A Definitive Guide To Google Patents

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GreyB Services

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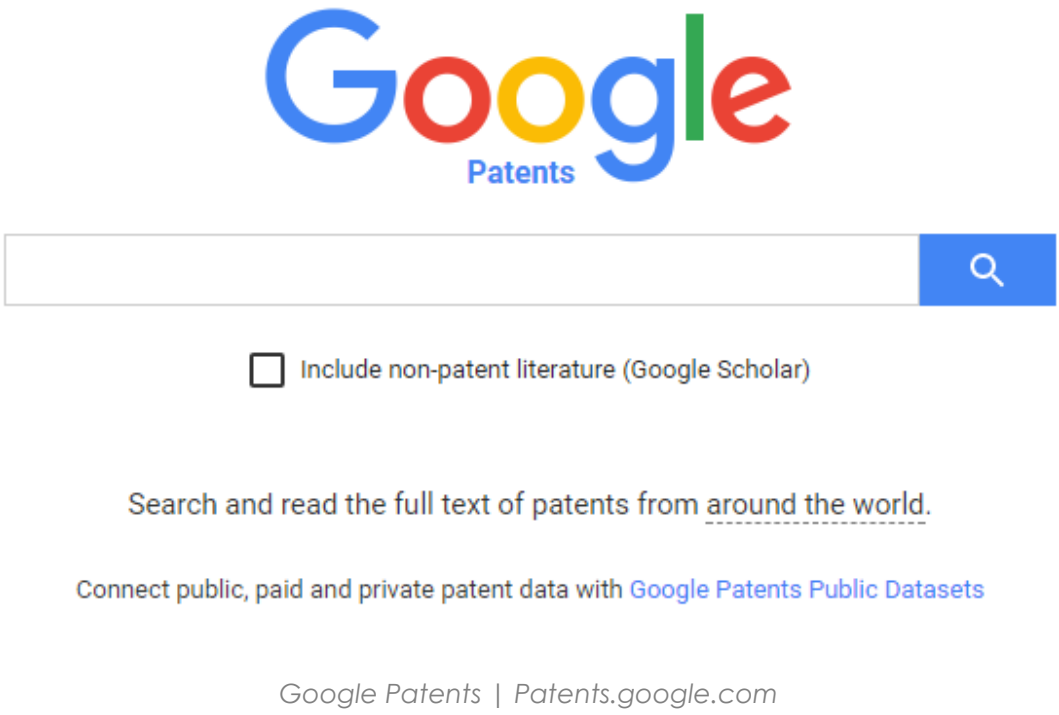
The Definitive Guide to Google Patents Search

If you are planning to conduct a free patent search and want to try your hands on Google Patents, you landed on the right page. This is one of the most comprehensive guides ever written on the web on Google Patents Search.

Even if you have already used this free patent search engine and are at intermediate level, this guide will, for sure, have something for you. It will teach you how to use Google Patents so that you would be able to locate some patent references that can help you conduct a patentability search or other kind of patent searches on your own.

A friendly suggestion: If even after using the information in this article, you fail to find documents of interest, it is highly recommended to visit a pro. A professional search has simply no comparison to a DIY free search.



Why it's Important to Learn How to Do a Free Patent Search?

You could be an entrepreneur or an inventor. You or your team may have come up with something great. You see the potential in your invention to earn you millions! So you visit a local patent attorney with your invention for consultation.

The attorney suggests you get a patentability search conducted and shares the amount of money on average a patentability search will require. Being an entrepreneur or inventor, you are looking to cut cost. Also, you have heard that in some cases finding a prior art uses to be easy if a search is done right.

In such instances conducting a free patent search on your own gives you two benefits. First, it helps you save money if you find a reference closely matching with your invention and second, it helps you get familiarized with the type of prior art that exist already.

Thus, no matter whether you want to save money or want to make a go or no-go decision with an invention, knowledge of conducting a prior art search on free patent database always come handy.

Why Google Patents Search?

Because it's free?!

That's one advantage but there's more to Google than the freedom to conduct searches without having to shed a penny.

Though there are other free patent databases as well in the market such as Espacenet, Patentscope, and the like. However, the results displayed on these databases are not so user-friendly, and a user has to do a lot of clicking and "*open in new tab*" for information that is otherwise readily available for the user's disposal on the interface of Google Patents.

For example, Google Patents gives the user an option to blow up the figures of a search result if at all the user wishes to focus on the figures of the different patents. A similar feature is not provided by other free databases like Espacenet, Patentscope, and USPTO PAIR.

How about Paid Databases?

Now, paid databases like Patbase, Orbit, Derwent though have a lot of features to offer and are the ideal databases to conduct searches, it is to be noted that the cost of licenses for these databases is not something that an individual inventor would want to invest on.

Also, it is simply impractical to purchase a license for performing one or two searches.

Of course, there is always an option to visit a patent attorney, but if it is not viable (for certain inventors), Google Patents is last and the best resort.

Apart from being free, Google Patent has certain advantages over paid databases, listed as follows:

- **User-Friendly Interface** – The interface of Google Patents is so sleek & intuitive that it comes as a surprise that a service like that is being offered for free;
- **Fast** – The results are obtained within a fraction of seconds;
- **Easily shareable results**;
- **Legal Events information** – The sequence of the legal events is very systematically provided; and

Legal Events

Date	Code	Title	Description
2015-02-10	AS	Assignment	**Owner name**: SDCMATERIALS, INC., ARIZONA **Free format text**: ASSIGNMENT OF ASSIGNORS INTEREST;ASSIGNORS:YIN, QINGHUA;QI, XIWANG;BIBERGER, MAXIMILIAN A.;AND OTHERS;SIGNING DATES FROM 20121115 TO 20121126;REEL/FRAME:034932/0328

Legal Events Display in Google Patents

Description

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] This patent application claims priority benefit of U.S. Provisional Patent Application No. 61/525,661 filed Aug. 19, 2011, and of U.S. Provisional Patent Application No. 61/652,098 filed May 25, 2012. The entire contents of those patent applications are hereby incorporated by reference herein.

FIELD OF THE INVENTION

[0002] The present invention relates to the field of catalysts. More specifically, the present invention relates to nano-particle catalysts, catalytic converter washcoats, and catalytic converters formed from such washcoats.

BACKGROUND OF THE INVENTION

[0003] A significant portion of pollutant gases emitted by internal combustion engines are produced when the engine is initially started ("cold-start"), but before the catalytic converter in the emissions system has warmed up to its operating temperature. In order to reduce harmful emissions during the cold-start phase, such as that of a light-duty diesel vehicle (for example, an automobile or light truck), washcoats that contain zeolites can be used to coat the substrate used in the catalytic converter of the vehicle. These zeolites act as a temporary storage area for the pollutants carbon monoxide (CO), hydrocarbons (HC), and nitrogen oxides (NO_x) during the cold-start period, when the catalytic converter is still cold. After the catalytic converter heats up to its operating temperature, known as the light-off temperature, the stored gases are released and subsequently decomposed by the catalytically active material on the substrate.

[0004] A high light-off temperature is undesirable, as many vehicular trips are of

Claims (64)

1. A coated substrate comprising:

a substrate;

a washcoat layer comprising zeolite particles; and

a washcoat layer comprising catalytically active particles;

wherein the catalytically active particles comprise plasma synthesized composite nano-particles bonded to micron-sized carrier particles, and the composite nano-particles comprise a support nano-particle and a catalytic nano-particle, the catalytic nano-particle comprising at least one platinum group metal.

2. The coated substrate of claim 1, wherein the washcoat layer comprising zeolite particles is formed on top of the washcoat layer comprising catalytically active particles.

3. The coated substrate of claim 1, wherein the washcoat layer comprising catalytically active particles is formed on top of the washcoat layer comprising zeolite particles.

4. (canceled)

5. The coated substrate of claim 1, wherein the catalytic nano-particles comprise platinum and palladium.

- **Presentation of information** – The way the patent is displayed makes it very easy to study, with the claims provided on the left-hand side of the screen and the description provided on the right.

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Side-by-side Patent view in Google Patents

Doing a Free Patent Search on Google Patents?

Searching on Google Patents is not very different from searching on Google. Like in Google, a user is provided with a search bar in Google Patents as well.

In this search bar, the user can enter either a number of a patent publication of interest or s/he can enter the technology or the topic of interest in which s/he wishes to see what has been patented so far.

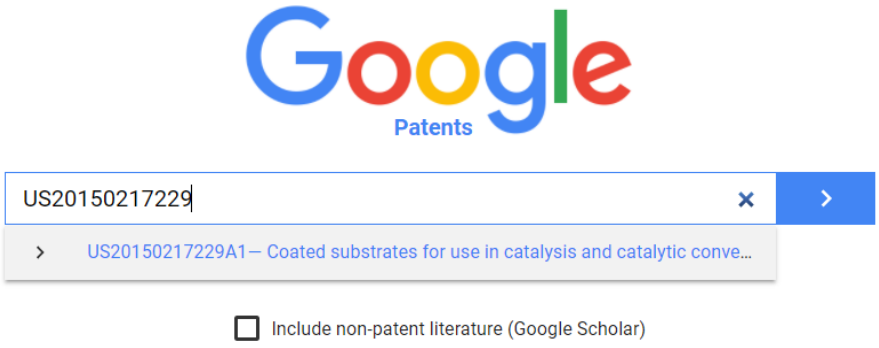
Google Patent Simple Search

This is the "Simple Search" feature of Google Patents.

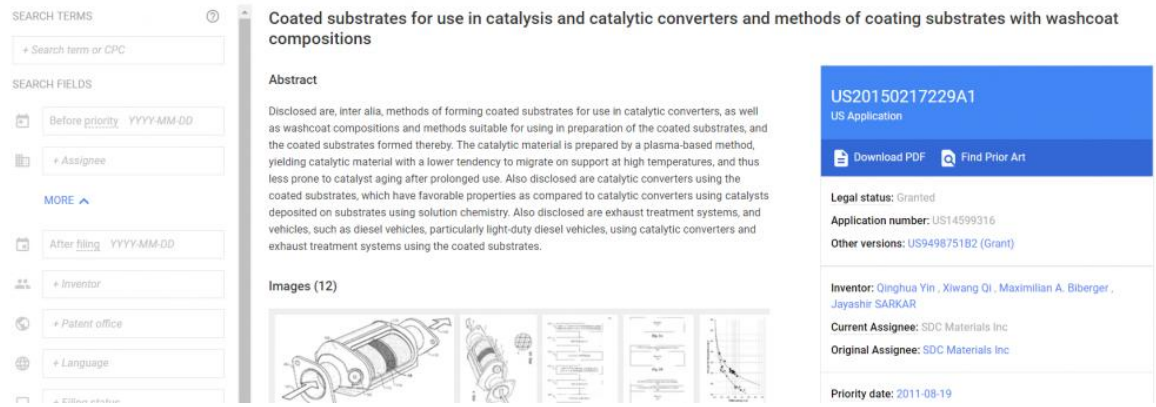
On accessing the website, patents.google.com, the user is provided with the following interface:

The above interface is the "Simple Search" interface of Google Patents. In this search bar, one can type the publication number of a certain patent application, or one can perform a general search on a particular technology.

For example, I am interested in the patent publication no. *US20150217229*. I enter the publication number in the search bar and click on the suggestion presented.

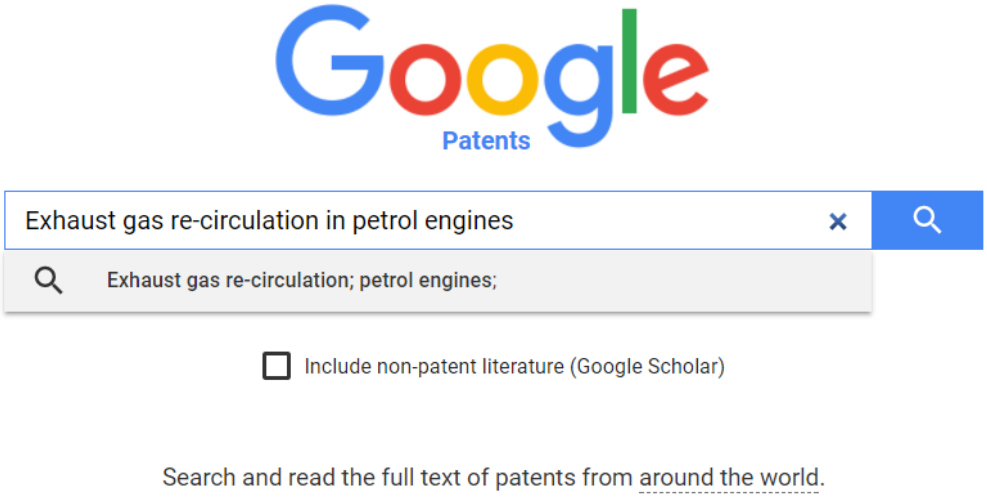


On clicking, I am presented with a display which depicts all there is about that particular patent publication; right from the filing dates to claims to legal events that occurred in the lifetime of that particular patent publication.



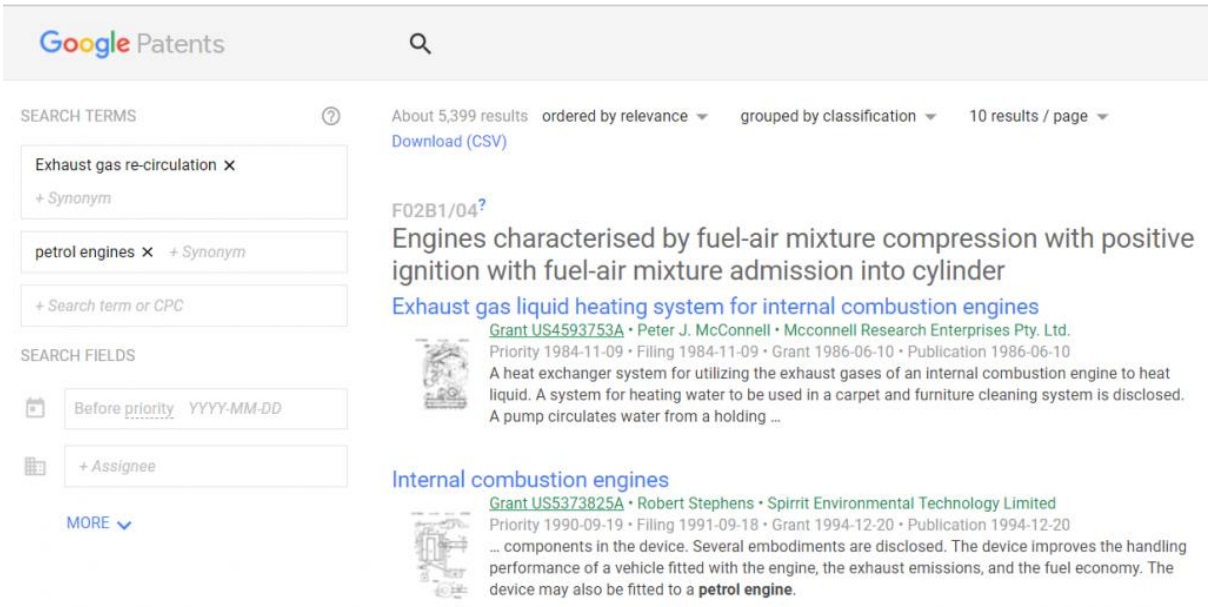
Suppose one does not have a particular patent publication number, and he only wishes to study what patents have been filed in a particular field of technology. To that end, one can type the technology or the topic of interest in the search bar and click on the suggestions.

Google patents will provide a list of patents that it finds to be relevant to the searched query. For example, I wish to look up patents on "Exhaust gas re-circulation in petrol engines". So I type the exact same words in the search bar.



Searching using keywords instead of patent/application number | Google Patents

For this search, Google Patents considers Exhaust gas re-circulation & petrol engines as two different sets of keywords and gives the following results:



Search results after searching using keywords | Google Patents

Now, I can browse through the results and see if I find anything interesting.

How to Use Boolean Operators in Google Patents?

Boolean operators are the soul of a patent search. It is the usage of the Boolean operators which can either make or break the search. Boolean operators can be understood as the mortar which holds together the keywords of a patent search. Some of the Boolean operators which are primarily used in the patent searches are listed below.

'AND' – The AND operator is used to search a set of words from which each and every word of the query is present in the searched results.

'OR' – The OR operator is used to search a set of words from which at least one of the words of the query is present in the searched results.

'*' – The * operator is used to search different forms of a root word, e.g., abut* includes all the different words which begin with "abut" like abutment, abutting, abutted, and so on.

'+' – The + operator helps in searching stop words.

'-' – The – operator removes a certain word from a phrase and only searches the remaining word. For example, if I frame a query as ((engine)-diesel), the

results of the query would include patents on engine devoid of the word "diesel" in the entire document.

'Near' – The 'near' operator is a proximity operator to boost the score of documents if they contain expressions near each other. NEAR, NEARx, NEAR/x, or /xw means matches are a maximum of x words away, in any order.

'WITH' – The 'With' operator is also a proximity operator whose usage is the same as the 'near' operator and searches for the search term within the next 20, in any order.

'SAME' – The same operator is another proximity operator which searches within the next 200 words, in any order.

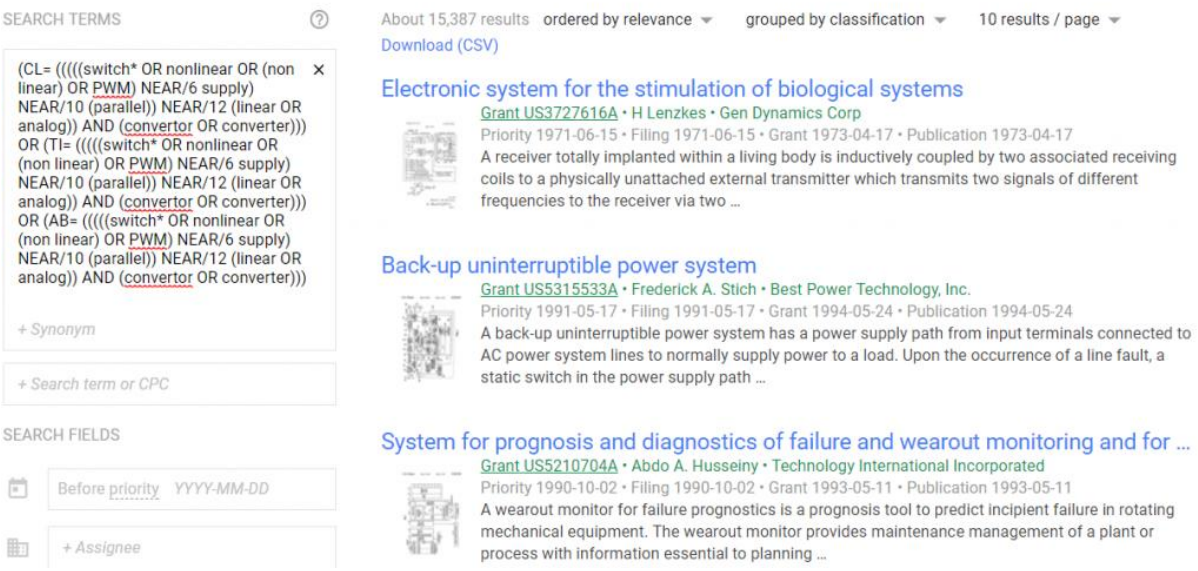
'AJD', 'AJDx', 'ADJ/x', 'xw' – These are also proximity operators which are the same as NEAR, but matches must be in the same order.

A typical search string for studying ***NON LINEAR SWITCHES*** along with relevant images is provided below to give an understanding of how to use the different operators mentioned above.

(CL= (((((switch OR nonlinear OR (non linear) OR PWM) NEAR/6 supply) NEAR/10 (parallel)) NEAR/12 (linear OR analog)) AND (convertor OR converter))) OR (TI= (((((switch* OR nonlinear OR (non linear) OR PWM) NEAR/6 supply) NEAR/10 (parallel)) NEAR/12 (linear OR analog)) AND (convertor OR converter))) OR (AB= (((((switch* OR nonlinear OR (non linear) OR PWM) NEAR/6 supply) NEAR/10 (parallel)) NEAR/12 (linear OR analog)) AND (convertor OR converter)))*

The search terms in the above strings are a switch, nonlinear, PWM, supply, parallel, analog, and converter. It is the use of the Boolean operators which gives it a particular structure. Further, the aforementioned search terms are searched in the claims (CL), title (TI), and the abstract (AB) of the patent documents.

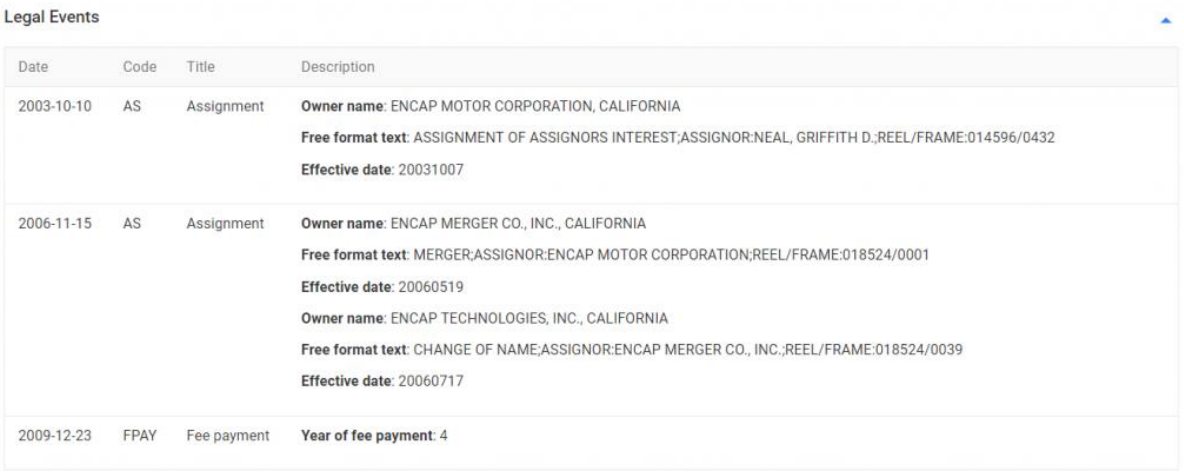
The use of the different search parameters is described in the subsequent sections of this article.



Search results after searching using keyword String | Google Patents

Legal Status

The Legal status of a particular patent document is provided in "Legal Events" at the bottom portion of the page of that patent document. Have look at the bottom portion of the page for this link.

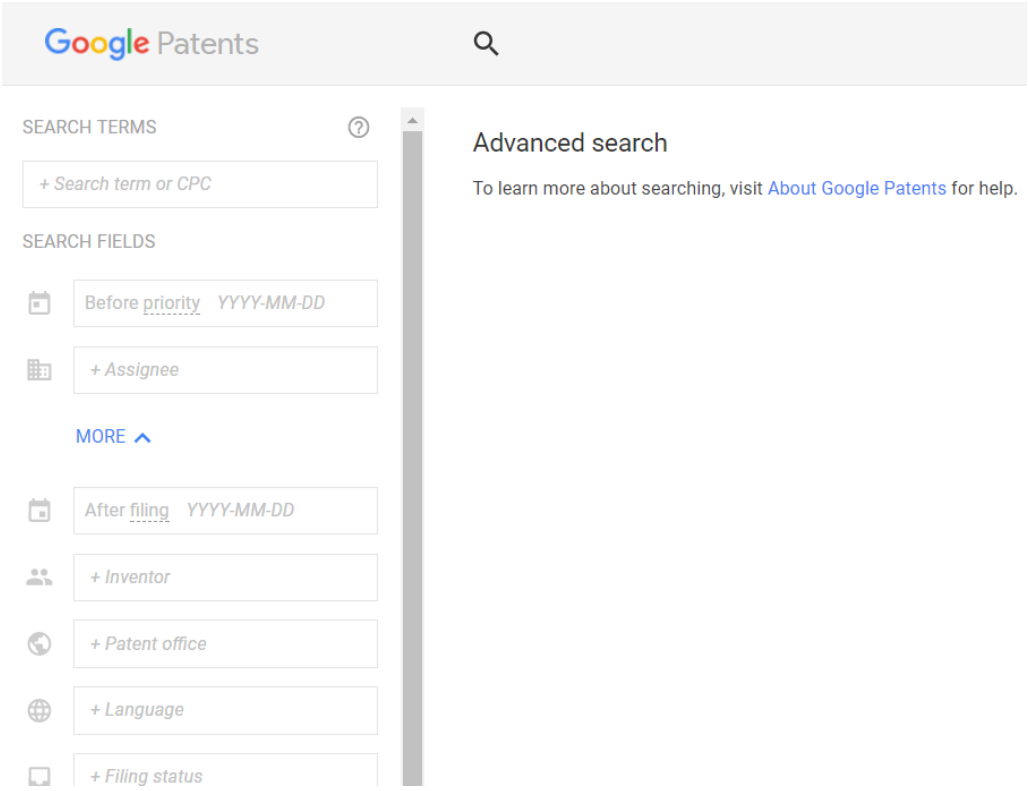


Search results after searching using keyword String | Google Patents

This feature is so helpful in getting the legal status. Otherwise one has to search the documents on websites like USPTO PAIR or Espacenet and enter the file wrapper to find the legal status.

Google Patents Advanced Search

Another type of search using Google Patents is the "Advanced Search", which can be accessed using a separate link provided on the Google Patent interface (Patents.google.com/advanced), as can be seen in the following image:



Advanced Patent Search | Google Patents

As can be seen in the above image, many search fields are provided for the user to search for desired patent applications. Each and every search field is used differently for different kinds of searches. The significance of the different search fields listed and discussed below:

'Search Terms' – All the keywords to be entered here;

'Before priority/filing/publication' – Allows the user to enter the priority date, filing date, or publication date. This feature allows the user to look for documents which have been either filed, or published, or have a priority date before a certain date. One use of this feature is in invalidity searches where the searcher has to look for documents which are published before a certain date;

'Assignee' – Allows the user to look for patents which are filed by a specific person or a specific company. It basically allows the user to keep track of the patent filing activities of that person or company;

'After priority/filing/publication' – Allows the user to look for patent documents after a particular date. This feature is mainly used in "Freedom to operate" searches;

'Inventor' – Allows the user to look for patents which are filed by a specific inventor. It basically allows the user to keep track of the patent filing activities of that inventor;

'Patent Office' – Allows the user to look for patents in specific jurisdictions. Google Patents allows the user to search for patent documents from 17 jurisdictions, which are as follows United States, Europe, Japan, China, South Korea, WIPO, Russia, Germany, The United Kingdom, Canada, France, Spain, Belgium, Denmark, Finland, Luxembourg, and The Netherlands;

'Languages' – Allows the user to search for documents in 14 different languages;

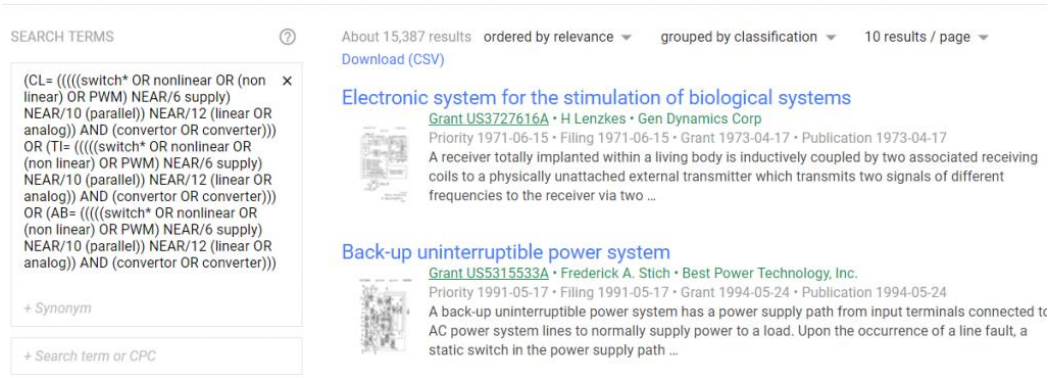
'Filing Status' – Allows the user to look for only applications or only granted applications;

'Patent Type' – Allows the user to only search of utility patents or only design patents;

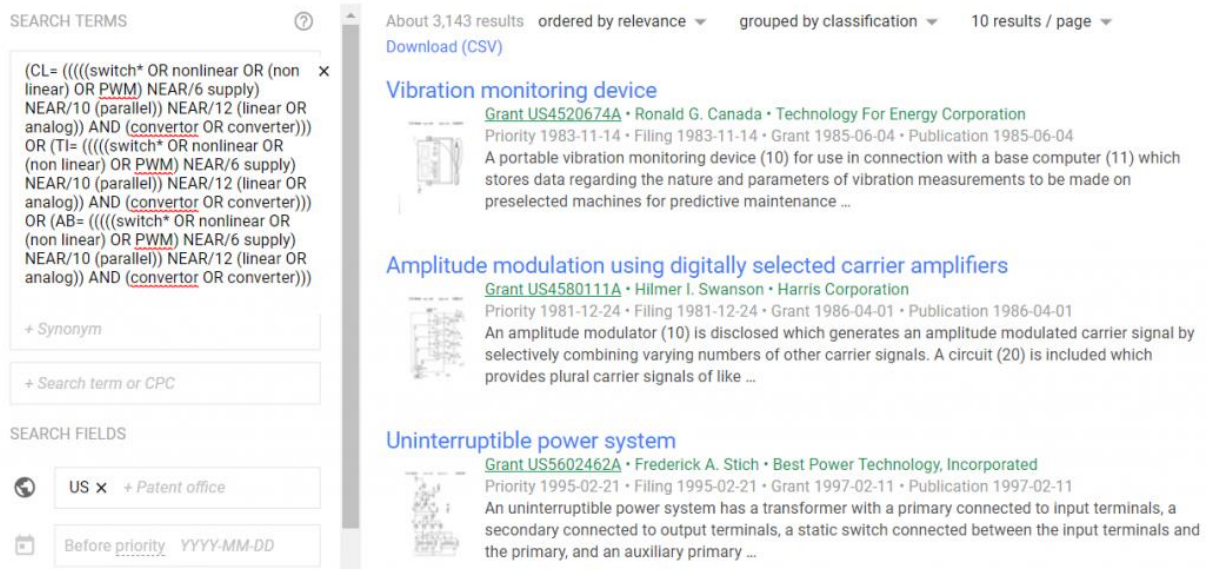
'Citing Patent' – Allows the user to look for patent documents in the examination of which 1 particular document has always been cited;

'CPC' – Allows the user to search patent documents in a particular CPC.

A typical advanced search is provided in the images below to give an idea of how setting certain parameters can affect the number of results obtained in a particular search query. We will take an example of the search string provided previously for the 'non linear search'.



Without any restrictions provided, and only with keywords used as search parameters, the number of hits obtained in the above search is over 15000. Now let's see what happens if I add a restriction of a particular jurisdiction to this search.



As can be seen, adding some meaningful limitations to the search can really optimize the time required in finding the relevant documents.

The explanation of the different kinds of restrictions provided by the different search parameters has been explained above. A smart searcher always uses the different search parameters in the most efficient manner to get the most relevant results.

For example, one awesome method to narrow down the search result is to add a relevant CPC classification to the keyword search. The CPC classifications are given to the patent documents by the patent examiners, and as such, classify the inventions/patents in the most concise manner. So adding a CPC class to the search only helps in filtering out irrelevant patent publications from the search results, thereby leaving you with only the most relevant results.

Additional Tips to Make Google Patents Search Awesome

Google never fails to awe. The same is true for Google patents where the attention to smallest details makes it amazing. Some cool features that I have personally come across and really appreciate about Google Patents are listed below:

The Highlights– Oftentimes while searching, you might be looking for some keywords in the description of the patent publication. So what do you do?

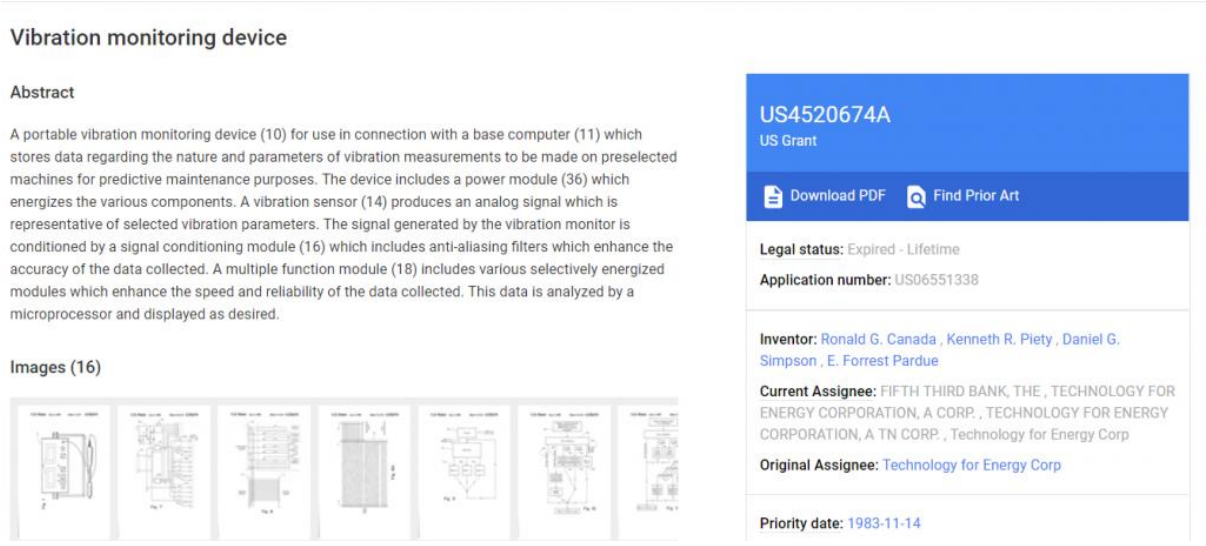
Obviously, use the "ctrl+f" feature of the browser, right?

Wrong! Not when you are using Google Patents.

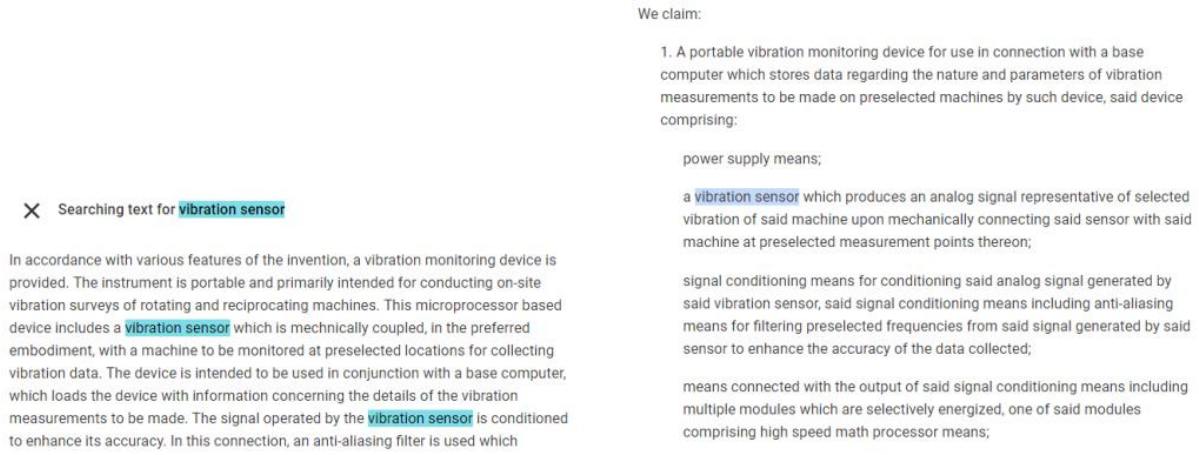
What you do is that when you come across the word of your interest, you just click your mouse near that word, and then drag the mouse over that word in the clicked position.

Voila! Google patents will hide the irrelevant description and show you all the places in the patent document where that word has appeared. The images below illustrate my point.

Now I have found a particular patent.



In this patent, I am interested in finding the word "vibration sensor". So I do what I have written above this is what I get:



Cool huh?

Patent Citations and Cited By

This feature gives the user ready links to all the documents cited during examination stages, as well as for how many patent examinations was the document in question cited. This is a really cool feature as it gives the searcher the examiner's point of view, as well as helps the searcher in finding relevant prior art.

Similar Documents

I don't know how many times I've been saved by this feature.

Similar Documents

Publication	Publication Date	Title
US5602749A	1997-02-11	Method of data compression and apparatus for its use in monitoring machinery
US5949247A	1999-09-07	Method and apparatus for automatically testing and evaluating electric generator sets
US4429578A	1984-02-07	Acoustical defect detection system
US6615120B1	2003-09-02	System for dynamic diagnosis of apparatus operating conditions
US5550787A	1996-08-27	Seismic acquisition system with decentralized processing means
US5808903A	1998-09-15	Portable, self-contained data collection systems and methods
US4800512A	1989-01-24	Method and apparatus for determining and detecting data indicative of the condition of machines through a unique data probe including a test data probe portion and an identifying data sensing probe portion
US4612620A	1986-09-16	Apparatus for collecting scheduled maintenance data
US20040205403A1	2004-10-14	Acoustic power spectra sensor for hard disk drive to provide early detection of drive failure and diagnostic capabilities
US4799169A	1989-01-17	Gas well flow instrumentation

This feature is provided right below the "Cited by" section. I feel that this feature is actually helpful. I have found the most relevant prior art for certain searches from this feature.

Limitations of Google Patents Search

There are many features of paid databases which Google Patent fails to offer. One such feature is the multiple highlights (highlighting more than one keyword at a time).

Another issue with Google Patents is that Google does not take the responsibility of certain data presented on the website, which is understandable. However, in critical searches, the user has to visit the patent websites of different jurisdictions to confirm the details such as priority dates, assignee details, the latest publication for a particular application, and the like.

Regular updates are also an issue as most of the times the patents have been made available on the official website of particular jurisdictions but the same cannot be found on Google Patents. Whereas, the same data will be easily available on any of the paid patent databases.

Conclusion

In conclusion, Google Patents is a great tool for those who are looking for basic searches such as novelty or general search just to know the state of the art. There are certain limitations, as stated in the previous sections. But the database is open source, and one can easily overlook them if the nature of the searches is not very critical.

There is a very high possibility that you may find the documents of interest when you use Google Patents. However, that is the extent to which you can use Google Patents. What is also important is to properly interpret the patent document, which is a job left for the pros. The advantage of using Google Patent is that you will have reduced the attorney's charges.

Furthermore, if you do perform a search for days together, and still do not find relevant documents, it is an indication of either one of the two things:

- that you have invented something that is going to disrupt the market; or
- Your search was lacking.

In either of the two cases, it is highly recommended that you seek the guidance of a professional!

Happy searching to you!