Intellectual Property and Patent Resources on the Internet

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In theory, patents are simple. In exchange for the right to control the application and use of a new invention, an inventor must disclose the details of the invention to the public. Because of this disclosure, patent applications can contain important and timely information on technical innovations. Often, applications also contain useful technical information that has either been withheld or has not yet appeared in the scientific literature.

Patent Primer

In general, a patent is a document that is issued by a governmental office and describes an invention; it creates a legal situation in which patented inventions can be made, used, sold or imported only with the permission of the patent holder. Patent protection for the inventor typically lasts for 20 years from the date of application for patent rights. Patentable inventions are considered to be a specific type of industrial property. Other types include marks (trademarks and service marks) and industrial designs. Under most national legal systems, an invention must be new to be patentable. In addition, the invention must present a novel idea that permits the practice of a solution to a specific problem. This means that the invention has not already been in common use or published, would not be obvious to an expert in the field and should be amenable to industrial application, such as its manufacture or use. There are three types of patents in the U.S. The most common type of patent is the utility patent. Inventions that receive utility patents work in a new way to perform a useful function. A second type is the design patent, which is issued for the visual aspects of an invention (i.e., it is based solely on the look of the item). The third type of patent is a plant patent, for which protection is available for plants that have been asexually reproduced.

The body of literature created by all of these patent documents is enormous. As of 1996, over 3.7 millions patents were estimated to be in force worldwide, with over 700,000 applications being filed annually. This literature contains diagrams, technical drawings and other photographic or graphical data in a patent application. Unfortunately, the images are not directly accessible from Web browsers (Internet Explorer or Netscape Navigator) because they are stored in Tagged Image File Format Group 4 (TIFF-G4) format. Further, most browser image plug-ins lack the ability to view these TIFF-G4 files. The PTO recommends using the freely available Medical Informatics Engineering's AltenaTIFF for PCs and Acordex Imaging Systems Accel ViewTIFF for Macintosh computers. The later is available as a free 14-day demonstration.

Other search mechanisms for the full-text database include a search by patent number and a manual search that uses a command line interface, but casual users may not find them helpful.

PTO

The role of the United States Patent and Trademark Office (PTO) (http://www.uspto.gov) as stated in Article 1, Section 8 of the United States Constitution is “to promote the progress of science and the useful arts by securing for limited times to inventors the exclusive right to their respective discoveries.” The PTO, a federal agency, reports to the Department of Commerce. Its major function is the examination and issuance of patents and trademarks.

Much of what you might expect is easily accessible on the PTO Website. From links on the homepage, you can find a schedule of application fees, obtain necessary forms, order copies of applications and view recent PTO releases and announcements.

The PTO offers extensive search engines that can access patent applications online. For our purposes, there are two databases of interest: (1) Patent Full-Text Database with Full-Page Images; and (2) Patent Bibliographic and Abstract Database. These databases cover patent applications from January 1976 to the most recent weekly issue. Unless you are looking for a specific patent, the full-text database search is probably your best option for finding information. The PTO database consists of the full text of U.S. patents. The full text of a patent includes all bibliographic data, such as the inventor’s name, the patent’s title and the assignee’s name, as well as the abstract, the full description of the invention and the specific claims made. Only documents dealing with corrections and reexaminations of the original patent are not searchable using this database—but they are attached to the patent files. The database includes only data on patents that have been issued. For obvious reasons, pending patent applications are confidential.

Several search methods are available for searching the full-text database. The Boolean interface (http://164.195.100.11/naTIFF/search-bool.html) is probably the most useful. After typing in two non-case-sensitive keywords or phrases, applying a Boolean operator and then selecting search fields and a date range, the user is given a series of patents that match the search criteria. I’ve found that using compound expressions such as “western blot” is more effective than using those keywords independently.

The Patent Full Text Database also contains links to original images of each page of the patents contained in the database. These links are necessary to view pages containing diagrams, technical drawings and other photographic or graphical data in a patent application. Unfortunately, the images are not directly accessible from Web browsers (Internet Explorer or Netscape Navigator) because they are stored in Tagged Image File Format Group 4 (TIFF-G4) format. Further, most browser image plug-ins lack the ability to view these TIFF-G4 files. The PTO recommends using the freely available Medical Informatics Engineering’s AltenaTIFF for PCs and Acordex Imaging Systems Accel ViewTIFF for Macintosh computers. The later is available as a free 14-day demonstration.

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The Boolean Search page (http://128.109.179.23/access/search-bool.html) for the Patent Bibliographic Database allows users to search a smaller patent database with simple two-term Boolean search words similar to that already described. This database contains only the front page information of U.S. patents. This bibliographic data includes the inventor's name, the patent's title, the assignee's name, as well as the abstract and a brief description of the patent's contents. The user may select a year (or all years) to search for as many as two terms or phrases linked by an appropriate Boolean operator. Results can be ranked by chronology or by relevance. This search type can be useful if you are looking for relatively specific technology with uniform terminology. However, general searching, however, the full text is probably superior. For example, a search of 1998-1999 patents using the keywords "western blot" and "autoimmunity" produced 81 hits in the full-text database, but only 2 in the bibliographic database.

Patent searches can also be performed by using the PTO's classification system. Such a search requires an understanding of the system that classifies inventions on how they work, rather than the purpose for which they are intended. Classification searches are probably best left to the professionals.

The PTO Website also features a special section on Independent Inventors Resources (http://www.uspto.gov/web/offices/com/iip/index.htm). Not to be missed, this section of the site has excellent information for new or experienced inventors. The section of frequently asked questions (FAQs) is particularly valuable. The Kid's Pages at the PTO (http://www.uspto.gov/web/offices/ac/ahrpa/opa/kids/index.html) can be used by educators to teach children about technology and inventions, and even to assist minors in filing applications! A grass-roots school program that promotes thinking skills instruction, The Iniative Thinking Curriculum Project, is also available here. It's an enjoyable and enlightening read, even for non-educators and includes a great collection of notable inventions, including one by Abraham Lincoln.

While the PTO's Website can be exceedingly useful, it has its limitations. Patent searches performed by professionals are a requirement for the successful prosecution of a patent and can cost thousands of dollars. Patent professionals generally reserve online searches for finding copies of patents that they know exist. It's also important to note that the online trademark database is notoriously incomplete and should never be relied on for a trademark search.

EPO
European Patent Office (EPO) (http://www.epo.co.at/index.htm) is the European patent-granting authority that was established by the European Patent Convention of 1972. The EPO is the European equivalent of the U.S. PTO and grants European patents under a uniform procedure. Through the submission of a single patent application in one of the three official languages (English, French or German), an applicant can obtain multinational patent protection in EPO member and extension states.

Through its esp@cenet Internet service (http://www.epo.co.at/espacenet/info/access.htm), the EPO makes some technical information contained in patents available to the public, in cooperation with their member states' national patent offices. As a result, esp@cenet is the world's biggest free patent information service on the Internet with over 31 million entries. These applications can be searched in any of the official languages. The searches are limited to bibliographic data in patent documents, and, while easy to perform, are not suitable for more complex searches. Once located, however, the full text of the documents is available in the form of PDF files.

Further information can be also be found in a network of patent information centers (PATLIB Centers) that are found in EPO member states and offer services particularly suited for the needs of inventors, small and medium-sized firms, research centers and universities.

WIPO
The World Intellectual Property Organization, (WIPO) (http://www.wipo.org) headquartered in Geneva, Switzerland is one of the 16 agencies of the United Nations. WIPO promotes intellectual property protection throughout the world by encouraging cooperation among nations. The organization is also involved in the administration of treaties that deal with the legal and administrative aspects of intellectual property. The site offers access to various publications that may be of interest to those who are pursuing international patent applications.

In summary, information obtained from patent application databases can be useful to researchers in various fields and is more available than ever before. Try out one of these searches, and see what the competition is up to!

Notes
This article contains information of a general educational nature and cannot be construed as legal advice. Links to sites mentioned in this article, along with other useful intellectual property sites, are available at the author's website: (http://www.virology.net/garryfavwebgovpat.html)