What the Patent Attorney Needs from a Patent Information Point of View†

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Library information is used in four major areas by the patent attorney: in many aspects of patent applications and patents; patent infringement; patent validity; and marketing advice. These aspects are discussed from the viewpoint of the corporate patent lawyer and the sources of information normally available in industrial enterprises.

It is always interesting to compare the expectations of the user of search information with the viewpoint of the searcher for such information. It is tempting to assume that, with experience, these needs will converge—and to an extent they do. But there are areas in the patent function where types of information are needed which go well beyond the usual research-oriented search of the chemical literature. The sources of information are expanded, the scope of information is broadened, and the persistency of the searcher is enhanced.

Information needs for patent/legal purposes fall into four main categories, from the viewpoint of the purposes of the search: (1) the patentability search, (2) the validity search, (3) the infringement search, and (4) searches in anticipation of litigation.

There are also important peripheral areas, involved in the interaction of patent attorney and research chemist, where the information specialist can provide valuable assistance: for example (1) searches to help define the limits of an adversely held patent, and to guide seekers of ways around it; and (2) searches to help choose among various research leads, especially when working in a crowded field. These types of searches require skill and experience, and usually require that the information specialist work as closely with the patent attorney as with the chemist. This work, if done well, can save much research time and dollars.

Why is this important? What is the role of patents in chemical research? Why are patents, and the practice of patent law, so dependent on the information function?

There is no justification, in general, for spending research money in industry unless one expects to be able to make commercial use of the fruits of a successful project. Of course, a researcher does not always know where the investigation will lead. But there is no excuse for being surprised, if it turns out you have merely duplicated the patented results of a competitor. Therefore, the patent search should be made well before a project is completed and should be updated as new research leads are developed. There must always be freedom to use the research results. The results need not always be patentable to you, but they should be free of domination by adverse patents.

If the results are also patentable, they may fall into the category of so-called "defensive" patenting—to make sure that you can continue to use these results. Filing a "defensive" patent application enables you to smoke out any adverse patents you may have missed in the search or that still may be pending in the Patent Office, by going through the patent examination process or the "defensive publication" process.

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Often you need more than a defensive patent. If, for example, you have a new process that improves the economics of manufacture of a commercial product, you do not wish to make a gift of this process to your competitors who had no research expenditures. If this new process, or a new and patentable product, enables you to enter new areas of business, you want to preserve the economic advantage so that you can compete with those already established.

Or if you have a new product, one that requires long and expensive development, and perhaps federal registration, you may need the patent exclusivity to justify the investment risked in product development. Unpatented products are not favored for commercialization, in these days of high capital costs, high risk, and growing governmental regulations.

The patent attorney is charged with obtaining strong and enforceable patents for such products. Further, the attorney often wants to get strong and enforceable patents in other countries, where the laws may be quite different from ours, and where information needs may also be quite different.

The area of foreign patent activity is one where direction is needed from the company's long-range planning, sales, and marketing departments, so that the patent attorney and the patent information staff can conduct the requisite searches, evaluate the possibilities for foreign patent protection, file the foreign patent applications, and lay any necessary groundwork for licensing and cross-licensing arrangements.

Let us look first at United States patent prosecution: the preparation and filing of a patent application. According to the patent law, a person is entitled to a patent for a new and useful development, unless certain conditions prevail. For patentability, it is required that: (a) the subject matter was not previously known in this country, (b) the subject matter was not published, anywhere, more than a year before the patent application is filed, and (c) that it is not obvious to a person of ordinary skill in the field of the invention. There are other conditions, but the ones mentioned refer to the classical areas of information science: what is known, what is published. The lawyer must decide what is obvious under the law, and here the answer is also based on information, but not always the same information. A search of the classical sort, to survey the literature in a given areas of research interest, or to find methods of synthesis of particular compounds, may be and usually is inadequate for patent purposes.

To take these criteria one at a time, let us start with the criterion that the subject matter was not published before the patent application was filed. In the United States there is a one-year grace period, but most foreign countries do not have such a grace period, and prior publications anywhere can be an immediate bar. Also, United States patents are references as of their filing dates, not their issue dates. So the search

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for prior publications including patents must be current, and even if there is no interest in obtaining foreign patents the search should include the foreign patent literature since this often gives information about what is pending in the U.S. Patent Office.

A patent applicant is charged with knowledge of the full sweep of published literature. If the applicant, or the information scientist, does not find pertinent references, the Patent Examiner may, or an Examiner in a foreign country may—at which time it may be too late to change the approach to the invention. If a pertinent reference exists but is not found in the examining process—and this happens all too often—you can be sure it will be found by an infringer, thus weakening or destroying the patent after possibly heavy investments have been made in commercialization, in reliance on anticipated patent exclusivity.

The troublesome question is: what is a "pertinent and material reference"? This is often a close question, fraught with technicalities and legal precedents—and changing legal precedents. The answer may differ from country to country. Some information scientists become quite skilled in exercising these judgments, but it is certainly safer if nothing that is arguably pertinent is withheld from the patent attorney. The difficulty—the major difficulty—is that the standard sources (mostly CA and the commercial databases such as Derwent's World Patent Index and IFI/Plenum's CLAIMS) are not always indexed in a way that makes it easy to find the references that patent offices, and judges, tend to think of as pertinent.

A patentability search requires not only a different approach to the chemistry, but a recognition of the strengths and weaknesses of the various information sources. This is why many patent attorneys rely more on searches in the Patent Office than library searches, and rely more on searches done by people with legal training. But Patent Office searches are also far from perfect, if for no other reason than that the search files are often incomplete and thus untrustworthy. Also, they cover mainly U.S. patents, whereas the worldwide literature must be covered. Although there are foreign search facilities that provide fast and fairly good searches of the sort needed for patentabilty studies, we believe that an experienced information specialist, especially one with foreign language capabilities, working closely with the attorney and with the research chemist, can do as well or better.

With the development of the patent law in recent years, it has become important that the patent applicant and the lawyer have complete search information at the time an application is filed. The law has recognized, as the scientific literature has expanded, the inequity in placing on the Patent Examiner the full burden of the search, while the applicant usually has already looked thoroughly into the literature. One cannot remain silent about a pertinent reference and wait and see if the Patent Office will find it. If you play this game, you lose. Even if the invention would have been patentable over the reference, you lose the presumption of validity that otherwise attaches to patents, and in a contested situation your patent is weakened. If the reference is deliberately withheld, and is a closer reference than those cited by the Examiner, your patent may be invalid for fraudulent practice, and charges of antitrust violation may be levied.

It is now urged by the Patent Office that the patent applicant file a document, sometimes called a "patentability brief", which sets out the closest references known to the applicant. The filing of such a document is not mandatory, although it is strongly encouraged in the Regulations, as part of the applicant's duty to disclose material information. Most patent attorneys believe that it should be filed, for several reasons: (1) it often requires an updated search, and this is always a good idea: a research project may have shifted direction during its course, so that the earlier searches may not be complete on the final points of novelty; (2) it may trigger a patentability search, of different scope from the earlier research-directed searches; (3) it requires the research scientists to review the full scope of the literature, at the stage of definition of an invention for which a patent is being sought; and lastly (4) it meets the legal purpose of full disclosure to the Patent Office of the most pertinent material information known to the inventor, and provides an opportunity for the applicant to distinguish the invention from these references, in advance of the examination process.

The legal purpose of full disclosure does not end when a patentability brief is filed. It continues throughout the pendency of a patent application, and may continue even after the patent is issued. Occasionally, one comes belatedly upon a publication that has an effective date that would make it a pertinent reference, but which was not cited by either the Patent Office or the applicant. There is a duty to advise the Patent Office, even if the applicant believes the reference can be overcome. Failure to fulfill this duty carries the taint of fraud on the Patent Office—on the theory that the applicant is more likely to know about obscure references than is the Patent Examiner. The same new regulations which provide for the patentability brief now provide a mechanism whereby an applicant can argue a newly found reference even after a patent has been issued, by reissuing the patent.

If the withholding of a pertinent reference is an innocent error in judgment, one may nevertheless have to defend against an accusation of fraudulent withholding, if the patent ever comes into court. Even if this defense is successful, the presumption of validity will be lost if the reference is considered by the judge to be indeed pertinent.

And finally, if it turns out that there is a pertinent reference, more pertinent than those before the Patent Office, which is missed by both the applicant and the Patent Examiner but is found by the defendant in an infringement suit, then the presumption of validity is again lost, and the patent is in serious jeopardy.

The reason we emphasize this is because it places a continuing burden on the information specialist to keep the patent staff informed, even on mature products where the patent prosecution is completed. The patent attorney and the research scientist should be able to rely on the information specialist for this work. The goal is to protect the company's technology, its research results, and its businesses, from these pitfalls.

Thus far we have been talking about the preparation and prosecution of patent applications, and the risks of a less than complete search into all information sources. Nevertheless, to be practical, and to consider the cost, it is generally true that the most thorough patent-related searches are made in connection with validity and infringement studies and in preparation for litigation.

If the patent is adversely held, then the purpose of the search is to determine its strengths and weaknesses, its limitations, its vulnerability in court, its value for licensing purposes, and its ease of avoidance. Searches are needed to determine prior knowledge, as part of what is called the "prior art"—and prior use of sale—as well as all pertinent references. Usually this is a team effort, of the information scientist, the technical expert, and the attorney.

A search of the chemical literature is limited only by the ingenuity and knowledge of the searcher and by the time and money available. In addition to the U.S. Patent Office files and the commercial computer-based sources mentioned earlier, a search may include sources such as *Chemical Abstracts* all the way back to 1907, Beilstein's "Handbuch der organischen Chemie", "Organic Syntheses", "Organic Reactions", and

Houben-Weyl's "Methoden der organischen Chemie" for organic compounds and methods; Gmelin's "Handbuch der anorganischen Chemie" and Mellor's "Comprehensive Treatise on Inorganic and Theoretical Chemistry" for inorganic compounds; the Kirk–Othmer "Encyclopedia of Chemical Technology", Ullmanns "Enzyklopaedie der technischen Chemie", and the "Applied Science and Technology Index" for technological and trade literature; the "Encyclopedia of Polymer Science and Technology", "World Textile Abstracts", and the "Textile Technology Digest" for polymer and fiber technology. A host of other specialized literature sources and textbooks can also be examined, depending upon the field of search to be covered.

Skillful and creative information specialists are required, to seek out not only all publications everywhere, but sources of prior knowledge, such as technical data sheets, price lists, talks at symposia, and unpublished technology. Too often the patent attorneys find that they themselves must do this work, for lack of understanding and therefore lack of thoroughness on the part of the information scientist.

The same thoroughness is required if it is one's own patent that is involved, a patent that one is seeking to license or to enforce against infringers. There should be no surprises in litigation. The costs are too high, and the stakes are too high.

There are other areas of the chemical business in which the patent attorney depends on the facts adduced by the information specialist. In making marketing decisions, in the United States and for foreign countries, the scope and enforceability of one's own patents are at issue, and the scope and enforceability of adversely held patents. Also, by searching out the extent of a family of foreign equivalents of a competitor's basic patent, useful clues can be gleaned as to his planned marketing strategy in world markets. It is an important consideration in making long-range decisions.

The availability of patent protection in foreign countries, based on references applicable under the foreign practice, is a question frequently asked of the patent attorney by the commercial marketing management. The standards of patentability differ from country to country, and the industrialized countries of the world have fully developed and complex patent laws. But these laws are different from the United States law. Many foreign countries require that an invention be a "technical advance" to be patentable. This concept does not prevail in United States law. Therefore, the scope of a patentability search is often quite different, and requires experience and teamwork on the part of the information specialist and the patent attorney.

Long-term international commitments may be made, capital expended, and markets developed based on patent positions. The legal advice as to these patent positions is no better than the facts on which the advice is based—again, the patent information, the prior art.

For international companies, even those whose foreign business is only by export from the United States, if one's products are technology-based it is wise to review the patent situation for the countries in which you do business. In many foreign countries, a patent may be infringed by imported goods even if the patented process is practiced outside the country. Prompt review of Derwent or the foreign gazettes is required, because of the short periods for filing oppositions in many countries.

Major international companies often subscribe to the Official Gazettes of several foreign patent offices and review these weekly, both for patent intelligence and for opposition purposes. One can devise an elaborate international information system, but of course it must be in the context of the cost/benefit to the employer who is supporting it.

In patent-dependent businesses, the appearance of an adversely held patent can have an immediate impact on the direction of R&D. Most foreign countries grant patents to the first person to file the patent application—this is a major reason for prompt filing—so there is no way of overcoming a prior filing date in most foreign countries, even if you actually made the invention earlier. In the United States it is the first inventor, not the first to file, who is by law entitled to the patent. Thus the same invention can quite legitimately be patented by different people in different countries. In this country, a foreign patent is a reference as of its publication date, not as of its filing date, while a U.S. patent is a reference as of its filing date. The information specialist becomes expert in these details. The patent attorney and the information scientist must work together, building on each other's knowledge, to safeguard the proprietary fruits of research and innovation.

The Information Chemist's View of the Patent Information Needs of Research Workers and Patent Attorneys

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Patent information needs are examined from several clients' requirements. The contents, scope, and limitations of various patent databases are discussed. The importance of file choice is stressed in answering sample questions.

The information specialist's job is in many ways similar to that of the traditional matchmaker. A client's request for specific information must be "matched" with appropriate databases. In the area of the patent literature alone, we have a wide variety of clients, including chemists, engineers, physicists, and patent attorneys and advisors. The chemists and engineers often ask us for information on compounds, substructures of compounds, and polymeric compositions and reactions. Defining the exact scope of the question simplifies our "matching" task.

For instance, a request for a retrospective state-of-the-art search for a specific compound preparation must be examined from several viewpoints:

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