer terminal at Hong Kong, which, through a ground satellite station and a communications satellite network, will link up with an international information and examination system and thus provide further examination service for clients.

As to the advanced nature and originality of the invention, the criteria in the various countries are determined by whether they are clear and evident to personnel of a medium level of technological knowledge in the special field concerned. The invention will also be compared with the present technology to determine its technical and economic effectiveness.

The examination of an invention as to whether it is functional will depend on whether it can actually be applied and used in industrial applications and whether it has industrial use value. Industry, as mentioned here, is to be understood in a broad sense, to comprise factories, mining, agriculture and trade. If an article is concerned, it must be possible to duplicate it; if a process is concerned, it must be possible to repeat its application.

Furthermore, present patent laws in the various countries follow the principle of one application for each invention. There are strict rules on compiling the patent application, and they are very particular about the description of the scope of the protection. In general it is absolutely necessary for the applicant to employ a patent lawyer in the country where he applies for the patent.

When applying abroad to have an invention patented, the purpose must be clear and specific. In view of our country's present stage of technology and its economic level and legal system, the following points must generally be given consideration:

(1) If a certain invention is a new and original product, or if the structure of a product has been improved fairly substantially so that it has gained superior competitive strength in the market, and if it has export potential, it could easily be imitated by others or the patent forestalled by someone else, if no patent protection is applied abroad. It happened in the sixties, for instance, when someone else had applied abroad for a patent for our rice planting machine, that the exports of our own products turned out to be an infringement of rights.

(2) In the case of a specialized technology as mentioned above, if it fulfills all conditions to make it patentable and if it is accepted as such abroad, this alone raises its value as a technique and raises our position in trade negotiations. Moreover, the trading of a patent license is more advantageous than the pure sale of "technical know-how," because the latter is binding merely on the two parties to the contract and not legally binding on any third party, so control is difficult to effect. It is therefore best to apply for a patent and obtain legal protection in the country concerned in the case of an invention that is attractive abroad and that has great potential abroad--for instance, for the

development of economizing of energy resources--and which is intended to be exported to gain foreign exchange.

(3) According to treaty provisions that permit investment of industrial property rights, after patent rights have been obtained for a Chinese invention, an investment can be made in a jointly operated enterprise in the country where the patent has been obtained. Especially in the case of unique Chinese arts and crafts, products in traditional national style, or handicraft techniques, such as cloisonne, processing of traditional Chinese medicine, etc., it is necessary to obtain legal protection to assure their superior position in the international trade.

In the case of the invention of a manufacturing process for which there is hardly any buyer and where infringements are also most unlikely, generally no patent application need be made in any foreign country.

(4) A certain price has to be paid to have the invention become a patented item and to receive the legal protection in the country that has accepted the patent application. The various fees charged in the application process are fairly high. If the marketing potential of the invention is limited or competitors have come out with a more advanced invention, one must consider, on economical grounds, whether the application should be stopped or withdrawn, and whether it could be protected as "know-how." In the case of an invention of a formula for compounding certain materials, where the component parts cannot or can only with difficulty be analyzed by anyone else, it is quite in order to leave such items without patent protection, one example being Coca Cola.

According to the present patent systems of the main countries, the procedure for applying for a patent is highly cumbersome and requires at least 1 or 2 years, possibly even 3 to 5 years. The applicant will in general ask for the help of an independently established patent lawyer. For one application, charges of over US\$1,000 or \$2,000 may be incurred as fees for representation, consultation, translation, searching, etc. The patent office will additionally charge an application fee, examination and re-examination fees, and an annual fee (also called maintenance fee), and if these are not paid punctually, the application will be considered withdrawn or the patent as expired. Moreover, the application in one country will protect only in that country and will not be binding in any other country. There is now a European Patent Office and an International Patent Cooperation Treaty (PCT), and in these countries and in the African Intellectual Property Organization it is possible to designate in one application for which member countries the patent is being applied for. This is a first step in solving the problem of applying for a patent in a number of countries at the same time. However, the International Patent Cooperation Treaty Organization (PCT) can be joined only by members of the Paris International Convention for the Protection of Industry Property. China has not yet joined the Paris Convention and also not the International Patent Cooperation Treaty, and furthermore not yet established its own patent system. Applications from China for patent rights abroad therefore meet with various inconveniences and limitations, and any patent application in a foreign country must therefore be given even more careful consideration.

NATIONAL DEVELOPMENTS

NEED TO ENSURE COMPENSATION FOR TECHNOLOGY TRANSFER EMPHASIZED

Beijing FAMING YU ZHUANLI /INVENTIONS AND PATENTS/ in Chinese No 2, 1982 pp 5-6

/Article by Lin Zhengyong /2651 6927 1066/ and Zhuang Chongxin /8369 1504 0207/:
"Inquiry Into Protection of Compensated Technology Transfers"/

/Text/ To find a way to bring into full play, and as quickly as possible, the effects of science and technology is the common wish of all of us. However, in a socialist country there may be a difference of opinion on such questions as to whether knowledge can be a property right, whether it possesses the character of a commodity, whether it might be transferred in exchange for compensation and what its legal status after all is. In discussing our thoughts on these questions, it is our intention to "cast a brick to attract jade" [invite the valuable ideas of others].

1. The Commodity Nature of Property Rights

A property right is the ownership of an asset. Its main characteristic is that the owner of the property right has the right to possess, use or dispose of the asset he owns. This right is protected by law, and without approval no organization or individual may possess, use or dispose of said asset, as otherwise it would constitute an infringement of the right and be a violation of law. Property rights may be divided into three kinds: property rights over movable property, i.e. the right over property that can be moved, such as TV sets, watches, clothes, etc.; property rights over immovables, i.e. the right over property that cannot be moved, such as land, buildings, structures, etc.; and then there is also a right to intellectual property, which is the property right over a kind of product of mental work, belonging to the category of invisible property rights, which includes industrial products such as scientific or technological inventions, innovations, use of new patterns or forms, exterior designs and trademarks, service badges, etc., also copyrights, all scientific and technical writings, literary works, poems and songs, music, paintings and calligraphy, crafts and carvings, films, maps, photographs, etc.

Marxist theory tells us that human products of the mind as well as human material products are equally products of human labor. The value of a product is computed according to the average amount of labor incorporated in the product. More complicated work will consume a larger amount of labor than simple work. Each scientific or technical achievement is the fruit of arduous and complicated

mental labor performed by scientific research personnel. According to the theory of value, the work of the scientific research personnel must receive a commensurate compensation. This kind of compensation usually takes the form of currency. In theory, the industrial property right has the nature of a commodity. The problem is that in dealing with this question in the past we have spoken of the exchange of mental products for values rendered as being derived from the capitalist "profit-before-everything" and "reaping without sowing" mentality. This has produced a situation in which many comrades have become accustomed, up to this day, to "rely on the big pot from which to eat" and to "reach out and scoop up things readymade." It is difficult to turn around longstanding "knowledge," "customs" and "practices." Precisely because this is so, we must point out with great emphasis: the change in the production relations liberated productive forces and frequently raised the quantity and quality of production by several times, by several tens of times and even created new materials. The obligations to compensate this kind of mental work is objectively a reflection of the socialist principle of distribution according to work. The commodity nature of mental work has to be affirmed, morally as well as legally.

2. The Transfer of Industrial Property Rights

There are only two ways of transfer, either with or without compensation. One point of view argues in the following way: Our is a socialist state. The means of production in socialism are publicly owned. The scientific and technical personnel have been brought up by the state and all are paid wages. Their research activities, inventions and creations are work performed on their jobs, accomplished with the financial and material support provided by the state and in line with the scientific research plan. The achievements created in their research must therefore also become publicly owned by the society and must not be endowed with the nature of a commodity, and must also not be transferred against compensation. Another point of view argues: technology transfers without compensation amount to the practice of "eating from the same pot." Experience has proved that this method is not only detrimental to arousing enthusiasm in all quarters, but will also obstruct the development of the productive forces to a high degree. As far as the collective is concerned (this includes research units, factories, mines, enterprises, colleges and universities, etc.), it will have invested a certain amount of manpower, material resources and funds and then, if it achieves success in the scientific research, would go out without getting any well-deserved compensation. As far as the individual research worker is concerned, it would then not matter at all whether or not he attempts research, whether he achieves any results or what results he achieves. This is bound to be harmful to the collective and dampen the initiative of the workers. As a result, research achievements decrease, to the detriment of the state. In the opposite case, if transfer with compensation is practiced, most of the proceeds from the transfer, after paying taxes according to law, will remain with the transferring unit and will be used to expand its scientific research and experiments and to add instruments and equipment. An appropriate part will be used for staff, workers and collective welfare and for individual bonuses, particularly to reward those who directly contributed to the research achievement. In this way benefits for all three parties involved, the state, the collective and the individual, will be taken care of. This is one of the methods to manage scientific research that will accord with the laws of economics and with the principle of remuneration according to work performance and will also promote the development of science and technology.

A third opinion believes that, as a socialist state, we must uphold the principle of socialist public ownership, oppose monopolies, emphasize close cooperation and organic coordination between all units and industries, break down mutual secretiveness, and encourage transfers without compensation. But on the other hand, to protect the rights of technical inventions and innovations, we must also practice transfers with compensation in order to encourage the speedy transformation of research achievements into productive forces, so that science and technology will play a truly active role in the national economy. It is therefore suggested that we deal with different situations in different ways. For instance, in an economically united entity, the transfers should be without compensation. Within this system, compensated transfers should be carried out at predetermined times and at a preferential rate of charges. Important items or those that concern the public welfare or prevention of public disasters can be publicized and used by government organizations, but in these cases too, remuneration should be paid or rewards granted.

It is our opinion that the first point of view is problematic in its conception of intellectual property. Under a system of socialist public ownership, there still exists a commodity economy, and as said before, intellectual property has a commodity nature. Since it has this commodity nature, it is of course possible to transfer it for compensation rendered. Effecting transfers with compensation is done precisely for the purpose of having scientific research achievements made public at an early date and yet to protect them; the problem of keeping them secret would then also be readily solved. As to the second viewpoint, it has a certain justification. The problem is only that there may be resistance against a thorough change in longstanding customs and practices. The change from uncompensated transfers to compensated transfers is a great reform in the management of science and technology, and a proper set of measures must be drawn up and continuously perfected in actual practice. The third point of view could be adopted, namely to have compensated transfers at the same time as having uncompensated transfers. Judging from the conditions in Shanghai, the people seem to prefer this method.

3. Can Compensated Transfers of Technologies Break the Technological Blockade?

The advantages of compensated transfers are: 1. They will ensure the receipt of compensation for research expenses and costs of equipment and materials that have been invested to develop the new technology; this will benefit the further development of research work. 2. They will accelerate transformation of research results into productive forces and thus directly contribute to the four modernizations. 3. Compensated transfers are carried out in the form of contracts, which make rights and duties clear to both parties concerned. This will strengthen the sense of responsibility for the implementation of the new technology. 4. To a certain degree, they will have the effect of getting technologies made public at an early date. However, technology transfers with compensation are effected by contract, and although the implementation of the contract is ensured, the property rights over the technology have no legal protection, and a third party cannot be prevented from infringing on these rights. It is therefore still necessary to adopt a policy of protecting technologies. A corresponding reform has to be speedily effected in certain economic policies and in the legal system, to open up financial channels and to clearly define a policy of distribution of income, which will given consideration to the three parties involved.

NATIONAL DEVELOPMENTS

QUESTION OF PROTECTING FOREIGN SUPPLIERS OF TECHNOLOGY PROBED

Beijing FAMING YU ZHUANLI [INVENTIONS AND PATENTS] in Chinese, No 1, 1983, pp 10-12

[Article by Cao Jiarui [2580 1367 3843], deputy director, Technology Import-Export Bureau, Ministry of Foreign Economic Relations and Trade: "China Must Draw Up and Promulgate a Patent Law"]

[Text] In our practice of introducing technologies from abroad, the two different concepts of patent and technology have occasionally been lumped together as if both were identical, and the introduction of "software" technology has been sweepingly called "buying patents." There is of course a close connection between patents and technology, but they are two different concepts. What we call patents refers to the patent right, which is an exclusive privilege; technology on the other hand is the systematic knowledge of manufacture. If a certain technology is an invention, characterized by novelty, an element of advancement and practical usefulness, and if the inventor is willing to publish the technological details, the inventor can apply to his own or to a foreign country and obtain the patent right, i.e., no one may use the technology that he has invented for a certain time, or manufacture or market a corresponding product, without the permission of the inventor. The principal purpose of a patent is therefore the protection of the rights and interests of the inventor, and these rights and interests reside in the use of the technology that he invented. It is in this point that patent and technology are closely linked, or, simply expressed, every patent covers a specific technology, but it does not mean that every technology has its patent, or that all patented technologies are open knowledge. Although there is generally a "rough" content made public, the inventor, when making his invention public, will always disclose only the minimum of his technology that will be just sufficient to obtain the protection of the patent.

Since patents cover technologies, we can easily imagine that there is indeed a huge source of technological information in the present 3.5 million valid patents that are continuously being added to all over the world. These technological reports and corresponding patent explanations are public and readily available. Making full use of all this technological information is extremely useful to the introduction of technologies from abroad. Exerting efforts during the planning and preparatory stage of importing technologies, especially at the negotiating stage, to clarify the patent status of the items to be imported is

helpful not only as we try to be free to select the technology and to select the source of the technology, but also important to solve the following two problems:

First, to find out to what extent the content of the technology that is intended for importation is already made public in the corresponding patent explanation, which information in turn would help work out an even more precise and more methodical plan of importation.

Second, to find out and assess the novelty of the technology that is intended to be imported, from the dates of application, approval and registration and from the term of validity of the patent, which information in turn would be helpful to appraise its price.

However, in all work in our country concerned with the introduction of technologies from abroad, the full utilization of patent information has always been a weak point. According to our initial understanding, there are very few cases where at the time of importing an item of technology, at the planning and preparatory stage and before contacting the foreign enterprise, the patent status of the technology that is to be imported, has been investigated and analyzed to the extent of gaining an intimate knowledge of it. There were occasions in the past when money was expended on "buying" a patent whose validity had expired or was about to expire.

The technologies covered by patents may in general be regarded as composed of two parts: One part is apparent from the patent explanation; it is the fundamental, public, but only "rough" technology. Another part consists of specific details which are not public and must be regarded as technological knowhow still controlled by the inventor. Both parts are intertwined and together form the complete technology that is actually needed in the manufacturing practice. Of course, the part which has been published is the important part, and by merely basing on the published part, anybody who has sufficient technological facilities, funds, and time can find out about all other necessary details and thus actually make use of the whole technology in his manufacture. Because this is so, the license to use a patent is a permit giving only the right to use, manufacture, and sell. Strictly speaking, the owner of the patent has no obligation to teach the technical skills to the importer of the patent, because content of the technology in question is publicly obtainable. However, if the importer does not have, or does not want to expend, his own technical facilities or time to develop all details, reliance only on the published part of a technology will not immediately allow use of the technology in actual manufacture, and he will then demand of the owner of the patent to transmit all necessary skill and to transfer all technological knowhow to him, the importer of the patent. This is called importing the comprehensiveness of a technology. This kind of license is no more a patent license pure and simple, but a comprehensive license comprising the patent and the technological knowhow. Most of our licenses are now of this category. Generally speaking, pure knowhow licenses and pure patent purchases are rather rare. This shows that it is most inappropriate to call all importations of technologies "purchases" of patents, thus referring to only this aspect alone. However, in certain items of technology imported in the past, it so happened that the "buying" of the patent had been satisfactorily completed

and all technical data had been obtained practically free of charge from the patent explanation, but that all the information was kept in the steel cabinet of the Designing Institute for years without anybody bothering about it.

Of course, there are also technologies that have no relation to any patents. Some technologies, after having been evolved in research, may by their very nature not fulfill the requirements of patent applications. That is one such situation. Some technologies develop very fast and after their development in research, it is better not to apply for patents but rather replace them with new technologies after 3 or 5 years, rather than publishing them and obtaining patent protection for 10 or 20 years. This is another such situation. In some cases the inventor is confident that he can keep his invention secret for a long time. He therefore does not file for patent, because the patent would give him only 10 or 20 years' protection. This is another such situation. Importation of this kind of technologies would be transfers of knowhow, or to be called permits; it is generally rather rare.

In the special circumstances of our country which has not yet established a patent system, certain different opinions and viewpoints are held with regard to pure patent licenses and licenses which combine patents and technical knowhow. According to one opinion, there is actually no problem involving patent licenses in our country, precisely because we have no patent system, and that regardless whether the technology has or has not been patented somewhere, in our country everything is a knowhow license. Another opinion has it that patent rights exist objectively, and that we cannot evade that fact. Since we want to import technologies, we must acknowledge that certain technologies are patented. We must therefore not contend that the problem of patent licenses does not exist in our country. Looking at these two viewpoints and considering things as they stand, it seems to matter little to determine which is right and which is wrong. The problem is that we must study the objective realities that are reflected in these two viewpoints.

We must first of all state clearly and definitely that patent protection is of a regional nature. This means that protection for the inventor by the patent right is limited to the jurisdiction of the country granting the patent. As our country has no patent system, no foreign technology can apply for and obtain protection in our country. If we acknowledge or tacitly agree that foreign patents are to be protected in China, it would amount to extending foreign legal jurisdiction to our country, which of course would be wrong. However, in our practice of importing foreign technologies, the following problem has actually come up: A product of joint manufacture, somewhat in the nature of manufacturing according to imported plans, a Chinese enterprise completed all manufacture and assembly of a complete machine according to the designs and plans of a foreign enterprise. The foreign enterprise added the electrical control system, then affixed the foreign enterprise's trademark and marketed the machine abroad. After fulfilling the joint production according to the provisions of the contract, the Chinese enterprise, using the same design and plans, installing its own electrical controls, but not using the foreign trademark, and constructed one machine with the intention of selling it domestically. There was nothing in the contract to forbid this, but the authorities in charge of the enterprise issued an order prohibiting this production for the reason

that it "infringed on the other party's patent." Disregarding the question of what patent was involved, was even if there was a patent, it had not been registered in China, and since the action did not violate the contract and was also a case of a domestic sale, how could one speak here of infringing on someone's patent? Even if we have a patent system in the future anything not registered in China, if copied and not destined for export, cannot constitute an "infringement of rights." There is no rule that China must protect all of the world's 3.5 million patents.

However, viewing this problem of technology introduction from abroad in a broader perspective, there is indeed an important question that deserves our more serious attention: There is now actually no legal protection that foreign enterprises can obtain when they transfer their technologies to China. As the foreign enterprises realize that for this reason they may incur losses, they will either demand extremely high remuneration or be unwilling to transfer any technologies to China. This is a very acute problem. In the work of introducing technologies from abroad, the protection of the reasonable rights and interests of foreign suppliers of technology is therefore always a critical question. If this problem is not resolved, we are bound to meet obstacles in our imports of technologies from abroad.

At present, as we have no patent system in our country; we accept in our contracts provisions to maintain secrecy and not to divulge the technical knowhow to any third party within a certain period of time, thus effecting protection in an indirect way. This can be done, but it is not completely satisfactory. A contract is after all a commercial document, an agreement between merchants or enterprises, and as such can only bind the two parties involved. Contracts must observe the law, but are not law. In the future, how is the Chinese government to give foreign suppliers of technology legal protection for their rights and interests? This is a question that has so far not yet been answered. As far as the introduction of technologies from abroad is concerned, for the sake of introducing more and better foreign technologies that are useful, technically advanced, and needed by us, we must assert that it is extremely necessary for us in China to establish a patent system, to draw up and promulgate a patent law, and to allow foreigners to apply for and obtain patent rights in China. This is the conclusion reached in this article.

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NATIONAL DEVELOPMENTS

INTRODUCTION OF ADVANCED TECHNOLOGY WOULD PROMOTE DOMESTIC CREATIVITY

Beijing FAMING YU ZHUANLI [INVENTIONS AND PATENTS] in Chinese No 2, 1983, p 1

[Article: "Welcoming the Birth of China's Patent Law"]

[Text] After three years of preparatory work, China's first patent law will soon be promulgated, giving birth to a patent system that has long been hoped for by our scientific and technological personnel. It is a major event in our country's economic legislation and a major reform in our country's management of technological achievements. This reform will stimulate further technological advances and will provide reliable guarantees for science and technology to fully assert their roles in promoting economic construction.

Together with such current systems as the rewards for technological achievements, the patent system will constitute a perfect system for the management of scientific and technological achievements. According to its very nature, the patent system is a system of managing technological achievements. The patent law provides that applications for patents shall be examined as to the novelty, advanced character and practicability of the invention, and if they are found qualified, the inventor's right will be acknowledged and will be granted legal protection. The state does not give directly any actual material or economic benefits to the patent holder. The patent holder will recover his research and development investment and obtain economic compensation through his own use or by giving others permission to use his patented invention; the socialist principle of distribution--from each according to his ability and to each according to his work performance--is thus being put into practice. The system of rewards for technological achievements consists of the state's issuing rewards to inventors for important, widely used, new technological achievements in accordance with the value of the new technology and its economic benefits, as a spiritual and material reward, to demonstrate the state's support and encouragement of inventors who have made outstanding contributions in the field of scientific and technological research. Without all the numerous inventive creations, the management of technological achievements is like "a tree without roots or a river without a source." The establishment of the patent system will stir up great enthusiasm for technological improvements in the enterprises and will arouse great zeal

for creative inventions among the technical personnel and the broad masses. Large and small, progressive and useful inventions will sprout up like "bamboo shoots after a spring rain," and will soon be put to use in production. The patent system will provide additional favorable conditions for a better functioning of the rewards for technological achievements, and both systems will complement each other and play an important role in promoting the advance of science and technology within the general economic upswing.

The compensated transfer of scientific and technological achievements is a new pattern for spreading and utilizing new technologies. As soon as this new pattern came into being, it was welcomed by both the units that transferred as well as by the units that received the new technologies. The practice has developed very fast in recent years; it is now spreading further and playing an increasing role in the work of technological reforms and renewals and replacements of outdated products. However, due to a lack of effective channels for publicizing information, news of commodities and their technologies is not circulating smoothly. Without legal protection, there has occurred the artificial blockade of confidentiality, and there has been no way to handle disputes over property rights. As there was also no scientific check of the quality of the technologies to be transferred, their values could not be properly assessed, and it was difficult to fix an accurate transfer fee. The establishment of the patent system solves all these problems with one stroke. It is easy to predict that, after the establishment of the patent system, the compensated transfer of technologies, mainly in the form of licensed trade, will make rapid and rational progress, based on the foundations that already exist.

The vigorous introduction of advanced technologies is an important way for China to promote its technological progress. Implementation of a patent system will not only promote a flourishing of domestic creative inventions, but will also sweep away obstacles in the way of introducing technologies from abroad. Once we have a patent system, it will be possible to grant the same legal protection to foreign inventions for which patents are applied for in China, either on the basis of treaties or on the principle of reciprocity. This will eliminate apprehensions and anxieties among foreign owners of technologies and will enable us to use, with the payment of a reasonable price and without further difficulties, the most advanced foreign technologies that will come to our doorsteps. At the same time, we could easily apply for patents abroad, on our own advanced technologies and our rights and interests could gain due protection. The establishment of the patent system will, therefore, provide favorable conditions for international cooperation in the interflow of technologies and for technical imports and exports.

Social transformations and advances in the social system will in the end find expression in the development of the material and spiritual civilization. The patent system will stimulate progress in our country's material production and thereby promote improvements in the material livelihood of

the people. It will add its share to the building of the socialist material civilization, and the building of our material civilization will in turn be the indispensable foundation for our socialist spiritual civilization. In the past, impeded by "leftist" ideologies and the small-scale production concept, we had a long period of a mistaken disdain for science and culture and discriminated against the intellectuals. The patent system guarantees in legal form that the results of intellectual work will receive the respect of the entire society, that the broad ranks of intellectuals will enjoy ease of mind in the same way workers and peasants do, and that they will be able to exert their intelligence and wisdom in high spirits in making contributions to the people. The patent law provides that no one will be permitted to willfully infringe or plagiarize the results of scientific or technological research by someone else. This will be beneficial for nurturing a socialist scholarly ethics and for raising the ideological state of mind of the people.

Lenin said that socialism, full of vital creativity, is a creation of the people themselves. Under the solicitude of the leading comrades in party and state, the preparatory work for our patent system is now in a stage of rapid progress. The situation is pressing, and time does not wait for us. We must mobilize the forces in all quarters and speedily make all necessary preparations, mentally, organizationally and in our work, to welcome the birth of our country's patent law.

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NATIONAL DEVELOPMENTS

EXPEDITING THE FORMULATION AND PROMULGATION OF A 'SOCIALIST' PATENT LAW

Beijing FAMING YU ZHUANLI [INVENTIONS AND PATENTS] in Chinese No 2, 1983
pp 2-5

[Article by Wang Jiafu [3769 1367 4395] and Xia Shuhua [1115 0647 5478]:
"We Want a Patent Law Formulated as Quickly as Possible"]

[Text] In November 1982, Comrade Zhao Ziyang pointed out in his "Report on the Sixth Five-Year Plan" at the Fifth National People's Congress: "We are determined to carry out a policy of pricing according to quality, to formulate and enforce a patent law, to establish a system of rewards for new products and technological transformations, and also to abolish all rules and regulations that obstruct technological progress." A short time ago, Comrade Bo Yibo [5631 0001 3134] responded to questions from reporters of JISHU SHICHANG: "Recently, the Standing Committee of the State Council formally approved all preparatory work for a new Chinese patent system." This was a wise decision by our party and state, based on extensive discussions over the last 3 years, a decision that was of major significance in creating a new phase in the economic construction within our socialist modernization, in expanding the legal system in the field of science and technology, and in promoting swift and vigorous progress in science and technology.

Marxism has all along regarded science and technology as productive forces. Over 100 years ago, Marx had already pointed out that mechanized production demands a conscientious utilization of the natural sciences, and that "the productive forces of course also include the sciences." Science and technology provide powerful motive forces for the development of the national economy. The conditions of these forces in many ways directly influence the country's prospects and the fate of the nation. Scientific and technological modernization is the key to the modernization of industry, agriculture, and national defense, and patent law, which has a history of several centuries and is now endorsed by over 150 countries throughout the world, is a legal system that effectively protects inventive activities and promotes scientific and technological development. Actual practice provides proof that the capitalist countries have relied on it and used it in their drive toward scientific and technological progress and in the development of their national economies. Socialist countries too are in the process of utilizing it to promote the rapid development of science and technology

and to spur the national economies to swift and vigorous advances. If we consider the Soviet patent law of 1924, formulated under Lenin's tutelage, as the first patent law of a socialist character, then the "Provisional Regulations on Favorable Treatment of Specialized Technical Personnel," promulgated in 1948 by the Harbin Municipal Government and the "Provisional Regulations Guaranteeing Rights to Inventions and Patent Rights," drawn up in 1950 by the State Council, as the embryonic forms of our socialist patent law. The former clearly prescribes the protection of the sole-use rights of the creative inventors, and the latter has detailed regulations to guarantee the effective protection of patents and contains the conditions for patent applications, the time limits of patent protection and the legal consequences of infringements of patents. According to the provisions of the "Provisional Regulations Guaranteeing Rights to Inventions and Patent Rights," China approved the patent of Hou Debang's [0186 1795 2831] soda manufacturing process and other cases. Later, however, due to deviations in concepts, these regulations were not thoroughly enforced, and this adversely affected scientific and technological development. In line with the elimination of leftist errors in economic work, in scientific and technological work and in work concerned with intellectuals, since the 3d Plenary Session of the 11th CPC Central Committee, the daily increasing urgency for energetic development of science and technology has determined that formulating our new socialist patent law and establishing our own new patent system has become an important task that we must not shirk for a moment, but must place on the agenda of the day.

Law is based on society. Marx pointed out that legislators are "not makers of law, nor inventors of law, but merely expressors of law." ("Collected Works of Marx and Engels," Vol 1, p 183) The formulation of any law is definitely not the subjective fabrication of some men, but springs from an objective need in the life of society. What then exactly are the objective foundations for the demand for the earliest possible formulation of China's patent law?

First of all, the earliest possible formulation of China's patent law is a need created by the vigorous development of the socialist production of commodities. Everybody knows that patent law is a product of the capitalist commodity economy. Its essence is the recognition by the state in legal form that an invention is a property, is the endowment by the state of every invention with sole-use rights and is the guarantee to the patent owner of his favorable position in the economic competition. At the same time, as a condition for obtaining the patent right, the inventor must make his patent public and turn it into a commodity for the purpose of promoting the spread and interflow of science and technologies. Even though the socialist public ownership economy of our country differs fundamentally from the private ownership economy of capitalism, due to the existence of two different forms of public ownerships, the existence of a small sector of individual economy, the existence of a sector of individually owned labor capacity, the existence of unequal division of labor, and the discrepancy in material benefits in enterprises owned by the whole people, we will have to have in our country for a fairly long period of time not only the existence, but the encouragement of socialist commodity production under the guidance of

the plan. This demands objectively that we in fact regard inventions as property and turn them into commodities. In view of the fact that an invention is the product of creative intelligence, it not only requires expending a large amount of mental labor, but also the expenditure of the necessary capital funds. In view of the fact that an invention is an invisible asset with exchange value, it occupies no space, is easily alienated from the inventor's possession and in its invisibility can easily be used by any number of people. It follows that if no protection is given to the lawful rights of the inventor by enforcing a patent law to ensure that his investments are compensated for, any inherent motivation to create and spread inventions is bound to be dampened and the invention of a type of commodity that is so closely linked with the rapid increase in the national economy, and the exchanges of such commodities, are bound to be adversely affected and will slump and decline.

Furthermore, the earliest possible formulation of our country's patent law is demanded by the economic upswing and by our efforts to realize the four modernizations. The chief task of the party in the new historical period is to unite the people of all nationalities throughout the country, regenerate itself through its own efforts, conduct arduous struggle and gradually achieve the modernization in industry, agriculture, national defense and science and industry, so as to build China into a socialist country with a high degree of civilization and democracy. Historical experience indicates that the upswing in our economy and the realization of the four modernizations, as well as the achievement of our strategic goal of quadrupling the gross value of industrial and agricultural output by the end of this century, are dependent on science and technology. In the final analysis, the so-called modernization of industry, agriculture, and national defense means employing advanced science and technology in these areas. However, where is advanced science and technology to come from? It will depend on the intelligence and wisdom of our people and their ability to absorb, create and innovate. Therefore, if we do not formulate a patent law as soon as possible, encourage and reward creative inventions and do not arouse the enthusiasm of the large number of our science and technology personnel, we will not be able to successfully accomplish the glorious task of creating advanced science and technology. At the same time, we aim not only at advanced science and technology, but also at science and technology that can be spread widely and effectively utilized. Only by the earliest possible formulation of a patent law, by providing specific ways for technology transfer and effective protection of the lawful rights and interests of both parties to the transfer, can we achieve the unimpeded transfer of results of advanced science and technology to various different areas, different industries, different units, have them yield positive results and have them speedily transformed into productive forces. In this manner the patent law will become a superstructure capable of playing an active role in the economic foundation and in promoting the continuous and highly effective rise in our national economy.

Second, the formulation of China's patent law is demanded by the implementation of the rule of law in the area of science and technology. Because of

creative inventions, and the utilization of inventions, various kinds of social relations have arisen in the area of science and technology. As to this interplay of vital social relations, we must cautiously and carefully effect adjustments that will give expression to the will of the people and reflect laws which follow the objective lawfulness; we must certainly not treat them lightly, with "each general issuing his own commands." We are taught by the developmental history of China's science and technology, in its tortuous course of three ups and two downs, that the enforcement of a rule of law is extremely important for science and technology. Whenever the legal system was held in respect, science and technology flourished and advanced; whenever the legal system was ignored and trampled underfoot, science and technology stagnated and regressed. This is an experience that our people have paid for with a heavy price. Since the 3d Plenary Session of the 11th CPC Central Committee, order has been restored out of chaos, sound policies were enacted and the legal system resurrected, and in the area of our country's science and technology a brilliant spring was welcomed as science and technology advanced on a path toward thriving prosperity. However, we must realize that the legal system as far as our country's science and technology are concerned is still rather imperfect. First, it is seriously egalitarian, it lacks the necessary protection and encouragement for creative inventions; second, it is not uniform, there is the contradiction of inventions being used without remuneration, but technologies being transferred with payment; third, it is incomplete, there are still many problems and no rules to go by; fourth, infringements of rights are a common occurrence; disputes in this connection are left unsettled, and this seriously impedes our science and technology from advancing in big strides. All these facts make it urgently necessary that we formulate a Chinese-style socialist patent law as soon as possible, starting out from the realities of our country and using the successful experiences made by other countries over the years for reference, to bring science and technology into line with the legal system, in order to promote the vigorous development of creative inventions, to speed up the progress of the great undertaking of the four modernizations, and to bring benefits for the people.

What will the patent law be called that we are to formulate as soon as possible? Will it be called "capitalist" or "socialist"? We say it will be called "socialist" not "capitalist." The patent law, as any other law, is an expression of the will of a class, the superstructure. Different classes and societies with different economic bases cannot possibly formulate the same patent law. Even though patent law came into being in the wake of capitalism, our patent law has no relationship with capitalism; it is a socialist patent law and different from capitalist patent law. (1) There is a difference in the will it expresses. China's patent law is formulated by the people and is an expression of the will of the people, which is quite different from the capitalist patent law which is formulated by the bourgeoisie and expresses the will of the bourgeoisie. (2) There is the difference in the foundation on which it is established. Our patent law is established on the basis of a socialist economy, the vast majority of our patents for inventions are publicly owned by the society (owned by enterprises that are owned by the whole people or by collective-owned enterprises). The very few patents for inventions owned by individuals are

necessary supplements for the patents under public socialist ownership. There is absolutely nothing in common with the capitalist patent law, which is established on the basis of the capitalist economy, where patent rights are the private property of the bourgeoisie, particularly of the large monopolistic capitalists. (3) There is a difference in character. China's patent law is distinctively socialist in character. The sole-use of the invention is not only in socialist public ownership but units of socialist public ownership obtain the invention covered by the patent right and all other units of socialist public ownership may use the invention, though they must, according to law, conclude contracts and pay for the use of it. On the one hand, this guarantees the property rights of the inventing unit, but is also beneficial, for technical cooperation and the widespread use of the invention. Within these confines it abandons the exclusive and monopolistic character of the capitalist patent law, which guarantees and protects the superprofits of the capitalists. (4) There is a difference in the aims that the laws pursue. Our patent law aims at developing science and technology, at promoting the economic development and satisfying the daily growing material and cultural needs of the masses. This stands in fundamental contrast to the capitalist patent law which aims at allowing the monopolistic capitalists to rake in the highest possible superprofits. Therefore, as soon as we penetrate the outer appearance of this historical category "patent law," and analyze its essential character, we will easily detect the fundamental difference between China's patent law, permeated from beginning to end with the principles of socialism, and the capitalist patent law, and will realize that it would be incorrect to equate one with the other.

Formulating the patent law, this strategic measure to stimulate the progress of our science and technology, is a great thing that will bring benefits for the people. Its benefits are many indeed, the most outstanding ones being the following three.

First, it will promote a boom in new inventions and put an end to egalitarianism in the field of science and technology. For a comparatively long period of time, there existed on our science and technology front and on our industrial and agricultural front the phenomenon that it was all the same whether or not efforts were made to create inventions. This was a serious obstacle to scientific and technological progress. The patent law, by its intrinsic protection of the ownership of the invention and by its initiating the transfer against payment of technological achievements, ensures the rights and interests of both enterprises and inventors and breaks up that kind of a stand which would penalize progress and protect the backward system of "eating from one technological pot." The patent law constitutes a powerful material force that propels the cause of creating inventions forward to a flourishing development. However, will the promulgation and enforcement of the patent law conflict with the technological cooperation that we are advocating? There will be no conflict, because it is precisely the patent law, by its rules on joint inventions and compensated transfers of patents, that embodies the spirit of cooperation and provides a solid foundation for technological cooperation! We must realize that the method of the past when patents were used at will without compensation on

the principle of "what is mine is yours, and what is yours is also mine," was in actual fact an obstacle to genuine technological cooperation and encouraged the evil trend of profiting from someone else's labor. Does the formulation of a patent law conflict with our efforts to strengthen education in communist ideology? It does not, because the patent law is a law that protects and encourages the creation of inventions, and inventions bring economic prosperity to the state and prosperity for the people in their daily lives. Is it not that enterprises and individuals who achieve outstanding merits in the area of inventions are precisely those who do their part to help build the great edifice of communism by their very actions? If the state encourages and rewards their meritorious actions and protects their rights and interests under the patent law, is that not precisely what is demanded within the scope of our communist undertaking? We must not only strictly differentiate between education in communist ideology and execution of socialist policies, but must also link up education in communist ideology with the specific actions in every single step taken for the cause of communism. Egalitarianism, which did so much harm to the state and the people, is not at all some communist thing, but can only be a reactionary doctrine opposed to communism.

Second, it breaks down technological barriers and gives impetus to technological innovations. Engels pointed out that the natural sciences per se are thoroughly revolutionary. The patent law precisely reflects the natural sciences, this revolutionary demand, as it also, conversely, plays a role as a huge moving force in the continuous innovations in science and technology. The patent law manifests its role of promoting science and technology in two respects. One is, that it prescribes what people should do, namely reward innovations and inventors. Innovations are the soul and core of the patent law; anyone who achieves an innovation will be rewarded by the state according to law. The other is, that it prescribes what people should not do, it establishes restraints for those who are unwilling to innovate. These are important functions of the patent law. Anyone who plagiarizes someone else's invention will be punished according to law. Anyone who wants to utilize someone else's patent must pay a certain remuneration. In this way people are left with two alternatives: innovate and receive a reward, or not innovate and pay a certain economic price. This is bound to spur people on to create innovations and will encourage people to wage a hard struggle, "doughty as dragons and spirited as tigers," and it will also be a powerful impetus for rapid developments in science and technology. The patent law constrains only the hands of the indolent and of the plagiarizers. It is a positive constraint because it aims at compelling them to exercise their mental capacity to create and invent. An important function of the patent law is to break up monopolies and bring about the public knowledge of technologies. The state grants the inventor a patent right so that the inventor's rights and interests associated with his inventions will not be infringed upon. As soon as an invention is made public, it can (1) inspire and guide others to new creations, (2) have people use it by paying the legally prescribed remuneration and thus spread the use of the invention, and (3) prevent duplication and waste in scientific research, thus allowing concentration of the limited human and material resources on other needful

tasks. In this manner, the man-made barriers are broken down, and channels for the interflow of technological knowledge will be clear and unobstructed.

Third, it promotes the international interflow of technological knowledge and strengthens our capacity for our own reconstruction through our own efforts. The results of scientific and technological endeavors are crystallizations of human wisdom. The history of scientific and technological development throughout the world is a history of all countries learning from each other, adopting the strong points of others to make up for one's own weak points. Practice indicates that anyone who wants a vigorous development of his own country's science and technology must strengthen the international interflow of technological knowledge. Technological cooperation is one example. To be successful in this regard, it is necessary to formulate one's own patent law, because only the existence of a patent law can dispel the fears of the foreign capitalists and remove the obstacles to introducing advanced technologies from abroad. Only by the adoption of a patent law can we utilize the legal weapons of the patent system that will protect exports of our own country's advanced technologies. Closing the country to international intercourse is certainly not the right way to develop science and technology. Defying international practices is also not the appropriate way to institute international technological intercourse. Of course, we shall draw up our patent law in order to strengthen our own capability to regenerate ourselves through our own efforts. The real conditions of our country must be the starting point in our active importation of foreign advanced technologies. However, the purpose of importing them is to digest them, develop them further and to create even more modern technologies than they were. Due to our country's present comparative backwardness in science and technology, there will be a period of time when we will make more applications for foreign patents than foreign countries applying for our patents. This imbalance will be unfavorable for us, but if we merely show determination to work hard for the prosperity of our country and boldness in forging ahead, we shall certainly be able to shorten and even eliminate the disparity within a not too long period of time.

The patent system has had a not too successful history in our country. Hong Rengan of the Taiping regime has had some ideas of establishing a patent system, but the collapse of the Taiping revolution prevented any realization. In 1898 Emperor Guangxu promulgated "Regulations on Rewards for the Promotion of Industry and Handicraft" and established a patent system with 50-, 30- and 10-year terms of patents, but this too was never effective due to the corrupt conditions of the Qing regime. The "Provisional Rules Governing Rewards for Industrial and Handicraft Products" of 1912 and the later patent law of the Kuomintang government had little actual significance due to the Kuomintang government's alienation from the people. However, the present times are different; the Chinese people has risen to its feet. We have an incomparably superior socialist system, we have the guidance of the party showing us the correct path, we have a fairly comprehensive industrial system providing a solid material foundation and we have a newly risen scientific and technical contingent full of vigor and vitality. If we will only indefatigably and unremittingly strive to strengthen ourselves, we

shall certainly be able to use the socialist patent law, a law that expresses the will of the people and reflects an objective lawfulness, to promote the vigorous development of our country's science and technology, to compile a brilliant chapter in the world's history of science and to create an abundance of great achievements, proving ourselves worthy descendents of our illustrious ancestors.

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NATIONAL DEVELOPMENTS

PATENT SYSTEM AS A CATALYST TO MOVE FROM IMITATION TO CREATION

Beijing FAMING YU ZHUANLI [INVENTIONS AND PATENTS] in Chinese No 2, 1983, pp 6-8

[Article by Tang Zongshun [3282 1350 5283]: "Why Should China Establish a Patent System?"]

[Text] On the question of whether China should establish a patent system, after extensive discussions for the last several years and particularly after the practical experiences during the last 2 years in production, research and technology trade. The standing committee of the State Council has now decided to establish a patent system. In his report on the Sixth Five-Year Plan given at the Fifth Session of the Fifth National People's Congress, Premier Zhao Ziyang also mentioned the intention of drawing up a patent law and putting it into effect. This formally announced to the country and the world that China intends to establish a patent system. Without doubt, this decision will have far-reaching effects on our technological and economic development.

Why should we establish a patent system? The reason why we should establish a patent system is first of all to protect and encourage the inventive creations of our people. It will be impossible to achieve the great goal of quadrupling the annual gross value of our total industrial and agricultural output by the end of this century if our production remains at the present technologically backward level and no strenuous efforts are made to achieve progress, if we do not adopt as early as possible the advanced technologies that were already in widespread use during the seventies and early eighties in many economically advanced countries, and if we do not give further vigorous encouragement to inventive creations. However, in our production and scientific research we have for a long time practiced "eating from the big pot," and it was all the same whether or not a production unit employed modern technology, or whether or not scientific and technical personnel produced any inventive creations. The fact that the employment of advanced technology was not encouraged and that inventions were not encouraged actually amounted to encouraging the production units to remain satisfied with the state of things as they were and to encouraging scientific and technical personnel too to take the same attitude. Had things been allowed to go on like this, nothing could come of our goal to quadruple the annual gross value of our total industrial and agricultural output. There has been another phenomenon in recent years, namely that production units have created technological barriers against each other, and even the suggestions of the departments in charge to compensate transfers of technologies have had

little effect. Seeking the reasons for this, we find that it is mainly due to the fact that there is no examination of new technologies, no legal protection, and no possibility of publicly reporting on new technologies and no way to resolve the situation.

The experiences of many countries throughout the world prove that the patent system is an effective way to encourage the people of one's country to pursue inventive creations, because the patent system recognizes an invention as a property, the inventor-unit enjoying a patent right with regard to its invention, and this patent right being legally protected. If other units intend to use the patent, they must have the permission of the inventor-unit and pay a remuneration. Otherwise, the inventor-unit has the right to stop its use and demand compensation. In this manner, the inventor-unit can obtain a certain income from its invention and can recompense itself for expended capital and labor. The unit that uses the said invention, though having to pay a certain price for its use, will achieve a saving in time and will gain production development and increased earnings. The inventor-unit, in addition to getting material remuneration, will acquire added reputation and thus gain spiritual encouragement. In the case of individual inventors, they too will gain spiritual encouragement and material remuneration. When the production or scientific research units recognize the advantages, they will give further encouragement to their scientific and technical staff to create more and better inventions, which will in turn speed up our country's economic and technological development and will bring considerable improvements in the livelihood of the people.

Why must our encouragement of inventions acknowledge inventions as property and protect them? Because inventions are the product of mental labor and have use value and value, no different from commodities. Ordinary commodities are properties, and to acquire them a certain price has to be paid, as everybody knows. However, in the past China emphasized state ownership of all inventions, and any unit was to use them without remuneration. In essence this method denies that the invention is the property of the inventor-unit. As a result, all enthusiasm in production and scientific research units was much dampened. The way to set things right is to recognize that the inventions are the property of the inventor-units and will be protected as such by law. Production and scientific research units that want to use another's invention must pay a certain price for it, in the same way as when they acquire goods from another enterprise. However, an invention is an invisible commodity that can easily be infringed upon by others. If there is no set of methods of scientific management, if no check is made of the novelty, advanced nature and usability of the invention, no clear and definite sphere of protection, no registration and publication is provided, it cannot very well become a property. In that case the inventor-unit will therefore rather block it off to maintain its secrecy than publish the invention.

The technological level of our country is still rather low, and inventions are comparatively few, but we possess considerable potential for scientific experiments and a broad spectrum of practical production activities. We also have a considerable number of scientific research and technological personnel who are diligent and eager to learn. All that is required is to fully arouse their enthusiasm and there will be no shortage of inventions and technological innovations, and their level will also not be too low. No grounds exist for the

assumption that our country is at present only fit for imitations, not creations. Many economically advanced countries established their patent systems in the initial stages of their industrialization, that is, when their industrial level was lower than that of other countries, and by doing so they spurred on their inventive activities and economic development.

To develop China's economy requires, apart from the protection of the inventions created by our own people and the encouragement of enthusiasm for inventions among our own people, the expansion of the economic and technological interflow with other countries and active imports of advanced technologies, always under the premise of self-reliance and in the international sphere of mutually supplying each other's needs and learning from others' strong points to offset one's own weaknesses. This is a major path to promote technological progress in China. The peoples of the world all have made their inventions in the field of science and technology. These inventions constitute the common wealth of all the peoples of the world and must under no circumstances be monopolized by one particular country for any length of time. There is no country that can possibly be self-sufficient in technology. Launching international interflow in economics and technology and the ability to use foreign inventions will speed up the development of our country's economy and technology. This has also been the common experience of all the countries of the world. However, there are patent systems in force in the vast majority of countries. Their inventions are all protected by patents. One of the important questions that causes anxiety among foreign firms who hold patent rights and who are willing to transfer their technologies is whether their technologies will receive protection in the country that will import them. If no protection can be obtained and they must fear that their technology will be spread far and wide, causing them economic losses, they will consequently be unwilling to transfer their technologies. At times, even if they should still be willing to transfer their technologies, they will compute their possible losses, add them to the costs and raise their prices several times over. If we establish a patent system in our country, this would dispel such fears of foreign firms and create favorable conditions for the active importation of technologies from abroad. If foreign firms will then wish to invest patented technologies in our country, they could effect such transfers at a reasonable price and furthermore at a very much simplified procedure.

If we establish a patent system, the inventions for which patents are applied for (including inventions for which foreigners apply for registration of patents in China) could be quickly, and also distinctly and completely, made public. Production and scientific research units could obtain the latest, most advanced technological knowledge in a steady stream. This would not only prevent duplicating research and reduce waste, but could also provide new starting points for further research and improvements. This would undoubtedly be of inestimable value in promoting further technological development in our country.

After China establishes its patent system, foreigners will be able to apply for and obtain patent rights in China, based on our country's treaties with the foreign countries or according to the principle of reciprocity, and our country will be able to grant protection. On this question, some people entertain certain fears. However, foreigners applying for the registration of their patents will bring us the latest technological intelligence, written out in

Chinese. This will be useful to us. Moreover, if foreigners obtain protection in our country, they will feel at ease and will be willing to transfer their technologies to us whenever we are in need of such, and also at a reasonable price, and that will be beneficial for us. Of course, we would also be subject to certain restraints, for instance, we would have to watch out not to infringe patents in our production. However, compared with the advantages from a patent system, this would be a minor matter. After arousing the enthusiasm of our own people for inventions, the wealth that will be created will far outweigh whatever price we will possibly have to pay for the operation of a patent system.

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NATIONAL DEVELOPMENTS

IMPORTANCE OF PATENT SYSTEM TO MANAGEMENT OF SCIENCE AND TECHNOLOGY

Beijing FAMING YU ZHUANLI [INVENTIONS AND PATENTS] in Chinese No 2, 1983, p 11

[Article by Yi Caifu [1707 2088 1381]: "The Patent System as Seen From the Present Management of Science and Technology"]

[Text] A question that we constantly face is the question of proprietary rights over achievements in science and technology. This question is not only a problem within our province, but involves also other provinces. For instance, an instrument to remove metal objects from the stomach of cattle was developed in Shaanxi Province, but Guangxi Province also claims to have developed it. Here it is very difficult for the local science committees to clarify who developed it first. The question of proprietary rights also comes up in the transfer of technologies. After a certain technology is sold, someone may lodge a complaint, claiming that he had developed the technology first, so that the right to sell it should be his, resulting in a dispute over property rights regarding achievements. These kinds of legal disputes as to who developed something first are difficult to investigate and to settle. The reporting of achievements to higher authority is now also done improperly. Achievements are not reported immediately when they have been developed, but these reports are collectively submitted at the end of a year. In order to change this situation, the science committee of Shaanxi Province has ruled that achievements are to be registered in the order in which they are received, but this ruling is not legally binding. In the actual management of achievements and the work of reporting them to higher authority, there are such intermediary links as the basic-level science committee, the bureaus in charge, and local examiners. There may be cases where achievements have been developed and authenticated at an early date, but due to various reasons may become delayed in the process of appraisal, so that the Provincial Science Committee receives them at a later date than a similar achievement that was actually developed later. In making judgments based on the order in which the reports are received, there would be opposition from the party whose achievement had been authenticated earlier and already put into production. In making judgments based on the time the invention was authenticated and put to use, we could not achieve our purpose of spurring on inventor-units to report promptly to higher authority. Furthermore, when the science and technology achievements are now reported to higher authority, there are quite a number of units involved in finishing the copying and writing, in some cases as many as four or five parties, and the scientific

research personnel that prepared the reports are even more numerous, in some cases scores of people. As we understand it, the actual research work in quite a number of these achievements is done by only one party. Because in the process of finally finishing up the technology in question the manufacturing enterprise provides the research unit with certain necessary facilities and assistance, they are also considered one party when the report is submitted to higher authority. By the time that an achievement is finally produced and becomes economically effective, there are three or four parties that apply for the achievement reward. The research unit and the researcher, although quite unhappy about this state of affairs, are eager to be able to count on future cooperation and will think it advisable to behave like "the mute who eats bitter herbs." If we operate a patent system and proceed according to the rules of the patent law, giving precedence in registering patents on a first come, first served basis, the patent would belong to the party who applied for it first. Furthermore, the documentation of the patent in the application must accurately describe the particular invention that is to be protected, and this would also assist in settling the difficult disputes that arise in the management of science and technology achievements.

Tentative regulations for compensated transfers of technologies in Shaanxi Province have already been approved by the Provincial People's Congress and issued on a trial basis by the provincial government. However, the present system of compensated transfers of technologies is established on the basis of maintaining secrecy of technologies from one another. If the party desirous of a new technology were cognizant of its full details, the party would not spend money to buy it. On the other hand, a precondition for transfers and widespread application would be the publication of technologies. If no one publicizes, how could the technologies be spread around for general use? At present, technological achievements are made known in the form of advertisements, but these leave the party desirous of obtaining the technology unclear about the advantages of the achievement and unclear about what conditions would have to be met to put the achievement into use, thus hesitant to decide on its purchase. Had a patent been applied for the technology, it would have had to be made public. The patent system therefore will help break down technological barriers and promote the interflow of technologies. Instituting a patent system is the foundation on which compensated transfers of technologies can be practiced.

Due to the presently prevailing strict mutual blockades of technological knowledge, interflow of technologies is obstructed and there is no free movement of technological intelligence. A party seeking new technologies is in the dark as to what new technologies and new achievements already exist in this country, and this leads frequently to research on topics already successfully accomplished by others, thus wasting scientific research funds, manpower, and property. The operation of a patent system could break down technological barriers. If you don't apply for a patent, someone else will and will get the patent right. This kind of a situation will stimulate every unit that has developed a technical achievement to promptly apply for a patent and publicize the new technology as early as possible. Furthermore, a research result that duplicates someone else's achievement loses its

novelty and does not qualify for patent rights. The institution of a patent system would therefore help prevent duplication of research.

As to rewards and encouragements in the field of science and technology, we now have natural science rewards, technology improvement rewards and rewards for scientific and technological achievements. The applications for these invention rewards and achievement rewards result in much additional work for the developmental units and for the personnel in charge, but the rewards are only pocketed by the researchers, while the units of the researchers merely have to bear various expenses (such as printing materials, appraisal meetings, etc.) but do not get any benefits. For instance, the Xi'an No. 8 Radio Factory being greatly interested in science and technology, took on the production of several scientific and technological achievements of Northwestern University and other units and in doing so turned its annual losses into annual profits of 200,000 to 300,000 yuan, but Northwestern University did not get any material benefits. According to the rules of our draft patent law, the unit that holds the patent rights can demand remuneration from the unit that uses its patented technology. This method will induce the enterprises and industrial units to show more solicitude and support for their scientific research personnel, whom they would then want to produce more achievements, to obtain more patents and thus by transferring more achievements to others, earn more profits.

Practice proves that if we want to raise our national economy, big items are of course important and deserving of encouragement, but small items must also not be neglected and must also be encouraged. However, the present management of scientific and technological achievements and management of inventions mainly concentrates on the "major" items and is rather weak in administering the various smaller inventions and smaller improvements. In our national economic construction, there is a large number of such small technological improvements and reforms which occupy a very important position. The present scientific and technological level of our country on the whole is still below the advanced world level, and energetic encouragement of small transformations, improvements and inventions is of great significance. With a patent system in place, the "major" scientific and technological achievements could apply for patents to cover inventions, but small transformations, improvements and inventions could also apply for patents to cover new patterns of use and to cover outer designs, so as to fully mobilize the intelligence and wisdom of the broad masses of our working people.

To sum up the above: It is extremely necessary and vitally important to establish a patent system in our country.

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NATIONAL DEVELOPMENTS

RELATIONSHIP BETWEEN PATENT SYSTEM AND S&T INFORMATION MANAGEMENT

Beijing FAMING YU ZHUANLI [INVENTIONS AND PATENTS] in Chinese No 2, 1983, pp 12-13

[Article by He Runhua [0149 3387 5478] of the Tianjin Scientific and Technological Commission: "The Patent System and Scientific and Technological Information Exchange and Management"]

[Text] 1. The Interflow of Scientific and Technological Information Requires a Patent System

The development of production of material products comprises two phases of a mutual cause-and-effect relationship, namely a phase of new science and technology created by the expansion of accumulated experiences in material production, and a phase of new productive forces created by the application of new science and technology. Philosophically expressed, the former is a phase from the material to the intellectual and the latter a phase from the spiritual to the material.

Production in a broad sense comprises production of material as well as of intellectual products. The essence of the intellectual product is information. Scientific research activity is a production process that produces intellectual products. What makes scientific and technological information, as a spiritual product related to material production, different from other intellectual products, such as literature and art, is that its use value is of a twofold nature.

First, as an intellectual product, scientific and technological information is invisible and therefore has no material depreciation. It is conveyed by speech and writing and has a universal use value. For this reason any specific item of scientific and technological information is needed only once by the whole society. Next, as it is directly linked with the production of material products, having use value only if it is more advanced than the science and technology currently employed in the production of material products. If it has lost this advanced character, it has also lost its use value. There is therefore an invisible depreciation with regard to its use value.

The social aim of scientific research is the same as the aim of any kind of production, namely to create the greatest possible use value. The wider and more comprehensively an item of scientific and technological information is used, the greater the use value that it engenders. However, the scientific research activity is a concrete productive activity, its natural form is everywhere the same. Where there is no smooth interflow of scientific and technological information, it frequently happens that two or more individuals or organizations, at the same time or successively, work on the same topic of scientific research, seeking a solution, but the objective nature of natural laws has it determined that even though different people or organizations work independently, the solution is frequently amazingly similar. Because science and technology has universal use value, duplicative scientific research is useless labor. The interflow of scientific and technological information, therefore, on the one hand creates the favorable conditions that allow realization of the universal use value of scientific and technological information, and on the other hand is a measure to avert duplication of scientific research. The more the development of production of material products relies on the progress of science and technology, the more prominent becomes the importance of the interflow of scientific and technological information. All these means of advanced technology for high-capacity information transmission, such as communications satellites, computer processors, etc., have emerged as and when required. But availability of means of transmission alone does not achieve the goal of information transmission. Due to the fact that the use value of scientific and technological information is subject to invisible depreciation, the process of realizing its universal use value is also a process of growing invisible loss of use value, but the bearer in both cases is not the same. In the commodity society, this disparity reflects the contradiction in the distribution of economic benefits between the producer and the user of the scientific and technological information. If the relationship in distribution is not adjusted, the scientific and technological information loses its motivating force, and it would not help a bit, even if more advanced means of transmission were available.

The purpose of a patent system with a patent law at its core is to adjust this relationship in distribution. The patent system has two principles: First, it establishes the sole ownership of an item of scientific or technological information and eliminates duplicative scientific research activity. Second, it guarantees the owner of an item of scientific or technological information a compensation for the invisible depreciation during the time that the said information realizes its universal use value in society. The patent system makes it a profitable proposition for the creator and owner of the scientific or technological information to publish and spread the use of the information and this circumstance stimulates the transmission of scientific and technological information. In a commodity society, the interflow of scientific and technological information, therefore, requires a patent system. The patent is also something that emerged as and when the time came that required such a system, same as communications satellites and computers.

2. The Patent System Established a Record of Outstanding Merit in the Area of Scientific and Technological Information Management

(1) The international standardization of information classification established an international language in the field of international scientific and technological information.

To have something to go by in the identification of scientific and technological information with its multifarious categories that also mutually permeate each other, all countries that have established patent systems have equally instituted classifications of all science and technology within the scope of the patent system and according to their individual conditions. Furthermore, in view of the daily growing diversity in the international interflow of scientific and technological information during recent years and its ever growing importance in international economic intercourse, there came into being the International Patent Classification (IPC). According to this classification, present science and technology within the scope of the patent system comprises 8 departments, 20 sub-departments, 118 categories, 617 classes and 55,000 specific items. In pace with the continuous expansion of scientific and technological activities, the IPC will be adjusted and supplemented at certain intervals. The IPC not only establishes a perfect classified order for the management of scientific and technological information, but also provides a common language for this management in the various different countries, thus providing favorable conditions for scientific and technological information to manifest their use value on a worldwide basis.

(2) The system of specifying information by levels and orders records the history of technological developments.

The checking system of the patent system requires that each new item of scientific or technological information applying for a patent must, in prescribed forms, state the particulars of the right that is to be protected. The protection obtained by the patent covers only that part which is an advance over already known scientific or technological information. Although different countries have different definitions for this requirement of advanced nature, such as not being apparent but easily discoverable, etc., the approved item of scientific or technological information has to be deeper (or higher or broader) in substance than already known technology in the same category of patent technology. The whole record of patent documentation actually constitutes a history of technological development, strictly classified in various divisions. This store of scientific and technological information created by the patent system will always be available as a reference on scientific and technological development.

(3) To determine the sole ownerships, a highly efficient transmission network for scientific and technological information has to be established.

On a mathematical pattern, transmission could be seen as a line between two points. The points in the transmission network for scientific and technological information are the pair of the source of the information

and the terminal of the information. Each point can represent the creator (or owner) and the user of each item of scientific and technological information. If there are N number of such points in a society and each point takes itself as a central point in establishing an information transmission network with all other points, then each item of information emanating from one point has to pass through $N(N-1)/2$ routes of transmission in order to have every point in the network get the information. This is a most primitive form of information transmission. If we assume $N=100$, then one item of information will have to be transmitted 4,950 times throughout the whole network, and this would entail a large amount of duplication. The number that N represents will in actual fact be far beyond many thousands and tens of thousands. Obviously, this form of information transmission must be radically changed. If we detach the substance of N from the specific points to become a point independent from the source and terminal of the information, namely as its own information transmission point, then the formula would only have to be changed to $N(N+1)/2$ each source and terminal would then, correspondingly, only add one information transmission line to that point and we need only $1 + N(N+1)/2$, if $N=1$, that is, establish only one single transmission center and only two lines to have one item of information to reach from the source and to the terminal point. This is undoubtedly the best pattern for an information transmission network, and the patent systems of all countries, in prescribing that each single item of scientific and technological information is to have only one owner, enforce this rule. Each country established a scientific and technological information network with a center which is the sole organ that enforces the law. This is the objective demand for the best pattern of information transmission.

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NATIONAL DEVELOPMENTS

THE PATENT SYSTEM AS AN ORGANIC PART OF TECHNOLOGY IMPORTATION

Beijing FAMING YU ZHUANLI [INVENTIONS AND PATENTS] in Chinese No 2, 1983, pp 13-14

[Article by Xu Yiping [7312 0001 1627] and Lin Zhengyong [2651 6927]: "The Important Position of Patents in the Introduction of Technologies From Abroad"]

[Text] The modernization drive is like an assault on a fortified position. To be successful in the assault, we have the use of the powerful weapon of importated science and technology. Today, as science and technology changes with each passing day, no country can afford to cut itself off from international cooperation and exchanges and cannot attempt its own modernization in isolation. The economically advanced countries of the world have therefore all acknowledged the importance of economic and technological relations with other countries. As China's scientific and technological base is weak, it is even all the more necessary for us to import foreign advanced technologies that are suited to our industrial development and that are of apparent economic benefits, so that we may speedily reduce the disparity in the level of our technology compared with that of the advanced countries. There are many ways of importing technologies, for instance:

1. Importing patents, technological secrets, and specialized technical ability through licenced trade;
2. Importing foreign technological material, scientific and technological documentation and periodicals;
3. Purchasing foreign advanced machinery and equipment, to include whole assembly lines and complete plants, and absorb advanced technologies from these imports;
4. Through cooperation with foreign parties or jointly managed enterprises, engage in compensation trade, accept imported material for processing, take in foreign capital as direct investment in China for the operation of enterprises, and other such patterns of importing technologies;
5. Cooperating with foreign parties in scientific research;

6. Despatching technical personnel to each other's countries to inspect and learn from each other's work;
7. Participating in international scholarly exchange activities;
8. Inviting Overseas Chinese or Chinese scholars of foreign nationality to return to China to visit, hold symposia, and give lectures;
9. Invite friendly foreign personalities to visit China to exchange experiences and act as advisors.

Industrially developed countries generally attach great importance to direct imports of patents and know-how by licenced trade. If we seek the greatest economic benefits in the importation of technologies, we must not overlook the important role of patents. According to an investigation by the EEC, 56 percent of the total of 3,560 licence contracts concluded between 1960 and 1970 were on patented technologies. Full utilization and giving full play to the potential of patent documentation is therefore extremely important for the economic effectiveness of imports.

1. Use patent documentation to ascertain the degree of advancement and the level of the technology intended for importation.

Patent documentation is an important source of technological intelligence. It lists all inventions of the world by special industry categories and in chronological order for the information of all personnel. By reviewing the large amount of patent documentation, specialized personnel can ascertain the technological substance of all new inventions and even apply these inventions. It also enables a broadening of one's train of thought and can lead to new creative and inventive activities on the basis of existing patented inventions.

In the case of intended importation of a new technology, it is frequently possible to use patent documentation to ascertain the degree of advancement and the level of the technology in question. When contemplating the importation of a certain technology, we can first check the relevant patents in the patent documentation library under the particular category, collect all relevant patents and by summing up what transpired at the time of application of these patents, make an analysis and arrive at a conclusion. For instance, when we considered importing the "float process" from (Pilkington), a British company, we used the search tools of patent documentation and found 137 patents on the process obtained by said company in England. We collated, analyzed, and ordered these patents to gain an overview of the process by which the company developed the process. The company had invented the process in the early fifties and in 1953 applied for the first patent in England. In the 30 years up to the early eighties the company worked energetically on the development of the process technology, perfecting it and bringing it to maturity. From the patent documentation it is possible to ascertain that the whole process of developing this technology could be divided into four stages" The early sixties were the initial stage of organizing, equipping, and pollution prevention. The latter part of the

sixties up to the first half of the seventies was a stage of surface treatment in the development of the technology with emphasis on the matter of quality of the "float" glass. The seventies were the stage of meshing the earlier and later series of operations and of automated production technology. The patent applications of this stage concentrated almost exclusively on raising the degree of automation and reducing energy consumption. The above example reveals that patent documentation is an excellent source of technological intelligence. Utilizing the patent documentation can help us ascertain the level and degree of maturity of the technology we intend to import and to make up our minds about it.

2. Utilizing the patent documentation can reveal the tendencies among foreign firms and market trends, and can also be helpful in the selection of the party from whom to import a certain technology.

In countries that have a patent system in operation, the breakthrough in form of a new technology, new manufacturing process, or new product will always cause a corresponding dramatic increase in patents in that area. However, the market reaction to these new technologies, new manufacturing processes and new products always comes years or decades after the patent documentation. Before deciding on the importation of a certain item, we can therefore use the patent documentation as a market forecast in order to possibly enter the international market. On the other hand, the briskness of patent applications and number of effective patents are important yardsticks to measure the technological capacity of an enterprise. From the patent bulletins of various countries we find that the large and powerful enterprises have new patents to register almost every week, so that the patent documentation can indeed serve as a kind of barometer to determine the actual business conditions of the various companies, and serve as an important basis for the selection of the party from whom to import a technology. For instance, in the above-stated case of the "float process," we can find out from an examination of the patent literature that in addition to the British Pilkington glassworks, which had registered a large number of patent applications, the Pittsburgh Plate Glass Company of the United States, and the Asahi Glass Company of Japan had also applied for a number of patents on the "float process", but that these companies had bought the basic patent from the Pilkington company. Analyzing the scope of patent protection we found that the Pilkington company's technology was the most perfected and most mature. Patent documentation is therefore a source of intelligence of great reference value when it comes to selecting the party from whom to import.

3. Utilizing patent documentation to gain full information on the validity of a patent will give us an important basis for our licence trade negotiations with foreign firms.

When we conduct licence trade negotiations with foreign firms for technology importation, it is extremely important to be fully informed of the validity of the patents involved in the technology. Due to a lack of experience in the past, we frequently neglected the software aspects of patents, technical know-how, etc., in licence trade contracts, so that after a contract

was concluded we really did not know many patents our contract partner had sold us, or we had no knowledge at all of the content and validity of the patents involved. Only later would it come to light that the foreign merchant had sold us several patents that had already expired or had never been approved. Cases of this nature have occurred repeatedly in our importation of technologies, brought about by our lack of basic knowledge about patents. Actucally, before entering into negotiations with the foreign merchant it is absolutely necessary--and the conditions exist to do so--to ascertain from patent literature what patents the firm in question owns and to inform ourselves of the validity of these patents. In the case of the Pilkington company's "float process," we found out that up to the end of 1981 this company had 137 patents in England. According to British patent laws, the validity of a patent is 20 years from the date of application, which meant that out of the 137 patents, 23 had already expired and that another 28 will expire before the end of 1985. It is furthermore possible to check from the patent literature which of these patents, apart from being applied for in England, have also acquired validity in what other countries, so that we can judge the value and the sphere of protection that these patents can claim. All these circumstances are actually very important elements on which to base our negotiations with the foreign merchants.

In sum, patents are an important organic part of the importation of technologies. The amount of economic benefits from the importation of technologies to to a large degree decided by our knowledge of the technological potential of the imported patent, of its legal potential and of its market potential. At present, when our country has not yet established a patent system, the departments concerned should strengthen the study of these potentials of patents and make full use of the patent literature from various countries now available in China, to improve the economic benefits from the introduction of foreign technologies.

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