Patent Busting with Prior Art?

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BY BRENDAN BAGGOT²

Although there are many routes to invalidating a patent, what are the chances of finding prior art missed during U.S. prosecution? What are some of the factors that influence the outcome of a patent search? How can one assess a priori the likelihood of uncovering “new” prior art? How does the specific technology affect the outcome? These and other questions will be explored in this article.

WHERE WAS THE TECHNOLOGY EFFORT LOCATED? EUROPE? JAPAN?

Most U.S. patent attorneys will agree that foreign art is cited less often than U.S. art. This is somewhat due to the Office policy that Examiners are not required to provide copies of U.S. patents and patent publications to applicants but also partly due to search queries which are not directed to foreign art.³ This bias towards domestic art is not without effect. If the bulk of the research occurred in Europe, search queries which do not include, for example, the Derwent (DWPI) database may miss this art. A review of the search query will reveal which databases were searched.

Another factor affecting search query quality is whether or not the key inventors’ names were searched. If a certain two or three labs were competing, any search which does not include these key inventors could miss some art. It may be that the earliest prior art later turned out to be non-enabling. Since negative results are rarely published, if the second-in-time inventor published a paper refuting the results of the earliest prior art and this second-in-time inventor was outside the U.S., it is possible that the search query in the U.S. file wrapper will not contain this reference. Reviewing the search query with your lead scientist may help to identify the preeminent investigators in the field. If these names were not in the query, extant prior art may or may not exist.

Assessment of this issue may call for reviewing the search query itself. Portions of two sterilized search queries are excerpted below. Figure 1 indicates that the USPAT (US patents) and PGPUB (US pregrant publication) databases were searched while the EPO and JPO databases were not. For the hypothetical application with the search query in Figure 1, if most of the inventive activity occurred outside the U.S., for example manufacturing tofu, extant prior art may or may not exist.

To determine which patent and patent publication databases were searched, check the search notes (SRNT) on Public Pair. The search notes will indicate which of pregrant publication (PGPB), USPATFULL (USPT), European (EPAB), Japanese (JPAB), or Derwent (DWPI) patent databases were searched. (See Figures 1-2). To determine which sequence databases were searched, check the “Supplemental Material” tab in public PAIR or order the file wrapper. The name of the database searched appears at the top of the search results for each output file.

PIONEERING TECHNOLOGIES?

If the technology was a pioneering invention, there may not have been an Examiner who knew the art well enough to do a thorough search. For example, until recently, there was no Business Method Art Unit. In addition, when a technology is nascent, accepted terminology may not exist. This can be compounded by inventive efforts occurring in different countries. At times, spelling (e.g., hemoglobin in the U.S. and haemoglobin in the U.K.) and synonym issues arise. Also, lack of separate patent classification class and subclasses can compound the problem because the Examiner will have to rely on keyword searching alone. Where the invention at issue was a pioneering one, additional budgeting for searching may affect the outcome.

WAS A STIC SEARCH DONE, AND IF SO HOW DOES THAT AFFECT THE OUTCOME?

There are some situations where the Examiner may have requested a search by the Scientific and Technical Information Center (STIC). These searches may contain dozens of citations. STIC searches normally do not have advanced technical training. Therefore, they must rely on the Examiner to provide assistance with the search strategy and, as a result, the STIC search may not be any better than the search done by the Examiner. The pres-

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³ This bias is partially due to differences in cost of representation, the Office’s practice of not providing foreign art, and the STIC search being an optional procedure.
ence of a STIC search in the file wrapper may indicate uneasiness on the part of the Examiner regarding his search. If no slam dunk prior art appears in the record after both Examiner and STIC searches are made of record, a conclusion of uneasiness in the mind of the Examiner with respect to the search may or may not be inferred. Regardless of any uneasiness, a patentee will no doubt argue that patents are presumed valid and two searches failed to reveal any prior art.

**ATTRITION OF PTO EXAMINERS**

Conventional wisdom is that it takes about six years to train an Examiner. Junior Examiners, particularly those with no industry experience, need time to mature in the technology. In reviewing the search query, if one sees only keyword or only class/subclass searching, unsearched leading inventors in the field, or that the Examiner was not a primary Examiner, extant prior art may or may not exist.

**TECHNOLOGY-SPECIFIC VARIATION IN SEARCH QUERY QUALITY**

In the chemical arts, small molecules and “wet” chemical patent applicants frequently claim the chemical structure. Instead of simply word-searching the compound name, the chemical structures may also be searched. Chemdraw® is used to draw out the chemical structure which is then searched against the CAS registry or Beilstein databases. If the prior art was published before the coverage dates for the chemical structure databases, extant prior art may or may not exist.

Another technology-specific issue arises in the Biotechnology area. DNA and protein sequences are frequently claimed subject matter in Biotechnology patent applications. Modern computer-based sequence searching, while very efficient, is not foolproof. Prior art sequences which are not submitted to Genbank (a database including nucleic acid and protein sequences maintained by the National Center for Biotechnology Information in Bethesda, Maryland) may be missed because the sequence was not in the database used by the PTO at the time of the search. While GenBank, the DNA DataBank of Japan (DDBJ), and the European Molecular Biology Laboratory (EMBL) are part of the International Nucleotide Sequence Database Collaboration, PTO sequence searches are done against the PTO's in-house database. Relying on the sequence search results, the Examiner may or may not find or consider this art. Where the claims are directed to nucleic acid and protein sequences, despite the power of sequence searching, extant prior art sequences may or may not exist.

If the chemical structure is a nucleic acid such as DNA or RNA, chemical structure searching is less efficient than sequence searching. DNA, RNA and protein sequences can be searched using Genbank and other sequence database searching tools. Sequence searching is done by “Blast”ing the sequence against Genbank using a software program called BLAST. BLAST searching can be very effective in finding art, and even ranks the art for the Examiner based upon how close the art is to a 100 percent match. Nevertheless, both Chemdraw® and sequence searching are not foolproof.

For proteins, prior to the large scale sequencing efforts of the late 1990s, art exists where the protein was known and isolated by protein biochemists, but the sequence was not published. For patents with claims to isolated proteins, prior art for a protein may exist even though the DNA sequence was not known as of the critical date or ever submitted to Genbank. As these proteins were not sequenced and submitted to Genbank, it may be that the only way to find this art is via keyword or enzyme commission number searching.

Another technology specific issue with searching arises when the best art is art is “b” art under the on-sale bar provision of Title 35. If no prior art can be found in the patent and non-patent literature, lack of novelty / invalidity may arise from an on-sale bar art such as a product catalog page. Finding a company’s sales catalogs may require some effort.

**CLAIM LANGUAGE-SPECIFIC VARIATION IN SEARCH QUERY QUALITY**

Some claim formats are inherently more difficult to search. Negative limitations, claims drawn to a “gmish,” compositions claimed using ranges of concentrations, and product by process claims are somewhat unsearchable. Suppose two identical “gmish” compositions are made and claimed differently. Even if the Examiner could find such art, the patent office will almost certainly be unable prove anticipation. In the case of ranges of concentrations or units of measure, if a patent in suit used grams, the accused infringer may consider searching both English and metric units of measure. While an exhaustive list of examples of somewhat unsearchable claim formats is beyond the scope of this article, consider factoring these issues into your analysis.

**ENDNOTES**

1. Copyright 2010 by Brendan O. Baggot.
2. Mr. Baggot, a patent agent and prior U.S. patent examiner, is not an attorney. He has extensive experience in a wide range of technologies. Before practicing patent law, Brendan was a scientist on the Human Genome Project. Subsequently, he worked first as a molecular biologist and later as a patent scientist at a leading international biotechnology company, Technologies he worked on include biofuels, neutraceuticals, molecular farming, specialty lipids, food and feed and molecular biology. As an examiner, he examined technologies including genetic elements, transcription factors, antibodies, promoters, antisense, RNAs, cell lines, viral and exotic expression systems, herbicide and drought tolerance, secondary metabolism yield, vitamin production, breeding methods, and plant storage compound yield. He can be reached by telephone at (618) 363-6214 and by email at bbaggot@gmail.com.
3. MPEP § 707.05(a); 1282 O.G. 109 (May 18, 2004).
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