

Simple Self-help Patent Searching Techniques

You are working in R&D for your company and you just conceived what you think is a new concept that could be of commercial value. How do you effectively investigate whether your competitors have already thought of the same or a similar concept?

- Patents
- Trade Marks
- Designs
- IP Strategy

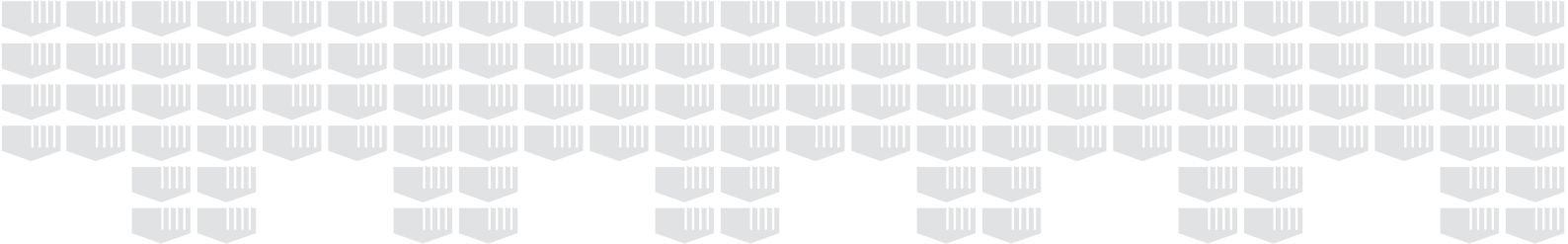
Many senior R&D researchers, engineers and inventors take great pride in staying up-to-date in their field through punctual review of numerous journals and other publications, conference attendance and peer interaction. However, such experts often remain unaware of important proprietary developments of third parties because the experts do not review published patents and patent applications. This article addresses why experts often fail to review patent literature; this article next describes the timely value of published patent applications; and this article then provides easy, step-by-step instructions for quick, accurate and free searching of the copious patent databases of the U.S. Patent and Trademark Office (USPTO). The simple self-help patent searching techniques explained in this article are appropriate for expert researchers, individual inventors, corporate executives and small business managers alike.

Why researchers should, but often do not, review patent literature

Many researchers fail to effectively review patent literature because they do not recognize its value. Until recently, patents have not been considered a primary medium of publication, similar to peer reviewed journals, through which researchers could advance their reputations and communicate with their peers. In the past, in many countries patents were published only after they were granted. That often meant that many years had passed since a patent application, which resulted in a published patent, had been filed. Thus in many rapidly advancing fields such as information technology published patents included relatively old information that was not representative of the current state of the art. But

that is no longer true. Most countries now publish patent applications 18 months after the earliest filing date.¹ Further, Australia and the U.S. allow provisional patent applications to be filed up to one year before a complete patent application is filed—which complete application may then lead to a granted patent. Complete patent applications are generally prepared near the end of the one year term of a provisional application and, when preparing a complete application, inventors are allowed to update the material that was included in the provisional application. That means that patent application publications in the U.S. and Australia often include valuable technical information concerning the proprietary developments of third parties that is **only six months old**.

Other researchers fail to effectively review published patent literature simply because they do not know how. As a patent attorney I have reviewed many invention disclosures submitted by top scientists at large multinational companies, where the scientists have stated on their corporate disclosure form that they have reviewed the patent literature and that there are no published patents or patent applications related to their present invention. However, a quick search of the USPTO patent databases—according to the simple guidelines presented below—often revealed published patent applications of competitors describing inventions that were highly relevant, and sometimes even identical, to the invention described in the scientists' disclosure. I do not believe that these scientists were trying to hide anything; they were simply unaware of the relevant publications because they did not know how to effectively perform patent searches.



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Why researchers should learn to search the USPTO patent databases

Researchers should learn to perform online searches at the USPTO because it includes some of the world's largest public patent databases containing recently published patent literature from top companies and individual inventors throughout the worldⁱⁱ— and full access to the public databases is free. Further, it is often difficult, time consuming and expensive to get others to perform patent literature searches for you. Professional, private search firms will conduct effective patent searches for you, but the costs can be often thousands of dollars. Professional searches including patent databases of multiple countries are recommended for highly important developments, but often budget limitations and time constraints preclude access to such professional searches. Many patent attorneys do not perform patent searches themselves but also outsource searches to professional search firms—again at substantial cost. Researchers who master the simple techniques described below will possess the skills to become conveniently, cost effectively, and timely informed about the patent work of their competitors and other research organisations, and more confident that their own invention disclosures provided to their patent attorneys will result in strong, defensible, and profitable patents.

A few easy steps for effective searching of the USPTO patent databases

1. Bookmark the following two URLs:

<http://www.uspto.gov/web/patents/classification/>
<http://www.uspto.gov/patft/index.html>

During an effective patent search you will likely need to jump several times between the two sites at these URLs.

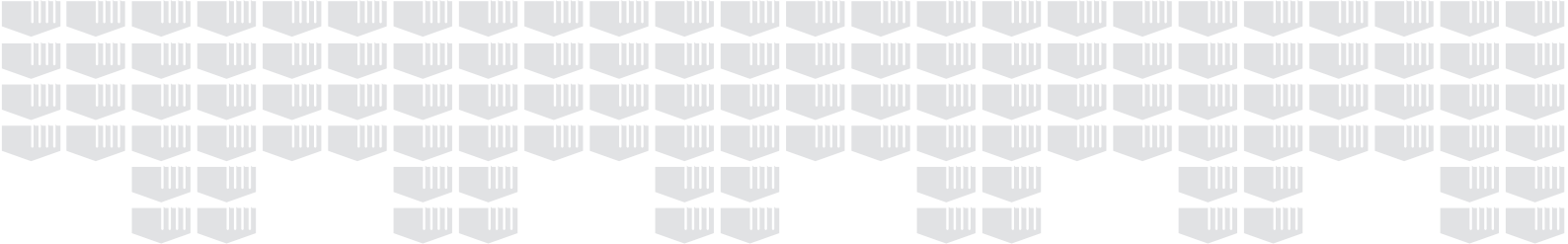
The first URL resolves to the USPTO patent classification main menu. If you click in the upper left hand corner on "Class Numbers & Titles" you are able to review tables of the hundreds of classes and thousands of subclasses into which the USPTO categorizes the millions of patents and patent applications included in its databases. For example, class 707 is defined as "Data Processing: Database and File Management or Data Structures: ... the generic class for data processing apparatus and corresponding methods for the retrieval of data stored in a database or as computer files." By clicking on "GO" to the left of the class, you are presented

with a table of subclasses having obtuse short titles such as "9 Privileged Access" and "203 Version Management." To the left of each subclass is a letter "P" (white on red background) that, when clicked, provides a listing of all patents assigned to that subclass. For example class 707, subclass 9, had at the date of this writing 747 patents assigned to it. After receiving the list of patents, one can scroll down the list and click on any particular patent and retrieve immediately a full text version of the patent.

Meticulous review of the above described tables of patent classifications is one way to search for patents in a given field. However, as the reader may have guessed, that is an incredibly laborious and difficult search technique. Unless one is intimately familiar with the USPTO's classification procedures, it is hard to know where to start when conducting such a search. Further, even if you are lucky enough to find a class and subclass that appears particularly relevant to your invention, you are often left with a long listing of hundreds of patents. Wading through so many patent documents is again not a recommended search strategy.

The second URL above resolves to search menus for both issued U.S. patents (since 1790) and published U.S. patent applications (since 15 March 2001). Clicking on "Quick Search" under either "Issued Patents" or "Published Applications" leads to a standard keyword entry search screen. From here, you can easily perform basic keyword searches using the self-explanatory fields. More sophisticated keyword searches can be performed using the "Advanced Search" option that allows more sophisticated Boolean expressions. For example you can search for specific terms in either the title or claims of a patent using the particular field codes listed on the Advanced Search page.

Most researchers and patent attorneys who use the USPTO patent databases use only the above keyword search techniques under Quick Search or Advanced Search. However, similar to the classification method described above, keyword searching by itself is often a frustrating process that results in either too many or too few patents that are of little relevance to the invention to which a search was directed. Keyword searching can be particularly problematic in rapidly changing fields such as information technology. That is because some aspects of such fields are so new and fast changing, that a widely understood and accepted vocabulary for describing innovations is not available.



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For example, five different researchers describing an innovative file management system might use five different names for each component of the system—even though each researcher is describing the same system. So unless researchers can accurately anticipate what terms their colleagues at competing organizations might use to describe a particular innovation, keyword searches may be of limited value.ⁱⁱ

If you have read this far, you deserve to have revealed what the author believes to be the secret to effective patent searching: It is an effective combination of both classification and keyword searching.

Best of all it does not require any knowledge of the confusing and esoteric classification nomenclature and procedures of the USPTO. It begins with the following second step to effective searching.

2. Click on the second bookmarked URL described above and perform a basic keyword search under either the “patents” or “patent applications” headings. For very basic mechanical, chemical, or electrical inventions that could have been invented anytime during the past several decades, search under “issued patents” first. For inventions in rapidly transforming fields such as information technology, search under the more recent “published applications” first.

For your keyword search, attempt to use a mixture of both broad and narrow terms related to your invention, so that a listing of between 50 to several hundred patents is returned.

3. Scroll through the titles in the listing to identify a short list of less than a dozen or so patents that appear to be of particular relevance to your invention. Then click on those patents and read their abstracts. After reading the abstract, for any patent that still seems of particular relevance to your invention, scroll down the full text version of the patent to the heading “US Current Class:” that appears in the left hand margin below the abstract, and write down the several class and subclass numbers. For example, these numbers may appear in a format similar to “711/103; 711/115; 711/170” where each class and subclass designation is separated by a “/”.

Now, without any knowledge of how U.S. patent examiners are instructed and trained to classify patent applications, you are armed with the knowledge of how at least some U.S. Examiners have classified a few inventions that you consider to be somewhat related to the field of your invention.

4. Click on the first URL provided above to get to the USPTO patent classification main menu. In the text input boxes in the left column (USPC Classification) enter one pair of the class and subclass numbers that you wrote down previously and click “submit”. You will then receive a listing of class and subclass names that all should be somewhat relevant to your invention. By clicking on the number of each subclass you can obtain a more detailed description of what types of inventions are categorized under that subclass. Review the descriptions of the subclasses near (just above and below) the subclass that you typed in. If any of the subclasses listed near the subclass that you entered originally appear to be particularly relevant to your invention, write down those additional subclasses.

5. Click again on the second URL provided above to return to the keyword search screens. Now, under “Advanced Search”, enter “ccl/[number of a class]/[number of a subclass] and spec/[repeat your broad keyword search terms]”. For example “ccl/711/103 and spec/(EPROM and flash)”. That search request will search for specific broad terms, such as EPROM and flash, but only among the patents included in a specific subclass that you considered especially relevant to your invention.

6. Return to step 3 above. That means that you review any relevant patents from your advanced search under step 5 and again record how a U.S. Examiner has classified those patents using specific class and subclass numbers. Now repeat steps 4 and 5 above. You should find that this process quickly converges on a short list of patents and/or patent applications that are highly relevant to your search.

That’s it! You now have the tools to effectively search the patent databases of the USPTO using its sophisticated system of patent classification—even if you have no knowledge of how that system of classification works and do not understand its vocabulary.

Searching the USPTO patent databases using the techniques described in this article enable you to perform timely reviews of patent applications filed by third parties—including your competitors—and which applications often include technical innovations that are only six months old.

ⁱAustralia, Europe and Japan have published patent applications 18 months after the earliest effective filing date for many years, and the U.S. began such 18 month patent application publications in early 2001. Publication at 18 months from filing is also required under the terms of the Patent Cooperation Treaty (PCT).

ⁱⁱ Other countries also provide free and useful patent literature search engines. For example the European Patent Office databases are searchable at www.espace.net and IP Australia databases are searchable at www.ipaustralia.gov.au/auspat/index.htm.

ⁱⁱⁱ That problem is compounded by the fact that some patent attorneys invent their own terminology (i.e., become their own “lexicographers”—a process authorized under the US patent laws) to define complex inventions.



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