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PVD Processes: Patents & Copyrights

Patents and copyrights are part of a broad class of information called "intellectual property." In the U.S., a utility patent is a document that conveys ownership of a process, a method of producing an item (*e.g.*, machine), the design of a constructed item or the composition of a man-made material. The subject of the patent is called an invention. The patent is granted by the government for a prescribed period of time (20 years after the patent application is filed) and protects the inventor from others in the U.S. from using the invention without permission. The patent may be sold, assigned to some other entity, or permission may otherwise be granted for its use (*e.g.*, an exclusive or nonexclusive license for its use to a producer with the inventor collecting royalties on sales). After 20 years, the patent becomes part of the public domain, and anyone can make use of the subject of the patent.

Patent Infringements

Improper use of an invention can cost a lot of money. The delayed periodic windshield wiper action, for example, was patented by an individual who made no attempt to market the idea. Automobile companies used the idea without permission and subsequently had to pay many millions of dollars to the inventor. Surveying the patent literature to avoid patent litigation should be one of the first considerations in moving a process or product from R&D into production and sales. It is not obligatory for the inventor to use (reduce-to-practice) the subject of the patent. The inventor of Velcro™ tape, for example, never made any money off the patent because he was

unable to find someone who could produce it. When the patent term ran out, others made money off the idea. The patent position for any new process, product or idea should be established by filing for a patent by completing a patent application. Another alternative is to keep the subject proprietary. If someone else uses the idea, however, you may have to go to court to establish prior claim and receive compensation for its use—or even to keep using the idea yourself.

What Can Be Patented?

The subject of the patent must not have been patented by someone else, known by others in the field, or published in the open literature (thereby putting it in the public domain). Prior use or knowledge is called "prior art" in the patent world. The subject must not be obvious from previous developments in the field, be a law of nature, a scientific principle, a mathematical relationship or a naturally occurring composition. It is not necessary that the subject be reduced to practice by the inventor—an idea will do, except possibly in the case of a perpetual motion machine where the patent examiner might want a working model. It is possible to patent a new and novel use for a previously patented invention, provided it is not covered in the "disclosure" and "claims" of the previous patent.

U.S. Patent Procedures

To obtain a patent, one must submit a patent application to the U.S. Patent and Trade Office (USPTO). The application must disclose all relevant information necessary for someone to

understand and duplicate the work, although in many patents, this is questionable. The patent application is written in a specialized format that includes an abstract; a section of prior art related to the invention, if any; a summary; and a detailed description of the invention. The application concludes with a set of "claims" that define the possible variations and applications of the invention. The claims are a very important part of the application.

A patent addresses two aspects. One aspect is the disclosure of the concept of the patent, such as the concept of a rocket engine. The other aspect refers to the claims that describe how such an engine could be made and how it could be used. A patent that both discloses and claims too narrowly leaves the way open for others to patent similar ideas. A patent that discloses broadly but claims too narrowly may prevent others from patenting the unclaimed portion, but also may prevent the inventor from subsequently broadening the claims of the patent to cover new areas. A patent application that discloses too broadly and/or claims too broadly will be rejected by the USPTO. It is important, therefore, to carefully review pertinent literature and craft the patent application to have as broad disclosures and claims as possible without having the patent examiners find too much vagueness and prior art, resulting in rejection of the application. Completing a patent application is often best done by a professional, such as a patent attorney, in cooperation with the inventor. At the USPTO, the application is reviewed by a patent examiner and usually sent back for revision—

sometimes several times. After an application has been submitted, the inventor may publish the work, often with a notation: "Patent Applied For."

In cases where the inventor wants to establish priority, a provisional patent application can be filed with the USPTO for a nominal fee, and without the review of the usual patent application. This provisional application automatically expires after one year, but it gives the inventor more time to develop the disclosures and claims for a standard application while having an early filing date. In the U.S., the contents and existence of patent applications are kept confidential until the patent has been granted, which usually takes less than two years, but can take much longer.

Foreign Patents

After submitting a patent application to the USPTO, it may be desirable to file applications in foreign countries. This should be done within one year, or important rights may be lost. The patent laws of other countries are often different from those in the U.S. and a professional may be needed to file the application correctly. In particular, the translation of the wording of the patent must be done accurately. If the inventor is not granted a patent in a foreign country, persons in that country can use the idea. Sale of the resulting product in the U.S., however, is prohibited.

U.S. Patent & Copyright Laws

An important aspect of U.S. patent laws is the "first-to-conceive" priority. This means that if two inventors submit applications for the same invention, the one that can demonstrate that he conceived the idea first will receive the patent, even though the other inventor may have reduced the idea to practice before the first inventor. This makes it very important that potentially patentable ideas be documented in a way that can be used to support the first-to-conceive principle. In industry, this is best done by maintaining a bound (not loose-leaf) laboratory notebook in which day-to-day activities and ideas are entered and dated. When an idea is obviously of interest from a patent standpoint, the entry should be read by another person and a dated notation of "read and understood" should be made, along with the

person's signature. These notebooks should be archived in case they are needed for future litigation. In some cases, duplicate notebooks are kept—one in the laboratory and one in a fireproof safe, with the one in the safe being continually updated.

A copyright is the granting of exclusive use to a person (author of the original work) to make copies of an original work that is in the form of a "tangible means of expression," such as a photograph, painting, sculpture, novel, verse, technical paper, design, etc. In the U.S., since March 1, 1989, once a work is fixed in a tangible means of expression, it is copyrighted without any further action by the author, although the copyright can be registered with the USPTO for a small fee.

Another way to establish the time of producing the material is to mail a copy to yourself by certified mail and leave the mail unopened. The postmark then establishes the time. A copyright may be sold, assigned to some other entity, or permission may be otherwise granted for its use either on a limited, unlimited or exclusive basis. This should be done in writing.

There are some exceptions to the permission requirement to use copyrighted material. Basically, the exceptions are determined by whether the use will infringe on the copyright holders ability to market the work. Exceptions include: Use of a small portion of the work, use of the work for educational purposes, and the use of the work for commentary on the work itself. Some major exceptions seem to exist—taping a commercial videotape from a televised program for your own is permissible.

It can be important to avoid questions about who owns a copyright for the original work. If you hire a photographer to take pictures of a wedding, for example, the photographer owns the copyright to the pictures and you must go to him to get additional prints, even though you paid him to take the pictures and provide a specific number of prints. To avoid this, you can have him sign an agreement that the work was done as part of "work made for hire," and the copyright will be owned by the person doing the hiring.

An employee is considered to be doing work made for hire while on the job. This can lead to some interesting

cases. Some people think, for example, that Ansel Adams took his famous photograph, "Moonrise Over Hernandez," when he was returning from an assignment while he was a government employee. If so, the copyright could belong to the U.S. government. Ansel Adams never disclosed the date and time that the photograph was made, but the position of the moon over the town makes it amenable to calculation.

In some cases, the difference between a patent and a copyright becomes fuzzy. Software, for example, is usually covered by the copyright laws, but more and more consideration is being given to the patent aspects of some types of software. **P&SF**

Note: This discussion is meant to be informative and not represent any legal opinion or guidance. If you have specific questions on patents or copyrights, you should confer with appropriate legal counsel.

Reference

Arthur Raphael Miller, *Intellectual Property: Patents, Trademarks and Copyrights in a Nutshell*, West Publishing Co. (1990). ISBN 0314757384; <http://lcweb.loc.gov/copyright>

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