

Patent Information Search

Chapter 2: Patent Information Search

With the recent expansion of patent document materials, complex & advanced technology contents the trends show a gradual lean towards computer aided search rather than manual search methods. Computer search reduces search time in comparison to manual search, and large quantity of materials can be searched at the one time. Because full text searches are possible, patent document search can be conducted conveniently especially for chemical and electrical & electronics fields which could not be done with manual search.

1. Search Methods

Methods for patent document search can be largely divided into the computer search method and the manual search method, but in today's trend the use of computer search is prevalent.

A. Manual Search Methods

Because manual search involves the user finding required documents by turning the pages of books, it is effective in finding devices and descriptions of simple structural concepts.

So, manual search is utilized effectively mainly to find devices and structural concepts of prior technology materials of technology based on blueprints (image), and because the report booklets are searched by actually turning the pages, the advantage is in finding the precise data.

With the manual search method, the IPC classification of the required material must be known exactly. After finding the booklet classified into IPC, the required data can be searched. In Japan especially, the IPC & FI classification are divided into the main class and sub-class, the required data can be accessed relatively precisely and quickly.

B. Computer Search

Computer search is the search of patent documents through online patent DBs on the internet and offline patent DBs on CD-ROM.

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2. Patent Information Search Procedures

A. Determining Technology Contents

The technology contents to be searched are precisely understood and the subject matter is determined. In patent search, knowing the precise search purpose or understanding the technology contents is extremely important. If this is not the case, much time is wasted during the search and the required documents cannot be found properly.

B. Selecting Search Words

Numbers, dates, classifications, keywords etc. are used as search language. Of these, the most generally used is the keyword. It is a fact that the keyword is the most convenient for beginners to access the materials.

However, if the keyword is not used properly, search results usually bring up too many cases or too few cases. When selecting keywords, it must be done thoughtfully taking into consideration the keyword characteristics and the expression types relevant to the technology.

C. Database Selection

A database which matches the search purpose must be selected. The optimal database must be selected by examining the following points, country to be searched, the period, whether required search functions are provided, whether the data is reliable, the costs, whether patent documents are provided, whether full text search is provided, and whether a batch output is provided.

D. Strategic Search Entry

Search strategy is constructed by expanding & limiting the selected search words and entered to suit the format of each DB.

E. Examination of Search & Results Details, Keyword Revision

The search strategy is entered to execute the search. The time required for the search can differ depending on the DB structure, server capacity, and access time. Once the search is complete an ordinary system first provides the number of results and simple item information. The user then clicks the desired result and the document details can be seen.

Once the user checks that the documents in the relevant results match the purpose of the search, the keyword is revised from the result details or a keyword library is created.

F. Search of Similar Cases

In the process of examining the details of the search result documents, if a very similar case to the intended search result is found, taking the following procedure is very useful.

(1) Repeat Search of Patent Classification

The search is performed based on the IPC, UPC etc. included in the similar case. Before performing the repeat search, it is advisable to check the patent classification definition and the peripheral code. In the case of the USPTO, with a particular UPC a matching IPC code can be searched, and it automatically searches patent documents that meet the conditions.

(2) Repeat Search of Inventor

If a similar case is found, a search focusing on the inventor of the document is also a good method. This is because there are many cases where the same inventor normally invents similar technologies.

(3) Repeat Search of Cited References

References are cited on judgment of the relevant patent document. Searching the references in relation to the relevant patent documents can be considered a very useful search method.

In advanced databases a citation search function is provided separately, and the cited reference & citing reference can all be searched in the USPTO site. If a similar case has been found, documents citing that document or other documents cited in that document can be searched.

3. Domestic & International Patent Information Search Websites

A. Free Search Sites

Organizations	Search Site
Korea Institute of Patent Information	http://www.krpi.or.kr
Japan Patent Office	http://www.ipdl.jpo.go.jp/homepg.ipdl
US Patent & Trademarks Office	http://www.uspto.gov/web/menu/search.html
European Patent Office	http://ep.espacenet.com
WIPO	http://ipdl.wipo.int
State Intellectual Property Office of P.R.China	http://www.sipo.gov.cn
Canadian Intellectual Property Office	http://patents1.ic.gc.ca/intro-e.html
Software Search	http://www.spi.org/cgi-bin/newqry
Taiwan Patent Office	http://www.nt1.moeaipo.gov.tw/ipo/prennet.asp
Russian Patent Office	http://www.fips.ru/ensuite

B. Charged Search Sites

Organizations	Search Site
WIPS	http://www.wips.co.kr
KISTI	http://www.kisti.re.kr
DELPHION	http://www.delphion.com
PATOLIS	http://www.patolis.co.jp
DERWENT	http://www.derwent.co.uk
MICROPATENT	http://www.micropat.com
QPAT	http://www.qpat.com
STO	http://www.bustpatents.com
DIALOG WEB	http://www.dialogweb.com

4. Application Methods of Strategic Search

A. Understanding the Contents of Inventions

Patent search requires a sense of technology, language, and law, and the most important of these is the sufficient understanding of the technology contents.

If access is made without sufficiently understanding the technology contents, it is difficult to properly find the desired result and a low hit rate will eventuate.

B. Determining Necessary Factors of Inventions

Usually when a beginner conducts a search, there are many cases where the name of the technology or product (eg. HSG, LCD, DRAM...) is used. For example, would "semiconductor" be the right keyword when searching for semiconductor related patents? The core (necessary) constituent factor of the search subject must always be thought of. Core (necessary) constituent factors are search terms that cannot be excluded in describing the invention.

C. Search per Claim Item

The patent claim scope is the item that regulates the scope of patent protection, and mostly a multi-item system is adopted, and because it can be expressed through many items (exclusivity, continuance), each claim item should be seen as one invention when conducting the search. If all the claim items are lumped and recognized as one invention the rate of success in the search is reduced.

Especially with invalidity research, it is good to perform the search considering each claim item as a single invention. Often, there are cases where claim items are lumped and recognized as one invention, and in these cases the rate of success in the search is low.

D. Step by Step Search

The desire to find the required data in a single search after forming a complex search strategy must be thrown away. There is a need to start with a wide scope keyword and limit the keyword to a narrower scope over many stages (while checking the results).

E. Abstract, Claim & Full Text Search

The abstract is a simple summary of the invention details, claims contain details of right, and the full text (abstract + claims + detailed description) is the entire specification.

The section to be searched differs depending on the keyword (search term) used, and it is advisable to limit the search to the abstract and claim for keywords that are judged to be essential factors of the invention. For inventions with low peripheral factors (condition, detailed explanation, prior technology, effects etc.) and improvement level, it is good to search the full text. Of course, mixing the search items (abstracts, claims, full texts) is also a good search method.

F. General Keyword or Specialized Term Orientation

In patent search, using general keywords (System, capacitor, cell), or terms used in specialized R&D organizations (Assistance CMOS, box, reverse) as keywords is not advisable. Many search terms with the same concepts must be thought of. If the keyword used is too general, too many unwanted results can be produced causing confusion or too much time will be taken in examining the results.

G. Patent Classification Utilization

For results that cannot be produced by the keyword search can often be obtained using patent classifications. Especially with the American system, the operating system itself operates based on the UPC, so it is good to always access with a focus on patent classification.

H. Utilization of Functional and Descriptive Expressions

When performing searches, there are many cases where verbs and adverbs are used, and this usually produces good results (for example, reduce, upwardly, upstream, continuously, horizontally). However, these must be used in consideration of synonyms that can be diversely expressed, and attention must be paid as to whether the keyword is part of a stop word.

I. Korean Expressions of Foreign Language

When searching Korean patents there times when foreign language words are expressed differently depending on the Korean translator, and this factor must be noted in performing a search. Also, various expressions having the same meaning must be taken into consideration during the search.

J. Utilization of Cited Reference / Citing Reference

Of the search results, if there is a case that is close to the desired result, a cited reference / citing reference is performed centered on the relevant case. Cited reference centering on a particular case or referring to the citing reference is a useful method. Limiting the cited reference / citing reference to the first level is advisable.

K. Utilizing the Not Operator

When performing searches, there are many cases where too many search results are produced and difficulties in limiting the keyword or patent classification are encountered. In these cases, unrelated cases can be eliminated by using the Not operator. Beginners normally use the AND or OR operator, but if the NOT operator is used a more efficient search can be conducted. However, much consideration must be made in relation to the keyword elimination.

L. Utilization of Cut Words

It is very important to use cut words to take into consideration different suffixes and singular & plural expressions. However, where and how to apply the cut word must be thought of before using it. Although advanced databases provide index functions that check the details of the changes in suffixes of the search term, but this is not the case with most databases.

M. Phrase Search & Close Operator Utilization

Phrase search is using more than one keyword as if they are a single keyword, and is a function provided by most databases (for example: trench oxide layer, face down, inert gas, time dependent dielectric breakdown, channel stop etc.). If the phrase search is used, there are cases where a higher hit rate can be achieved than with the AND operator.

The operators used in searches specify interrelationships like 'search term and search term' and 'search term and search scope' enabling the function of logic operators (AND, OR, NOT). The AND operator has priority over the OR operator, and the user can determine the order of priority by using parentheses. Operators can be different for each search DB so they must be determined before performing the search.

[Table 2] Major operator functions

Classification	Condition	Operator Details	Operator
AND Operator	Intersection	Must include words on both sides	And,*,&
OR Operator	Sum	Can include only one of the 2 words	Or,+
NOT Operator	Negative	Must not include the word on the right of the operator	(and)not, !
Cut search	Abbreviation	All words starting with the word left of the operator	?,*, \$
Phrase search		Many words recognized as one search	""

[Table 3] Operators for major search sites

	Operator			
	AND	OR	ANDNOT	Cut Word
KIPRIS	*,and	+,or	!,not	?