HOW CAN THE CHEMIST HELP THE PATENT LAWYER: PATENT BACKGROUND AND CHEMICAL PROPRIETORSHIP*

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The United States patent statute is based upon the English "Statute of Monopolies" of James I, we having inherited our legal background from our English cousins. Because of the recognized importance of inventions to the economic development of the nation, an exception to the general condemnation of monopolies was made in the famous English Statute of Monopolies in favor of the limited patent monopoly for inventions.

A patent is a contract between the inventor and the government whereby the inventor discloses his invention to the public in exchange for a grant from the government of the right to exclude others from the practice of the invention for a limited time — in our case, seventeen years. The desirability of providing for an effective patent system also was recognized by the founders of our country as shown by the Constitutional provision embodied in Article I, Section 8, and, shortly thereafter, by the first Patent Act of 1790. President Washington's first annual message to Congress contained reference to patents.

As everyone knows, procuring a patent involves as a first step the preparation and filing of the patent application. This requires, especially in the case of complicated chemical inventions, considerable training and experience. The training of a patent lawyer encompasses hardly less than six years, and usually more. While the profession is rewarding, the long course of training that is required tends to make it a rather limited opportunity for the ordinary student of technology. Partly for that reason, and partly for the reason that during the post-World War II period the scope and extent of chemical research and development progressed by leaps and bounds in contrast to the number of technical people trained to the task, there simply are not enough fully trained chemical patent lawyers to cope with the demand. Thus, ways and means are being sought to use the nation's supply of patent lawyers more efficiently. Obviously, very close cooperation between the chemist and the patent lawyer will be essential to success in such an undertaking.

In order to determine how best they may cooperate, it will be helpful first to consider their respective roles in relation to the task. Under Section 112 of the Patent Act of 1952:

> "35 U.S.C. 112. Specification. The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same, and shall set forth the best mode contemplated by the inventor of carrying out his invention.
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> "The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention."

Moreover, under Rules 71(b) and (c) of the Rules of Practice in the Patent Office:

> "(b) The specification must set forth the precise invention for which a patent is solicited, in such manner as to distinguish it from other inventions and from what is old. It must describe completely a specific embodiment of the process, machine, manufacture, composition of matter or improvement invented, and must explain the mode of operation or principle whenever applicable. The best mode contemplated by the inventor of carrying out his invention must be set forth.
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> "(c) In the case of an improvement, the specification must particularly point out the part or parts of the process, machine, manufacture, or composition of matter to which the improvement relates, and the description should be confined to the specific improvement and to such parts as necessarily cooperate with it or as may be necessary to a complete understanding or description of it."

The drafting of the claims of the patent application is an extremely important matter falling peculiarly within the province of the skilled chemical patent lawyer, who more often than not is a graduate chemist or chemical engineer. The writing of the detailed description of the invention, which however is also of great importance to the validity of the resulting patent (to say nothing of its scope), is precisely where the patent lawyer often can make the most efficient use of the chemist — particularly if the patent lawyer happens to be working for the moment in an abstruse and highly theoretical branch of the chemical arts and/or one which might be somewhat off the beaten path represented by the lawyer's own training and background in chemistry.

Far away and long ago there were learned men who had at their fingertips a grasp of all — literally all — the knowledge of the day. One may mention Alain deLille (also known as Alanus de Insulis) of the early 13th century, whose learning was so vast that he was given the surname Doctor Universalis by contemporary

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scholars in recognition of his universal knowledge. Roger Bacon, of somewhat later in the same century, was another man of tremendous learning in the field of the natural sciences, and frequently is credited with being the first to have really recognized the great importance of the experimental method instead of simply repeating parrot-like what had been written by Aristotle and Pliny and Galen centuries before. Roger's illustrious namesake, Francis Bacon, of the late 16th-early 17th century was another intellectual giant, equally at home in the natural sciences of his day as well as the law. In law he was especially distinguished, having risen to the exalted post of Lord Chancellor of England. It is a sad fact that, alas, he proved false to his trust, and was thrown out of office for bribery and corruption, but this does not detract from his stature as a truly great scholar. His chief interest for us, aside from the unquestioned fact of the variety of his interests and abilities, resides probably in the fact that he was one of the first — if indeed not the first — to recognize the importance of sustained joint efforts of numbers of workers in conducting scientific research — see the description of Solomon's House in his book "The New Atlantis." He may perhaps be regarded as the "Adam" of all present-day directors of research.

We no longer have men such as these today, men who single-handedly could cope with practically any phase of any technical problem that might arise. This is by no means a reflection on today's scientist, but simply a recognition that human knowledge has increased so greatly, both in breadth and in depth, that it is an absolute impossibility for any one person to do much more than scratch the surface in one relatively tiny area of knowledge. It is for this reason that the highly specialized background of education and training that is the chemist's can be employed so usefully in conjunction with whatever technical education and training are possessed by the patent lawyer. A secondary reason may be that the patent lawyer frequently is more years removed from his formal scholastic training than his chemist assistant, so that much of the theory that he may once have learned — or is supposed to have learned — has faded from his mind.

With a recognition of the limitations imposed upon the patent lawyer by considerations such as those we have already mentioned, we come then to a clearer understanding of just how the chemist can best assist the patent lawyer with his work — or perhaps it would be better to put it in terms of their working together as a team to further the interests of the client most efficiently and yet most economically.

It is clear, is it not, that the chemist can and does greatly assist the patent lawyer by putting together a coherent description of the invention, based upon the chemist's careful study and screening of frequently voluminous progress reports, final reports, notebook records reflecting actual laboratory work, etc., all emanating directly or indirectly from the inventor. As he, the chemist, becomes more and more skilled in this work, he also will acquire a greater adeptness in sensing which of the inventor's original materials to omit as superfluous or sometimes downright damaging; what further technical information he should seek from the inventor in order to round out the description, and particularly to provide a more nearly adequate basis for claims of broader scope; how better to write up the description in the light of other related inventions of the same inventor or others if the invention in question happens to be part of a program of research and development (and the importance of this aspect can hardly be overemphasized, for obvious reasons); whether drawings or flowsheets are necessary as an aid to the description and, if so, what form these should take; whether a literature and/or patents search is worthwhile to discover additional art over and above that already known to and cited by the inventor and, if so, to make it himself or perhaps to supervise a search by others; and provisionally at least, whether the person or persons purporting to be the inventor or inventors is or are entitled to be recognized as such for the all-important purpose of making the necessary oath of inventorship. Finally, it is frequently of great assistance as a timesaver to the patent lawyer to have the chemist prepare a purely provisional set of claims for the patent application, but generally speaking this is true only after the chemist already has had considerable training in drafting claims under the lawyer's guidance.

In fact, all of these things are to be done under the careful supervision of the patent lawyer who of course will not hesitate to "blue pencil" the work of the chemist (much to the latter's distress, of course) when and as he deems it necessary in the interest of the client's case, for it must be kept foremost in mind that it is the patent lawyer, and the patent lawyer alone, who must bear the ultimate responsibility to the client for doing everything proper and necessary to present the application for the invention in the best possible light.

Having done all these things, the chemist's description of the invention then is reworked carefully by the patent lawyer to whatever extent may in his opinion be necessary; the provisional set of claims is revised with even greater care unless, as may be the case, the lawyer prefers or finds it necessary to himself prepare the claims; the formal application papers are prepared; the application is executed by the inventor or inventors and is then without further change placed on file in the Patent Office.

At this point, as most of you may already know, the inventor's (and patent lawyer's) troubles only begin because the application must then be

prosecuted through the Patent Office. In a highly developed or rapidly developing art this generally creates new and intricate problems by reason of the Patent Examiner's citation of literature or patent reference which he regards as more or less closely related to the invention in question -- and most patent lawyers will agree with me, I think, when I say that the more important the invention is to the client, the closer the references will be. Perhaps some student of Parkinson will one day be able to work out the precise mathematical relationship here that any good patent lawyer senses instinctively.

Again, the chemist is in a position to assist the patent lawyer. The chemist may make a technical analysis of the cited references in relation to the invention being claimed; he may suggest ways in which to argue the non-pertinency of the references; he may suggest comparative experiments that might profitably be performed in the laboratory of the client or of an outside consultant in order to provide "ammunition" for use in the Patent Office; he may make provisional suggestions for modification of the claims in order better to distinguish over the cited references; and finally, he may draft a provisional reply to the Patent Office incorporating arguments for patentability over the references.

Similar technical assistance can be given the patent lawyer in connection with proceedings at all stages of prosecution of the patent application, including appeals to the Board of Appeals, interferences with patent applications of other inventors, and in appeals or proceedings in the nature of appeals from the Patent Office to the Courts.

As before, any or all of these things will be done under the careful supervision of the patent lawyer, who of course must remain the final arbiter of what is submitted to the tribunal in question.

Mention must also be made, for the sake of completeness, of valuable assistance that the chemist can render the patent lawyer in connection with matters other than direct Patent Office proceedings. Most important here are civil actions in the Federal Courts involving controversies over the infringement or alleged infringement of issued patents. The chemist can and does render valuable assistance to the patent lawyer in suggesting strategy (or at least tactics) useful in offense or defense of the case, including the outlining of the type of testimony presumably (or hopefully) available from or through one's own expert witnesses at the trial, lines of questioning for opposing fact witnesses during the preliminary or pre-trial stages of the case, lines of questioning for use against the opponent's witnesses at the trial (i.e., cross-examination), and perhaps above all, in screening the sometimes voluminous documentary material produced by the opponents during the so-called discovery proceedings in the early stages of the case. Here, as before, the value of the chemist's assistance to the patent lawyer will obviously depend largely upon the extent of his training for the particular task.

Time does not permit us to particularize all the many other ways in which the chemist can assist the patent attorney, but we must mention the important function of searching. Broadly speaking, there are three different kinds of ordinary searches: (1) a short preliminary novelty search, generally called a "pre-ex," made for the purpose of turning up the most readily available prior art -- generally U. S. patented art -- in relation to a supposed invention on which it is proposed to file a patent application, (2) an extended patentability search made in relation to the claims of an issued patent belonging to the client's competitor and from which some difficulty or threat may be expected, and (3) an infringement search to determine whether the apparatus or process or composition that the client wishes to make or use or sell infringes anyone else's patent. Obviously, search (1) may be extended indefinitely if the importance of the invention warrants doing so. Search (2) is also called a "patent validity search." Search (1) and search (2) are made in the literature, including patents of any country and any age. Search (3) is of an entirely different type and is confined to live U. S. patents, i.e., U. S. patents granted within the last seventeen years, since obviously only a live U. S. patent has any possibility of being infringed in the U.S.

A fourth kind of search might be mentioned in passing, which might be called a state-of-the-art search made for planning purposes, e.g., by a director of research who is about to map out a program of commercial research and development and who therefore wishes to know, in advance of any actual expensive laboratory work, just where the "holes" in the art are and/or what his company would be free to do in the way of manufacture and sale in the event his proposed program of research should turn out to give commercially desirable results.

We hope we have made it apparent wherein the chemist may indeed render exceedingly valuable assistance to the chemical patent lawyer. In closing, one word of caution may be in order. To you chemists who may be called upon to engage in this kind of work, we believe you will find it quite irresistable so that ultimately you might very well face the prospect of losing your status as a "pure" chemist and joining the group of those technical people who have been won over to that jealous mistress, the law. If you fear this possibility, you should endeavor to find some Ulysses who will kindly lash you to the mast so that you may better resist the Sirens' call. You cannot now say that you have not been forewarned.