European IPR Helpdesk

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# European IPR Helpdesk

# Fact Sheet

## *How to search for patent information*

*This fact sheet has been developed in cooperation with*

**January 2018**[1]



[1] This fact sheet was initially published in November 2011, and first updated in September 2014.

## Introduction

The objective of this fact sheet is to introduce patent searching using one of the most used patent databases, Espacenet, which includes smart and advanced search options.

Conducting patent searches is very useful for several purposes, not only for organisations such as SMEs and universities, but also for researchers. Indeed, patents include both technical and legal information and can consequently be used to:

- guide the definition of an organisation's IP strategy (identifying, for example, any barriers to developing an IP strategy, the avoidance of obstacles, etc.);
- define a state of the art (to find out what already exists, to check novelty, to improve the quality of a patent application, to understand the IP landscape surrounding your projects and IP);
- check for freedom to operate (to check if you do not infringe someone else's rights, to search for validity of third parties' IP);
- check if someone is not in a position of infringing your rights (infringement still needs to be proved);
- keep track on who is doing what (continuous monitoring of patent applications filing).

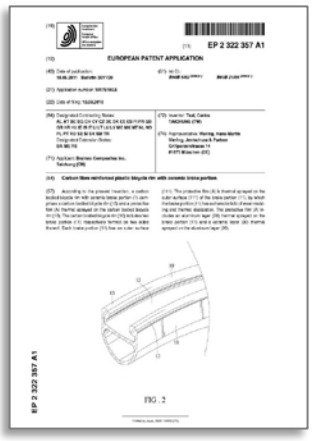
Thus, there are many reasons to learn how to search for patents.

In order to perform good and useful searches, it is essential to understand the structure of patent information, whatever form it can take (full text or bibliographic) as well as where and how to use the search tools available - elements that we also will present in this fact sheet.

## 1. What information is presented in a patent document[2]

Patent documents are structured in **3 parts**:

- **The first (front) page** presents general information about the patent:
  - The title;
  - A summary of the invention;
  - The name of the inventors;
  - The name of the patent assignee (= patent owner or patent applicant);
  - Several dates (priority, publication, etc.);
  - Several numbers (publication number, priority number, etc.);
  - The legal status of the document (patent application, granted patent, etc.);
  - The designated states (states in which protection has been asked for);
  - Drawing.




- **The technical description** - beginning on the second page of the document. It presents a description that can cover more than one page, which includes the technical problem which the invention solves, the state of the art, as well as a technical description of the invention.

- **A third part** includes the drawings, the claims (that provide a clear description of what is legally protected) and possibly a search report (see image).

[2] Example of the European patent.

## 2. Where to search for patent information?

The easiest way to retrieve patent-related information is to use online databases.

The information presented in databases can take different forms. We can find databases including the full text of patent documents, but also databases presenting a "summary" of them. The latter generally present the information contained on the patents' first page (possibly enriched with additional information), called the bibliographic reference.

Those databases are respectively called full-text databases and bibliographic databases.

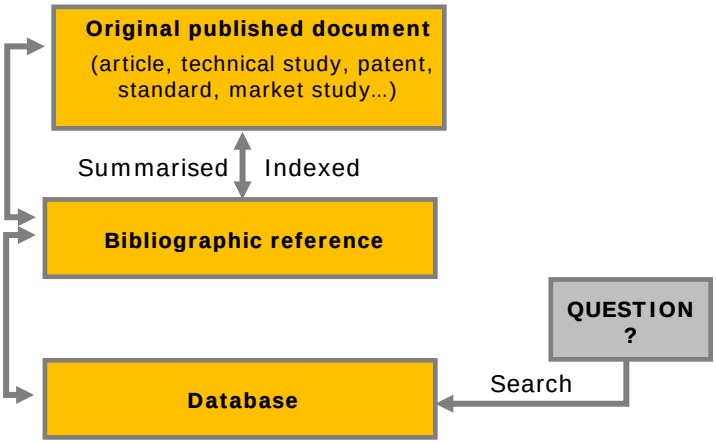



**Figure 1: Access to information**

It is worth noting that databases can also be classified according to the type of information that they include: technical or legal. Indeed, apart from the legal information that is already included in patent documents, additional databases including information related to the legal status of the patent, the payment of fees and owners and representatives, are also available[3].

The most common way used to retrieve patent-related information is the use of bibliographic databases. Such information sources are certainly well structured and allow you to perform efficient searches.

Bibliographic references refer to publications (here, the patents).

A bibliographic reference is a textual document (usually including an image) summarising the original document. Such references give information about patents and help the invention to be identified easily. For easy retrieval, producers of databases generally add information such as internal codes or keywords describing the subject treated in the original document.

[3] Note that to check the real legal status of a patent, it is strongly advised to consult national offices to get more accurate results. Legal databases are useful to check the non-validity or withdrawal of patents. Contact details may be found on http://www.innovaccess.eu.

Generally, a patent bibliographic reference includes:

- Title;
- Inventor;
- Patent assignee;
- Abstract;
- Codes (classification codes) and numbers (patent numbers and related dates);
- Drawings or images;
- Keywords.

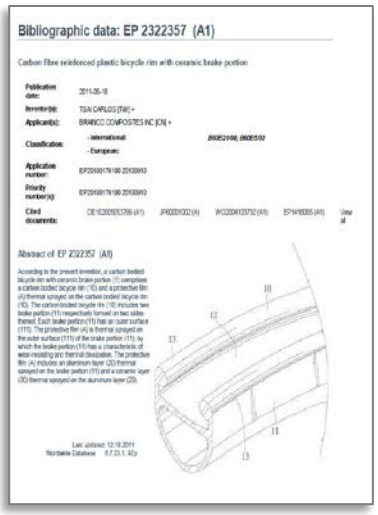
However, a number of differences can be found, according to the producer of the reference and the kind of information, which the original document includes.

Information in bibliographic databases is typically structured in what is called "informational fields". This means that the same type of content is always placed into the same informational field: the information related to the title is positioned in the title field; the information related to the name of the inventors is always presented in the inventor field, etc.

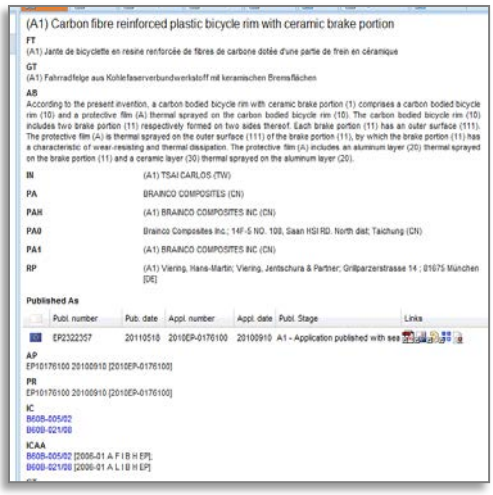
It is this information structure that allows you to retrieve patents more easily.

Examples of patent bibliographic references:

*Espacenet*




*Commercial server (Questel-Orbit)*




## 3. Search for information: generalities

When searching for information, you have to select keywords that define the object that you are looking for. The first thing to do is to clearly define the object of the search: the different parts or concepts of the search, the geographic area, the firm or time period, etc.

Once these first elements are clearly defined, you should choose the best keywords describing the invention. Find synonyms of the terms describing the invention which you are looking for, and try to avoid terms with a double signification, homonyms or so-called STOP Words (e.g. can). Specifying the context of their use and avoiding words without any technical signification, such as "general", "system" is essential before running any query.

**TIP:** To find synonyms, use dictionaries, thesauruses (synonym dictionaries) and even web search engines.

You should then regroup all the terms related to each concept, and associate terms as well as concepts using Boolean operators (AND, OR, NOT) to construct a query.

**Example**:

You are looking for "warning systems allowing the continuous verification of car tire pressure".

You can find several concepts and associated keywords in the table below:

| Concepts | Associated keywords |
|---|---|
| **Tire** | tire, tyre, etc. |
| **Pressure** | pressure, etc. |
| **Continuous verification** | verification, check, monitoring, etc. |
| **Warning** | warning, alarm, etc. |

A related query could be:

((tire OR tyre) AND pressure) AND (verify OR check OR monitor) AND (warn OR alarm)

**Note:** Do not forget that some words could be written differently between UK English and US English (e.g. airplane and aeroplane, tire and tyre), and that some letters can be substituted ("s" and "z", as in "analyse" and "analyse").

Do not forget that, generally, searches are also run in patent applications (not all patents available in databases have been granted or are in force). So, according to the purpose of the search, the validity of patents has to be checked.

**TIP:** Generally, when searching with database engines available on the web, you can use quotation marks (“ ”) to search for an entire expression.

## 4. Searching in Espacenet

Espacenet is a database provided by the European Patent Office, which allows free access to about 100 million patent documents from all over the world in four collections:

- Published patent applications from more than 100 countries worldwide
- Collection of published applications in English
- Collection of published applications in French
- Collection of published applications in German

As such, Espacenet is a very interesting multi-database tool to consider when searching for patent information. Among several options, Espacenet allows running a “Smart search” and is available at https://worldwide.espacenet.com/.

### 4.1 How to run a Smart search in Espacenet

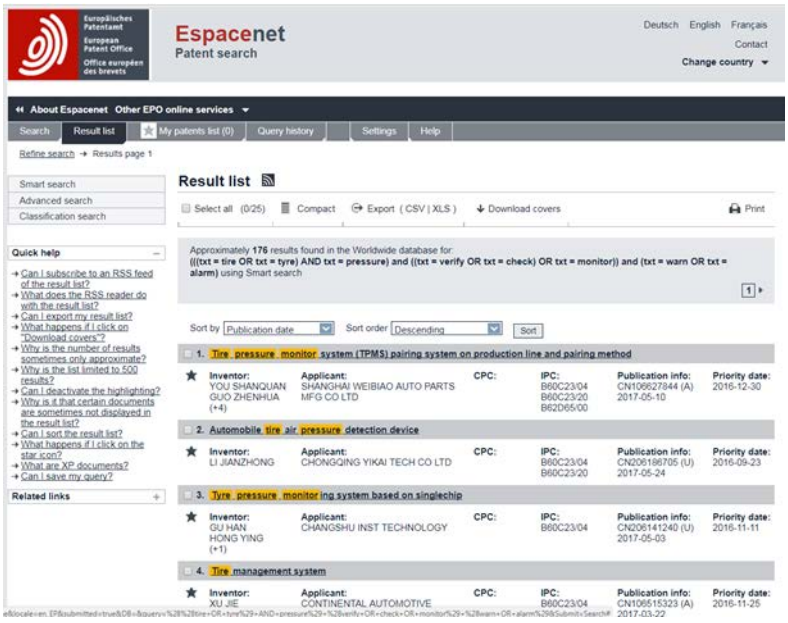
Smart search automatically searches in the Worldwide database.


1. In the Smart search mask you can enter your query with or without field identifiers. You can enter up to 20 search terms (a maximum of ten terms per searchable piece of bibliographic data - informational field) and combine them with the Boolean operators AND, OR, NOT.

2. Click on “Search” to get results to your query.

**Example Query:**

((tire OR tyre) AND pressure) (verify OR check OR monitor) (warn OR alarm)

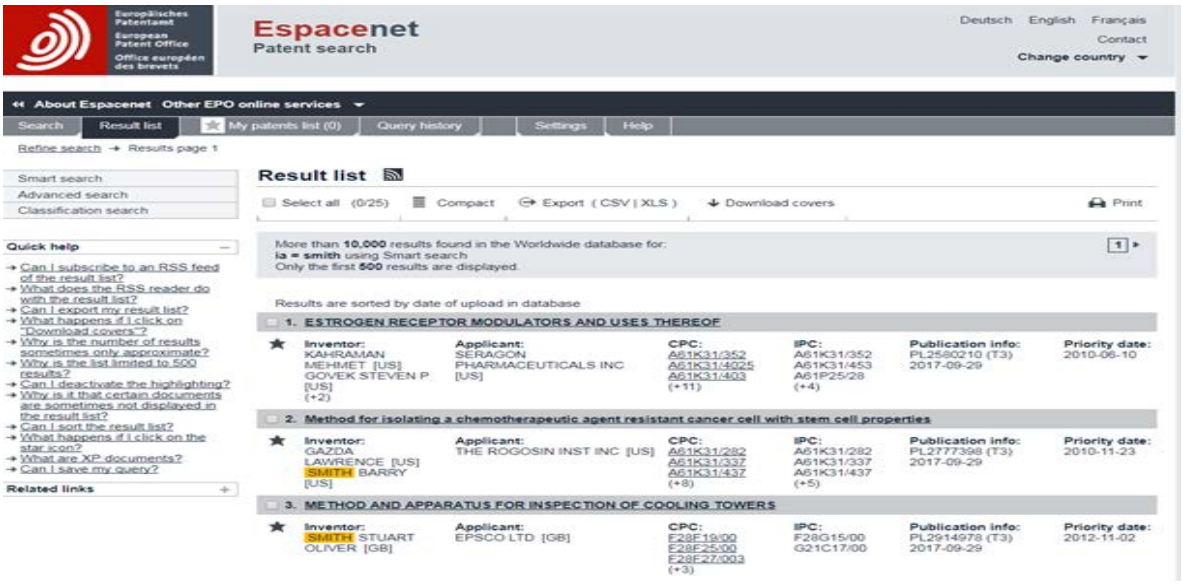




The list of results is displayed for analysis.

**Note:** Words are searched for in the titles and abstracts, description and claims fields; names are searched for in the inventor and applicant fields.

When you enter keywords, numbers or dates in Smart search, the search engine will identify whether you are looking for a number, a date, a name or a keyword in the title or abstract. However, you can fine-tune your searches by using field identifiers, hence telling the search engine in which field you would like to search.

Example: "**ia=smith**" forces the system to look for the word "smith" in the inventor (i) and the applicant (a) fields only, or by typing the name "**Smith**" with a capital letter indicates you wish to search within applicant and inventor fields.

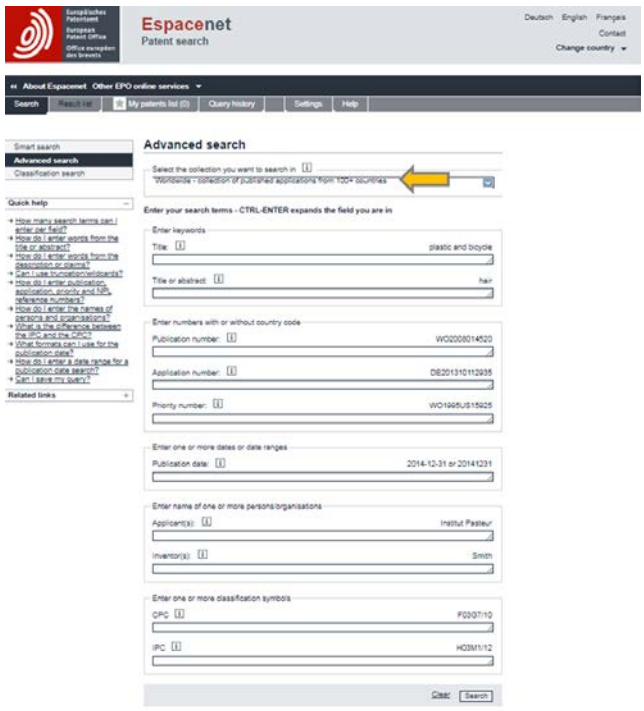



## 4.2 Advanced search using Espacenet

The advanced search interface on Espacenet provides the possibility to combine different search terms (words, names, dates, numbers and classification symbols). Search terms have to be entered in the respective search field. When introducing search criteria in several fields, the system combines them using the AND operator (each term being searched only in the field within which it has been inserted).

When searching for patents, it is advisable to combine textual search terms with patent classification codes/symbols.

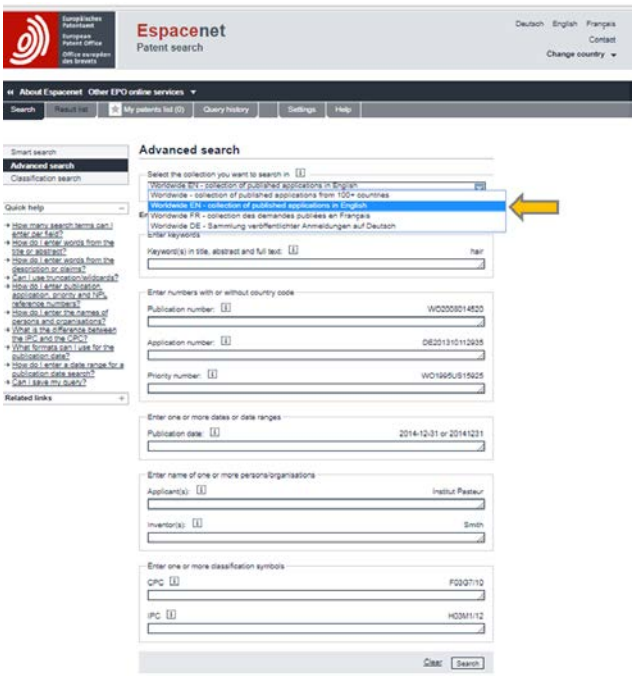
### 4.2.1 In the worldwide database




Search is possible in the following fields:

- ✓ Title;
- ✓ Title or abstract;
- ✓ Publication number;
- ✓ Application number;
- ✓ Priority number;
- ✓ Publication date;
- ✓ Applicant;
- ✓ Inventor;
- ✓ Cooperative Patent Classification (CPC);
- ✓ International Patent Classification (IPC).

### 4.2.2 In the collection of published applications in English, French or German (full-text searching)




Search is possible in the following fields:

- ✓ Title, abstract and full text;
- ✓ Publication number;
- ✓ Application number;
- ✓ Priority number;
- ✓ Publication date;
- ✓ Applicant;
- ✓ Inventor;
- ✓ Cooperative Patent Classification (CPC);
- ✓ International Patent Classification (IPC).

## 4.3 What are patent classification codes/symbols?

Patent classification symbols indicate the technical field or fields to which the patent application relates. The most used classification is the **International Patent Classification (IPC)**.

There are also other classifications, such as **the Cooperative Patent Classification (CPC)**, a bilateral system which has been jointly developed by the European Patent Office (EPO) and the United States Patent and Trademark Office (USPTO).

CPC replaces the former European Patent Classification, combines the best classification practices of the two offices and is also based on the IPC but is more detailed. It is in fact an extension of the IPC that has been developed because it is considered that the IPC classification entries are too broad (thereby retrieving too many documents); CPC splits them up into more sub-groups than the IPC[4].

Classification symbols are given to patents following the examination of their content by the IP office, and consider the elements protected according to the patent's claims.

[4] Some countries like the USA or Japan have also developed their own classification system. Classifications developed by patent database producers have also been developed in order to allow more efficient searches, such as the Derwent classification.

The IPC consists of a hierarchical classification system comprising:

- Sections;
- Classes;
- Subclasses;
- Groups (main groups and subgroups).

It includes 8 sections, classified as follows:

- Section A HUMAN NECESSITIES
- Section B PERFORMING OPERATIONS TRANSPORTING
- Section C CHEMISTRY; METALLURGY
- Section D TEXTILES; PAPER
- Section E FIXED CONSTRUCTIONS
- Section F MECHANICAL ENGINEERING; LIGHTING; HEATING; WEAPONS; BLASTING
- Section G PHYSICS
- Section H ELECTRICITY

Each section being divided into classes, for example:

Section A HUMAN NECESSITIES

*Subsection: Agriculture*

Class A 01 AGRICULTURE; FORESTRY; ANIMAL HUSBANDRY; HUNTING; TRAPPING; FISHING

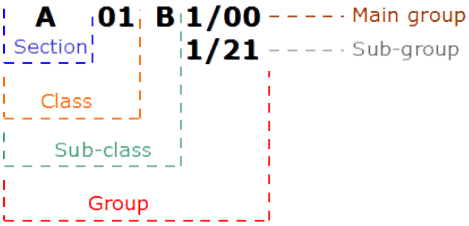
*Subsection: Foodstuffs; Tobacco*

Class A 21 BAKING; EQUIPMENT FOR MAKING OR PROCESSING DOUGHS; DOUGHS FOR BAKING

Class A 22 BUTCHERING; MEAT TREATMENT; PROCESSING POULTRY OR FISH

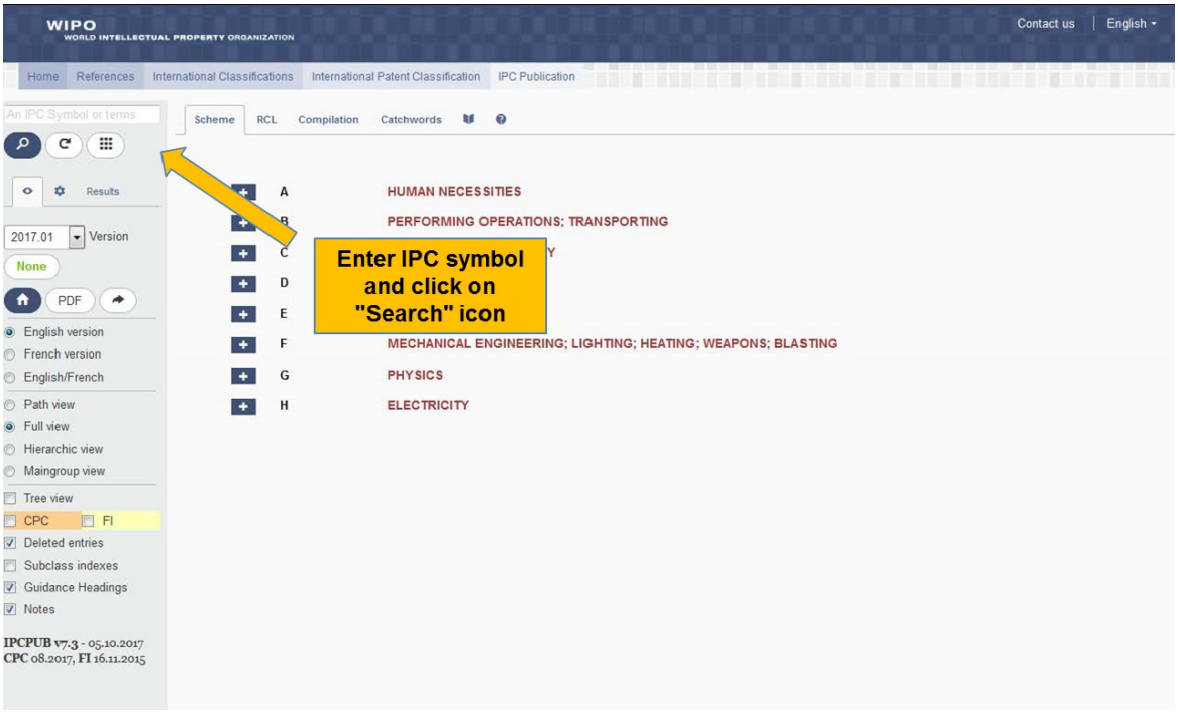
Class A 23 FOODS OR FOODSTUFFS; THEIR TREATMENT, NOT COVERED BY OTHER CLASSES

Example of an IPC symbol:



### 4.3.1 How can I find out what an IPC symbol means?

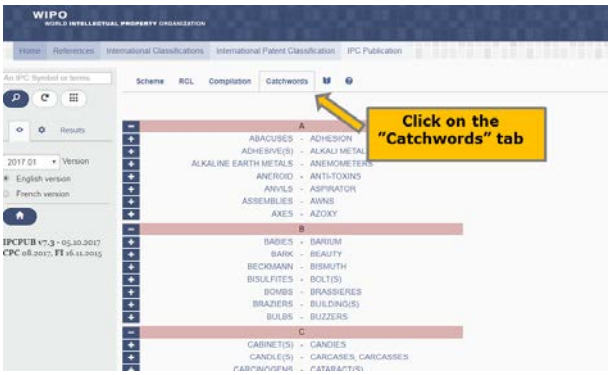
The official publication of the IPC, administered by the World Intellectual Property Organization (WIPO), provides a comprehensive collection of IPC symbols together with their titles and definitions, which indicates the technology represented by each symbol. The official publication of the IPC can be found at http://www.wipo.int/ipcpub/.




### 4.3.2 How can I find IPC symbols relevant to a particular technology?

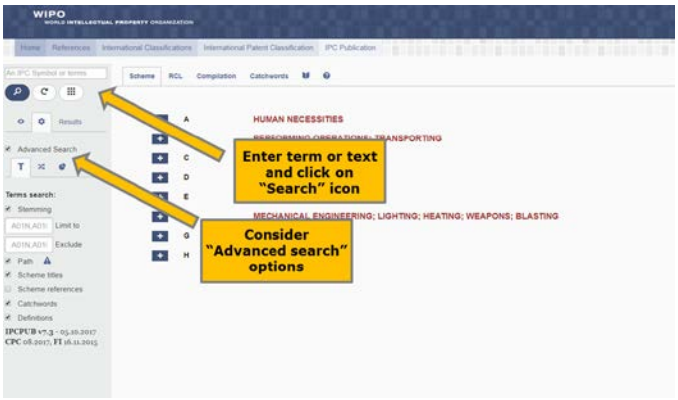
In addition to symbols and their titles with definitions, the official publication of the IPC also contains a number of useful tools and features that can help you to identify IPC symbols relevant to a particular technology. Using these tools and features can help you to avoid navigating the complex structure of the IPC in order to find the right IPC symbol.

*Browse the Catchword Index*



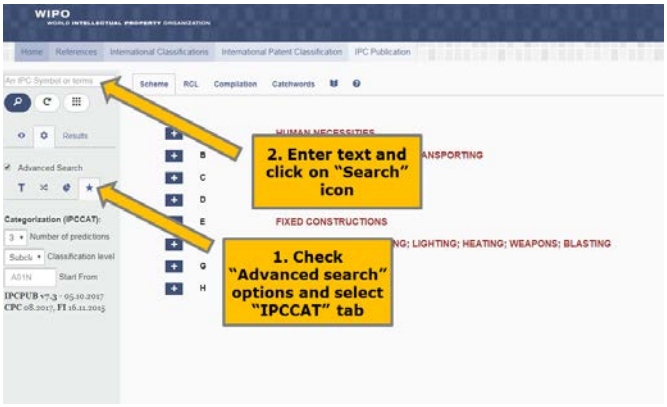

You can browse through a list of technical terms, matched with appropriate IPC symbols, by selecting the "Catchwords" tab.

*Search by terms*




You can also search the titles associated with symbols as well as the Catchword Index, by entering terms and clicking the "Search" icon to perform a "Smart search" with automated search optimisation or by making use of "Advanced search" options.

*Use automatic text categorisation*



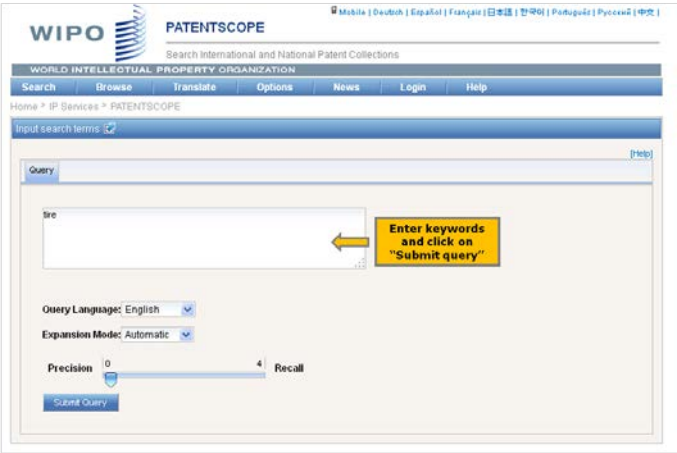

IPCCAT allows you to use whole segments of text, for example abstracts from patents or scientific articles, to identify relevant IPC symbols.

Another way of finding relevant IPC symbols is by looking at specific patent documents or using the analysis features provided by the free PATENTSCOPE search service provided by WIPO, available at http://www.wipo.int/patentscope/en/.

You can use any of the interfaces offered by PATENTSCOPE to do a keyword search. The Cross-Lingual Information Retrieval, or CLIR, interface will take one or more keywords and generate synonyms and variants in a number of different languages, helping you overcome differences in spelling and terminology mentioned earlier.

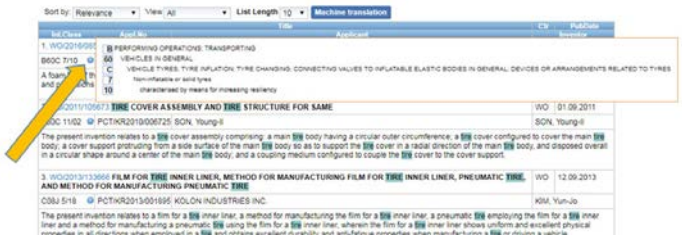
You will find the Cross-Lingual Information Retrieval interface under the search menu as shown.

You will then be able to enter your query or term, just click "Submit query" and you are off!



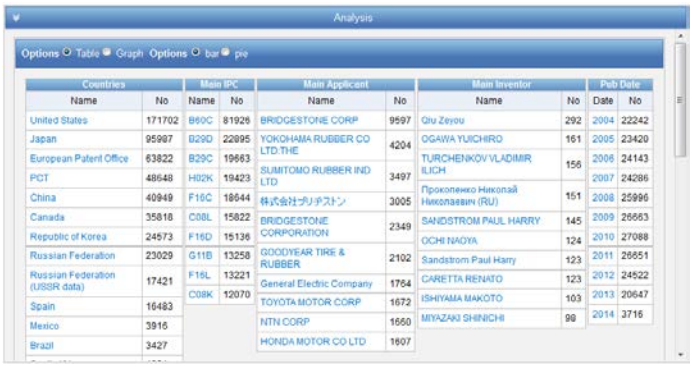

*Approach 1: Look at a specific patent document*

You can look through your results list to find relevant documents based on their title and abstract and take the IPC symbols associated with these documents. By hovering over the icon next to IPC symbols in the results list, you can immediately see what each symbol means.




*Approach 2: Analyse your results*

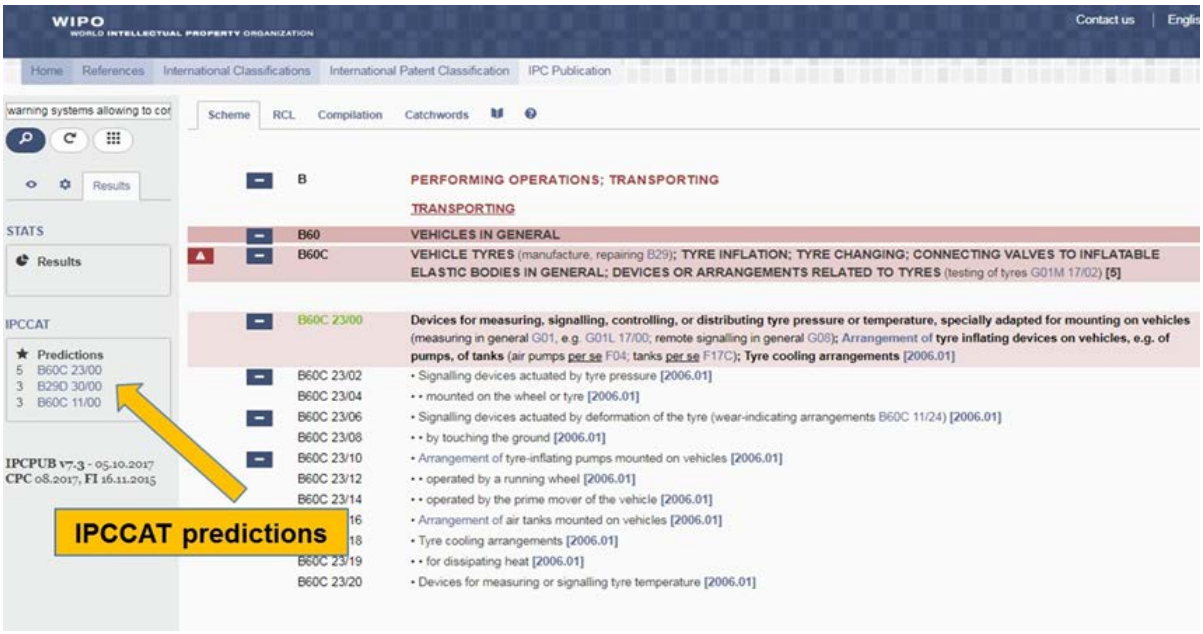
Once you have your results, you can also analyse them using the tool built into PATENTSCOPE. Clicking on the "Analysis" bar (just above the list of bibliographic references provided as a result to your query) will open this tool and show you the top patent offices, applicants, and inventors, but also the most frequent IPC symbols in your results. If you have chosen your keywords well, these IPC symbols are likely to be relevant to the technology in which you are interested.



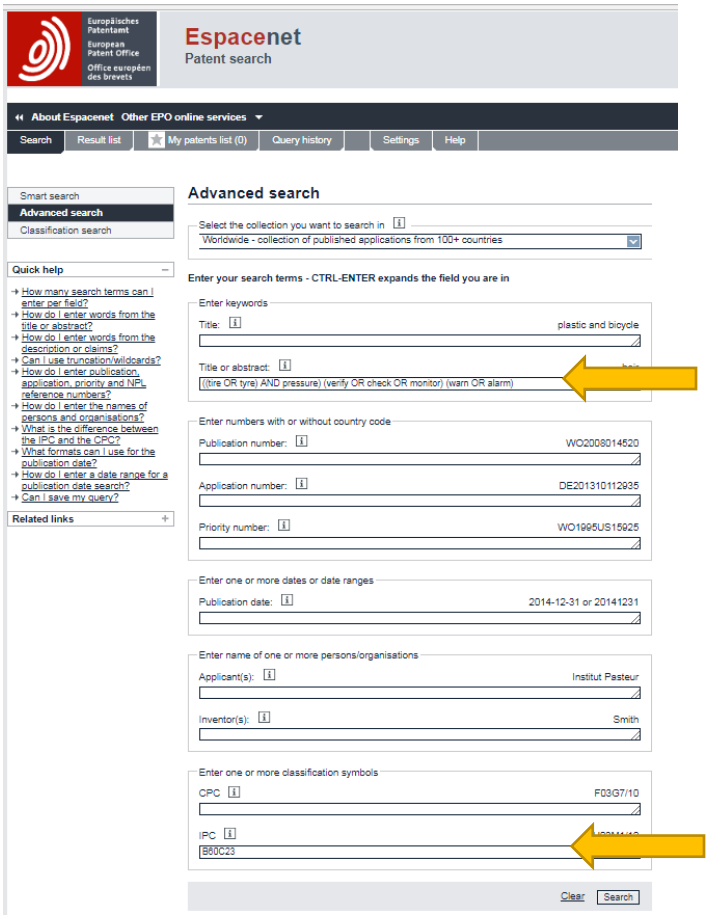
### 4.4 Patent search using patent classification symbols

If we re-use the example of the Espacenet "Smart search", we can also search for relevant IPC symbols before searching for patents. To do so, we can for example get the help from the automatic text categorisation and classification assistance function IPCCAT from the IPC official publication by WIPO.

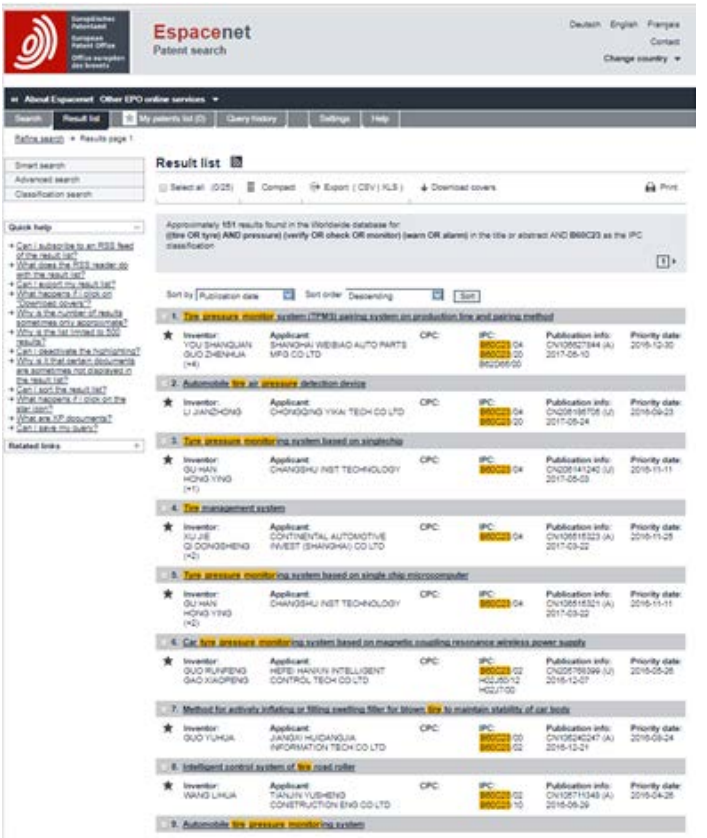
If we introduce the description of the invention we are looking for, "warning systems allowing the continuous verification of car tire pressure", we have the following results:



In the second step, we can use the "Advanced search" interface of Espacenet to search for patents and introduce keywords and IPC symbols in the related fields.

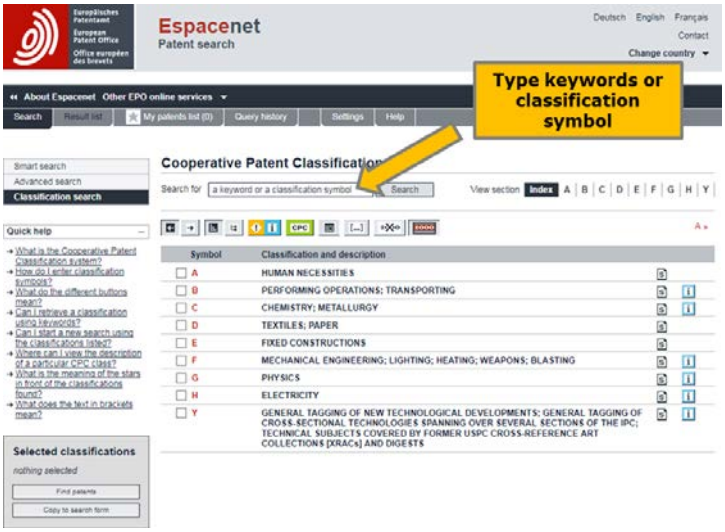



This will provide this result list:

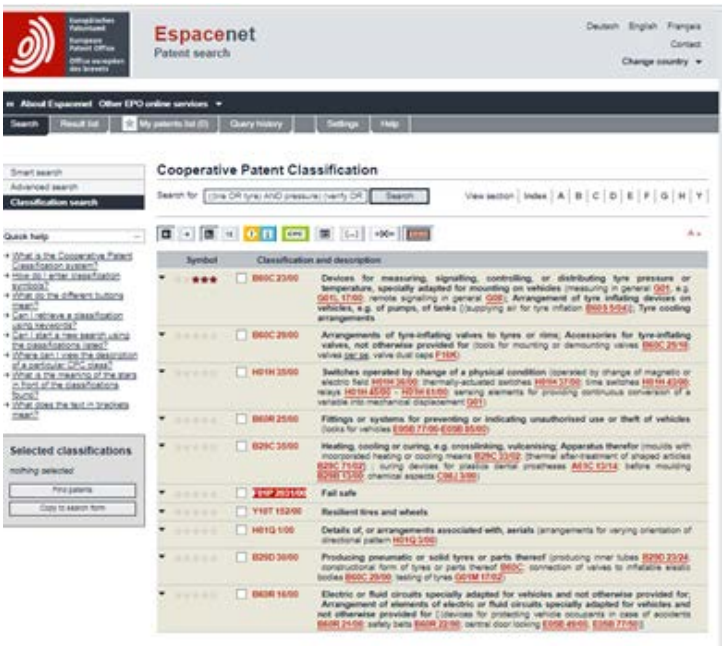


**Alternatively**, Espacenet offers a Classification search tool. This service allows users to search for the most appropriate IPC symbol according to keywords or search within the classification symbols for finer sub-classes based on CPC classification:

Available at: http://worldwide.espacenet.com/classification. You use it by entering terms or classification symbols in the search mask.



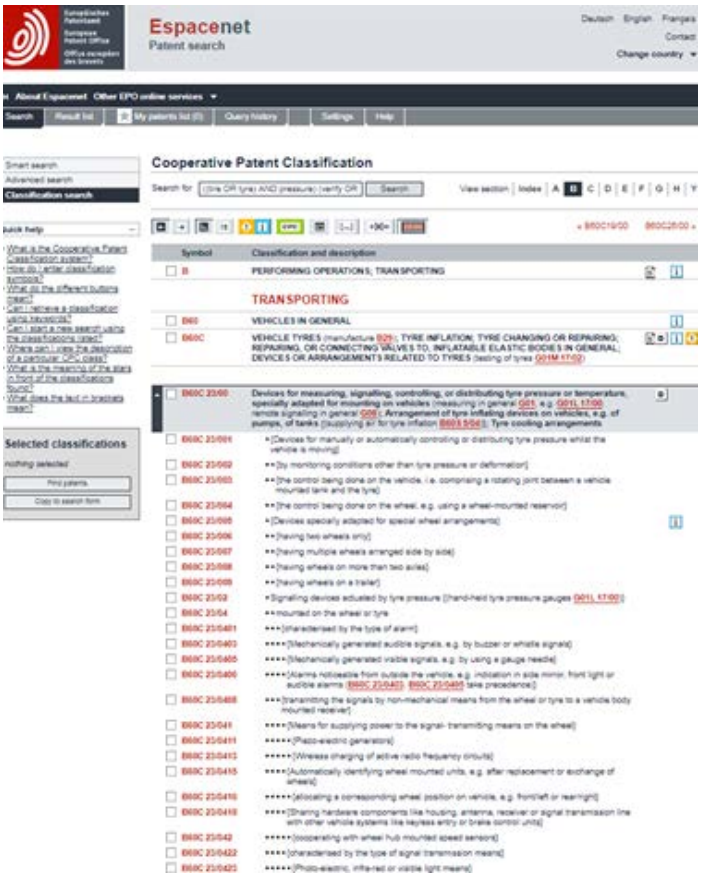

A list of classification symbols are provided as a result to your query.



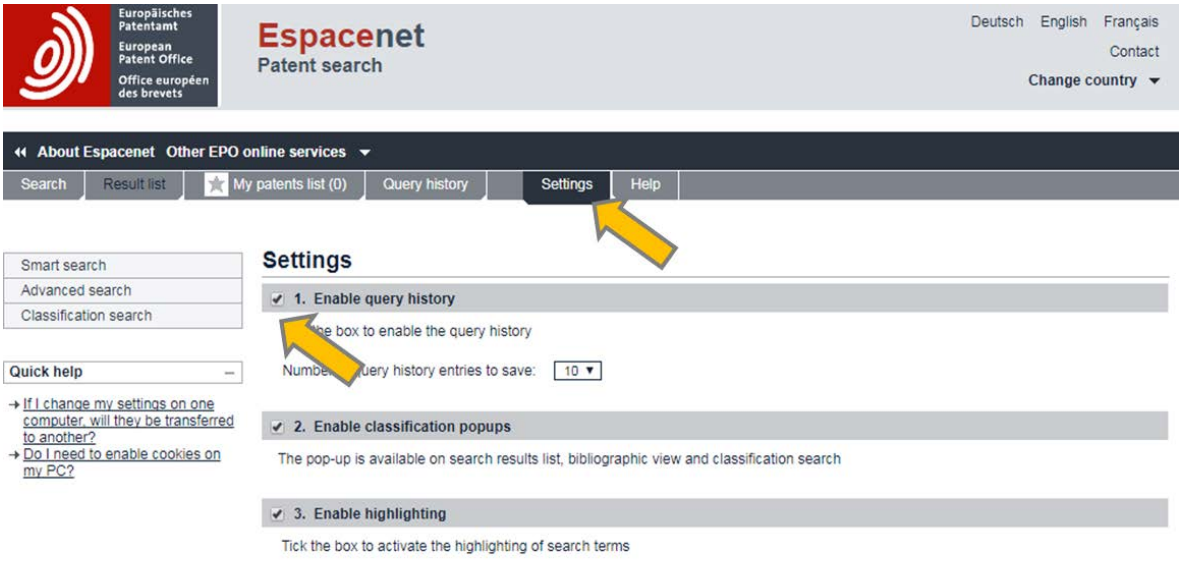
By clicking on the title of a given classification symbol, the sub-classes can be opened.

If you ticking the square to the left of a classification symbol, it will automatically appear in the "Selected classifications" box.

You can, then, either search for patents classified in this area of technology or you can choose to copy it to your search form.




**TIP:** When using Espacenet for patent search, under the Settings menu, enable "Query history", "Classification popups" and "Highlighting". It will facilitate your work, especially the analysis of the results of your queries.



## Useful Resources

For further information on the topic please also see:

- "Espacenet brochure": http://documents.epo.org/projects/babylon/eponet.nsf/0/4E8744EB66E8F944C12577D600598EEF/$File/espacenet_brochure_en.pdf
- "IPC Internet Publication Help": http://web2.wipo.int/classifications/ipc/ipcpub?notion=help
- PATENTSCOPE: http://www.wipo.int/patentscope/en/

## GET IN TOUCH

**For comments, suggestions or further information, please contact**

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## ABOUT THE EUROPEAN IPR HELPDESK

The European IPR Helpdesk aims at raising awareness of Intellectual Property (IP) and Intellectual Property Rights (IPR) by providing information, direct advice and training on IP and IPR matters to current and potential participants of EU funded projects. In addition, the European IPR Helpdesk provides IP support to EU SMEs negotiating or concluding transnational partnership agreements, especially through the Enterprise Europe Network. All services provided are free of charge.

**Helpline:** The Helpline service answers your IP queries within three working days. Please contact us via registration on our website – www.iprhelpdesk.eu – phone or fax.

**Website:** On our website you can find extensive information and helpful documents on different aspects of IPR and IP management, especially with regard to specific IP questions in the context of EU funded programmes.

**Newsletter and Bulletin:** Keep track of the latest news on IP and read expert articles and case studies by subscribing to our email newsletter and Bulletin.

**Training:** We have designed a training catalogue consisting of nine different modules. If you are interested in planning a session with us, simply send us an email at training@iprhelpdesk.eu.

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