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PATENTS: ECONOMIC POTENTIAL FOR PREDOMINANTLY BLACK ACADEMIC INSTITUTIONS

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I. INTRODUCTION

This paper is directed toward increasing the awareness of the leaders, teachers, and students of predominantly Black colleges and universities of the economic benefits to be derived from the United States Patent System. It is hoped that this increased awareness will stimulate these institutions to become active participants and beneficiaries of the Patent System.

The last part of this paper consists of specific recommendations which may be viewed as guidelines for getting affirmative Patent Programs off the ground. Since the patent field is both difficult and complicated, requiring considerable expertise, these recommendations are necessarily general. Help in developing specific patent policies or any other phase of participating in and deriving benefits from the U.S. Patent System can be had from organizations such as the National Patent Law Association. The latter organization, consisting of the majority of the Black patent attorneys in this country, was set up specifically to supply technical aid, legal and scientific, in the field of patents, trademarks and copyrights, to the National Black Community.

II. THE U.S. PATENT SYSTEM

The U.S. Patent System is founded upon Article I, Section 8 of the United States Constitution which states ". . . the Congress shall have Power . . . to promote the progress of Science and useful Arts by securing for limited Times to Authors and Inventors the exclusive Right to their respective Writing and Discoveries. . . ." By this provision the nation's founders intended to promote the intellectual and economic progress of the nation by granting to inventors and authors certain exclusive rights over their works for a legally specified period of time.

In the case of inventors, the constitutional provision has been implemented by Congress through several acts, the latest of which is generally referred to as the Patent Act of 1952. This act grants to an inventor

the right to exclude others from making, using or selling his invention for a period of 17 years. In return for this 17 years monopoly, the inventor is required to fully disclose his invention to the public. This is known as the patent grant.

In so disclosing his invention to the public, the inventor thereby lays the groundwork for a chain reaction of inventive ideas. Innovations in a dozen fields may spring up. As a result of the protection afforded by the patent grant, the inventor or his company can afford to invest time, labor, equipment and money in developmental projects because he knows that during this period no one else is free to copy his brainchild without incurring a liability for infringement of the patent.

It should be noted that the Patent System, however, cannot guarantee profits, for it cannot guarantee the commercial success of a patented product or process, but it does foster a fair play environment in which the use and sale of the patented idea is stimulated. Furthermore, the Patent System increases our store of technical knowledge by stimulating the disclosure of information from which other innovations may be derived.

III. The Patent System and the Business Community

The patent grant has indeed been a spur to American progress. It lies at the very heart of the economic progress of the Nation. The protection afforded by a patent encouraged private enterprise to invest in a new research and product development. It is on this kind of investment foundation that all industries are built. Charles F. Kettering, one of the country's leading industrialists and a distinguished inventor, illustrated this point when he said; "Industry has been very largely built on inventions. Almost all industries, whether they are manufacturing a patentable article or not, have probably gotten their start by the use of either a patentable article or process for producing an article, or an improvement upon a patented process." Virtually, the entire industrial machine of the U.S. has been built upon the stimulus that the U.S. Patent System has given to the creation of an intellectual property.

IV. Public Benefit

Tens of millions of American workers can trace their jobs directly to inventions. Almost no jobs can be found that are not due in some measure to patented inventions put to use in industry.

The incomes resulting from these many jobs are combined to form

mass markets. Mass markets make possible mass production. Mass production results in lower prices, and these lower prices in turn, invite mass consumption with a continually rising standard of living.

Whole new industries have sprung up with spectacular suddenness on the basis of patents. The discoveries of Chester Carlson formed the basis for Xerox's fantastic growth. Likewise, Dr. Edwin H. Lamb's invention of synthetic polarizers and the Polaroid camera have formed the basis for a whole new field of photography.

In sum, almost the entire history of our scientific and technological society can be written from the files of the U.S. Patent Office.

V. The Patent System and the Academic Community

Much of the nation's basic research is performed by academic institutions. This basic research is performed by graduate students, by faculty members in connection with their professional pursuits, and in some cases by other university or college employees hired specifically to do research.

Research in an academic setting is usually sponsored or unsponsored. Sponsored research is usually carried out with more or less definite lines of inquiry in mind. The inquiry is sometimes dictated, at least in part, by the sponsor. In other cases, the academic institution sets the goals entirely in line with its other research projects. Unsponsored research is that financed by the general funds of the academic institution.

The extent of research activities at academic institutions can be expected to increase in the coming years. With the emphasis on increasing the quality of life, on rejuvenating the world ecology, increased military spending and so on, financial support of basic research can be expected to increase. We can also expect the fallout from this research in terms of industrial and commercial applications will inrease. Moreover, we can expect to see an increasing dependence of industrial and economic development upon the research activities of academic institutions and other non-profit research organizations, particularly in the scientific fields.

Heretofore patents have usually been fortuitous by-products of the research performed in academic institutions. Research was conducted with a view toward expanding knowledge, encouraging and stimulating the spirit of inquiry, and contributing toward the training of scientific and technological personnel. The attitude taken by many academic

research scientists was that publication of their results in scientific journals and the dedication of their findings to the public was sufficient. Many scientists felt that to patent the results of their work was unethical and that the pursuit of patents was a debasement of the academic community.

However, these attitudes have been undergoing change. This change is evidenced by the fact that many academic institutions have affirmative patent policies of one kind or another. These schools include large institutions such as the University of California, the University of Chicago, Massachusetts Institute of Technology, Howard University and smaller institutions such as Fisk University and Mankato State College (Minnesota).

On the financial side of the ledger these institutions have recognized that, in the face of rising education costs, patents present a possibility of maintaining the economic viability of their institutions. The recent economic crisis which has caused the cost of education and the operation of educational institutions to increase has also reduced the funds available for research to an alarming extent. Scientists are, therefore, warranted in legitimately obtaining funds from the result of their own work whenever they can do so by patents. In this way they will be able to finance their own work, extend their research activities and at the same time make contributions to education, to science, and to industry.

These institutions have also recognized that the simple publication of research results does not benefit the public. Indeed, it has been found that discoveries or inventions that are merely published, and are thus made available to everybody equally, are seldom adopted, despite the possibilities of commercial application. Many observers feel that the publication of an invention freely will almost surely cause its death from lack of interest in its development. It will not be developed and the world will not be benefited.

Patented, and if valuable, the invention will be taken up and developed into a business. It is only the patent right that justifies the expenditures of funds in developing the patent idea. Without the protection afforded by the patent rights such developments would never happen because developmental sponsors would be reluctant to spend funds without the monopoly protection of a patent. Otherwise, once development is completed, others would take up the idea without risking development cost.

Of course, financial rewards should not be the only objective in obtaining patents. Further importance resides in an academic institution's

ability to protect the public against exploitation of the patented idea by the irresponsibility of selfish persons, the regulation and control of the purity and the reliability of the manufactured product, facility in licensing responsible concerns which can effectively commercialize the invention and invest sufficient capital to manufacture products of appropriate quality without fear of unfair competition and piracy, and the introduction of the invention to the public through proper channels and under proper controls and the provision through patent protection for unhampered further development in the public interest.

VI. Recommendations

In view of the fact that many other academic institutions have patent policies, it must be assumed at least to some extent that "where there is smoke there is fire."

Predominantly Black academic institutions would be well advised to give some thought to developing affirmative patent policies with a view toward deriving from their research activities valuable patent rights, the income from which could be used to shore up the financial undergirdings of their institutions. Furthermore, in this period where the younger members of our community are requiring all social institutions to be more responsive to the community, Black colleges and universities could be performing a real service to the community by controlling, to the extent permissible by law, the application to which its research work is put.

In terms of financial reward, it can be easily seen that if George Washington Carver had patented his "peanut" inventions and thereafter turned over his patent rights to Tuskegee Institute, the latter's endowment would be much larger than it is today. Other examples of academic institutions benefiting from its patent research is Gatorade at the University of Florida (although tied up in the courts) and the electrolytic method for liberating aluminum from aluminum oxide discovered by Charles Hall at Oberlin University. More recent examples include professor-inventors at Carnegie-Mellon University, Washington University and Brooklyn Polytechnic Institute who are receiving income from patented inventions which resulted from research performed in connection with their professional responsibilities. Case Western Reserve University is currently receiving a share of license fees for patented inventions in the polymer field. These are just a few examples of academic institutions benefiting from the U.S. Patent System.

Some research work is carried out at most Black colleges and uni-

versities. We can safely assume that some of the results of this research work in chemistry, physics, biology, computer sciences, agriculture, animal husbandry, etc. is original and has potential commercial application.

Conversations with members of the scientific faculty at some institutions in Atlanta have convinced me that this assumption is true. Further evidence in support of this assumption resides in the fact that Howard and Fisk both have patent policies. Indeed, in a very recent conversation with a young professor of physical chemistry, a novel device invented by him was described which appears to have wide application in low temperature research. This device was simply sent to a specialty manufacturing company without any thought of protecting it. If the device has wide application, it might be appropriated by said manufacturing company without proper recognition of the inventor.

In speaking to scientists at my own alma mater, I have determined much of their research work is simply published with no thought given as to whether or not such research work could form the basis for valuable patent rights. Part of the problem here is a lack of awareness on the part of research workers, including students and faculty, of patent possibilities. Recognizing the fact that such workers are usually steeped in academic traditions and are not aware of the commercial potential which their work has, their research results should be evaluated by someone who has that awareness.

I, therefore, strongly recommend that each Black academic institution form a committee on patent policy. The job of this committee would be to acquaint itself in detail with (1) the evaluation of research results relative to social and financial implications, (2) the techniques for obtaining patents, (3) arranging for their development at minimum expense to the academic institutions involved, (4) consideration of the legal arrangements to be made between faculty members, students and other employees on the one hand and the academic institution on the other with respect to patent rights which result from sponsored and unsponsored research, (5) the best kind of arrangement to make with sponsors of research so that the academic institution can derive maximum benefits from sponsored research and (6) ways and means of licensing and selling valuable patent rights.

Now it must be understood that patent procurement and management is expensive. This is true of all undertakings that require specialized professional services. The scope of research activity at any one Black college or university may be such that cost is prohibited. Cost, along with the

uncertain commercial applicability of all research results, may cause other schools to decline to institute patent programs.

One way of ameliorating the cost factor is to form an invention clearing house which could operate on a national or regional basis. In view of the cost, operation on a national basis would be preferable. However, the need for agreement between all interested institutions might outweigh the advantages to be derived from a national foundation. The clearing house would take the organizational form of a non-profit foundation. Such a foundation could operate as an adjunct to one of the already existing inter-collegiate organizations (such as the United Negro College Fund) to which many Black colleges and universities belong. The foundation could also be formed independently of such existing organizations.

Regardless of how the foundation is formed, the main thing would be an agreement between the participating institutions. As contemplated herein, each participating institution would share the cost of operating and the income of the foundation pursuant to a negotiated agreement. Hopefully, after a few years, the entire cost of operation could be met by foundation income. Each participating institution would turn its research results over to the foundation on a confidential basis. The foundation through consultation with experts in the patent field, would evaluate the research results for (1) potential commercial applicability, (2) patentability (3) know-how value and (4) licensing potential. When the foundation decided that particular results had real commercial potential, patenting, licensing and/or sale of the research results could be arranged through its agency. In this way, the results in various institutions would be made readily available on a reasonable and fair basis to all who might be interested.

As the foundation gained experience and know-how, additional responsibilities could include independent research, development of academic research results to demonstrate commercial value and contracting for sponsored (government, industry etc.) research and development work.

Moreover, the foundation could serve as an important vehicle for expanding Black owned businesses. In order for such businesses to expand they need to acquire proprietary type products and know-how. However, these businesses lack capital and are therefore not in a position to do the necessary research and development to acquire proprietary products and know-how. The research results of Black colleges and universities could, through the activities of the foundation, serve as the fountain head through