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M04 Introduction to Patent Search and Analysis

Study material





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OF KOŠICE**



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DE GRANADA**

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Introduction

The industrial property protection system is an important tool for supporting economic growth. Effective provision, management and exploitation of industrial property rights is key to developing the potential in the area of research, development and innovation, which is essential for long-term competitiveness. System provides, in addition to securing the exclusive right to use intangible property, also the opportunity to get to know each other with the latest technical knowledge.

In recent years, from a statistical point of view, Czech users have made some progress in protecting their data technical solutions and innovations. Overall, however, especially in license sales and patent mining information and the use of legally free technical solutions, they still lag behind the competition from the industry-developed countries. Little is used of the potential of patent information for avoiding examination already known, as well as tracking the direction of research, development, and production of competitors and elimination of danger of significant sanctions in case of violation of industrial rights of other subjects.

Patents are granted for technical inventions. Applications for patents are examined by the patent office they are filed with, in order to determine whether they meet the stringent requirements for a patent to be granted. Patents generally last for a maximum of 20 years from the date of filing. Utility models offer simpler protection, for a shorter period of time, but are usually registered and published much more quickly than patents. Copyright does not need to be registered. It automatically exists when a work is created. It protects any type of original, creative expression, including literature, art, drama, music, photographs, recordings and broadcasts.

The goal of this module is to explain participants the basics of the patent record structure, patent classification, and basic patent search techniques as a starting point to perform their own patent search. This goal can be delivered mainly by using the Lens.org tool, which is a free patent search and analysis tool.

As an inventor or researcher, you will be responsible for conducting your own preliminary search or state-of-the-art verification. The success of your search will depend largely on your knowledge of the technological field of the invention. We recommend that you perform the three preliminary steps below to ensure the best and most complete search.

Keywords

- Technology Transfer, Property protection system, Patent search, Patenting Management, Intellectual Property.

Description of the function of the invention

Why to conduct a patent search? People search for patents for many reasons, most often because they have an invention they are considering patenting. The search will determine whether the invention has patent potential. Others search for patents to find alternative approaches and designs that will help them solve technological problems. Studies have shown that 80% of all patents contain information that is not published anywhere in the world. By gaining access to this vast source of data, the scientists avoid reinventing the wheel.

Prepare a working description of your invention for your own use; it can be used in a search. You may want to include your drawings to illustrate your invention and any data you have collected while testing your invention. When writing your description, include the following information:

- Purpose: What does the invention do?
- Application: What is it used for?
- Structure: What is the invention made of and what are its parts?
- Function: How does it work?
- Consumers: Who could benefit from its use?

Sources of non-patent information

Research sources of the non-patent information related to your invention:

1. to acquire knowledge of other existing matters that may affect your ability to receive a patent;
2. to know the variety of words and phrases used to describe similar items and technologies.

Searching general resources can yield information useful in many ways to your specific patent search. Examples of possible sources are as follows:

- general encyclopaedias,
- technical or scientific encyclopaedias,
- articles in research journals,
- technical reports and working papers,
- trade catalogues where you can find similar items for sale.

Checking the patent numbers of other products can also provide valuable information in your own search. The patent numbers can be found:

- on manufactured items and their packaging,
- in scientific and technical literature (research journals, working papers, trade journals),
- in Scifinder Scholar and other chemical and pharmaceutical databases.

Market research

The more you know about the existing devices and technologies that relate to your invention, the more prepared you will be to conduct a preliminary search. Having this kind of information will help you in deciding how to proceed with your potential patent. Keep the following in mind as you begin your research:

- Try to determine where your device or technology will be used.
- What existing items will replace your invention?
- Which consumers would buy your invention? Name consumer groups, professions, industries, etc., that might want or need your invention.
- Where do consumers generally purchase equipment or consumables, i.e., what you have invented? Would this be a potential marketing outlet for your invention?

Modified according to: <https://libraries.psu.edu/patent-search-tutorial-2019>

LENS.ORG Tool

The free web tool LENS.ORG (<https://www.lens.org/>) will be used for a patent analysis. At the bottom of the left-hand panel you will find the *Patents* section, which also includes a *Patent Structured Search* item (directly accessible as <https://www.lens.org/lens/new-search?type=PATENT>), which we will use for the search. This will open a new patent search window.

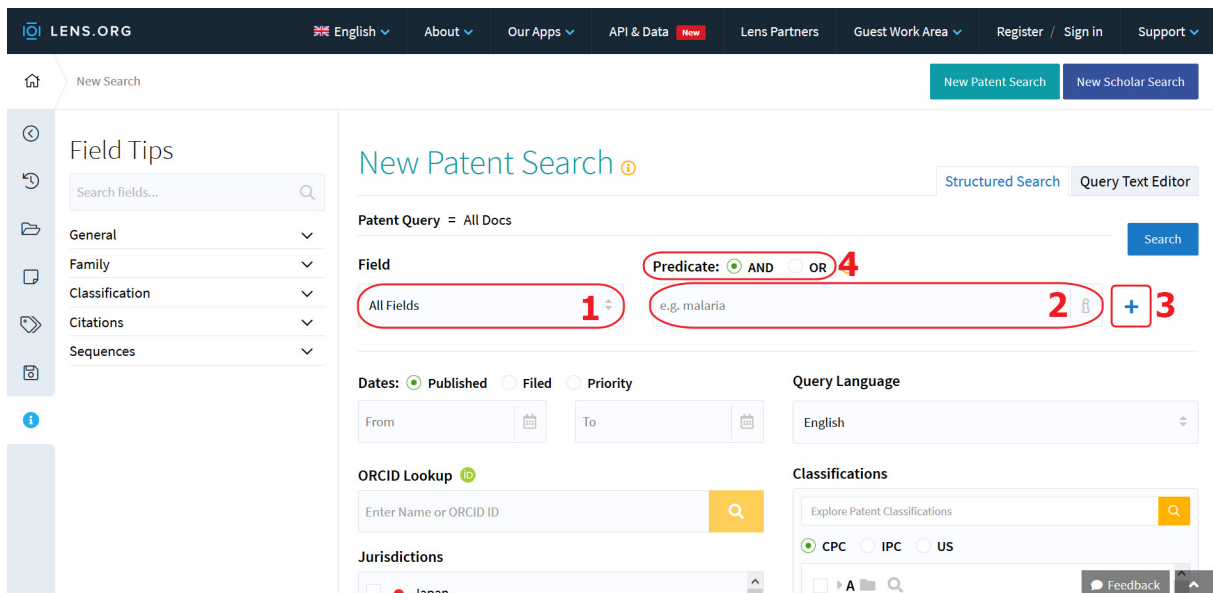


Figure 1: Patent search window

The *Field* (1) specifies which parts of the patent applications to search. The most commonly used options are *Title*, *Abstract*, and *Applicants*.

The search term related to the patent should then be entered in the field (2) (e.g., *Battery* to search for the patents related to batteries, company name to search for the patents applied for by the company).

It is of course possible to combine multiple search queries, after pressing the button (3), it is possible to enter another text keyword chain searched in other parts of the patent. The relationship between the entered keyword chains can be set in the *Predicate* field (4), where after selecting “AND” only the patents that contain both searched keyword chains will be displayed, or “OR” where the search results will be all patents that contain at least one of the searched keyword chains.

Example of the search

Recently, the name of the Czech company HE3DA has been mentioned very often in connection with batteries. Below you can find one of the recent reports about the start of production.

The expected HE3DA batteries are closer to production, but so far are not keeping earlier promises.

„Karviná HE3DA batteries are close to mass production and the manufacturer has finally published one of the key parameters of the final product. According to the new information, the capacity of the battery is expected to reach a value of one hundred watt-hours per kilogram of weight, despite the fact that in earlier promotional materials HE3DA promised a value of more than twice that. The seemingly promising project, for which the company has already raised CZK 1.5 billion from investors, fails to dispel doubts surrounding the used technology.“

(More information on: <https://www.e15.cz/byznys/prumysl-a-energetika/ocekavane-baterie-he3da-se-priblizily-vyrobe-zatim-ale-nedostavaji-drivejsim-slibum-1365393>)

If we want to view the patents of a given company, we need to enter the password “HE3DA” in the *Applicants* field (<https://www.lens.org/lens/search?applicant=HE3DA%20SRO>).

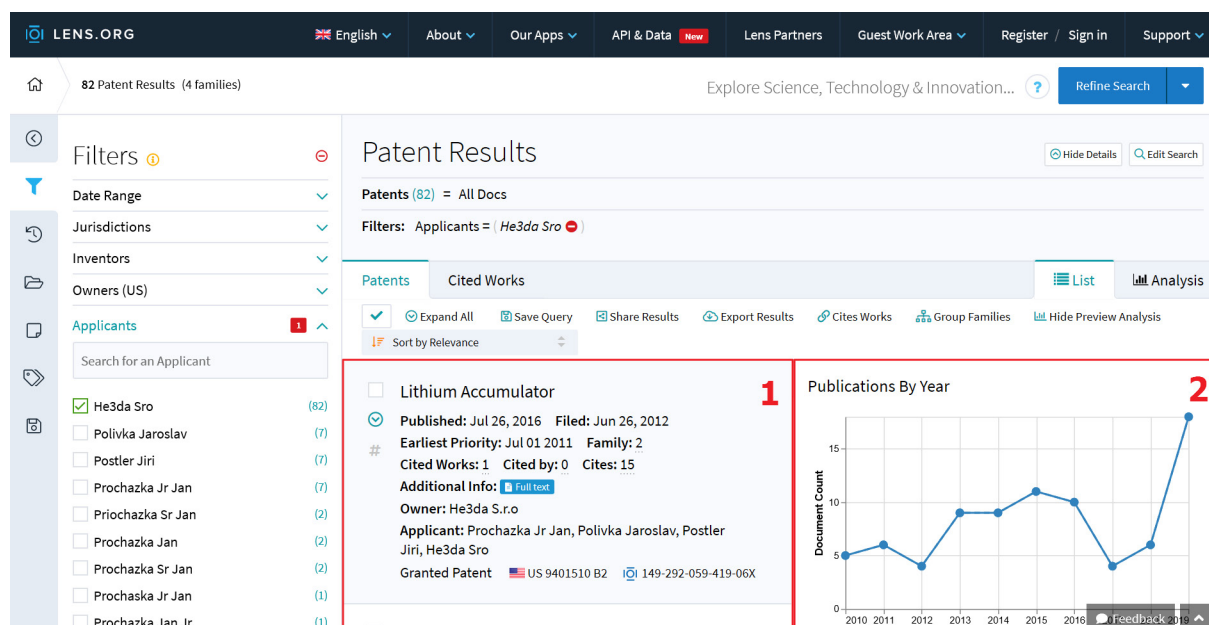


Figure 2: Results from the patent search

This query generates a total of 82 results, where in the right part of the record (2), there is the number of publications of the patents *Publications By Year* (but not all results are granted patents), below in the *Jurisdictions* field on the map, the patent offices of each country corresponding to the searched records are marked, and below this map, there is a pie chart *Document Type*, from which it can be seen that a total of 21 records of the 82 found records are granted patents (i.e., these are often identical patents granted by different patent offices for protection in the territory of a given state). Individual patents can then be viewed by double-clicking within the left-hand column (1) to view more details of the patent in question.

Unfortunately, the Czech Republic is not a leader in battery technology, so let's try to see what the global search results for this technology look like and which companies are leaders in this area. Select *Title* in the *Field*, add "Battery" as the search keyword and add another keyword by pressing the + button again for *Title*, but this time add "Accumulator", set "OR" in *Predicate*. We can expect a large number of patents. Therefore, we will further narrow the results to only the last ten years (1) and in the *Patent Classifications* field, we will add "H01M", thus narrowing the search to the patents that actually relate to battery technology (2).

The screenshot shows the Lens search interface with the following settings:

- Dates:** Published (selected), Filed, Priority. Date range: 2010-02-01 to 2020-02-01. (Marked with a red box and '1')
- Query Language:** English
- ORCID Lookup:** Search bar with "Enter Name or ORCID ID" and a search icon.
- Jurisdictions:** List of countries with checkboxes: Japan, China, United States, Germany, European Patents, Korea, Republic of, WO - WIPO, United Kingdom, France.
- Doc Type:** Patent Application (checkbox).
- Classifications:**
 - h01m (input field)
 - CPC (selected), IPC, US
 - electricity (Load All Children) (Notes & Warnings)
 - basic electric elements (Load All Children) (Notes & Warnings)
 - H01M (Load All Children) (Notes & Warnings)

Figure 3: Results from the patent searches according to the above criteria, available from:

[https://www.lens.org/lens/search?q=title:Battery%20OR%20title:Accumulator%20OR%20classification_cpc:\(H01M*\)&l=en&st=true&dates=%2Bpub_date:20100201-20200201&preview=true](https://www.lens.org/lens/search?q=title:Battery%20OR%20title:Accumulator%20OR%20classification_cpc:(H01M*)&l=en&st=true&dates=%2Bpub_date:20100201-20200201&preview=true)

From the results of the analysis, it can be seen that the company *LG Chemical Ltd* has the most records that match the given search and the second place is occupied by the company *SAMSUNG SDI CO Ltd*. It is necessary to switch to the *Analysis* view (1).

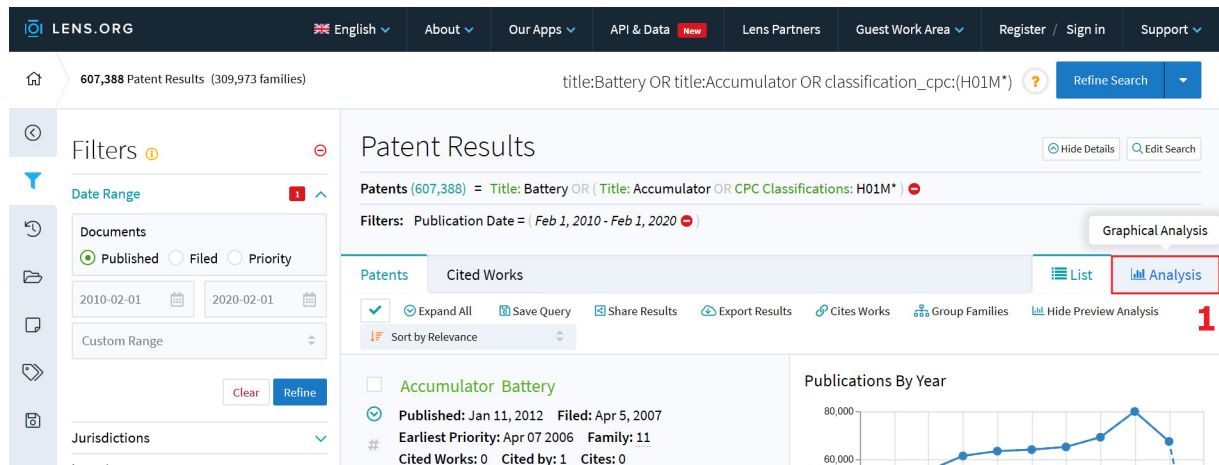


Figure 4: Results from the patent search on Analysis

At the bottom of the displayed overview you can find an overview of inventors in the form of a figure – *Inventors*.

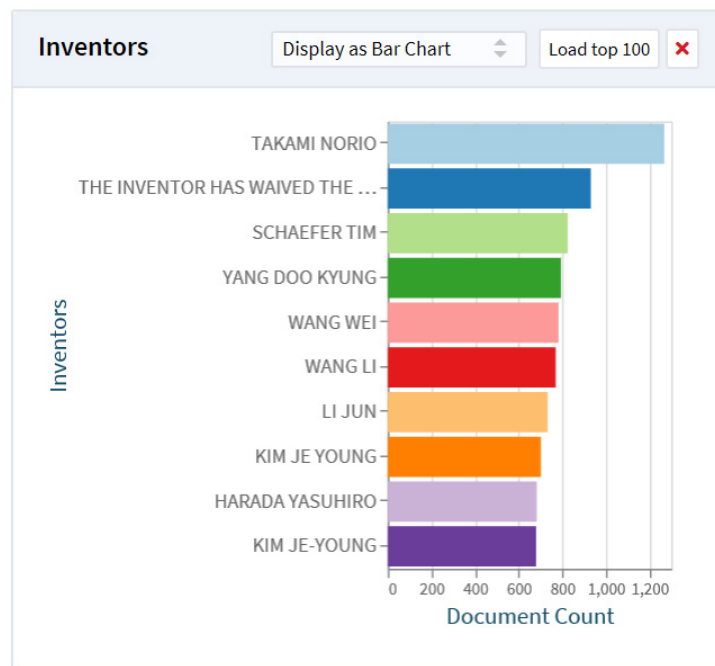


Figure 5: Patent Search Results – Inventors

Content of the patent record

The patent record (application) contains the following information (the used record can be found at <https://www.lens.org/lens/patent/032-997-380-624-438>):

1. **Title (1)**
2. **Abstract (2)** – must contain a brief summary (preferably not more than 150 words) of the description, claims and drawings, if attached, it should indicate the technical field to which the invention relates, if this is not already apparent from the title, and should be designed to enable a clear understanding of the technical problem, the nature of the solution to that problem by means of the invention and its main application.
3. **Claims (3)** – this section is the most important part of the patent specification. The patent claim defines exactly what is claimed by the invention and therefore what is to be protected. It clearly states what the patent does and what it covers. The claim is usually expressed as a statement of technical facts (often in form of drawings) expressed in legal terms, defining the scope of the invention to be protected.
4. **Applicants and Inventors (4)** can be also used for the search.
5. Another important section is the IPC classification of the patent (5), which can be used to search for similar patents in a given technical category (e.g., the category A61N – ELECTROTHERAPY MAGNETOTHERAPY RADIATION THERAPY ULTRASOUND THERAPY).

Electrostimulation Device 1

Published: Jan 12, 2017 Earliest Priority: Jul 06 2015 Family: 14 Cited Works: 2 Cited by: 0 Cites: 6 Additional Info: [Full text](#)

Patent Application
WO 2017/005227 A1
032-997-380-624-438

Summary Full-text Cites 2 Works Cited By 0 Patents Cites 6 Patents Family Info Legal Info 6

Share Patent Add to Collection Download Citation

Abstract
The subject of the invention is a device for electrical stimulation of tissue consisting of an electrode and a magnet, which allows to reach deeper located regions without the need for invasive surgery. This helps to achieve therapeutically success in broader range of patients. 2

Claims

1. CLAIMS
2. Electrostimulation device comprising at least one magnet (3) to form a magnetic field, a first electrode pole (1) surrounded by the magnetic field, a fixation element (5), a source (9), wiring (2) and a second electrode pole (8), wherein the first electrode pole (1) and the second electrode pole (8) are electrically separated and are adapted on one of their sides for electrical connection with the skin, and they are further connected by means of wiring (2) to the source (9) characterized in that, the magnet (3) is provided with a pole piece (4).
3. Electrostimulation device according to claim 1 characterized in that the first electrode pole (1) is arranged inside the magnet (3) with an opening, or it is surrounded by several magnets (3).
4. Electrostimulation device according to claim 1 or 2 characterized in that at least one magnet (3) is an electromagnet.
5. Electrostimulation device according to any of the preceding claims characterized in that it comprises at least two electromagnets to direct the magnetic field of charged particles using different excitation of these electromagnets.
6. Electrostimulation device according to the claim 1 or 2 characterized in that at least one magnet (3) is a permanent magnet.
7. Electrostimulation device according to any of

...Read More 3

Applicants
Tesla Medical S R O 4

Inventors
Doskočil Lukáš, Veselý Tomáš

CPC Classifications

A61N1/36014 A61N2/002 A61N1/0456 A61N1/0472
A61N1/36021 A61N1/36034 A61N2/006 A61N2/02
A61N2/06

IPC Classifications 5

A61N1/04 A61N1/36 A61N2/00 A61N2/06

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Document Preview

History

Publication: Jan 12, 2017
WO 2017/005227 A1

Application: Jul 6, 2016
WO 2017/005227 A1

Priority: Jul 6, 2015
CZ 2015467 A

Priority: Jul 6, 2015
CZ 2015468 A

Figure 6: Content of the patent record

In the main bar (6), it is also possible to retrieve the full text of the patent (*Full-text*) and check the scope of the patent protection (*Family Info*), which lists the countries where the patent application has been filed, see below.

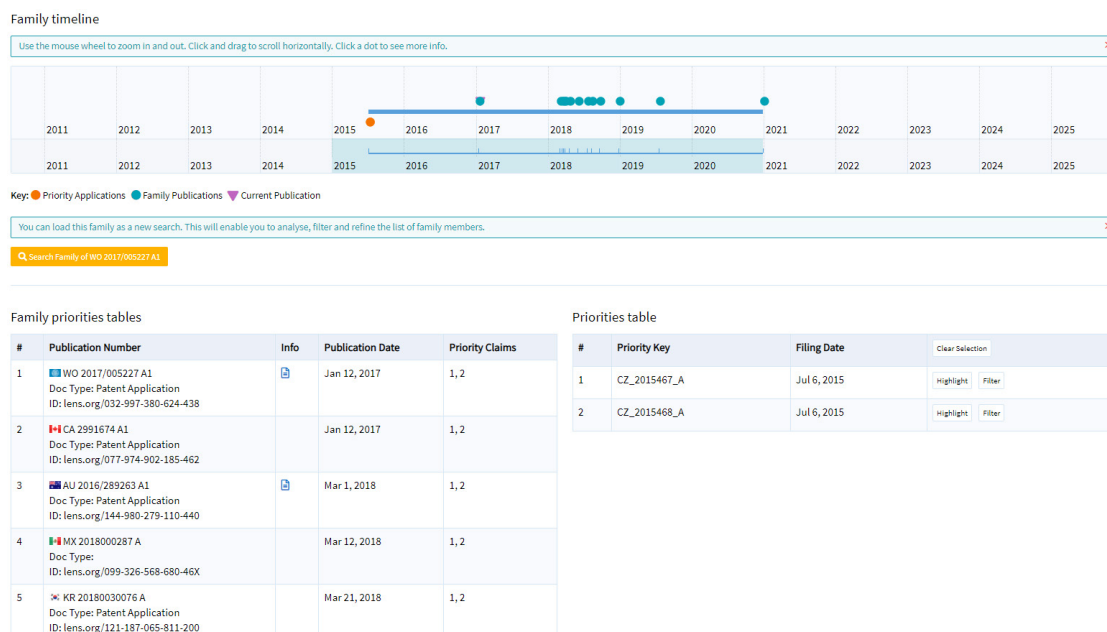


Figure 7: Family Info

The main bar (6) also contains *Legal Info*, where one can check if and where a patent has been granted, whether it is valid or whether there is still time to challenge it. If the loaded record (top right next to the patent application name) is in the *Patent Application* status, it is an application, the *Granted Patent* is a granted patent, however, it still makes sense to check this section to see if, e.g., the patent has expired by not paying the renewal fee.

Search to verify patentability (original state of the art)

A prior art search is performed for several reasons. Some reasons include, but are not limited to, novelty assessment, patent invalidation, monitoring of competition and technology, and studies of the patent area in question. A prior art search may be conducted using a combination of different techniques. Typically, keywords, patent classification, search by inventor, search by assignee, and search by citation are included.

It is possible to use the keywords in searches, but the disadvantage is their language dependence. This can be solved by searching on the WIPO (World Intellectual Property Organization) portal, which is multilingual, consult https://www.wipo.int/reference/en/wipopearl/news/2021/news_0002.html.

One can search specifically here: <https://wipopearl.wipo.int/en/linguistic>.

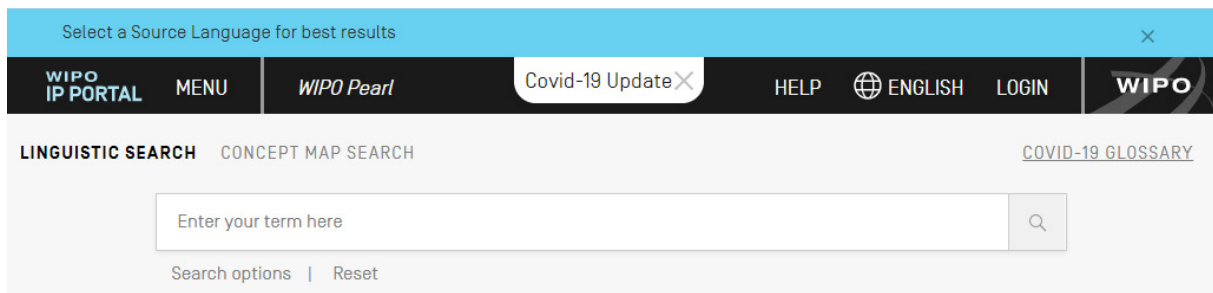


Figure 8: WIPO Pearl

This can also be circumvented by using IPC classes. The International Patent Classification (IPC), established by the 1971 Strasbourg Agreement, provides a hierarchical system of language-independent symbols for classifying patents and utility models according to the different technological fields they cover.

Keyword search

You can search using the following fields or parts of the patent document:

- **Title** (mostly very short)
- **Abstract** (very often not very specific, not focused on the actual invention)
- **Claims** (define the invention, but non-specific terminology, features described by functions, alternative terms can sometimes be a problem)
- **Full text** (may reduce search accuracy, often contains descriptions of prior art or excessive detail).

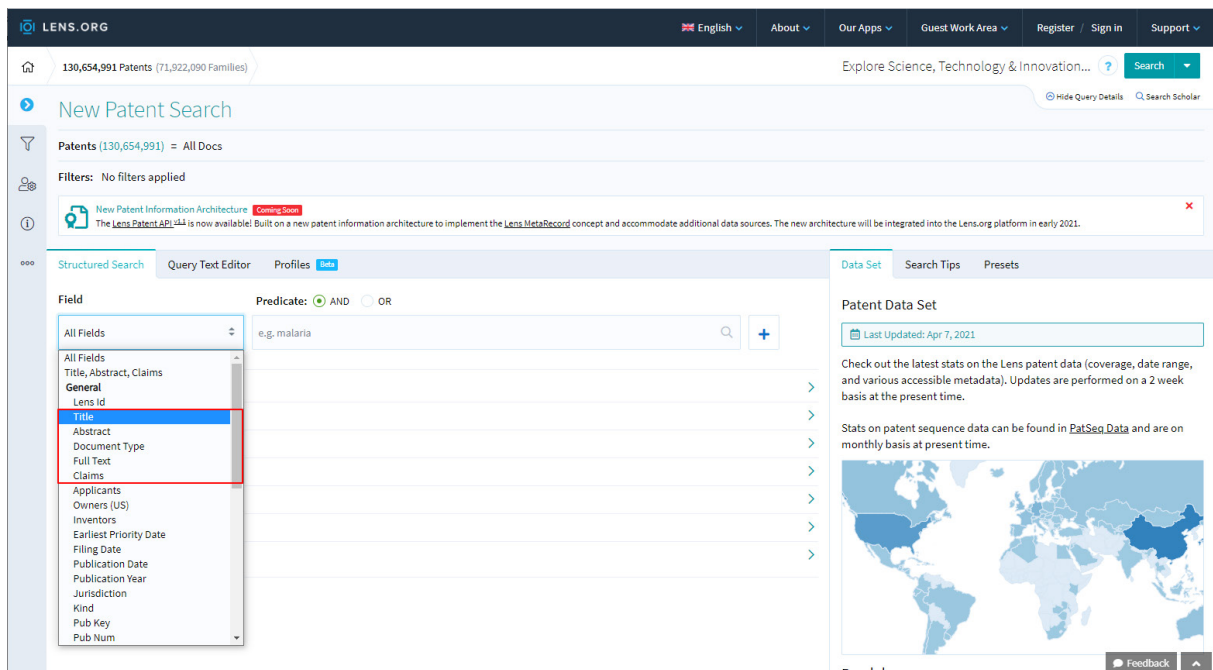


Figure 9: Keyword search

Search using IPC classes

There are eight sections at the highest hierarchical level of classification. Each section is identified by a capital letter A to H. The title of each section provides a very general guide to the content of each section:

- A – Human needs
- B – Performing operations; Transportation
- C – Chemistry; Metallurgy
- D – Textile; Paper
- E – Fixed constructions
- F – Engineering; Lighting; Heating; Weapons; Blasting
- G – Physics
- H – Electricity

At the second hierarchical level, each section is divided into classes, with each class containing one or more subclasses at the third hierarchical level. Each subclass is again divided into groups. The groups are either main groups (at the fourth hierarchical level of classification) or subgroups (lower levels in the hierarchy) which depend on the corresponding main group of classification.

The complete classification symbol consists of a combination of symbols for the section, class, subclass and major group or subgroup, e.g., A 01 B 33/00.

The LENS tool also includes a classification viewer, as shown in Figure 10 below.

The screenshot shows the LENS.ORG interface. On the left, a sidebar lists various search filters under 'Scholarly Works' and 'Patents'. The 'Classification Explorer' link is highlighted with a red box. A red arrow points from this link to a 'Lens Explorer: Classifications' window. This window displays a search bar and a list of IPC classes: A HUMAN NECESSITIES, B PERFORMING OPERATIONS TRANSPORTING, C CHEMISTRY METALLURGY, D TEXTILES PAPER, E FIXED CONSTRUCTIONS, F MECHANICAL ENGINEERING LIGHTING HEATING WEAPONS BLASTING, G PHYSICS, and H ELECTRICITY. The 'IPC' radio button is selected, and the 'US' radio button is also selected. A 'Publish Collection' button is visible at the bottom right of the window.

Figure 10: Search using IPC classes

IPCCAT

If there is an idea of the patent being searched, possible keywords, but the IPC category/subcategory is unknown, the WIPO IPC text categorization tool can be used, see example below.

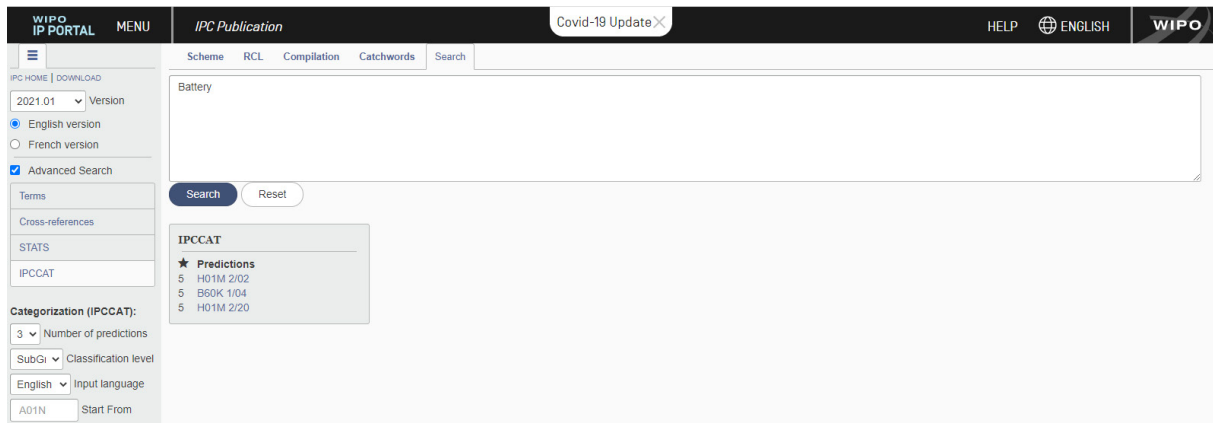


Figure 11: IPCCAT

Using logical operators in search

They are as follows:

- Logical operators (AND, OR, ANDNOT, XOR)
- Neighboring or approximation operators (NEAR)
- Truncation: the primary root using an operator called a wildcard, usually an asterisk (*), question mark (?), dollar sign (\$), or percent sign (%)
- Nesting: using parentheses () to organize a search
- Phrase: the use of quotation marks «» to surround a single search.

Example:

Electro *AND* Stimulating: documents containing the word «Electro» and «Stimulating»

Electro *ANDNOT* Stimulating: documents containing the word «Electro», but not the word «Stimulating»

Electro *OR* Stimulating: documents containing either the word «Electro», or the word «Stimulating» or both words

Electro *XOR* Stimulating: documents containing the word «Electro» or the word «Stimulating», but not both words

Electro *NEAR* Stimulating: documents containing the word „Electro“ and „Stimulating“ at the same time in a certain number of words (5 words in PATENTSCOPE)

Use of patent citations

Among search techniques, the citation-based search is often ignored, even though it can yield challenging results. The patent citation is a document cited by an applicant, third party, or patent office examiner as its contents relate to a patent application. Any publicly available document may be cited, including an existing patent publication, a journal article, an Internet publication, a conference abstract, or an oral disclosure. The patent citation is where a patent or patent application mentions or contains a reference to an earlier patent or patent application. Its function is similar to a citation from an academic paper that cites a previously published work. The cited patents can be added by both the patent examiner and the patent applicant.

- Generally, the patent citations contained by the examiner are for the purpose of limiting the patent claims, while inventor/applicant citations are for the purpose of demonstrating prior art related to the invention. In both cases, the prior art patent citations are used to assess the patentability of the alleged invention.
- The patent/application that can be referred to as a parent document can primarily have two types of patent citations, specifically, backward citations and forward citations. The backward citations of the parent document are the patents/applications referenced by the parent document. The forward citations of the parent document are the patent/application referencing the parent document. Any of the backward and forward citations may be self-citations. The self-citation is when the parent document cites or is cited by the patent/application that mentions the same author or applicant as the parent document.
- One of the key challenges in designing claims is defining the state of the art. The body of citations, when considered in its entirety, can assist in defining the prior art in the context of the proposed invention. Such a contextual understanding of the prior art can assist in defining the scope of the claims in such a way that the claims are neither too broad, resulting in patentable claims according to the prior art, nor too narrow, preventing the full potential of the invention from being exploited.

ESPACENET

- You need to check that you haven't re-invented technology that already exists and that you are not using a brand name that has already been registered as a trade mark. You can check this by doing what we call a search. You can perform an initial online search yourself, for example in Espacenet or TMview, both of which are free to use. But you should also seek professional advice for answers to the key questions shown here.
- Web page: <https://worldwide.espacenet.com/>
- Patent – search for free in Espacenet – 90+ million documents
- Seek professional advice
 - Is your invention novel, inventive and patent able?
 - Do you risk infringing other people's rights?
 - Who could you licence it to?

- Who could you licence from?
- Who are your potential customers, suppliers and competitors?



Figure 12: Espacenet logo

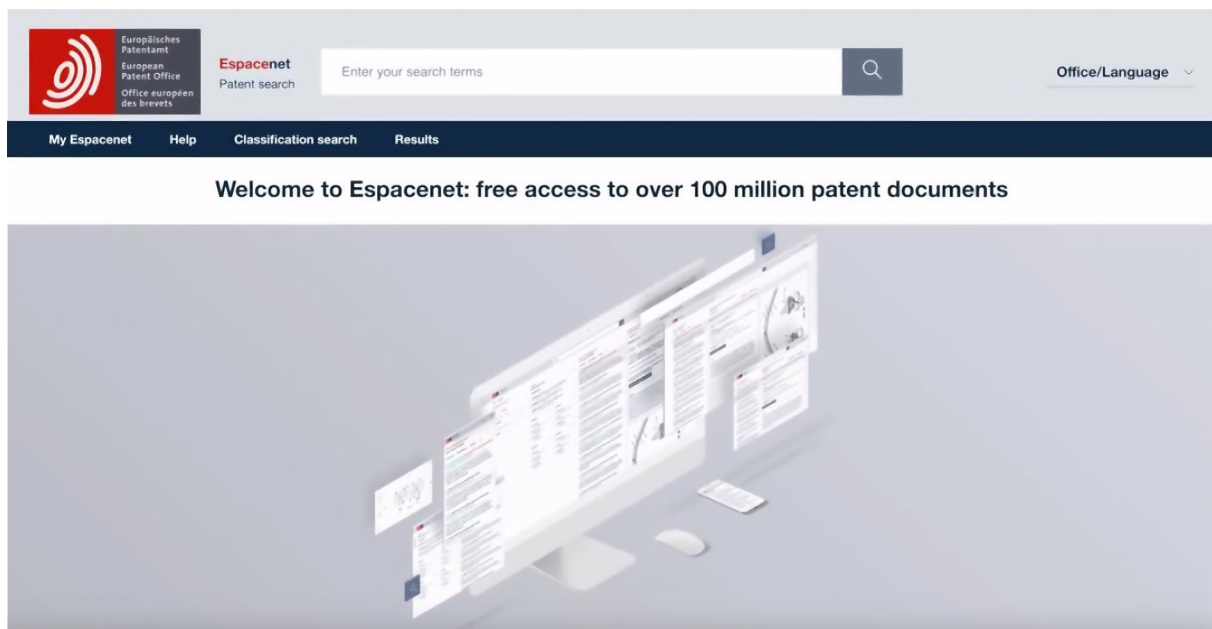


Figure 13: Espacenet web

Important patent search links:

<https://www.wipo.int/patentscope/en/>

<https://worldwide.espacenet.com/>

<https://isdv.upv.cz/webapp/!resdb.pta.frm>