INTELLECTUAL PROPERTY EDUCATION IN UNIVERSITIES OF SCIENCE AND ENGINEERING

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The Trademark Law of China was promulgated on August 23, 1982, and the Patent Law of China on March 12, 1984. The drafting of the Chinese Copyright Law is under way and will be promulgated soon. The implementation of Laws relating to intellectual property is an important measure for promoting the progress of science and technology and in strengthening the economy. In our country, reform of the economic system, the science and technology system, as well as the educational system, is in progress.

Since technology, production and socio-economic construction are rapidly changing, the focus of the legal system has been moved to the legislation of the economy science and technology. With the rapid development of new technology and international trade, the legal protection of computer software, semiconductor chips, trade secrets etc., which belong to the field of intellectual property, have assumed importance. The effective protection of intellectual property needs a lot of high level technicians engaging in research on intellectual property. In a multidisciplinary science and engineering university, rich human resources in education and scientific research exists. Therefore, the university needs to be protected by intellectual property; in turn it needs to create favorable conditions for the promotion on intellectual property.

THE IMPORTANCE OF INTELLECTUAL PROPERTY EDUCATION IN SCIENCE AND ENGINEERING UNIVERSITIES

A university is a center to turn out talents. Science and engineering universities are known as "cradles of engineers", so some courses of intellectual property given to students in such universities have far-reaching significance in promoting the socialist modernization drive. The courses of intellectual property should target students, postgraduate students and faculty members who are doing teaching or research work in the university and we should also disseminate information on patent and trademark among managers and engineers working in enterprises.

A. Undergraduates and Graduate Students

A principle task of a science and engineering university is to turn out specialized personnel with the the ideals, morality, culture and discipline to fulfill the requirements of socialist construction. The students should not only have a solid theoretical foundation and specialized knowledge, but also should be able to absorb and utilize new knowledge, new theories, new ideas. They should have some knowledge about law, economy and commodity economy, modern management and technical trade. They may combine the knowledge of natural sciences with social sciences to meet the needs of the developing reforms on technology. Intellectual property deals with a wide range of

natural sciences and social sciences and closely relates to the development of various branches of learning, such as political economy, law, invention-creation, trade and science and technology. For this reason, the courses on intellectual property should be given in the science and engineering universities, so that students be familiar with the legal aspects of protecting intellectual property, be good at using economic principles and legal weapons to regulate technology and the economy. Meanwhile, those courses could arouse the students' enthusiasm for inventive activity. Let the students know the importance of using earlier inventions for reference purposes and let students lay a foundation for engaging in teaching, scientific research, technical work or management in the future.

B. Teachers and Research Personnel

Universities of science and engineering are important bases of scientific research and also important sources of inventions. For example, in 1986 Tsinghua University received 168 research achievements awarded by the State, different ministries, governments of provinces and municipalities. Some of these awards were for research, others for applied technology. Some of the awards have transfered to enterprises and have brought beneficial economic and social effects. Before the implementation of the Patent Law, any research achievements lacked a reliable legal safeguard. Inventors could not get reasonable compensation, in the sense of moral or material encouragement, so that their enthusiasm for creativity was dampened and their research work suspended because of inadequate funds. Because the Trademark Law and Patent Law have only been implemented for a few years, some teachers and engineers have little knowledge of intellectual property and lack the necessary knowledge to apply for a patent or license, some teachers even publicly disclosed their technical research achievements in publications or academic meetings before they applied for a patent, with the result that the inventions, which could have applied for a patent, could not accordingly be granted patents.

C. Technical and Management Personnel

Enterprises are an important source of inventions and are also an important base for the utilization of patents. Until now, in enterprises, intellectual property protection was weak. Some leading cadres and technicians did not recognize that intellectual property protection could be advantageous to mobilize technicians' and workers' enthusiasm for inventions. They doubted whether inventions could be advantageous in improving management and administration or in promoting change from pure production into exploitation.

Thus, enforcement of the Trademark Law and Patent Law could not be forcefully carried out and cases of counterfeit trademarks or infringement of granted patents occurred very often. A factory of Henang province, for example, had made a new type of coal-mangle. The new machine had good characters and an application for a patent was filed. After this kind of machine had gone into operation they were well received by many customers and the factory got enormous profits. A short time later, dozens of factories imitated this kind of machine without authorization from the patentee which interfered with the interest of the patentee, resulting in an infringement dispute. Out of ignorance of the Patent Law, the infringers did not know that the imitation of an other's patented product constitutes an actionable infringement. To give another example, Winery A in Haozhou city had produced a kind of liquor with low degree alcohol and use "Caochao" as an unregistered

trademark, because Caochao was the name of a famous ancient hero born in this city. Many small factories developed their new products and used the same trademark "Caochao" as winery A did. The Municipal Bureau for Industry and Commerce thought that Winery A was a famous winery in the country and "Caochao" wine had an excellent reputation, so it urged Winery A to apply for a trademark for the wine. But Winery A did not pay attention to this advice. The Trademark Office of the State Administration for Industry and Commerce granted a small winery an exclusive right to use the trademark "Caochao" in accordance with legal procedure. If Winery A wants to continue to use the trademark "Caochao", it should consult with the owner and pay a fee to the owner of the trademark right. To the leading cadres of Winery A it was just like awakening from a dream and was too late to repent.

Last April, the Beijing Engineering Institute, appointed by the Beijing Economy Committee and Beijing Administrative Office for Patent Affairs, held three training courses on Patent Law for leading cadres of large and medium enterprises, such as factory directors, managers and chief engineers. At these courses, the leading cadres of enterprises integrated theory with practice by using their own experience as examples from both positive and negative sides. They pointed out that the strengthening patent affairs in enterprises has far-reaching significance. The training for the leading cadres was a real eye opener. The more they learned the more they were interested in patents. After the training some of them could not help staying for a time and hurried back to check up on the projects transferred from abroad which were being processed. Some suggested that more training courses on intellectual property should be held in the future.

As mentioned above, it is very necessary to enhance intellectual property education in our country.

INTELLECTUAL PROPERTY COURSES OFFERED IN UNIVERSITIES OF SCIENCE AND ENGINEERING

Since 1982, some of the universities of science and engineering have offered a course on patent. For example, Tsinghua University, Tianjing University and Huazhong Engineering Institute have given lectures and optional courses on patent for undergraduates, graduates, cadres and scientific research personnel. After the enforcement of Patent Law, more universities have offered courses on patent and intellectual property and have written their own text books and teaching material. The teaching practice has been, by and large, successful. One student from Tsinghua University said "In the beginning, I just wanted to have a try, but after several classes, I realized the courses on patent are very important and I hope to study more." Another student from Tianjing University said: "The patent course is just like a key that opens a great treasure-house of knowledge for me and it may be possible for us to be familiar with it and it helps us to use the world-wide advanced technology." Another student said: "I believe that the study of patent law has an important bearing not only on my creativity but also for the rising and declining of our country and the enterprise." In Huazhong Engineering Institute, a public opinion poll taken after the patent course, showed that the graduate students believed that the patent course would be useful for their future inventions. They hoped the content should be more substantial and the class hours should increase. Some of them would be willing to be

engaged in this kind of work in the future. As mentioned above, since the intellectual property course is related to a wide range of knowledge and is more comprehensive and practical in discipline it was welcome and regarded as positive by all the students, teachers and scientific research personnel.

As a result of the fact that intellectual property courses have been offered earlier and more commonly in universities, the enthusiasm for invention and patent application has been encouraged. From the enforcement of Patent Law on April 1, 1985 until the end of 1986, the amount of patent applications from universities in the whole State was 2596, which made up 22 per cent of the total application. Among them, 381 applications have been granted patent rights, which covered 20 per cent of the total. On the first day of the enforcement of the Patent Law, Tsinghua University filed 145 patent applications. In the first term of the granted patents, Tsinghua University had 13, which made up 9 per cent of the total number. Until June 1987, Tsinghua University had filed 270 patent applications of which 80 patent applications have been granted right. Practice on patent applications has brought about a great advance in patent education. For example, the analysis for patent applications and the issues presented in the their examination would be useful illustrations which would add to the content of the courses.

SOME IDEAS FOR INTELLECTUAL PROPERTY COURSES IN UNIVERSITIES OF SCIENCE AND ENGINEERING IN THE FUTURE

Intellectual property education may be at two levels: the universal level and the raised level. The universal intellectual property education is intended not only for undergraduates, graduates and teachers in universities, but also for factory directors, managers, chief engineers, engineers and technicians in factories, mines and other enterprises.

In this article the raised-level intellectual property education refers to training of intellectual property workers and of high-quality persons for teaching and research work. Because of the different training purposes, the teaching content and methods should be different.

The universal intellectual property education: when we decide the syllabus and the teaching content of the universal intellectual property course in the universities of science and engineering, the following issues should be taken into consideration:

1. Because the intellectual property is related to a wide range of knowledge, the stress should not be put on each and every aspect but on the important aspects when we decide the teaching content. After studying this course, the students should understand intellectual property in general and get some basic ideas about intellectual property. The students should also know what intellectual property protects and how intellectual property protects them. Furthermore, they should be introduced to the relations between intellectual property and civil law, criminal law, economic law and contract law in order to master the basic content of intellectual property. In this way we can foster the student's ability to analyze and solve problems.

2. The students who study social science and those who study natural science and engineering, all need to study intellectual property law, but the teaching content and the teaching method should be different. For the students who

study natural science and engineering, they should take law applying to their major concern. It is not necessary for them to approach the profound theory of law from a legislative angle. The focal point of teaching should be at the essence of the law and the actual implementation of the law. Taking patent law as an example, the essence is the significance of the patent system, the protecting scope of patent law, the essential conditions for granting patent rights, patent application, examination procedure, patent document searching, etc. As for the application document, the students need only know the claim and function of every kind of document so as to supply the information demanded for the Patent Law.

It is not necessary to focus too much upon writing skills. Nor is it necessary to give the students a detailed introduction to the examination procedure. However some issues related to patents, such as licensing and patent proceedings, should be introduced. The students of the Economic Management Department should be taught according to different requirements and the content should be deepened.

3. The universal education of intellectual property in universities of science and engineering should take patent law, copyright law and trademark law as the focal point, among which, the patent law is the priority point in teaching. If the actual needs of the science and engineering students in their future work are taken into consideration they need also to know, besides intellectual property law, some other laws and regulations, such as contract law, economic law, environmental protection law, energy resources law and business management.

4. Those colleges and universities that want to develop themselves should be geared to the needs of society and the economy. They should provide service for the social economy, train qualified persons with specific knowledge and provide applied technology for factories, mines and other enterprises. The universal intellectual property education for enterprises may use the "coming in and going out" method of teaching. This means that the leading cadres and engineers of enterprises may come into universities and study the intellectual property course for a short term, or the university teachers may go out of the universities and give lectures and short term training courses in factories and enterprises. The duration of the course may be short or long. The teaching method may be different according to the actual requirement of the factories and enterprises.

Training of the intellectual property workers:

The intellectual property system has been enforced in our country for only a few years. Now we urgently need a large number of people with professional skills in intellectual property. They should not only have knowledge of natural science but also have knowledge of social science. So we need to establish a special organization for training the professional workers. Considering the knowledge structure required by the intellectual property worker, we believe that those who have special knowledge of science and engineering may be qualified for the work after a short term training course in laws while at the same time doing some practice in the patent affair offices, the State Patent Office or in the court. The student can be selected from among university undergraduates and graduates. After 2-3 years of study, they will be offered a master's degree or double degree (double bachelor's or double master's). Thus, the urgent need of intellectual property workers will

be met. The curricula will contain foreign languages, and some basic laws and special laws, such as the basic theory of the science of law, constitutional law, civil law, criminal law, civil procedure law, criminal procedure law, economic law, contract law, patent law, copyright law, trademark law etc. Meanwhile, they will need to study international law, international civil law, international economic law and international trade law. Moreover, computer programme, semi-conductor chip, trade secret and biological engineering which belong to the protecting scope of the intellectual property should also be introduced properly. With the rapid development of science and technology, the protecting scope of intellectual property is expanding. Therefore, the students cannot grasp all the knowledge of every course in only 2-3 years. During the studying period, the students are required to build a necessary foundation and master the means and method of solving problems so as to enable the students to obtain new knowledge, and explore and blaze new trails by themselves. In the second year, the students can do some practice in the patent affair offices, the State Patent Office or in court so as to become patent agents, patent attorneys, examiners, administrative personnel of intellectual property, or teachers and researchers.

The work for training intellectual property workers can be undertaken by a few suitable universities, such as by universities of science and engineering, or by jointly organized universities of science and engineering and universities of liberal arts and law. However, there should not be too many universities involved in this work and each year there should not be too many students engaged in it.

THE TEACHING SYLLABUS OF THE INTELLECTUAL PROPERTY IN UNIVERSITIES OF SCIENCE AND ENGINEERING

Introduction

I. The Significance of Intellectual Property
II. The Content of Intellectual Property

Chapter One: Patent Law

I. Outline of the Patent System

1. The Theoretical Basis of the Patent System
2. The Evolution of the Patent System
3. The Social Function of the Patent System
4. The Essence and Characteristics of the Patent Law
5. The Characteristic of the Patent Law of P.R.C

II. The Main Substance of Patent Law

1. The Subject of Patent Law

a. Service Invention and Non-service Invention
b. Inventor (Creator) and Joint Inventor (Joint Creator)
c. Applicant and Joint Applicant
d. Patentee
e. The Assignment of The Right to Apply for a Patent and The Assignment of The Patent Right
f. The Right and Duty of Patentee

2. The Object of Patent Right

a. The Object (Extent) Protection of the Patent Right in Our Country
b. The Extent of Unprotected Patent Rights
c. The Duration of Patent Right Protection
d. The Cessation of Patent Right

3. Requirements for Grant of a Patent

a. Novelty
b. Inventiveness
c. Practical Applicability
d. First Filed, The Date of Filing, The Priority of Right of Date

III. Application for a Patent

1. The Preparation Before Application

a. Searching for Novelty
b. Investigation of Market and Economic Analysis
c. Determination of Protection Form

2. Preparation of Application Documents

a. Kinds of Application Documents Request:
Description, Drawings Claims, Abstract The power of Attorney,
Certificate of Non Service Invention
b. Submission of Application Documents

IV. Writing of Application Documents

1. Writing of Claims

a. The Form of Claims and the Writing Skill
b. Independent Claim and Dependent Claim

2. Writing of Description

a. Requirements of Description and the Writing Skill
b. Full Disclosure and Support of the Claims

3. Drawing and Writing of Abstract

V. Filing in Foreign Countries

1. The Preparation Before Application

a. Technology Analysis
b. Investigation of Market and Economic Analysis
c. Determination of The Country for Filing

2. Application Procedure

VI. Examination of Application for a Patent

1. Three Kinds of Examination System

a. Registration System
b. Examination System
c. Disclose Earlier and Examination Later

2. Patent Examination System of P.R.C

a. Invention
b. Utility Model and Design

3. Examination Procedure

VII. Licensing

1. Exploitation of the Patent
The Implication and Significance of Exploitation

2. The Form of Exploitation by Patent

a. Exploitation by Patentee
b. Licensing
c. Compulsory License
d. Planned License

3. Different Kinds of Licensing

a. Ordinary License
b. Sole-license
c. Exclusive-license
d. Sub-license
e. Cross-license

4. License Agreement

a. Main Articles of the Agreement
b. Price and Means of Payment
c. Typical License Agreement

VIII. Action for Infringement of a Patent

1. The Different Kinds of Infringement Dispute

2. Handling of the Infringement Dispute

3. Action for Infringement of a Patent

Chapter Two: Patent Documentation Searching

I. Concept and Kinds of Patent Documentation

II. Characteristics and Function of Patent Documentation

III. Classification of Patent Documentation

1. International Classification System
2. American Classification
3. British Classification
4. Derwent Classification

IV. The Searching Method of Derwent Classification

V. The Searching Method of Chinese Patent Documentation

VI. Computer Searching

Chapter Three: Trademark Law

I. Trademark and Trademark Law

1. Trademark Concept
2. Trademark Right and Its Characteristic

II. Trademark Law

1. Outline of Trademark Law
2. Evolution of Trademark Law Legal System in Our Country
3. Content of Trademark Law

Chapter Four: Copyright Law

I. Outline of Copyright Law

1. Copyright Law Concept
2. Function Objective and Evolution of Copyright Law
3. The Characteristics of Copyright Law

II. The Subject of Copyright

III. Content of Copyright

1. Economic Right

2. Mentally Right

IV. The Object of Copyright
Protectable Works and Unprotectable Works

V. Some Issues about Copyright Protection

1. Royalty on Books

2. Restriction on Copyright Protection: Legal Use and License System

3. The Duration of Protection of Copyright

VI. Situation of Copyright Law in Our Country

1. History of Copyright Law in Our Country

2. Essential Considerations of Copyright Law

3. Restrictions on Copyright Protection in Our Country
Legal Use and Compulsory License

4. The Duration of Protection, Succession, Transfer, License of Copyright

5. Infringement and Protection of Copyright