Seven-step U.S. patent search strategy

U.S. patent search assistance at a Patent and Trademark Resource Center (PTRC)

PTRC library staff are available to provide training on U.S. patent search processes and research tools including PubWEST, PubEAST, and the USPTO's PatFT and AppFT patent publication databases. For the PTRC nearest you, check www.uspto.gov/ptrc. For legal questions, contact an attorney or agent registered to practice before the USPTO. A listing is available at https://oedci.uspto.gov.

U.S. patent prior art search vs. comprehensive prior art search

This guide provides a seven-step strategy for searching U.S. patents and published patent applications to locate and evaluate relevant prior art, any previous publication that discloses an invention and would preclude issuance. A comprehensive prior art search would also include foreign patent publications and non-patent literature (newspapers, magazines, dissertations, conference proceedings, and websites). PTRC staff can also provide training on how to locate these additional resources.

Search preparation and documentation

Plan on spending a few hours learning the search process and additional hours for searching and evaluating results. The length of search time depends on the complexity of the invention. Careful recording of the search process (databases used, date and time of search, classes searched, and patents/published patent applications retrieved) is important.

Step 1: Brainstorm terms describing your invention

Begin by writing down a brief, accurate description of the invention. Avoid overly broad and generic terms such as "device," "process," and "system." Consider synonyms for the terms you initially select. Note important keywords and technical terms. Use the following questions to help identify keywords and concepts.

- What is the purpose of the invention? Is it a utilitarian device or an ornamental design?
- Is the invention a process – a way of making something or performing a function – or is it a product?
- What is the invention made of? What is the physical composition of the invention?
- How is the invention used?
- What are keywords and technical terms that describe the nature of the invention? Consult a technical dictionary or thesaurus to help find the appropriate terms.

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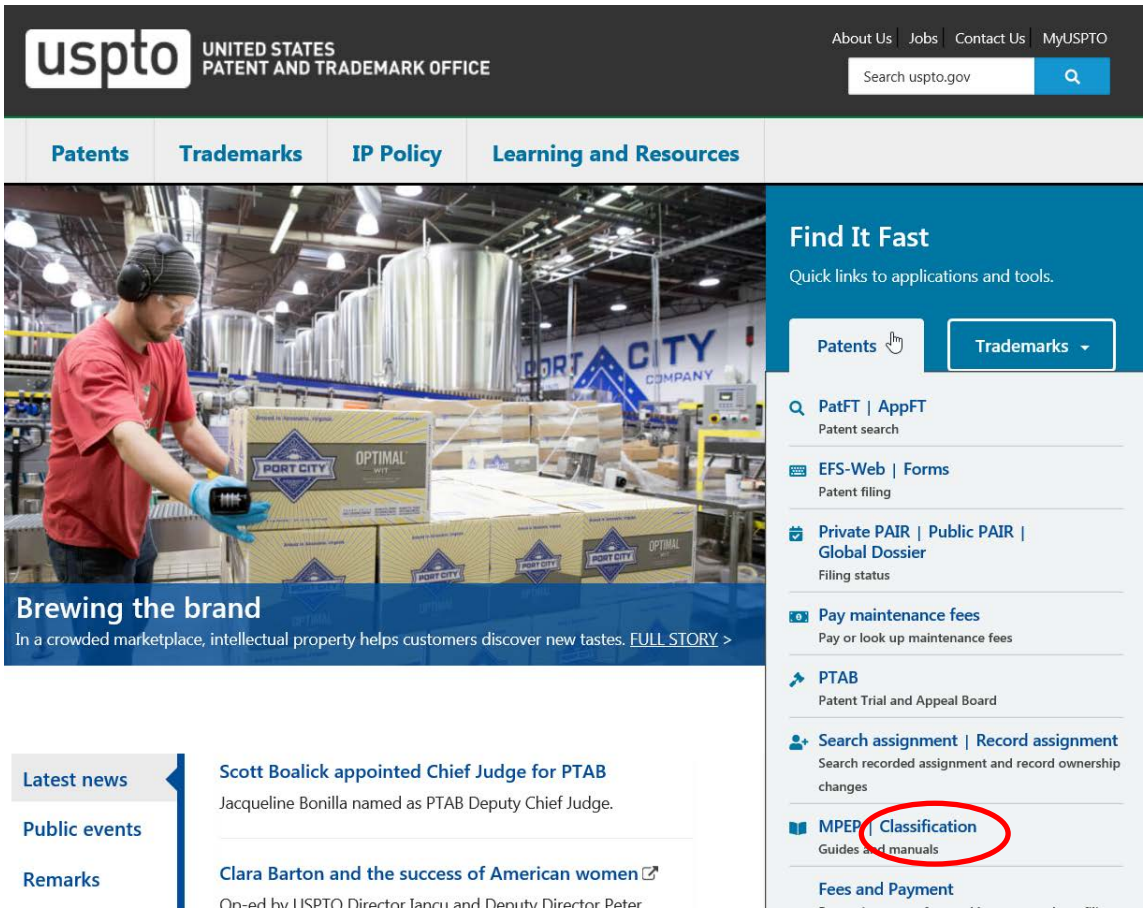
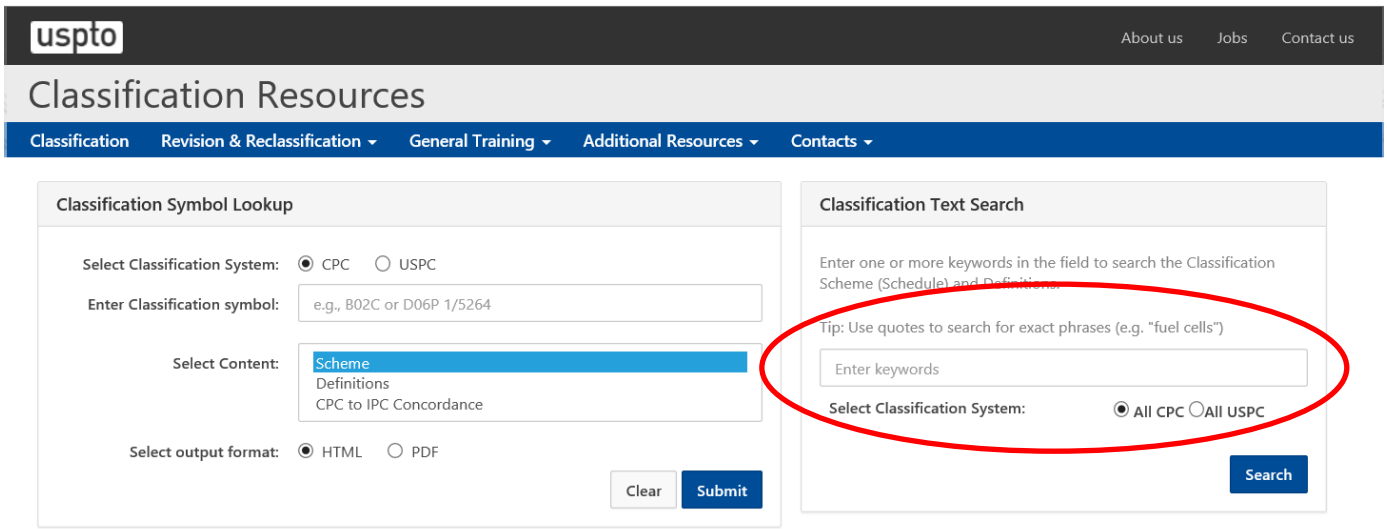
This search example uses an umbrella with a new rib design to eliminate the umbrella collapsing or inverting due to winds.

- Purpose**:** Umbrella has a new rib design to eliminate an umbrella collapsing or inverting due to high winds.
- Invention: An improvement in umbrellas to eliminate need for frequent replacement of umbrellas.
- Invention components: Framework with ribs, stretchers, main frame, securing rings, mounting brackets, joint connectors, fabric connectors, fabric, and linkage bar.
- How used: As needed in protection from the elements.
- Other terms (in addition to above): Parasol, sunshade, support assembly or apparatus, windproof, wind-resistant.

Step 2: Access and review Cooperative Patent Classification (CPC) schema

On the USPTO Webpage select the patents tab and then open to the Classification Resources page.





With the radio button for CPC selected use the Classification Text Search to search for the term umbrella.

From the search results page, click on an entry for a class-subclass scheme page.

If the results are not satisfactory, rerun the search using synonyms you identified in Step 1 for the invention.

Scan the classification titles in the class scheme for A45B looking for the most relevant classification. Dot indents are used to show hierarchical relationships in the scheme. The more dots the more specific the concept is. Some titles may have references in parenthesis following the title that aid in the classification selection. Notice that A45B 25/22 is a possible good match based on the title "Devices for increasing the resistance of umbrellas to wind." There is nothing under A45B 25/22 with two dots that is more specific, so this may be a good choice.

See photo on the next page for the CPC scheme A45B

D	-	**A45B 25/00**	**Details of umbrellas** (sticks for umbrellas A45B 1/00 - A45B 9/00; illuminating devices for umbrellas A45B 3/02; {sockets or holders for poles or posts E04H 12/22})
		A45B 2025/003	. {Accessories not covered by groups A45B 25/24 - A45B 25/30}
D		A45B 25/006	. {Automatic closing devices (A45B 25/143 takes precedence)}
D	-	A45B 25/02	. Umbrella frames
D		A45B 25/04	. . Devices for making or repairing
D	-	A45B 25/06	. Umbrella runners
D		A45B 25/08	. . Devices for fastening or locking
D	-	A45B 25/10	. Umbrella crowns {(A45B 25/06 takes precedence)}
		A45B 2025/105	. . {movable with respect to the shaft}
D		A45B 25/12	. Devices for holding umbrellas closed, e.g. magnetic devices
D	-	A45B 25/14	. Devices for opening and for closing umbrellas
D		A45B 25/143	. . {automatic}
		A45B 2025/146	. . {with a crank connected to a rope}
D	-	A45B 25/16	. Automatic openers, e.g. frames with spring mechanisms {(A45B 25/143 takes precedence)}
D		A45B 25/165	. . {with fluid or electric actuators}
D	-	A45B 25/18	. Covers (detachable A45B 15/00); Means for fastening same
		A45B 2025/183	. . {Covers with filtering or screening means for avoiding undesired radiation}
		A45B 2025/186	. . {Umbrellas with two or more covers}
D		A45B 25/20	. Windows in covers
D		A45B 25/22	. Devices for increasing the resistance of umbrellas to wind
D	-	A45B 25/24	. Protective coverings for umbrellas when closed
D		A45B 25/26	. . Ventilated coverings
D		A45B 25/28	. Drip receptacles for umbrellas; Attaching devices therefor
D		A45B 25/30	. Name-plates; Badges; Labelling or marking devices; Means for attaching same (attached to the umbrella stick A45B 9/06)
D	-	**A45B 27/00**	**Ladies' or like fans**
D		A45B 27/02	. with mechanical hand-drive

Step 3: Review classification definition

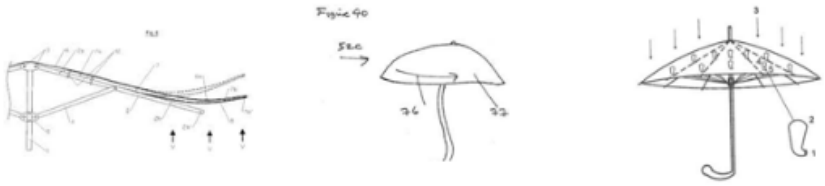
If the selected classification title has a blue box with a D to the left of it, it is hyperlinked to a CPC classification definition. CPC classification definitions are helpful in establishing the scope of the relevant classification, thus ensuring you have selected the most relevant classification. The definitions may include important search notes and suggestions for further searching. In this example, we click on the D to the left of A45B 25/22 and get the following definition which is unusual in that it relies solely on images.

A45B 25/22

Devices for increasing the resistance of umbrellas to wind

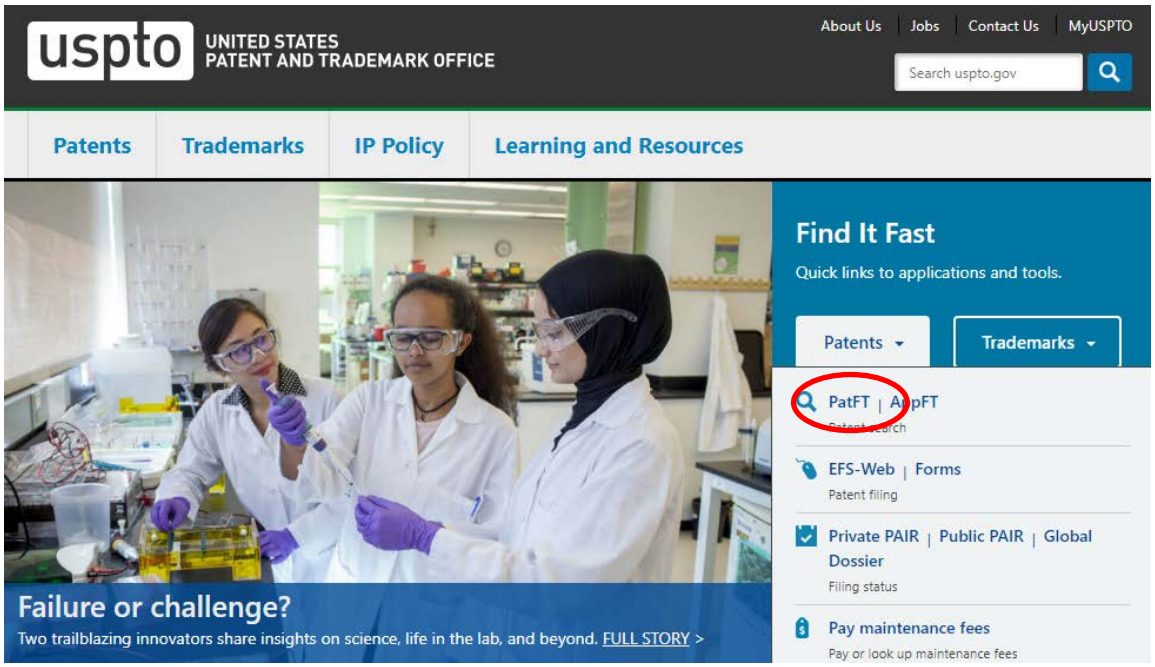
Definition statement

This place covers:

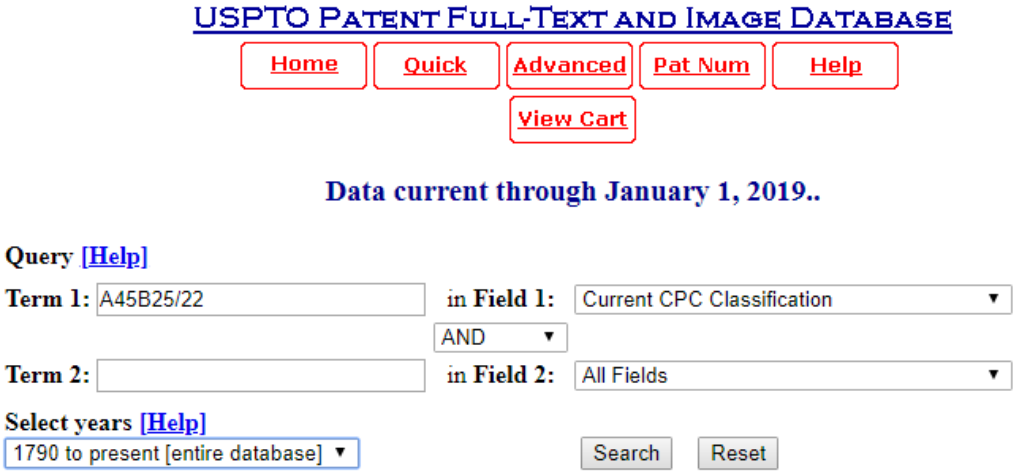


Step 4: Retrieve and review patents using CPC classification

Having identified a relevant CPC classification, use the CPC classification to retrieve and review all the U.S. patents currently assigned to that CPC classification in the PatFT (Patents Full-Text and Image) database on the USPTO website. On the USPTO homepage (www.uspto.gov), select "PatFT" under the drop-down "Find It Fast" Patents menu.



Enter the CPC classification in Term 1 Box (important: delete the space in the middle of any CPC classification when doing a PatFT search, so enter "A45B25/22"). In the Field 1 drop-down box select "Current CPC Classification." Leave the Term 2 box blank. For Select Years, use the drop-down box to select "1790 to present [entire database]". Click on the Search button to get results.



From the results page click on either the patent number or the patent title to see the full-text of the patent (patents issued prior to 1970 will not have a full-text version, only a limited text entry). Click on the red "Images" button at the top of the page to view a pdf image of the patent. Review the front page of each patent in the results list, paying special attention to the abstract and representative drawing. Jot down the number of those patents that are similar to the proposed invention that will merit later closer review.

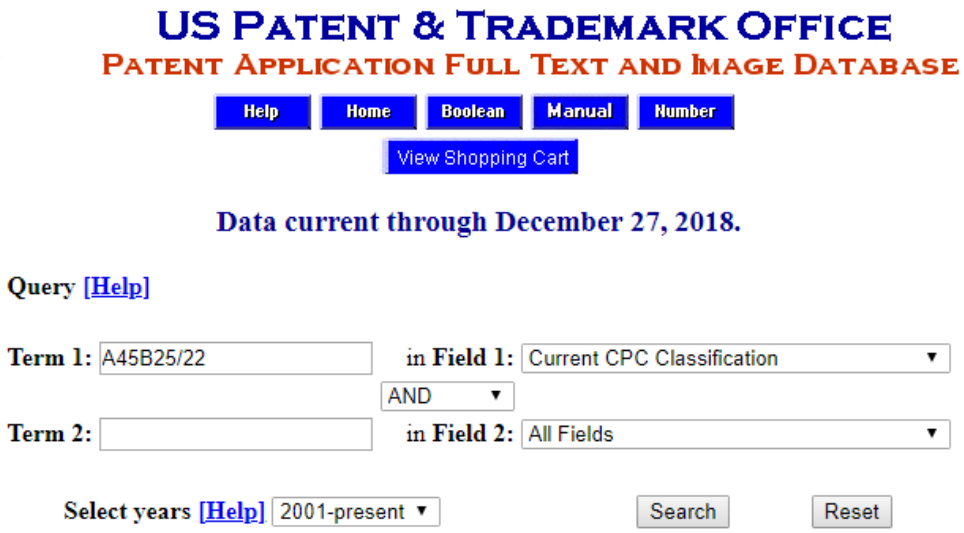
Step 5: Further review of the relevant patents identified in Step 4

Using this selected set of most relevant U.S. patents, now review each one further for similarity to your own invention, paying close attention to the other sections of the patent—additional drawings pages, the specification, and especially the claims. References cited by the applicant and/or patent examiner may lead to additional relevant patents. Remember the claims constitute the boundaries of legal property rights given to the patent holder. Print or download copies of the most relevant U.S. patents found.

Step 6: Retrieve and review published patent applications using CPC classification

Use the CPC classification from Step 3 to retrieve and review all the U.S. published patent applications currently assigned to that CPC classification in the Applications Full-Text and Image (AppFT) database on the USPTO website. On the USPTO homepage (www.uspto.gov), select "AppFT" under the drop down "Find It Fast" Patents menu.

Enter the CPC classification in Term 1 box (important: delete the space in the middle of any CPC classification when doing an AppFT search, so enter "A45B25/22"). In the Field 1 drop-down box select "Current CPC Classification." Leave the Term 2 box blank. The only option for years is "2001-present" since the U.S. has only been publishing patent applications since 2001. Click on the Search button to get results.



From the results list click on either the published patent application number or its title to see the full-text version. Click on the blue "Images" button at the top of the page to view a pdf image of the published application. Review the front page of each published patent application, paying special attention to the abstract and representative drawing. Jot down the number of those published patent applications that are similar to your invention. Using this selected set of most relevant U.S. published patent applications, now review each one in-depth for similarity to the proposed invention, paying close attention to the other sections of the published application—additional drawings pages, the specification, and especially the claims. Print or download copies of the most relevant U.S. published patent applications.

Step 7: Options for broadening a search

Having completed a preliminary U.S. patent and published patent applications search which did not find publications disclosing the invention seeking application, there are several options to broaden a search.

A. Supplement the search using keywords. A keyword search may simply turn up documents that were not well classified or perhaps had classifications missed in the review of CPC schema in Step 2. U.S. patent examiners regularly supplement their classification searches with keyword searches. Consider the use of technical engineering language rather than common everyday words, e.g. car or automobile or auto or "land motor vehicle". Use truncation symbols to get singular and plural versions of a word (airbag$). Use quotes to group search phrases where words are adjacent ("image viewer"). Use both PatFT and AppFT to run keyword searches.

B. Broaden the search with U.S. Patent Classification (USPC). While U.S. Patent Classification stopped being used on U.S. utility patents in 2015, the classification system remains searchable for all pre-2015 U.S. utility patents. Reviewing U.S. patents or published patent applications using CPC, note their current USPC. Next run a USPC search in PatFT and AppFT.

C. Search foreign patents and published patent applications using the CPC classification. Re-run the search using Espacenet (http://worldwide.espacenet.com), the European Patent Office's worldwide patent publication database of over 90 million patent publications.

D. Search non-patent literature. Since inventions can be publicly disclosed in a variety of non-patent print and electronic publications, it is recommended to search books, journals, websites, technical catalogs, and conference proceedings as well. PTRC staff can help with this search.

E. Hire a registered patent attorney or patent agent to review the search. After conducting a preliminary search, one is better prepared to discuss their invention and related inventions found with a patent professional. Plus, the attorney won't have to spend time (and money) covering patenting basics. To search for a registered patent attorney or patent Agent, consult the USPTO's online roster at https://oedci.uspto.gov.