FACULTY PRIMER ON INTELLECTUAL PROPERTY

Revised: October 2011

What is a patent?

In the U.S., a patent gives the holder the right to exclude others from making, using, selling, offering to sell, and importing the patented invention. A patent does not necessarily provide the holder any affirmative right to practice a technology since it may fall under a broader patent owned by others. Instead, it provides the right to exclude others from practicing the invention. Patent claims are the legal definition of an inventor's protectable invention.

What type of subject matter can be patented?

Patentable subject matter includes processes, machines, compositions of matter, articles, some computer programs, and methods (including methods of making compositions, methods of making articles, and even methods of performing business).

Can someone patent a naturally occurring substance?

Generally, no. A natural substance that has never before been isolated or known may be patentable in some instances, but only in its isolated form (since the isolated form had never been known before). A variation of a naturally occurring substance may be patentable if an inventor is able to demonstrate substantial non-obvious modifications that offer advantages of using the variant.

What is the United States Patent and Trademark Office (PTO)?

The PTO is the federal agency, organized under the Department of Commerce, that administers patents on behalf of the government. The PTO employs patent examiners skilled in all technical fields in order to appraise patent applications. The PTO also issues federal trademark registrations.

What is the definition of an inventor on a patent and who determines this?

Under U.S. law, an inventor is a person who takes part in the conception of the ideas in the patent claims of a patent application. Thus, inventorship of a patent application may change as the patent claims are changed during prosecution of the application. An employer or person who only furnishes money to build or practice an invention is not an inventor. Inventorship is a legal issue and may require an intricate legal determination by the patent attorney prosecuting the application.

Who is responsible for patenting?

Arizona Technology Enterprises (AzTE) contracts with outside patent counsel for IP protection, thus assuring access to patent specialists in diverse technology areas. Inventors work with the patent counsel in drafting the patent applications and responses to worldwide patent offices. AzTE licensing specialists and in-house attorneys will help with the selection and oversight of the outside patent counsel.

Note: The material in this primer is adapted from the University of Michigan's "Inventor's Guide to Technology Transfer," with adjustments for Arizona State University and Arizona Technology Enterprises. We are grateful to the staff of UM Office of Technology Transfer for their kind permission to use their material and to the University of Michigan for permission to use its copyright.

What is the patenting process?

Patent applications are generally drafted by a patent attorney or a patent agent (a non-attorney with a science education licensed to practice by the PTO). The patent attorney generally will ask you to review an application before it is filed and will also ask you questions about inventorship of the application claims. At the time an application is filed, the patent attorney will ask the inventor(s) to sign an Inventor's Declaration and an Assignment, which evidences the inventor's duty to assign the patent to the University.

In about one year or longer, depending on the technology, the patent attorney will receive written notice from the PTO as to whether the application and its claims have been accepted in the form as filed. More often than not, the PTO rejects the application because either certain formalities need to be cleared up, or the claims are not patentable over the "prior art" (anything that workers in the field have made or publicly disclosed in the past). The letter sent by the PTO is referred to as an Office Action or Official Action.

If the application is rejected, the patent attorney must file a written response, usually within three to six months. Generally the attorney may amend the claims and/or point out why the PTO's position is incorrect. This procedure is referred to as patent prosecution. Often it will take two PTO Official Actions and two responses by the patent attorney—and sometimes more—before the application is resolved. The resolution can take the form of a PTO notice that the application is allowable; in other words, the PTO agrees to issue a patent. During this process, input from the inventor(s) is often needed to confirm the patent attorney's understanding of the technical aspects of the invention and/or the prior art cited against the application. The PTO holds patent applications confidential until published by the PTO, 18 months after initial filing.

Is there such a thing as a provisional patent?
No. However, there is a provisional patent application, which is described below.

What is the difference between a provisional patent application and a regular (or "utility") patent application?
In certain circumstances, U.S. provisional patent applications can provide a tool for preserving patent rights while temporarily reducing costs. This occurs because the application is not examined during the year in which it is pending and claims are not required. A regular U.S. application and related foreign applications must be filed within one year of the provisional form in order to receive its early filing date. However, an applicant only receives the benefit of the earlier filing date for material that is adequately described and enabled in the provisional application. As a result, the patent attorney may need your assistance when an application is filed as a provisional.

What's different about foreign patent protection?
Foreign patent protection is subject to the laws of each individual country, although in a general sense the process works much the same as it does in the United States. In foreign countries, however, an inventor will lose any patent rights if he or she publicly discloses the invention prior to filing the patent application. In contrast, the United States has a one-year grace period.

Is there such a thing as an international patent?
Although an international patent does not exist, an international agreement known as the Patent Cooperation Treaty (PCT) provides a streamlined filing procedure for most industrialized nations. For U.S. applicants, a PCT application is generally filed one year after the corresponding U.S. application (either provisional or regular) has been submitted. The PCT application must later be filed in the national patent office of any country in which the applicant wishes to seek patent protection, generally within 30 months of the earliest claimed filing date.

The PCT provides two advantages.
First, it delays the need to file costly foreign applications until the 30-month date, often after an applicant has the opportunity to further develop, evaluate and/or market the invention for licensing. Second, the international preliminary examination often allows an applicant to simplify the patent prosecution process by having a single

examiner speak to the patentability of the claims, which can save significant costs in prosecuting foreign patent applications.

An important international treaty called the Paris Convention permits a patent application filed in a second country (or a PCT application) to claim the benefit of the filing date of an application filed in a first country. However, pursuant to this treaty, these so-called "convention applications" must be filed in foreign countries (or as a PCT) within one year of the first filing date of the U.S. application.

What is the timeline of the patenting process and resulting protection?
Currently, the average U.S. utility patent application is pending for about two years, though inventors in the biotech and computer fields should plan on a longer waiting period. Once a patent is issued, it is enforceable for 20 years from the initial filing of the application that resulted in the patent, assuming that PTO-mandated maintenance fees are paid.

Why does AzTE protect some intellectual property through patenting?
Patent protection is often a requirement of a potential commercialization partner (licensee) because it can protect the commercial partner's often sizable investment required to bring the technology to market. Due to their expense and the length of time required to obtain a patent, patent applications are not possible for all Arizona State University intellectual property. We carefully review the commercial potential for an invention before investing in the patent process. However, because the need for commencing a patent filing usually precedes finding a licensee, we look for creative and cost-effective ways to seek early protections for as many promising inventions as possible.

Who decides what gets protected?
AzTE and the inventor(s) consider relevant factors in making recommendations about filing patent applications. Based on a recommendation from the licensing specialist, AzTE ultimately makes the final decision as to whether to file a patent application or seek another form of protection.

What does it cost to file for and obtain a patent?
Filing a regular U.S. patent application may cost between $10,000 and $20,000. To obtain an issued patent may require an additional $10,000 to $15,000 for patent prosecution. Filing and obtaining issued patents in other countries may cost $20,000 or more per country. Also, once a patent is issued in the U.S or in foreign countries, certain maintenance fees are required to keep the patent alive.

What if I created the invention with someone from another institution or company?
If you created the invention under a sponsored research or consulting agreement with a company, an AzTE licensing specialist will need to review that contract to determine ownership and other rights associated with the contract and to determine the appropriate next steps. Should the technology be jointly owned with another academic institution, AzTE will usually enter into an "inter-institutional" agreement that provides for one of the institutions to take the lead in protecting and licensing the invention, sharing of expenses associated with the patenting process and allocating any licensing revenues. If the technology is jointly owned with another company, the licensing specialist will work with the company to determine the appropriate patenting and licensing strategy.

Will the University initiate or continue patenting activity without an identified licensee?
Often the University accepts the risk of filing a patent application before a licensee has been identified. After University rights have been licensed to a licensee, the licensee generally pays the patenting expenses. At times we must decline further patent prosecution after a reasonable period (often a year or two) of attempting to identify a licensee (or if it is determined that we cannot obtain reasonable claims from the PTO).

What is a copyright and how is it useful?
Copyright is a form of protection provided by the laws of the United States to the authors of "original works of authorship." This includes literary, dramatic, musical, artistic, and certain other intellectual works as well as computer software. This protection is available to both published and unpublished works. The Copyright Act generally gives the owner of copyright the exclusive right to conduct and authorize various acts, including reproduction, public performance and making derivative works. Copyright protection is automatically secured when a work is fixed into a tangible medium such as a book, software code, video, etc. In some instances, the University registers copyrights, but generally not until a commercial product is ready for manufacture.

What is a derivative work?
A "derivative work" is a work based upon one or more preexisting works, such as a translation, musical arrangement, dramatization, fictionalization, motion picture version, sound recording, art reproduction, abridgment, condensation, or any other form in which a work may be recast, transformed or adapted. A work consisting of editorial revisions, annotations, elaborations, or other modifications, which, as a whole, represent an original work of authorship, is a "derivative work." The owner of a copyright generally has the exclusive right to create derivative works.

How do I represent a proper University copyright notice?
Although copyrightable works do not require a copyright notice, we recommend that you use one. For works owned by the University, use the following template: Copyright © [Year of first publication] Arizona Board of Regents (e.g., Copyright © 2010 Arizona Board of Regents).

What is a trademark or service mark and how is it useful?
A trademark includes any word, name, symbol, device, or combination, that is used in commerce to identify and distinguish the goods of one manufacturer or seller from those manufactured or sold by others, and also to indicate the source of the goods. In short, a trademark is a brand name. A service mark is any word, name, symbol, device, or combination that is used, or intended to be used, in commerce to identify and distinguish the services of one provider from those of others, and to indicate the source of the services.

What is trademark registration?
Trademark registration is a procedure in which the United States Patent and Trademark Office (PTO) provides a determination of rights based upon legitimate use of the mark. However, it is not necessary to register a trademark or service mark to prevent others from infringing upon the trademark. Trademarks generally become protected as soon as they are adopted by an organization and used in commerce, even before registration. With a federal trademark registration, the registrant is presumed to be entitled to use the trademark throughout the United States for the goods or services for which the trademark is registered.

If I have an interest in a private company that is based on intellectual property owned by ASU that I developed as an ASU employee, may I share in the licensing income received by ASU?
If an ASU employee owns a substantial interest in a private company that licenses intellectual property from ASU and that intellectual property was developed by that ASU employee, then that ASU employee may not share in the "inventor share" of any equity received by the university as consideration unless otherwise agreed to in writing prior to the licensing agreement. "Substantial Interest" shall have the meaning ascribed to it in Arizona Revised Statutes § 38-502.

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