

Addressing Patent Protection in the Product Development Process

*Steven Weseman**
IP Focus Law Group, Ltd.
608 North Carlyle, Suite 100
Arlington Heights, Illinois 60004
sweseman@attglobal.net
(847) 846-6202

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Abstract

Third-party patent protection can be an obstacle to product development and introduction. Some development efforts completely ignore patent issues until a late-term crisis arises. Identified too late in the product development cycle, patent issue may add unacceptable costs (e.g., royalties) or even block product introductions altogether.

At the other extreme, some would-be product development efforts get bogged down in excessive concerns over third-party patent protection without exploring the substance of the protection. Patent holders often rely on a combination of related weapons to perpetuate artificial barriers to new product entry. These weapons include (1) ominous market perceptions of extensive patent protection, (2) the complexity of multi-patent portfolios, and (3) non-specific threats of patent litigation. Surrounding each of these factors is the relatively high cost of patent legal services. Furthermore, corporate patent departments are also reluctant to undertake resource-intensive, open-ended product clearance projects.

The presentation provides planning suggestions, training strategies and example scenarios for cost effectively assessing the true risk of patent infringement liability. Managers of product development efforts can avoid costly missteps by understanding the select set of factors that affect a given product's level of patent liability risk.

Patent issues can be addressed cost-effectively at successive stages of product development. Patent issues can be made less costly and disruptive when patent protection evaluation is integrated into project plans. Project resources applied to patent assessments are better conserved by targeting efforts according to the stage of product development. Early efforts, for example, can be focused more on identifying problem patent holders rather than a review of all patent holders. Easy-to-use techniques are available for identifying patent holders and the associated threat level.

Finally, managers and engineers can be persuaded with minimal training to actively and effectively contribute to patent assessment efforts. Developers should avoid the "it's all legaleeze" excuse that delegates all patent issues to patent attorneys. Although developers must at times be coached (or coaxed) to digest patents line-by-line, this presentation offers time-saving techniques for evaluating patents that will reduce the need for costly legal services. The paper also offers suggestions to non-lawyers regarding how to evaluate patents without unintentionally creating a damaging paper-trail.

I. Introduction

With the abstract accepted, and the chance to give an AIChE presentation secured, the author decided to look for guidance from others on how to organize this paper. The starting point was a compressive Internet search for other papers on the patent threat topic. After all, the threat of patents to product development efforts should be a well-exercised topic. The results of the Internet search were interesting, but also very disappointing. Nearly all the related articles identified in the search followed a consistent pattern. First, the articles describe a grossly ignorant corporate executive launching a new, high-investment product line without ever having contacted an attorney to address the issue of competitor patents. And then “Wham!,” the reader is hit hard with the story of a cease and desist letter, an injunction halting patent sales, treble damages for willful infringement and other gloom and doom for the company. Little guidance is offered in these articles about how to assess the risk of competitor patents, however. The final theme presented is that product developers should begin paying patent attorneys very early while also understanding that a patent problem may still shut down the new product.

If these articles are perhaps good vehicles for marketing legal services, the scenarios they describe are not credible. At least it is not reasonable to present the story that product developers are ignorant of the possibility of patent problems. A more realistic representation is that product developers often do not know how to approach the patent threat without getting overwhelmed by both complexity and legal expenses. Although it remains true that a patent problem can shut down a new product even with the best legal strategy, much can be done to both improve the efficiency of patent risk assessment and also combat false or otherwise weak assertions of patent infringement.

II. Understanding the Patent Threat

It remains a good starting point to discuss the elements of the strategic threat presented by patents which may cover the product under development. First, we consider the list of legal remedies available to those patent holders who are successful in court. The U.S. patent system is similar to other countries in that, through legal action, patent holders can obtain (1) an injunction against the sale of products or the use of processes covered by patent; and (2) damages based on competitor lost profits or a reasonable royalty for the sale of such products. Although not available in all countries, most patent systems provide a mechanism under which patent holders can obtain an early injunction in an accelerated proceeding before completing a full patent infringement trial.

An additional remedy available under the U.S. patent system is a tripling of damages when there is a finding of willful infringement. Owners of a U.S. patent with related U.S. business operations may also seek to block the importation of products covered by the patent in an administrative action with the U.S. International Trade Commission (ITC).

Even a losing patent attack is damaging to the accused infringer. Patent litigation entails substantial direct and indirect costs. Realistic estimates of direct legal costs fall in the range of one to three million dollars for each side through trial. Patent litigation also involves considerable organizational dislocation, absorbing the time and focus of key managers, engineers and scientists¹.

Even before any possible legal action starts, product developers also may have to face a very negative customer reaction. Your customers may be warned formally (in writing) or informally (by word of mouth) not to purchase your product because of an infringement issue. Vulnerability to such customer warnings varies by product, industry and product developer. For example, larger well-established companies are less vulnerable to such attacks because customers can rely on an indemnification. If alternate suppliers are available, customers may avoid purchasing a challenged product, even one of higher quality and lower price than the alternate. Sales may therefore be halted even in the absence of an injunction. Indeed, an attack on the customer base is an extremely important element of the patent holder's strategic threat.

Should the context now appear unfairly stacked in favor of the patent holder, one can also note that not every new product will be affected by third-party patent protection. And, patent holders must themselves assess the high costs and related risks before taking legal action for patent infringement. Patent holders must be cautious not to overreach with the scope of their protection or they risk being dragged into a lawsuit in which the product developer will seek a declaration of non-infringement from the court (i.e., a declaratory judgment action). Furthermore, improper assertions about patent protection to a competitor's customers may subject the patent holder to legal liability for interference with a business relationship. Patents also may be vulnerable to validity attacks because of product offerings or publications that predate the filing of the patent.

III. Options and Strategies for Assessing Possible Patent Threat

The specific steps and considerations of a risk assessment should be tailored to the products or services at issue by consulting with an attorney. Although certain details of the assessment will vary, careful patent risk assessments will share a number of tasks as listed below.

- Surveying Internal Intelligence of Product Related Patent Issues.
- Finding Relevant Patents: Subject-Matter Based Searching.
- Finding Relevant Patents: Assignee Focused Searching.
- Preliminary Patent Claim Analysis.
- Detailed Patent Claim Analysis.

- Finding Relevant Patents: Geographic Scope.
- Reviewing U.S. Prosecution Histories Files.
- Reviewing Patent Prosecution Records in Other Countries.

The specific steps and considerations of a patent risk assessment should be tailored to the products or services at issue by consulting with an attorney. It is therefore advisable to alert your corporate legal department or your law firm attorneys about a possible development project as early as possible. Early consultations allow developers to integrate patent risk assessments into the overall project plan.

A. Surveying Internal Intelligence of Product Related Patent Issues. Patent searching is generally considered the first formal step of a patent risk assessment. It is beneficial to begin the assessment effort instead with a systematic review of available knowledge of patent issues related to the products under development. For example, such a survey is an opportunity to review a product developer's recollection that competitor A had accused competitor B of patent infringement about 3 years ago over a product in the category under development. This survey may reveal that two potential competitors announced joint-development cooperation some several months ago, leading one to question whether access to patent licenses was a motivation for one of the new partners.

Concerns over maintaining confidentiality may limit the scope of inquiry. As discussed further below, it is generally important to maintain the confidentiality of patent risk assessment. In most cases, an attorney should be consulted for guidance on whether company managers or engineers can be interviewed and how best to compile information. Particularly sensitive in this regard is the identification of specific patent numbers or patent document lists. Procedures for handling such information should be discussed in advance with an attorney.

A survey of company intelligence may serve to confirm only that the patent enforcement history in a given product area is an unknown. Even when information is gathered, the later-verified facts are often much different than the informal reports or stories exchanged among business people. The industry folklore may be that company X dropped a product line because of a patent dispute when scale-up problems were the actual cause. "Reported" patent disputes may turn out to have been nothing more than inflated informal complaints.

It is nonetheless very worthwhile to complete an internal intelligence survey. Reports of past disputes or patent issues often serve to efficiently focus later patent searching efforts. Furthermore, intelligence surveys may confirm an earlier understanding for the mood of the product marketplace. Marketplace perceptions of patent protection will drive customer behavior in response to warnings or notices from patent holders.

B. Finding Relevant Patents: Subject-Matter Based Searching. The internal intelligence survey can be efficiently followed by commissioning a patent search. With few exceptions, patent searching tasks should be assigned to an experienced contractor. One key to the success of the searcher in identifying relevant patent documents is providing a thorough briefing on the features, history and uses of the product under development. In this regard, effort should also be devoted to exploring the various possible contexts in which patent protection may arise. If, for example, the new product is a special cleaning chemical, patent protection may be directed to (a) a key ingredient, (b) the product's overall composition, (c) product end-usage, or (d) the process for making the product. Such indirect patent coverage may still block market access for one's new product.

C. Finding Relevant Patents: Assignee Focused Searching. Although patents (especially patents in the U.S.) are associated with individual inventors, most patent filings are controlled and owned by the inventor's employer company. There are at least two reasons one may wish to focus a patent search on a company/assignee. First, some product areas may be so crowded with patents that a comprehensive search will yield too many patent documents to be reasonably or cost-effectively reviewed. Such crowded areas are in general riskier, but not unapproachable. Second, product developers may have existing knowledge of key competitors or technology developers in the targeted product area and be able to provide this information prior to any patent searching. Even where broad subject-focused searches are possible, assignee focused searches are used to supplement search results.

For assignee-focused searches as well, an experienced and well-briefed searcher is more likely to find the relevant patents. Major government patent authorities worldwide provide mechanisms for searching patents by company/owner as well as inventor. Skilled, experienced searchers know to explore company name spelling variations, predictable company name spelling mistakes, former related company names and the like.

It is conventional worldwide for the name of the owner of a patent right to be specified on the published patent document (as under the U.S. system). The published patent carries the name of the owner at the time the patent issued. Patents may be sold or otherwise transferred to new owners after issuance, however. Indeed, the fact that a given patent has been assigned after issue is an indication that the protection is valuable. The U.S. Patent and Trademark Office (U.S. PTO), like other authorities, provides both for the recordation of patent assignments and for the computerized searching of such records. A search for patents owned by a specific company should include use of these "reassignment" records.

A complication to assignee focused searching is that U.S. published applications² may be published without an assignee/owner designation. With additional effort, however, diligent searchers usually can connect certain other published data to a given company. For example, inventor names (which are listed on published applications)

can be associated with certain employers to predict the ownership of the patent application.

D. Preliminary Patent Claim Analysis. Once a group of possibly relevant patents have been identified, it is normally left to a patent attorney to make a preliminary analysis of the patent claims.³ It is important to be thorough in this step in that each independent claim of each identified patent document must be reviewed to assess whether the product under development may be covered by the claim language. It is not uncommon for an attorney to work through dozens of patents to identify just a few patents which require further study.

E. Detailed Patent Claim Analysis. Patents selected for further study are then analyzed in detail in consultation with product engineers and managers. The extent to which product managers are alerted to the underlying patent issue will vary according to the assessment context such as the management level of the technical expert. Where confidentiality concerns are extreme, the best approach may be for the attorney to ask focused questions. It is equally likely that engineers and managers will be called upon to understand the complete set of patent claims, the overall patent document and the patent owners of interest.

A note of caution is in order here in that technologists who are new to patent law issues should be careful in attempting to assess infringement problems. For example, it is a common problem that issued patents and published patent applications are confused by engineers and product managers. Published patent applications contain claims that have not yet been examined by a government patent office. It is typical that the claim scope is narrowed during the examination process. Products are therefore more likely to fall into the scope of the claims of published applications than the claims of issued patents. It is important not to "sound the alarm" solely on the basis of a published application.

F. Finding Relevant Patents: Geographic Scope. Not addressed above in the paragraphs covering searching was the geographical scope of the search. Absent special circumstances (e.g., a promising new pharmaceutical), initial searching should not be extended into multiple countries. Instead, searching beyond the U.S. or other home country can be staged. U.S.-based companies should in most cases begin searching for U.S. patents.

Following an initial assessment of any product-relevant U.S. patent protection, product development managers can consider whether to expand the search to selected, important countries or regions such as Europe and Japan. European patent protection is typically assessed by searching the patent documents of the European Patent Office (Munich).

The search for patents beyond the U.S. (or one's home country) can be based on subject matter or family, but typically will include both these approaches. If relevant

U.S. patents have already been identified, developers may wish to know whether a directly corresponding patent has been filed in the European patent office.

G. Reviewing U.S. Prosecution Histories Files. Before allowance, U.S. patent applications are examined by a technically trained employee of the U.S. PTO. During the examination process the PTO examiner and the applicant's attorney exchange correspondence concerning the examination. This correspondence is collected by the U.S. PTO in a file conventionally called the "prosecution history file." With some specific exceptions, prosecution history files become available for public inspection as soon as the application has published. In other words, it is possible to view the prosecution history of issued U.S. patents and published applications.

Prosecution history files often include statements by the PTO examiner and the patentee that affect the interpretation of the claim language. Prosecution history files often provide a list of technical publication references that predate the patent. These prior art references can serve as a guide to the technical product features cannot covered by patent protection.

It is, however, a common error in patent risk assessments to rush into a review of the prosecution history for a potentially problematic patent. The assessment should first focus on the plain language of the patent claims before delving into the more legally complicated prosecution history issue. While ultimate victory for the defendant in a patent infringement lawsuit may lie in the prosecution history file, a patent holders decision whether to assert patent infringement at any level will be based more on the plain language of the patent claims.

H. Reviewing Patent Prosecution Records in Other Countries. The European Patent Office (EPO) is currently recognized as offering a more rigorous patentability search and review of patent applications. It is also more common in the practice of other patent authorities (including the EPO) for companies to oppose the issuance of a patent either in formal opposition proceeding or by simply filing prior art publications against pending patent applications. Non-U.S. patent prosecution records can therefore serve as a source of evidence for attacking the validity of corresponding U.S. patents.

It is not uncommon for a U.S. patent to have a corresponding European patent application that was fully rejected by the EPO or even revoked during an opposition. Although such facts alone do not eliminate all cause for concern over the U.S. patent, they do serve to lower the risk that the corresponding U.S. patent is invulnerable to attack.

IV. Staging the Assessment and Planning Efforts

Product development requires the coordination and timing of scores of tasks: product design, marketing, production planning, supply assurance, quality control, market exclusivity through patent protection. Although standard planning methods are

available in theory, each business and each product presents unique requirements to the product developer. The more challenging issues certainly differ according to business situation. For some products, production, yield and quality assurance are greater challenges than marketing or sales. Some companies may be pre-equipped to address complex manufacturing requirements but are short on marketing resources for the product under development. The conclusion here: product development is complicated and full of risks.

Careful timing of product development events and assessments is required to effectively use resources. If manufacturing planning has not caught up with marketing or design, one's company may soon be selling great products at a loss. Indeed, if an accurate assessment of manufacturing costs comes too late in the development process, resources may be wasted developing and marketing a product that cannot be manufactured for sale at a reasonable price. Even the best development planning puts resources at risks from unknown factors. Could we have known the competitors were working on a similar product or on the verge of buying our key component supplier?

Bringing the discussion back to the issue of patent threats, one cannot hope to completely eliminate the risk of a patent problem arising during or after a product development. Furthermore, it may be impossible to avoid spending resources on patent assessment before one is otherwise confident of a given product's success. Accepting these negatives, it is however possible to better plan one's approach to assessing patent threats and also to consider how best to coordinate this assessment with other development activities.

The specific steps and considerations of a patent risk assessment should be tailored to the products or services at issue by consulting with an attorney. It is therefore advisable to alert your corporate legal department or your law firm attorneys about a possible development project as early as possible. Early consultations allow developers to integrate patent risk assessments into the overall project plan.

Even before development work has otherwise begun, it is generally advisable to survey company intelligence on patent issues and to conduct a preliminary patent search based on the product category and predictable features. Searches can later be supplement to cover product features that arose during development and newly published patent documents. Although the process of publishing patent applications 18 months after filing offers developers some advanced warning of patent protection, there remains the possibility that patents will issue after conducting risk assessment searches.

A preliminary patent search and analysis can be used to determine an overall level of patent protection in a given product area. Product areas crowded with patent protection may be too risky to enter. The preliminary analyses can also be used to aid product developers in designing around patent protection. At this stage, predicted profit margins for the target product area can be weighed against initial predictions of patent liability risk. To gain a lower-cost, but highly predictive indication of patent risk at the

earliest stages of development, patent searching strategies can be focused on the patent holdings of prospective competitors. If the key competitors appear to lack patent protections, patents are less likely to be a market barrier.

It is likewise possible to overspend on patent clearance work before other product feasibility issues have been addressed. Expenditures on patent searching and analysis should be avoided until developers are reasonably certain of product feasibility. “Feasibility” can be difficult to define. This note is merely a caution that some less practical product developers may prematurely jump to the patent assessment to add a sense of legitimacy to an unfeasible product concept.

Endnotes:

¹ American Intellectual Property Law Association, 1997.

² Most U.S. patent applications are published electronically by the U.S. PTO 18 months after filing. Applicants who do not intend to file for corresponding patent protection outside the U.S. can invoke a mechanism to insure that their application is not published but is instead maintained confidential until issuance of a patent.

³ Patent claims are the numbered paragraphs that typically appear at the end of the patent document. Patent claims define the scope of coverage for the patent.