PATENTS AT COLLEGES AND UNIVERSITIES

Guidelines
for the Development
of Policies and Programs

COMMITTEE ON GOVERNMENTAL RELATIONS
N A C U B O

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INTRODUCTION

When the word "patents" (or any of many terms encountered in dealing with patents) is mentioned in the usual academic setting, there is often a tendency for the listener to withdraw, occasionally manifesting an attitude that there is something esoteric and arcane about the subject. It is true that the area of patent law and its practice is one of the most complex of legal specialties, generally requiring both a technical and legal background in addition to a proficiency in patent law. It is also true that a level of understanding about the topic of patents sufficient to handle patentable discoveries in the proper manner can readily be established at any institution, regardless of size, where there is the inclination. The possession of this understanding will allow the dissemination of important and valuable research findings, by publication or by patenting, or by both, in a manner that is likely to produce the greatest benefit for the institution, for the discoverer, and for the public.

Institutions that have established patent policies have done so for a variety of reasons, usually to achieve one or more of the following objectives:

II The Need for Such Capability

There has been a constantly increasing emphasis on applied research output. Since the early sixties there has been a growing demand that educational institutions be "more relevant to the society." When this change is related to discoveries in the scientific and technological areas the demand becomes the question, "How can your discoveries be used?" The federal government, by its funding policies, has reinforced the need for the educational community to look at the "relevancy" of its research. Research proposals directed at the investigation of topics that have implicit use in the solving of problems of immediate concern are now more likely to be funded than those aimed at generating information that is basic yet unusable at the moment. The technical discoveries from this "relevant" research are more often found to be patentable than discoveries from basic research. Thus, more frequently than in the past, if an institution accepts federal research support, it will find itself faced with decisions relating to patents and how they should be handled. The President's Patent Policy Statement of August 23, 1971, the liberalization of government patent waiver policies, and the more widespread use by agencies of institutional patent agreement programs all indicate that the educational community may be required to be more involved in patent determinations in the years ahead. It follows that the provisions of the institutional patent policy should be developed to recognize, in so far as is possible, any current federal requirements or guidelines on the subject. A sound policy can facilitate the release of title rights by the government and be the basis for implementing an institutional patent agreement with one or more federal agencies.

The purpose of these guidelines is to assist each institution to find, with respect to inventions and patents, the level of activities best suited to its needs. The guidelines hold out no hope that inventions as assets represent a readily available source of funds that can be applied to solve acute financial problems. They do try to convey the suggestion that each institution should without excessive expenditures place itself in such a position that in the happy circumstance that a commercially valuable discovery is made in its laboratories, it will have the capability to cause the discovery to be brought into public use.

III The Nature and Scope of Patents

A patent is a property right, granted by a sovereign nation, which gives the holder the right to control the manufacture, use and sale of an invention for a period of years. As property it may be sold or assigned, pledged, leased (licensed), willed or donated, and be the subject of contracts and agreements. The right to control may be accomplished by excluding others from these activities or by permitting the activities of others to take place under the terms of a license. The United States patent system is implicitly authorized by the Constitution in the provision that, "Congress shall have the power . . . to promote the progress of science and the useful arts by securing for limited times to authors and inventors the exclusive right to their respective writings and discoveries." Legislation implementing the Constitutional provision is found in Title 35 of the U. S. Code.

Each country has its own requirements on patenting, including standards of what is and what is not patentable, formalities for establishing a patent, the effective date and duration of the patent grant, requirements relating to the use of a patent, and annual taxes to maintain it in force. Under the United States standards of patentability, all patent applications are examined for novelty, utility and nonobviousness, and it is the applicant's responsibility to establish these elements to the satisfaction of the Patent Office before the patent is allowed to issue. The duration of all U. S. patents is 17 years from the date of issue and they are not renewable as are copyrights (see Appendix A: Patents and Copyrights—A Comparison of Major Differences). In contrast to the practice in most foreign countries, there is currently no annual tax levied by the United States Government to maintain a patent in force, nor are there any current requirements that the teachings of a patent be a commercial reality within a given period of time, under penalty of compulsory licensing or forfeiture.

ance in such matters. The basic purpose of such a policy is to define the rights and obligations of both the inventor and the institution in their relationship on patent matters. To the extent that policies on consulting deal with patents, it is advisable to take such policies into account when formulating a patent policy.

The following topics are commonly found in institutional patent policies:

1. Preamble
2. Applicability of the policy
3. Establishment of the inventor commitment
4. Rights of the parties
5. The income-sharing arrangement
6. Administrative arrangements

Some institutional patent policies are incorporated into patent manuals which, in addition to stating policy, attempt to provide a brief orientation on patent matters to the reader. Such publications can be helpful to neophyte inventors. However, these manuals should be prepared in such a manner that the institutional policy is clearly distinguishable from what is general instructional material on the subject of patents.

The Preamble. Although this section in a policy is optional, its inclusion is recommended. When included, it should relate the basic purposes of the institution, its obligations to the public, and the scholarly aims of its faculty with the institution's interest in patents and how patents serve these ends. The preamble should establish a sound foundation for what is to follow. Since patents are a very practical manifestation of the institution's research activities, the preamble should be kept short and to the point.

The Applicability of the Policy. This section will attempt to define the research situations, the sources of funds, all categories of individuals who may invent (i.e. faculty, staff, or student), the activities these persons are engaged in, and any combinations of these elements that would bring an inventor into the scope of, or else exempt him from, the provisions of the policy. Educational institutions do not usually lay claim to all inventive concepts generated by their employees or students, but rather they limit themselves to those which arise as a result of the employment relationship or the use by the researcher of institution resources, facilities or information.

The Establishment of the Inventor Commitment. Once an institution determines the criteria for applying the policy to individuals, it may require its personnel to assign inventions to it in one of several ways (listed in generally decreasing order of enforceability):

(a) By a formal inventor agreement—a legally enforceable contractual commitment by an individual to dispose of inventions as determined by the institution. It becomes a standard form agreement for the institution, should be drafted by an attorney to ensure its enforceability, and is best executed by the individual when he assumes his employment.

(b) By a state statute which stipulates that inventions made in state institutions or by state employees be disposed of in a predetermined manner.

(c) By an individual giving his written assent to the stated patent policies of the institution, which policies pronounce an obligation by the individual with respect to inventions.

(d) By a stated patent policy containing a patent commitment which is established by the governing board, and brought to the attention of individuals, but to which such persons are not required to give their personal formal assent.

(e) By the presence of a policy allowing the individual to dispose of inventions as determined by the institution or retain title for himself, at his option.

To allow an institution conducting sponsored research to fulfill its contractual obligations, it is important and necessary to have in hand for every person engaged in such research a valid binding commitment to assign inventions.

The Rights of the Parties. The policy should specify what rights the institution, the inventor and outside sponsors have in the invention. The *institution* will usually receive a valid and binding assignment of title to the patent application together with a commitment by the inventor to cooperate in executing legal documents, reviewing patent prosecution papers, and in

The development and marketing of inventions is likely to be done in one of three ways. It may be done *in-house* with the institution controlling and performing the invention evaluation that precedes the decision to patent, the filing of patent applications, the demonstration of the invention's feasibility and the licensing (not necessarily occurring in this order). This first option is initially more costly, because it requires an early outlay for patent application costs and the overhead costs of patent administrative services. However, if sizable royalties are earned this approach is more likely to be the most advantageous overall.

The second option, patent management by an *institution-affiliated foundation* can have the advantages of better availability of funds to carry on the development of inventions (which is a speculative activity) and of greater freedom to employ commercial methods to develop and promote the use of the invention. Assuming equal capabilities to develop inventions the presence of a foundation in the picture may result in smaller income for the institution because of the foundation's expecting to share income. Both the in-house management and the institution-affiliated foundation management of patents allow the inventor to work closely with the unit that is promoting the invention. His ready assistance, and the background he brings with him, are often crucial to getting the invention covered by a patent and "off the ground" as a commercial success.

Patent development and marketing by one of a number of *patent management organizations* has some distinct advantages. This third alternative allows an institution to be active in patents with a minimum financial outlay, and it allows a large amount of legal, marketing and patent management expertise to be tapped at no immediate cost to the institution. The chief disadvantage in this arrangement is, of course, that a substantial portion of any royalties earned are shared with the patent management group as compensation for services. Also, because of the large number of inventions handled by organizations of this type and the geographical limitations involved, a question arises as to whether the valuable personal input of the inventor in development and marketing efforts may be diminished under this arrangement.

These three routes of invention development are not necessarily mutually exclusive for an entire patent program. Many institutions utilize more than one, depending upon the type of invention reported and the location of the various capabilities needed to develop it.

The availability of a patent attorney who is on call to answer questions, interpret the law, prepare, file and prosecute patent applications as the need arises and serve as a representative during patent-related negotiations is practically a must for any institution that will be involved with patents. Because of the diversity of complex patent subject matter that is generated in colleges and universities, it is desirable that this person be affiliated with a firm that contains individuals with a wide variety of technical backgrounds. The headquarters or the local chapters of the American Patent Law Association can be of assistance in making a good selection.

VII Transfer of Technology Outside of the Patenting Process

It is not uncommon for educational institutions to provide considerable public utilization of their scientific findings without the benefit of patents. The most obvious way this is accomplished is by the publication in appropriate journals of small bits of information which in themselves are not patentable but which in the aggregate are important contributions to the advancement of numerous technologies. More complete concepts are often produced, which may or may not be patentable and/or about which the institution is unsure of the commercial prospects. The institution has a responsibility to the public, to itself and to the individual developer, to move these discoveries into public use. Some lend themselves to nonexclusive release such as by publication, while others demand limited term exclusive arrangements to bring forth the incentive of commercial organizations to commit their resources.

Where some exclusivity to unpatented technology is necessary, disclosure agreements may be employed by the institution and the recipient organization to define the terms and conditions under which the information is released and under which the recipient

institution's patent policy. If this information is known in advance, the faculty member will be able to determine the institution's position with regard to the submission of proposals that are likely to produce patent policy conflicts. When there is a conflict it may occasionally be possible to negotiate the differences thereby assuring the availability of research funds. If the faculty is made fully aware of the situation, the chances are improved that they will support the administration's efforts to negotiate acceptable arrangements. When the funding agency has an institutionally acceptable patent policy, there is usually no problem in accepting funding because the usual terms and conditions of the granting document will have been approved in advance. However, changes continually seem to be taking place in government regulations, contracts, and granting documents, and knowledgeable people in the office of research administration should therefore monitor the incoming grants and contracts to ensure that no changes have been made in the patent (as well as other) requirements. If changes have come about, the office responsible for patent matters should be alerted to interpret the changes with regard to the institution's own policy, and if necessary, assist research administration in preparing the necessary arguments to the funding agency to effect a modification of the terms of the contract.

Federal grants and contracts usually contain a provision on invention reporting. These requirements stipulate that the contractor make periodic reports of inventions made by researchers, including the timely submission of invention disclosures and a final report at the termination of the contract. Where it is determined that an invention has occurred as a result of or during the course of sponsored research, it is the duty of the office responsible for patents to obtain a complete and properly prepared disclosure from the investigator and to ensure that it is properly filed with the contracting officer in order that the grant or contract can be closed without undue delay.

X Patent Licensing

A license is the legal right to use the patented invention of another. It may be established by contract or implied from the conduct or legal position of the parties. This discussion is concerned only with those established by contract. Licensing is the primary method by which a patented invention developed in an educational institution is put into public use. References in the bibliography contain considerable information on the licensing of patents. However, some important points to remember are as follows:

1. The degree of the licensee's motivation to employ the invention in a commercially successful way and the licensee's capabilities for development, manufacture and marketing are of prime importance.
2. A license agreement must be a valid and legally enforceable document which precisely defines the rights being transferred and the obligations assumed.
3. To protect the public interest, exclusive licenses should generally be for a limited term. They should be of sufficient duration to enable a licensee to recoup unusual development and market penetration costs plus a sufficient additional return to bring forth his risk capital.
4. Royalty rates can be assessed on a variety of bases and can vary over wide limits. In general, they are reasonably consistent for the same class of products.
5. Exclusive licenses should provide for cancellation in the event the licensee does not make adequate progress in development and marketing.
6. Licenses should provide that the licensee cannot use the name of the inventor or of the institution for sales or promotional purposes without prior approval.
7. In some cases an outright assignment of a patent for a consideration, lump sum or deferred, will be an attractive alternative to licensing.

PATENTS AND COPYRIGHTS—A COMPARISON OF MAJOR DIFFERENCES

	Patents	Copyrights
Coverage	processes, machines, products of manufacturing, compositions of matter, plants, and improvements on the above, and designs	books, periodicals, lectures dramatic or dramatico-musical compositions, musical compositions, maps, works of art, drawings or plastic works of a scientific or technical character, computer programs, photographs, pictorial illustrations, labels, motion pictures and video tapes, audio recording
Essential criteria	Must be novel, have utility and be nonobvious.	Need not be novel, only the original product of the creator.
When statutory rights established	When patent is granted by the Patent Office (usually about three years after application date).	When the work is published containing the proper copyright notice (Registration of the right follows).
How statutory rights established	By filing a formal disclosure of the invention (with allowable appended claims) in the Patent Office together with the prescribed fee.	By depositing a copy or copies of the work in the Copyright Office together with the prescribed fee.
Examination	Examined for the essential criteria (see above).	No examination (other than meeting registration formalities).
Outside professional service required	Filing and prosecution requires services of a registered patent attorney.	None-Registration may be done by author.
Cost	Generally in the $1,000 to $2,000 range.	$6 plus the cost of the deposit copies.
Term and renewability	17 years, not renewable.	28 years, renewable for an additional 28 years.
Marking	Failure to place patent number on patented article does not invalidate the patent.	Failure to employ copyright notice on the original publication puts the work in the public domain.
Who may apply	Except in unusual circumstances, the inventor's signature must appear on the patent application.	Either the author or his assignee may copyright the work.

describing the prior art is known to exist, it should be cited (or supplied, if available).

E. *Summary of the Invention.* In this section describe in detail:
   1. How the invention is designed, and where alternative designs are available, describe these and select the preferred embodiment. To clarify, attach and refer to descriptive drawings, flow sheets, circuit diagrams, etc.
   2. Where conditions such as time, temperature, pressure, etc. are relevant to the invention, ranges of operating conditions should be recited. Preferably these should be in terms of broad ranges of conditions and narrower optimum or preferred ranges. Where materials may be varied, sufficient specific materials should be enumerated to illustrate the range of usable materials. A sufficient number of specific working examples should be set forth to illustrate the variations in conditions and materials.
   3. How the invention operates to produce a result or results not achieved in the prior art.
   4. What new concept has been invented; describe succinctly.
   5. All advantages such as efficiencies, cost benefits, etc. produced by these new results.

F. Indicate briefly and in general terms the utility of the invention, particularly for chemical cases. Where the utility is evident from the earlier sections, this section may be omitted.

G. List (and append, if possible) all publications in which the invention has been described or occasions on which it was described orally to others; for example, at symposiums.

H. Provide all budget numbers which were used to defray any research costs that are invention-related.

I. *Signatures, Witnesses, and Dating.* Each inventor should sign the disclosure before a witness who understands the invention. The witness will also sign. Each set of signatures (inventor and his witness) should be dated.