

Using Patent Citations as an Effective Tool While Conducting Prior Art Search

Introduction

A prior art search is conducted for several reasons. Some of the reasons may include assessment of novelty, invalidation of patents, competitor and technology monitoring, and patent landscape study among others. A prior art search may be carried by using a combination of various techniques. Typically, techniques for carrying out prior art search include key-words strings, patent classifications, inventor based searching, assignee based searching and citation based searching.

Among the techniques of searching, citation based searching is frequently ignored, although citation based searching can deliver extraordinary results.

Patent citations

A patent citation is an instance where a patent or an application mentions or includes a reference to an earlier patent or patent application. Its function is similar to an academic paper citation which cites an earlier published work. Patent citations may be added by the patent examiner as well as the applicants of the patent.

Generally, patent citations included by the examiner are for the purpose of restricting patent claims, while those included by the inventor/applicant are for demonstrating prior art related to the invention. In either case, prior art patent citations are used to assess patentability of an alleged invention.

A patent/application, which may be referred to as a root document, may primarily have two types of patent citations, viz., backward citations and forward citations. Backward citations of a root document are patents/applications that are referred by the root document. Forward citations of a root document are patent/application referring to the root document. Any of the backward and forward citations may be a self-citation. Self-citation is when the root document cites or be cited by a patent/application that mentions the same author or assignee as the root document.

Finding patent citations

Backward citations of a root document may be found in the root document itself under a heading of "References cited" or similar headings. Forward citations may be found in online patent databases. One should note that the list of forward citations, unlike backward citations, may grow over time. The [European Patent Office](#) database is a freely available resource where both forward and backward citations can be found. Most other free databases only make backward citations available. Most of the paid private patent databases make both the citations available, since these databases

Reasons for using patent citation based search

There are several reasons why patent citation based searching technique has to be part of the overall prior art search strategy, and some of the reasons are discussed below.

Tapping into ready-to-use human curated relevant search results

Patent citations are a result of one or more (in case of forward citations) examiners' efforts to identify relevant prior art references while conducting examination. The examiner cites a prior art reference after having reviewed the reference in detail, and not just because the prior art reference has a few key words that appear to be relevant. Hence, human intelligence would have been applied in citing a reference as relevant. It would be wise to use the set of documents grouped together by way of citations in prior art searching. Once a patent/application has been identified as relevant, its citations may disclose aspects related to the root document, which may also be relevant to the prior art search.

Improving the ability to structure claims and description better

One of the key challenges in claims drafting is defining the spread of prior art. A set of citations, when considered together, can help in defining the spread of prior art teaching in the context of a proposed invention. Such a contextual understanding of prior art can help in defining the scope of the claims in a way that the claims are neither too broad, thereby resulting in the prior art rendering the claims un-patentable, nor too narrow, thereby failing to exploit the full potential of the invention.

Identify a technological trend

Patent citations are one of the best sources to track the flow of innovation in a particular field of technology. With the help of backward and forward citations, it is possible to map knowledge spill-overs from earlier inventors to later inventors. Additionally, citations help in recognizing trends in technology and innovation which may be useful in determining potential research fields. It is also possible to identify *seminal patents* by analysing patent citations, among other factors. A seminal patent covers an invention which is considered to be so important that it creates a technological shift in a particular field of technology. A patent having a relatively large number of forward citations when compared to other patents in its field may be a seminal patent.

A variety of situations may require a market value to be estimated for patents. As an example, patent valuation may be required when a patent owner is looking for investors or manufacturers, in case of company takeovers, or during the buying/licensing of patents. In such situations, analysis of patent citations may help towards assessing commercial value of patents. It is generally accepted that a patent having numerous forward citations may turn out to be more valuable when compared to patents with fewer forward citations. This is because, having many forward citations means that the technology disclosed by the patent was used by many other inventors in subsequent developmental efforts, resulting in various new innovations that have their roots in this patent, thereby increasing the value of the patent.

Mitigating infringement risks

Freedom to operate studies are conducted to identify patents that might have the potential of being infringed by a product/process. In case patents that may adversely impact the freedom to operate are identified, then it would be wise to also consider citations of such patents in the freedom to operate study. Since citations mostly disclose information that may be closely related to the root patent, there is a likelihood that claims of such citations may also be relevant in assessing freedom to operate.

Conclusion

Effectiveness of prior art search has far reaching implications. Hence, attempts are made to make prior art search as robust as possible by using various search strategies. Among the search strategies, classification based searching and key-words strings based searching will in most scenarios be the primary search strategies. Once a bunch of relevant references are identified by using these primary strategies, citation based searching using the identified relevant references will exponentially improve the quality of the prior art search exercise. Hence, although citation based searching can most often be a secondary search strategy, its impact should not be neglected and citation based searching should always be part of prior art search exercise.

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