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PATENT AND TRADEMARK OFFICE
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Path to a Patent Series, Part III: Patent Searching

U.S. Patent and Trademark Office

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Workshop objectives

- Participants will understand:
  - Benefits of searching
  - Keyword search vs. classification search
  - What is Cooperative Patent Classification (CPC)?
  - The six-step search process
  - Building a search strategy using keywords and classification scheme

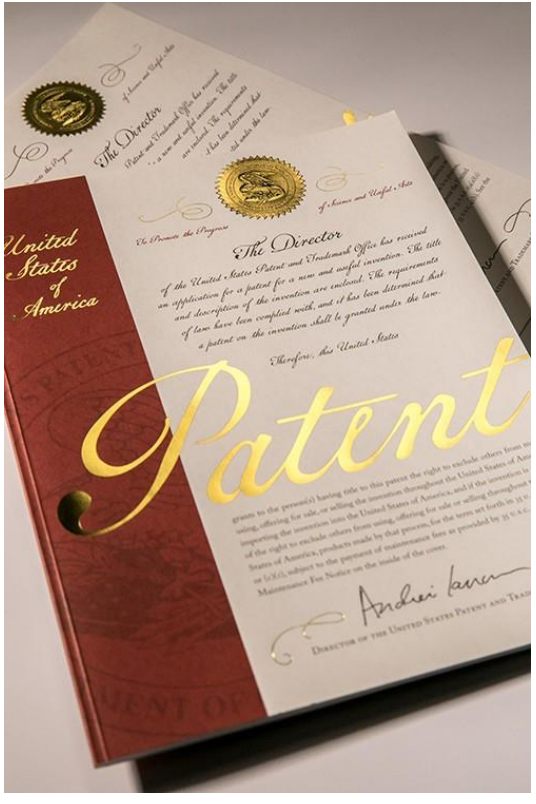
Disclaimer

References to particular patents, designs, trademarks, service marks, products, services, companies, copyrights, and/or organizations appearing in this presentation are for illustrative and educational purposes only and do not constitute or imply endorsement by the U.S. government, the U.S. Department of Commerce, the U.S. Patent and Trademark Office, or any other federal agency.

Patents

A U.S. patent is

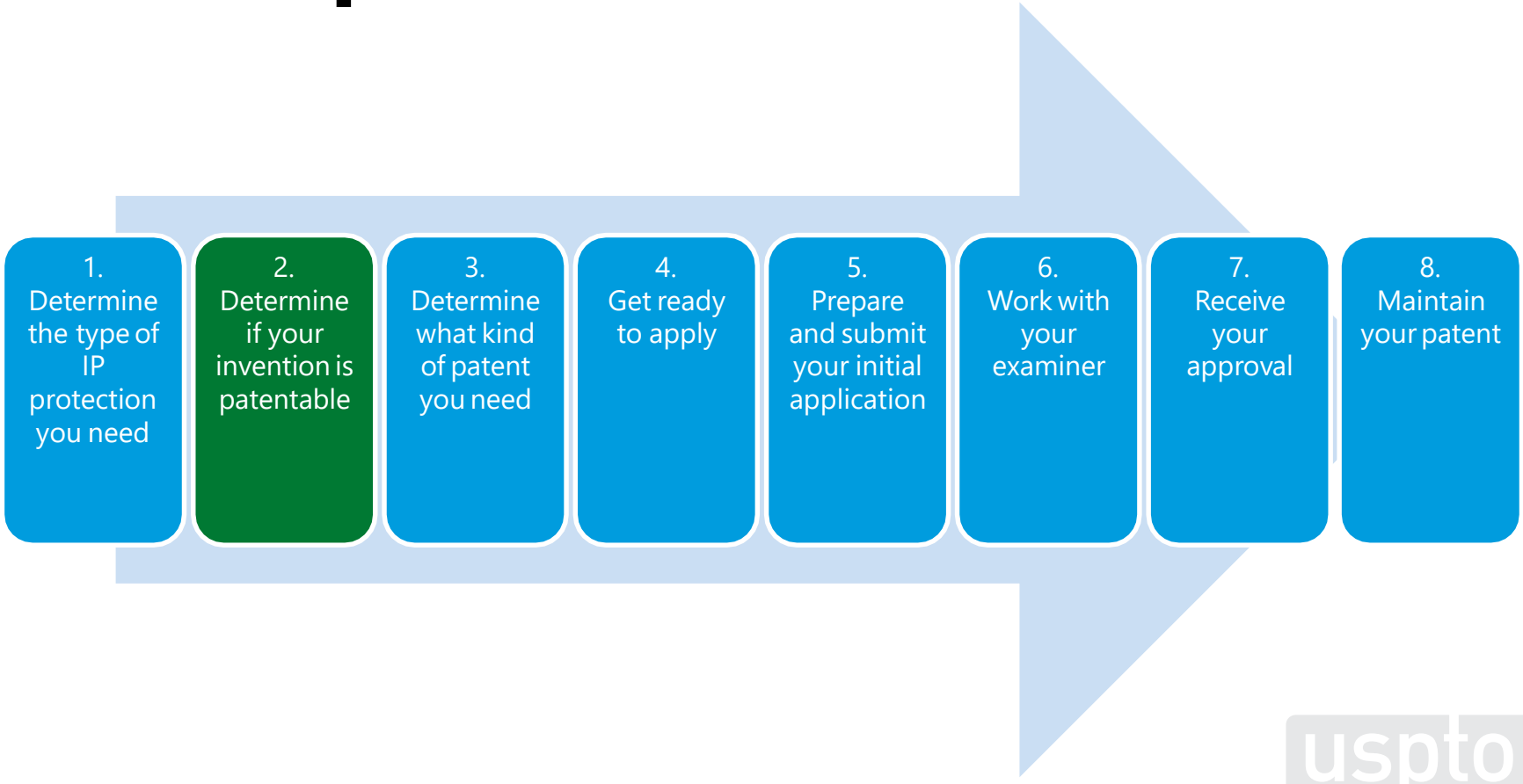
- A property right granted by the United States government to an inventor
- To exclude others from making, using, offering for sale, or selling the invention throughout the United States or importing the invention into the United States
- For a limited time
- In exchange for public disclosure of the invention



Why search?

- Patentability
  - Inventions that are new, useful, non-obvious, and accompanied by a written description disclosing how to make and use the invention may be patented.
- But how do you know if an invention is new and non-obvious?

Patent process overview



U.S. patent prior art search

- Ensure that your invention is indeed novel and non-obvious; conduct a prior art search before filing a U.S. patent application
  - Many searchers start with a preliminary prior art search of U.S. patents and published patent applications
  - Conduct a keyword search; however, note that there are pitfalls from relying only on a keyword search
  - To be as thorough as possible, a supplemental prior art search ideally includes a classification search of granted U.S. patents and published U.S. patent applications, conducted to determine patentability of an invention

Prior art

- **Any document that contains a discussion or description relevant to an invention for which a patent is currently being sought or enforced, may be a prior art reference.**
- It is an applicant's duty to submit to the USPTO information which is “material to patentability of the invention claimed in a non-provisional application.”
- A patent examiner may reject one or more claims in a patent application on the grounds that they are “anticipated by” or “obvious in view of” the prior art.

Prior art

- Prior art consists of information disclosed to the public, including:
  - U.S. patents and published patent applications
  - Foreign patents and published patent applications
  - Journal and magazine articles
  - Books, manuals, and catalogs
  - Websites
  - Conference proceedings
  - Scientific papers



Challenges with relying on keyword searching

- Vague or inconsistent terminology
  - "Toy and Process of Use" (Patent 2,415,012)
- Obsolete names and terms
  - "LP" … "hi-fi" … "laser disc" … "water closet"
- Different meanings in different fields
  - "mouse" the animal v. computer "mouse"
- Synonyms
  - Rodent Extermination Device (Patent 5,185,953)

Challenges with relying on keyword searching (continued)

- Some text may have British spellings
  - Colour v. color
  - Tyre v. tire
- Spelling errors and variations
  - Repellant v. repellent
  - Three wheeled v. tri-wheeled
- Acronyms and abbreviations
  - LED, light emitting diode
  - PDA, personal digital assistant

Biggest challenge of keyword searching

- Text patent databases limit keyword searching to no earlier than:
  - Google Patents: 1880's
  - USPTO Patent Public Search 1830's
- Searching by classification allows access to all U.S. patents.

What is classification?

- In general, a classification system is a system of hierarchical categories used to organize like “things” by their characteristics and relationships.
- Classification systems are very useful for sorting and searching large collections of information, including inventions.



Worldwide classification systems

	US Patent Classification (USPC)	International Patent Classification (IPC)	European Classification (ECLA)	File index (FI)	Cooperative Patent Classification (CPC)
Documents classified into system by	USPTO	IPC union members (61)	EPO, member states	Japan Patent Office	USPTO/EPO
Relationship to IPC	None	None	ECLA is an extension of IPC	FI is an extension of IPC	CPC is an extension of IPC
Classification	2 standards for classification	Invention information	Invention information	Invention information	Invention information
Rules for classification	U.S. classification guidelines	IPC guide	IPC guide + art specific rules	IPC guide + deep indexing with F-terms	IPC guide + art specific rules
Number of subdivisions	150,000	69,000	145,000	180,000	200,000
	Replaced by CPC in 1/2015 for U.S. utility patents		Replaced by CPC in 2013		

What is CPC?

- Joint partnership with the European Patent Office (EPO)
- Harmonization of the USPC and ECLA
- The CPC is divided into eight main areas, A-H:
  - A: Human Necessities
  - B: Performing Operations; Transporting
  - C: Chemistry and Metallurgy
  - D: Textiles and Paper
  - E: Fixed Construction
  - F: Mechanical Engineering; Lighting; Heating; Weapons; Blasting; Engines or Pumps
  - G: Physics
  - H: Electricity

Six-step U.S. patent search strategy

- The six-step U.S. patent search strategy is a 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 more comprehensive prior art search would also include foreign patent publications and non-patent literature.
- Careful recording of the search process (databases used, date and time of search, classes searched, and patents/published patent applications retrieved) is important.

Search example

We have invented an umbrella with a new rib design to eliminate the umbrella collapsing or inverting due to winds.



Step 1 – Brainstorm terms describing the invention

- 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 structure of the invention?
- How is the invention used?
- What are keywords and technical terms that describe the nature of the invention?

Note: Consult a technical dictionary or thesaurus to help find the appropriate terms.

Step 1 – Brainstorm terms describing the invention (continued)

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, a main frame, securing rings, mounting brackets, joint connectors, fabric connectors, and fabric 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 – Keyword search

- Use Boolean operators:
  - Use “OR” to group together synonyms.
  - Use “AND” to find the intersection of two sets of information.
- Include wildcard symbols (*) to obtain versions of words.
- Incorporate quotes to group search phrases where words are adjacent.
- Filter by selected fields, e.g., inventor name.

Keyword search strategy

((umbrella* OR parasol* OR sunshade*) AND (windproof or “wind resistant”))

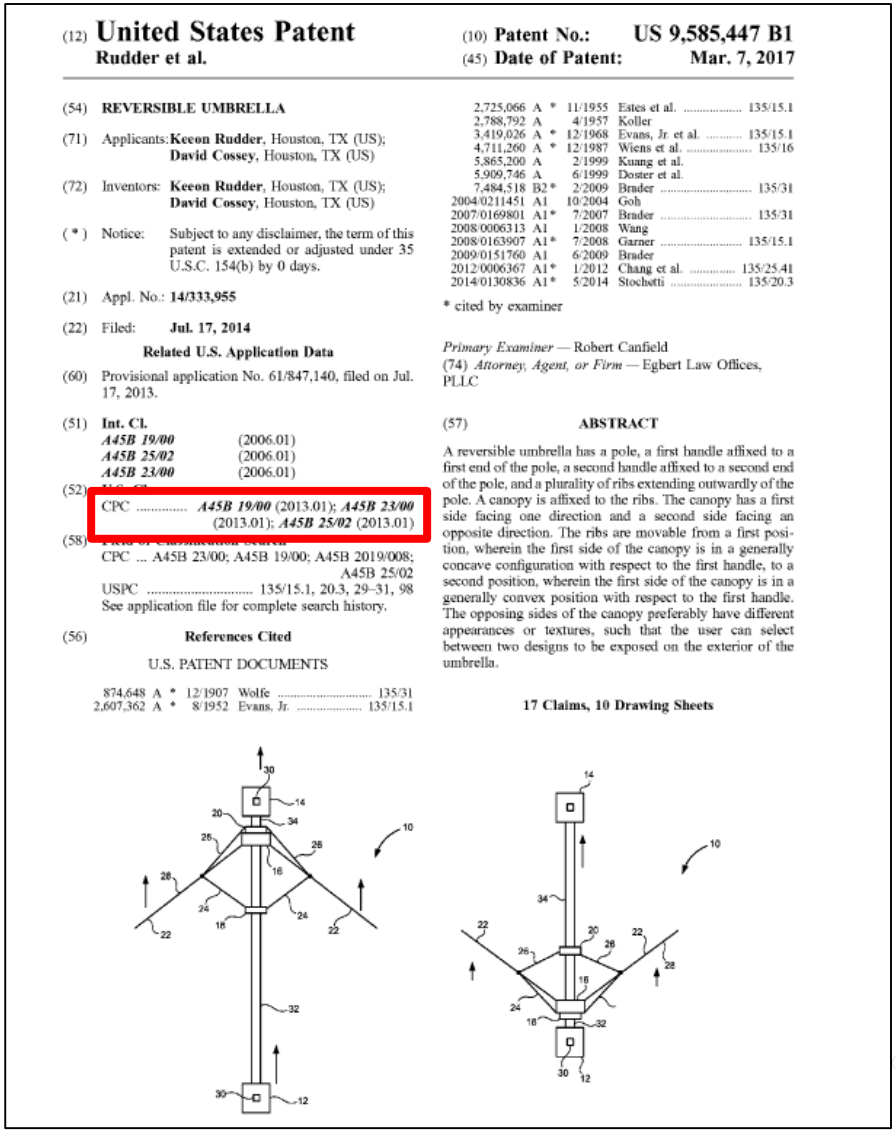


Step 3 - Conduct in-depth review of patents you selected based on front page information

- Review each U.S. patent you selected in-depth for similarity to your own invention.
- Look at 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 you to additional relevant patents.
- Save the most relevant U.S. patents you find.
- Refine and repeat searches.

U.S. patent image after 2015

- Review the front page of each patent as well as other pages.
- Record the patent number of those patents similar to your invention that will merit later closer review.
- Note the classification value(s).



(12) **United States Patent**
Rudder et al.

(10) **Patent No.: US 9,585,447 B1**
(45) **Date of Patent: Mar. 7, 2017**

(54) **REVERSIBLE UMBRELLA**

(71) Applicants: **Keeon Rudder**, Houston, TX (US); **David Cossey**, Houston, TX (US)

(72) Inventors: **Keeon Rudder**, Houston, TX (US); **David Cossey**, Houston, TX (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: **14/333,955**

(22) Filed: **Jul. 17, 2014**

Related U.S. Application Data

(60) Provisional application No. 61/847,140, filed on Jul. 17, 2013.

(51) **Int. Cl.**
A45B 19/00 (2006.01)
A45B 25/02 (2006.01)
A45B 23/00 (2006.01)

(52) CPC ***A45B 19/00*** (2013.01); ***A45B 23/00*** (2013.01); ***A45B 25/02*** (2013.01)

(58) CPC ... A45B 23/00; A45B 19/00; A45B 2019/008; A45B 25/02
USPC 135/15.1, 20.3, 29–31, 98
See application file for complete search history.

(56) **References Cited**

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874,648	A *	12/1907	Wolfe	135/31
2,607,362	A *	8/1952	Evans, Jr.	135/15.1
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Primary Examiner — Robert Canfield
(74) *Attorney, Agent, or Firm* — Egbert Law Offices, PLLC

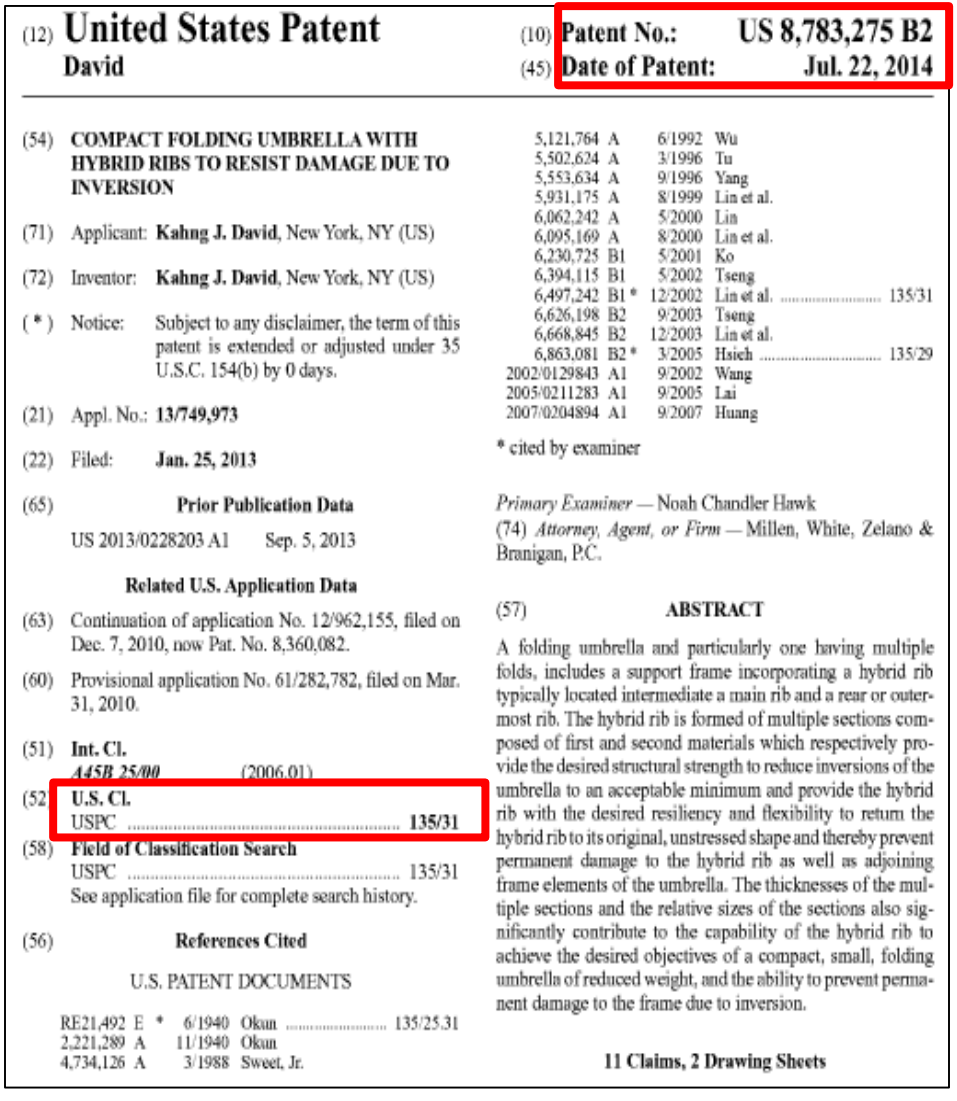
(57) **ABSTRACT**

A reversible umbrella has a pole, a first handle affixed to a first end of the pole, a second handle affixed to a second end of the pole, and a plurality of ribs extending outwardly of the pole. A canopy is affixed to the ribs. The canopy has a first side facing one direction and a second side facing an opposite direction. The ribs are movable from a first position, wherein the first side of the canopy is in a generally concave configuration with respect to the first handle, to a second position, wherein the first side of the canopy is in a generally convex position with respect to the first handle. The opposing sides of the canopy preferably have different appearances or textures, such that the user can select between two designs to be exposed on the exterior of the umbrella.

17 Claims, 10 Drawing Sheets

U.S. patent image prior to 2015

- Review the front page of each patent as well as other pages.
- Record the patent number of those patents similar to your invention that will merit later closer review.
- **Note:** Only U.S. Classification, no CPC value(s).



(12) **United States Patent**
David

(10) **Patent No.: US 8,783,275 B2**
(45) **Date of Patent: Jul. 22, 2014**

(54) **COMPACT FOLDING UMBRELLA WITH HYBRID RIBS TO RESIST DAMAGE DUE TO INVERSION**

(71) Applicant: **Kahng J. David**, New York, NY (US)

(72) Inventor: **Kahng J. David**, New York, NY (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: **13/749,973**

(22) Filed: **Jan. 25, 2013**

(65) **Prior Publication Data**

US 2013/0228203 A1 Sep. 5, 2013

Related U.S. Application Data

(63) Continuation of application No. 12/962,155, filed on Dec. 7, 2010, now Pat. No. 8,360,082.

(60) Provisional application No. 61/282,782, filed on Mar. 31, 2010.

(51) **Int. Cl.**
A45B 25/00 (2006.01)

(52) **U.S. Cl.**
USPC **135/31**

(58) **Field of Classification Search**
USPC 135/31
See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

RE21,492	E *	6/1940	Okun	135/25.31
2,221,289	A	11/1940	Okun	
4,734,126	A	3/1988	Sweet, Jr.	
5,121,764	A	6/1992	Wu	
5,502,624	A	3/1996	Tu	
5,553,634	A	9/1996	Yang	
5,931,175	A	8/1999	Lin et al.	
6,062,242	A	5/2000	Lin	
6,095,169	A	8/2000	Lin et al.	
6,230,725	B1	5/2001	Ko	
6,394,115	B1	5/2002	Tseng	
6,497,242	B1 *	12/2002	Lin et al.	135/31
6,626,198	B2	9/2003	Tseng	
6,668,845	B2	12/2003	Lin et al.	
6,863,081	B2 *	3/2005	Hsieh	135/29
2002/0129843	A1	9/2002	Wang	
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* cited by examiner

Primary Examiner — Noah Chandler Hawk
(74) *Attorney, Agent, or Firm* — Millen, White, Zelano & Branigan, P.C.

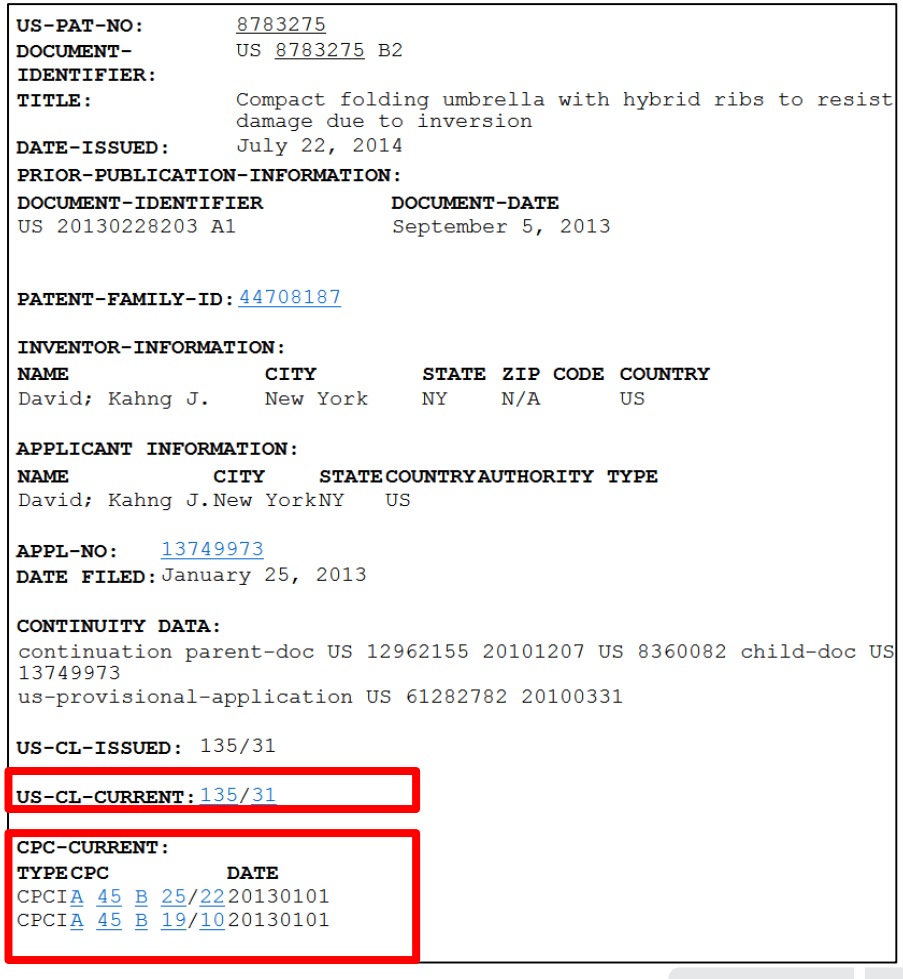
(57) **ABSTRACT**

A folding umbrella and particularly one having multiple folds, includes a support frame incorporating a hybrid rib typically located intermediate a main rib and a rear or outermost rib. The hybrid rib is formed of multiple sections composed of first and second materials which respectively provide the desired structural strength to reduce inversions of the umbrella to an acceptable minimum and provide the hybrid rib with the desired resiliency and flexibility to return the hybrid rib to its original, unstressed shape and thereby prevent permanent damage to the hybrid rib as well as adjoining frame elements of the umbrella. The thicknesses of the multiple sections and the relative sizes of the sections also significantly contribute to the capability of the hybrid rib to achieve the desired objectives of a compact, small, folding umbrella of reduced weight, and the ability to prevent permanent damage to the frame due to inversion.

11 Claims, 2 Drawing Sheets

Corresponding U.S. patent text version

- In text view, U.S. patents issued before 2015 will have both U.S. and CPC values.
- CPC values have been retrofitted to all U.S. patents.
- Since January 1, 2015, U.S. patent images have CPC values.



US-PAT-NO: 8783275
DOCUMENT-IDENTIFIER: US 8783275 B2
TITLE: Compact folding umbrella with hybrid ribs to resist damage due to inversion
DATE-ISSUED: July 22, 2014
PRIOR-PUBLICATION-INFORMATION:

DOCUMENT-IDENTIFIER	DOCUMENT-DATE
US 20130228203 A1	September 5, 2013

PATENT-FAMILY-ID: 44708187

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
David; Kahng J.	New York	NY	N/A	US

APPLICANT INFORMATION:

NAME	CITY	STATE	COUNTRY	AUTHORITY TYPE
David; Kahng J.	New York	NY	US	

APPL-NO: 13749973
DATE FILED: January 25, 2013

CONTINUITY DATA:
continuation parent-doc US 12962155 20101207 US 8360082 child-doc US 13749973
us-provisional-application US 61282782 20100331

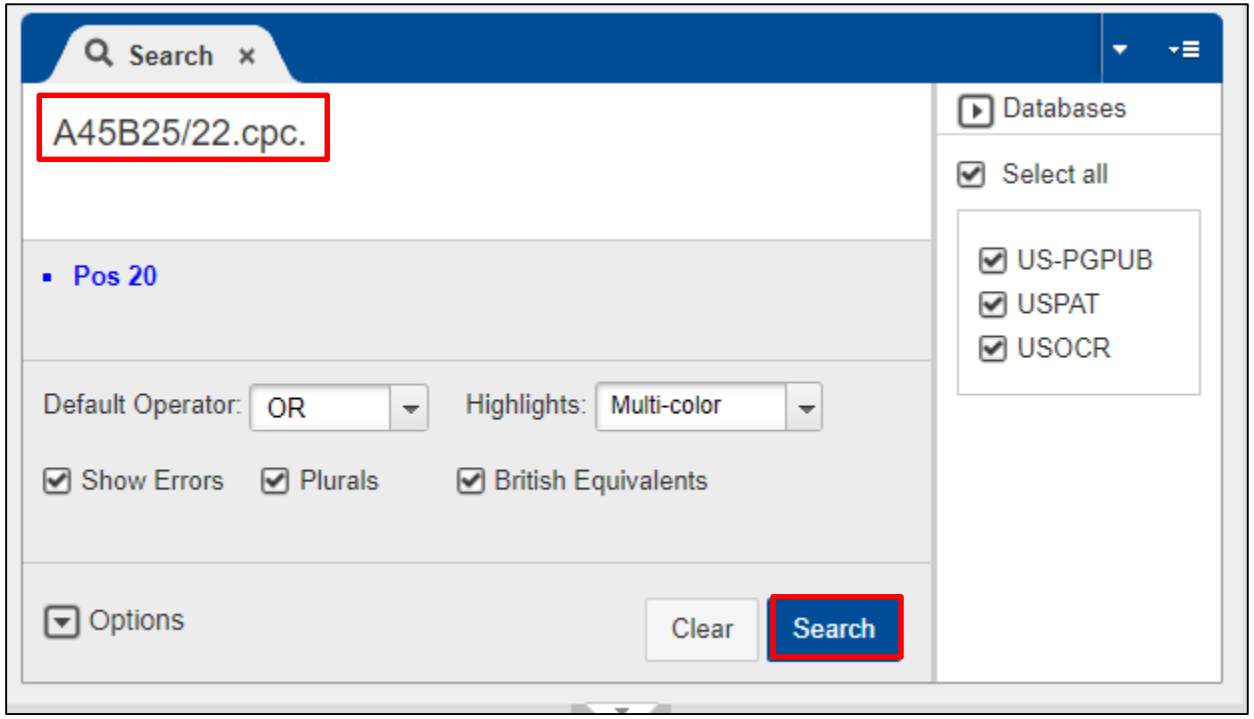
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US-CL-CURRENT: 135/31

CPC-CURRENT:

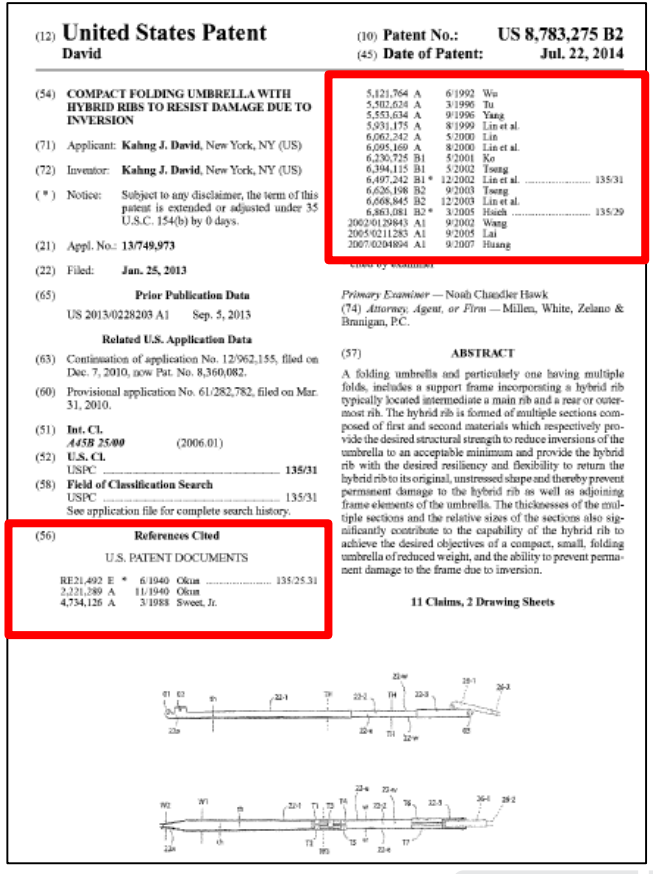
TYPE	CPC	DATE
CPCI	A 45 B 25/22	20130101
CPCI	A 45 B 19/10	20130101

Step 4 - Retrieve and review published patent applications using CPC values



Step 5
Cited references

- Conduct a search of cited U.S. patents and patent applications.



(12) **United States Patent**
David

(10) **Patent No.: US 8,783,275 B2**
(45) **Date of Patent: Jul. 22, 2014**

(54) **COMPACT FOLDING UMBRELLA WITH HYBRID RIBS TO RESIST DAMAGE DUE TO INVERSION**

(71) Applicant: **Kahng J. David**, New York, NY (US)

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5,553,634	A	9/1996	Yang	
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6,668,845	B2	12/2003	Lin et al.	
6,863,081	B2 *	3/2005	Hsieh	135/29
2002/0129843	A1	9/2002	Wang	
2005/0211283	A1	9/2005	Lai	
2007/0204894	A1	9/2007	Huang	

Primary Examiner — Noah Chandler Hawk
(74) *Attorney, Agent, or Firm* — Millen, White, Zelano & Branigan, P.C.

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11 Claims, 2 Drawing Sheets

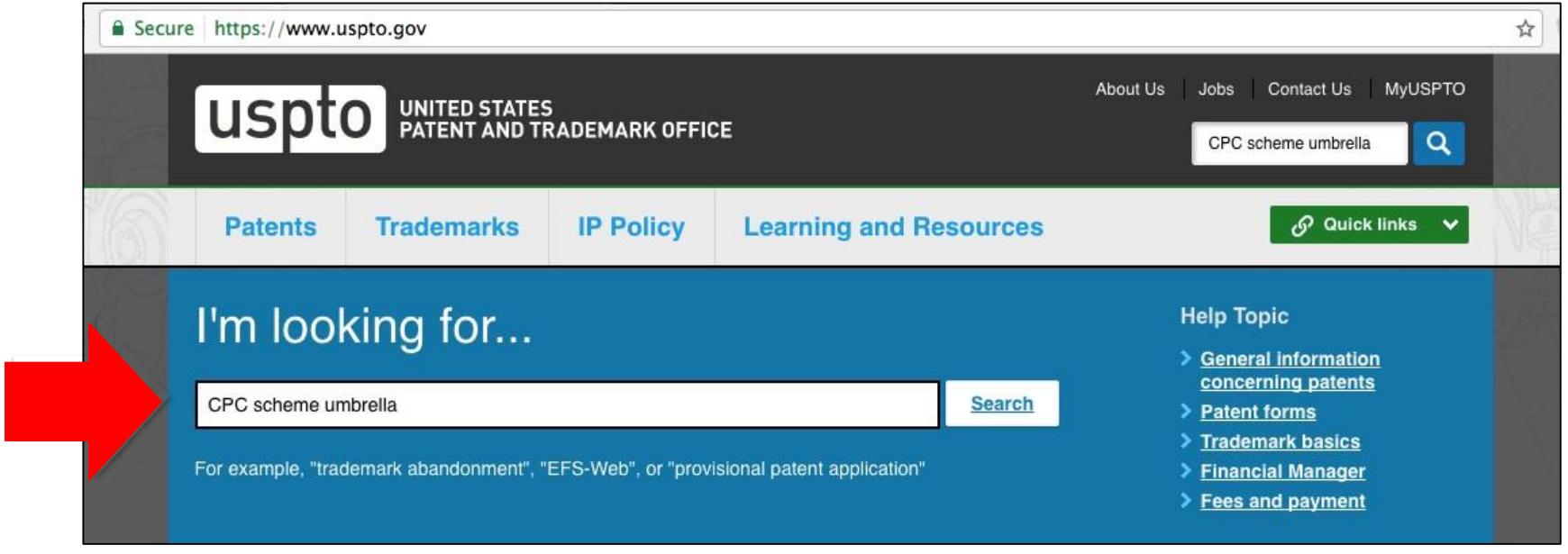
Step 6 – Broadening your search

- Extend your search to foreign patents and published patent applications using CPC classification, and re-run your search using Espacenet at http://worldwide.espacenet.com.
- Search non-patent print and electronic publications, e.g., books, journals, websites, technical catalogs, and conference proceedings.
- Consider hiring a registered patent attorney or patent agent to review your search and conduct a follow-up search of his/her own.

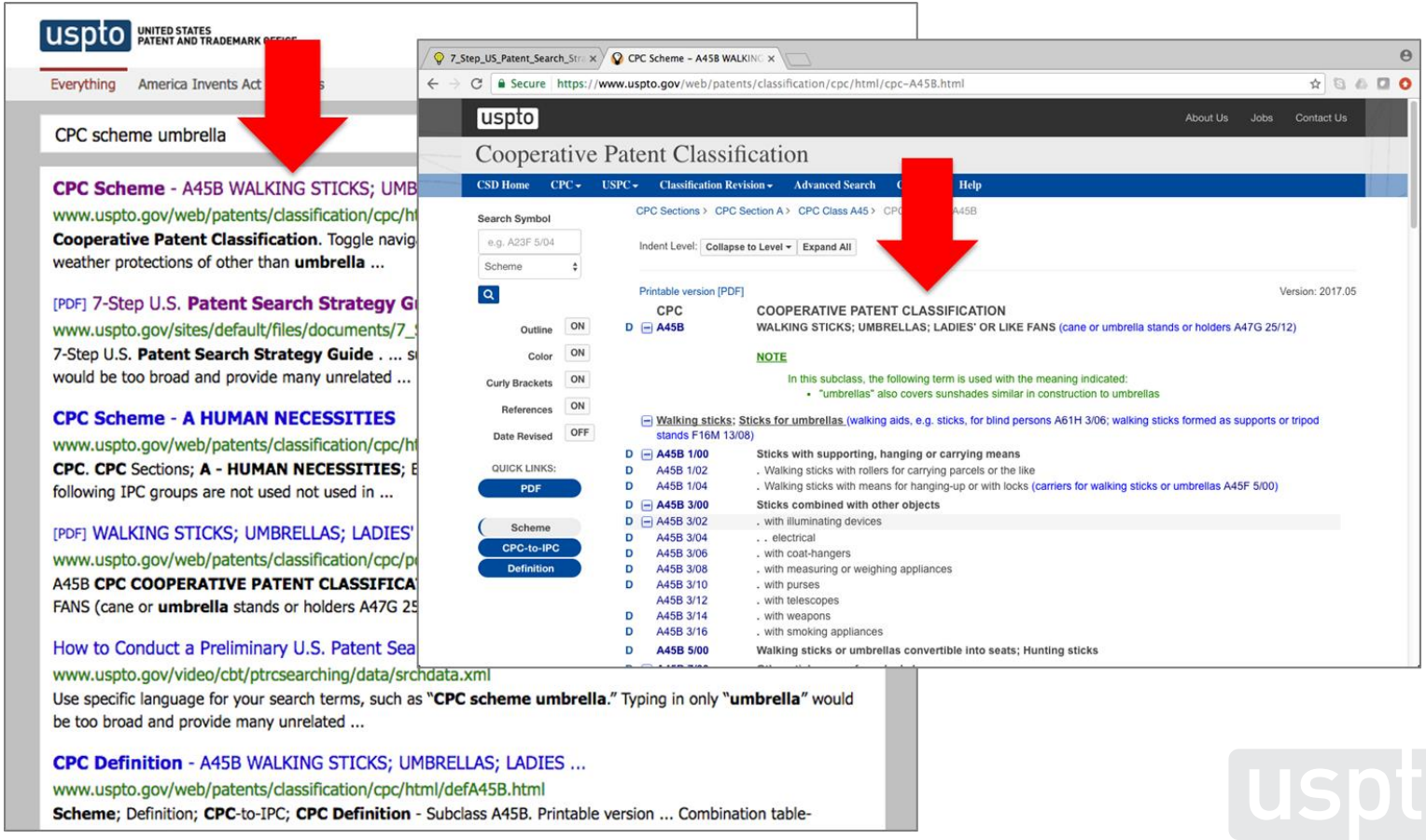
Access CPC schema

- Go to the USPTO home page at www.uspto.gov.
- Search for CPC classification schema using the search box on the home page or the search box in the top right-hand corner.
- Use specific language for your search terms:
  - CPC scheme umbrella
- From the search results page, click an entry for a Class-Subclass Scheme page.
- If you are not satisfied with your results, rerun your search using synonyms that you identified in Step 1.

I’m looking for...



Results


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Cooperative Patent Classification. Toggle navig
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[PDF] 7-Step U.S. Patent Search Strategy Gu
www.uspto.gov/sites/default/files/documents/7_
7-Step U.S. Patent Search Strategy Guide . ... s
would be too broad and provide many unrelated ...
CPC Scheme - A HUMAN NECESSITIES
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www.uspto.gov/web/patents/classification/cpc/p
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How to Conduct a Preliminary U.S. Patent Sea
www.uspto.gov/video/cbt/ptrcsearching/data/srchdata.xml
Use specific language for your search terms, such as "CPC scheme umbrella." Typing in only "umbrella" would be too broad and provide many unrelated ...
CPC Definition - A45B WALKING STICKS; UMBRELLAS; LADIES ...
www.uspto.gov/web/patents/classification/cpc/html/defA45B.html
Scheme; Definition; CPC-to-IPC; CPC Definition - Subclass A45B. Printable version ... Combination table-
7_Step_US_Patent_Search_Str
CPC Scheme – A45B WALKIN
Secure https://www.uspto.gov/web/patents/classification/cpc/html/cpc-A45B.html
uspto
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Cooperative Patent Classification
CSD Home CPC USPC Classification Revision Advanced Search Help
CPC Sections > CPC Section A > CPC Class A45 > CPC A45B
Search Symbol
e.g. A23F 5/04
Scheme
Outline ON
Color ON
Curly Brackets ON
References ON
Date Revised OFF
QUICK LINKS:
PDF
Scheme
CPC-to-IPC
Definition
Indent Level: Collapse to Level Expand All
Printable version [PDF]
Version: 2017.05
CPC COOPERATIVE PATENT CLASSIFICATION
D A45B WALKING STICKS; UMBRELLAS; LADIES' OR LIKE FANS (cane or umbrella stands or holders A47G 25/12)
NOTE
In this subclass, the following term is used with the meaning indicated:
"umbrellas" also covers sunshades similar in construction to umbrellas
Walking sticks; Sticks for umbrellas (walking aids, e.g. sticks, for blind persons A61H 3/06; walking sticks formed as supports or tripod stands F16M 13/08)
D A45B 1/00 Sticks with supporting, hanging or carrying means
D A45B 1/02 . Walking sticks with rollers for carrying parcels or the like
D A45B 1/04 . Walking sticks with means for hanging-up or with locks (carriers for walking sticks or umbrellas A45F 5/00)
D A45B 3/00 Sticks combined with other objects
D A45B 3/02 . with illuminating devices
D A45B 3/04 . . electrical
D A45B 3/06 . with coat-hangers
D A45B 3/08 . with measuring or weighing appliances
D A45B 3/10 . with purses
A45B 3/12 . with telescopes
D A45B 3/14 . with weapons
D A45B 3/16 . with smoking appliances
D A45B 5/00 Walking sticks or umbrellas convertible into seats; Hunting sticks

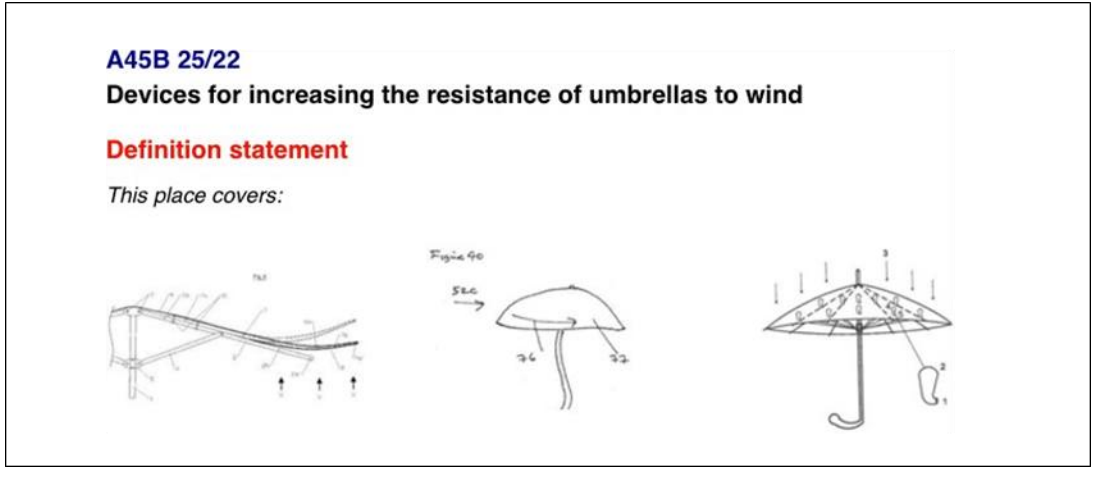
A45B 25/22

	A45B 2023/0087	. {having a planar opening movement wherein the struts or screen sheet rotate and spread around an axis, e.g. around the stick}
	A45B 2023/0093	. {Sunshades or weather protections of other than umbrella type}
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	
D	A45B 25/12	
D	A45B 25/14	
D	A45B 25/143	
	A45B 2025/146	
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

A45B 25/22: Devices for increasing the resistance of umbrellas to wind

Access classification definition

- If the selected classification has a “D” to the left of it, it is hyperlinked to a CPC definition.
- CPC definitions are helpful in establishing the scope of the relevant classification. A45B 25/22 definition relies on images (below); however, most CPC definitions use text.

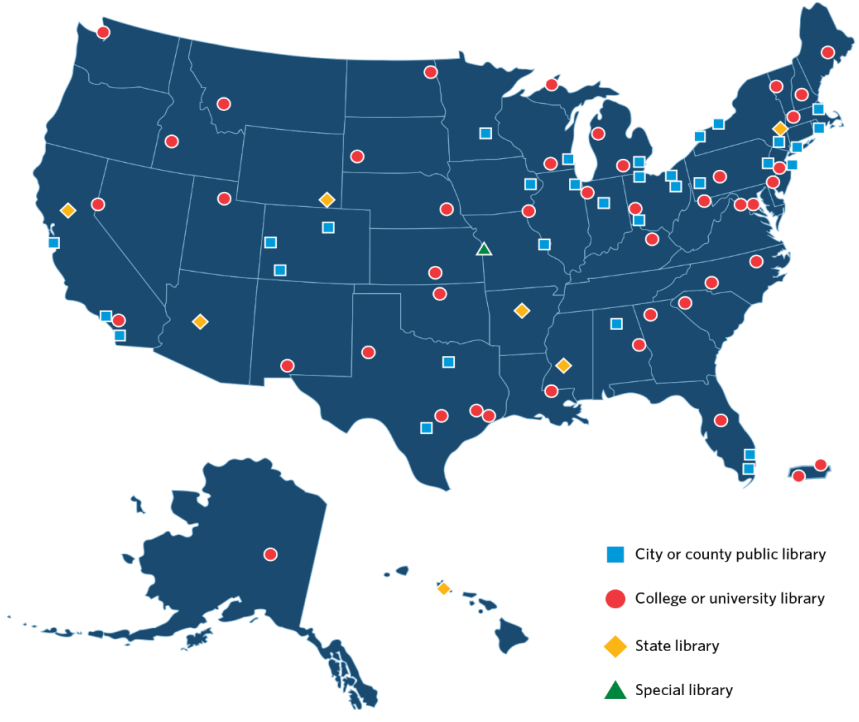


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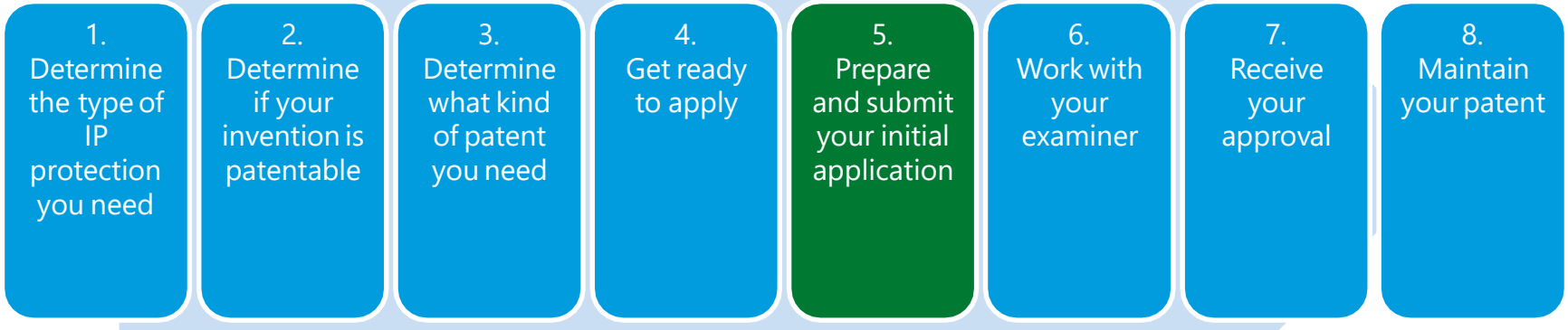
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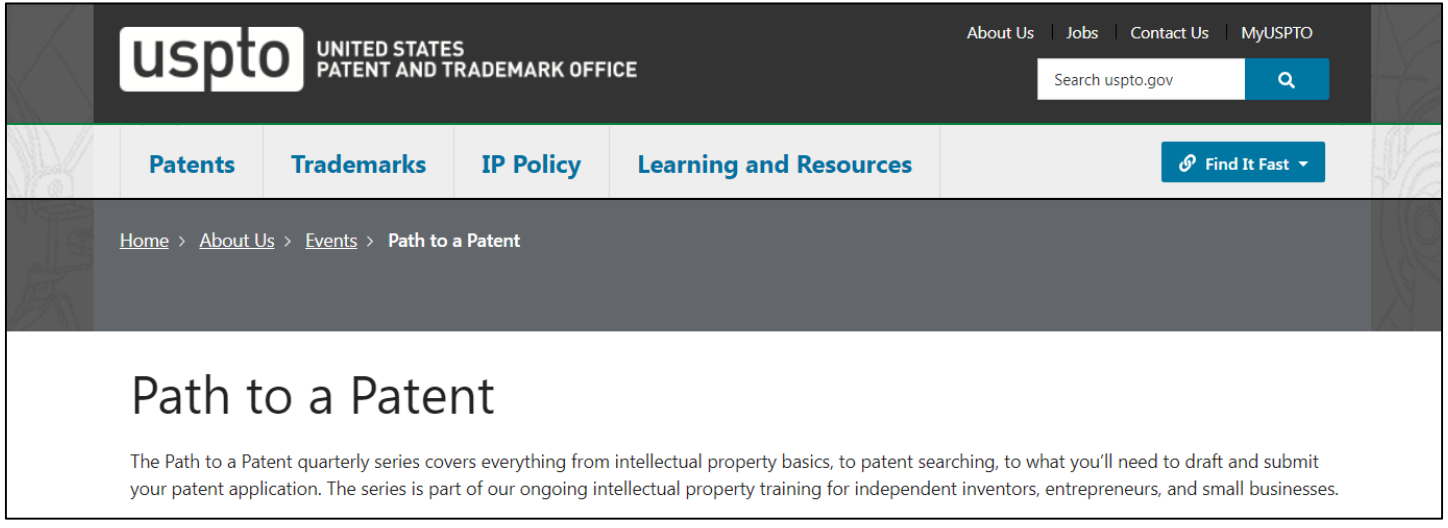
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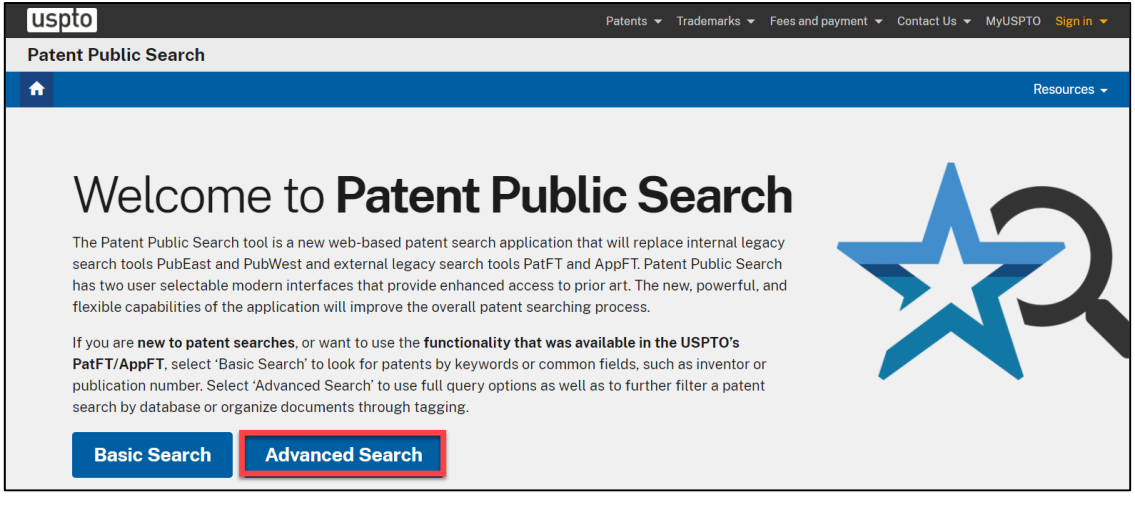
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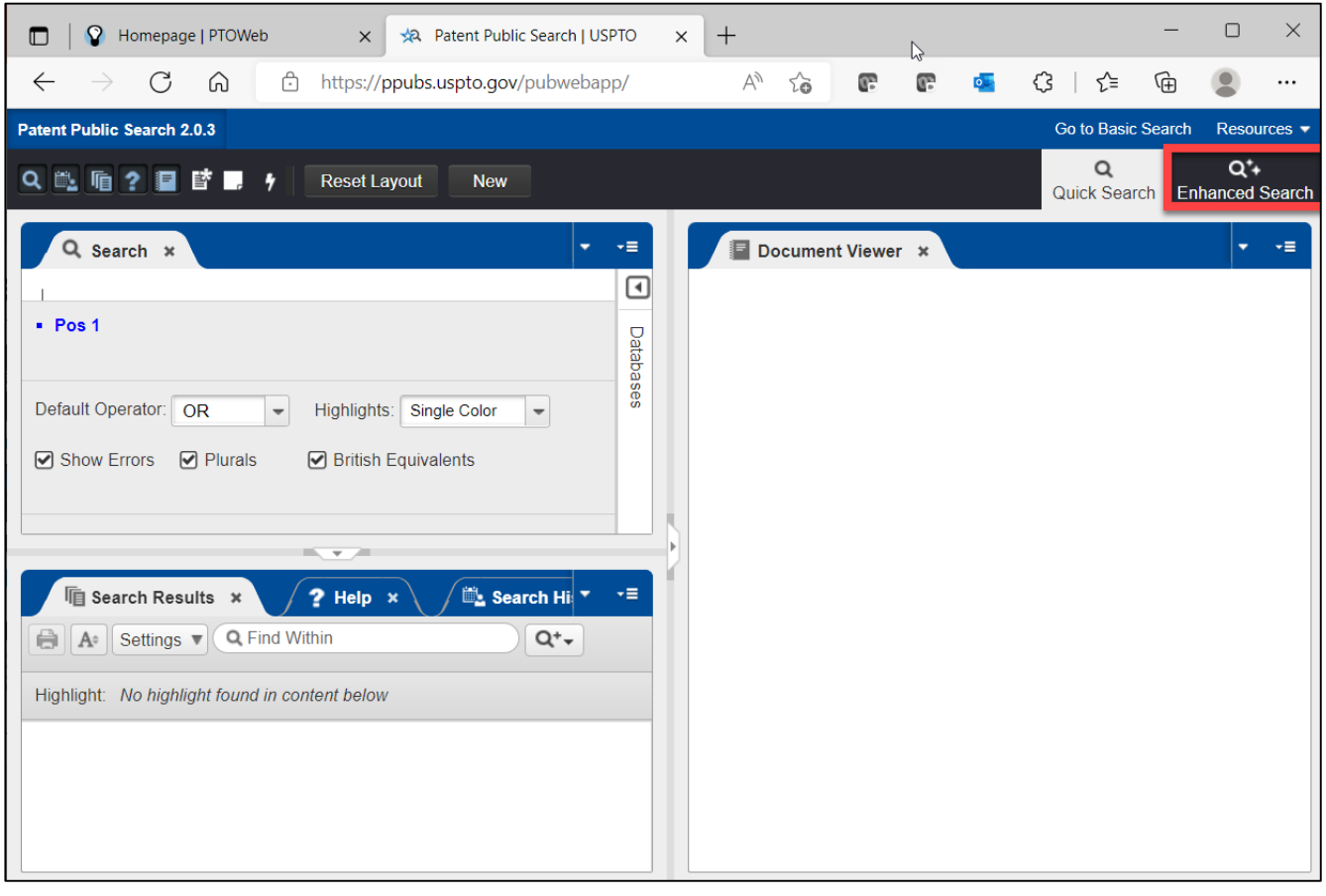
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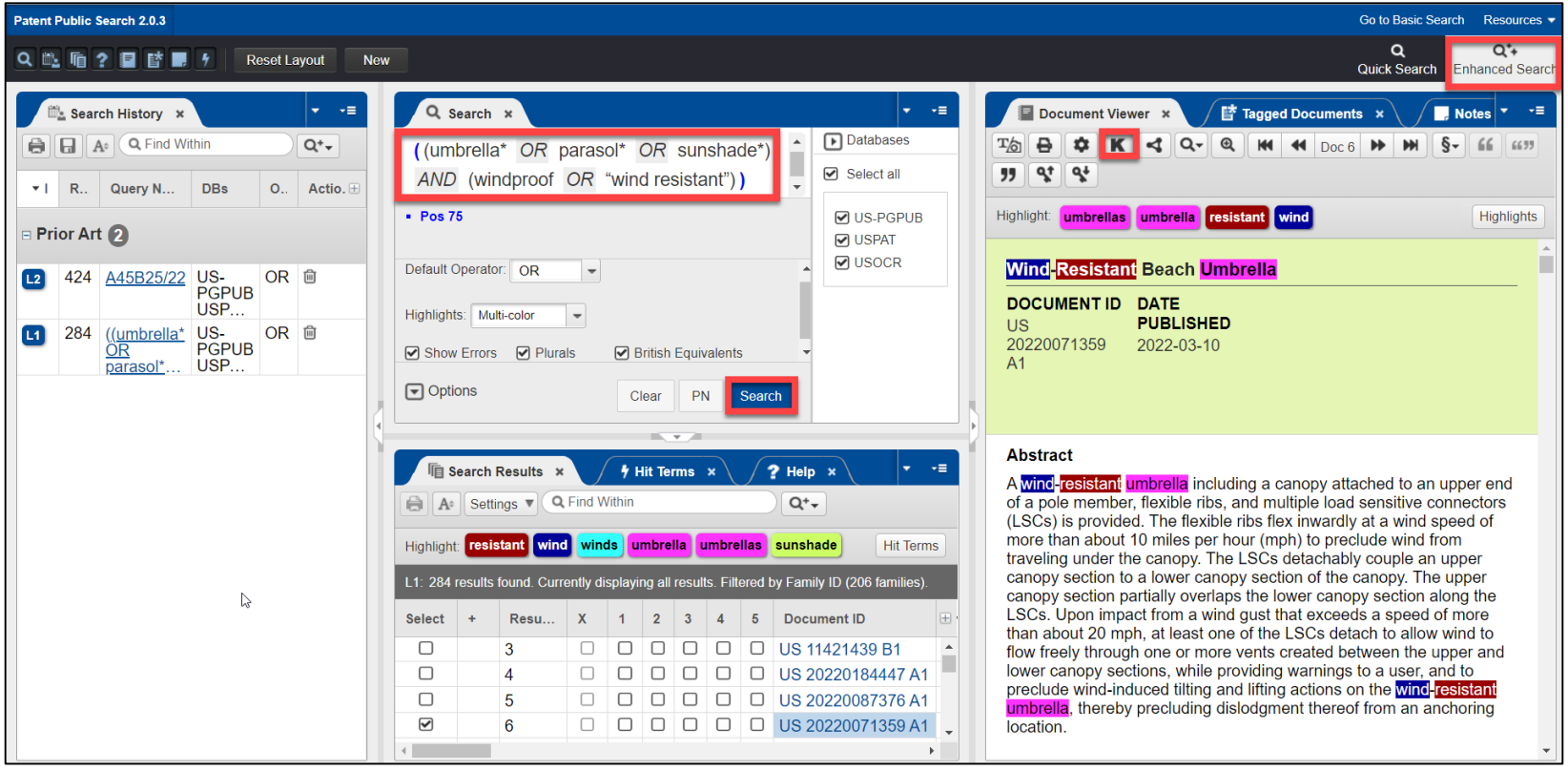




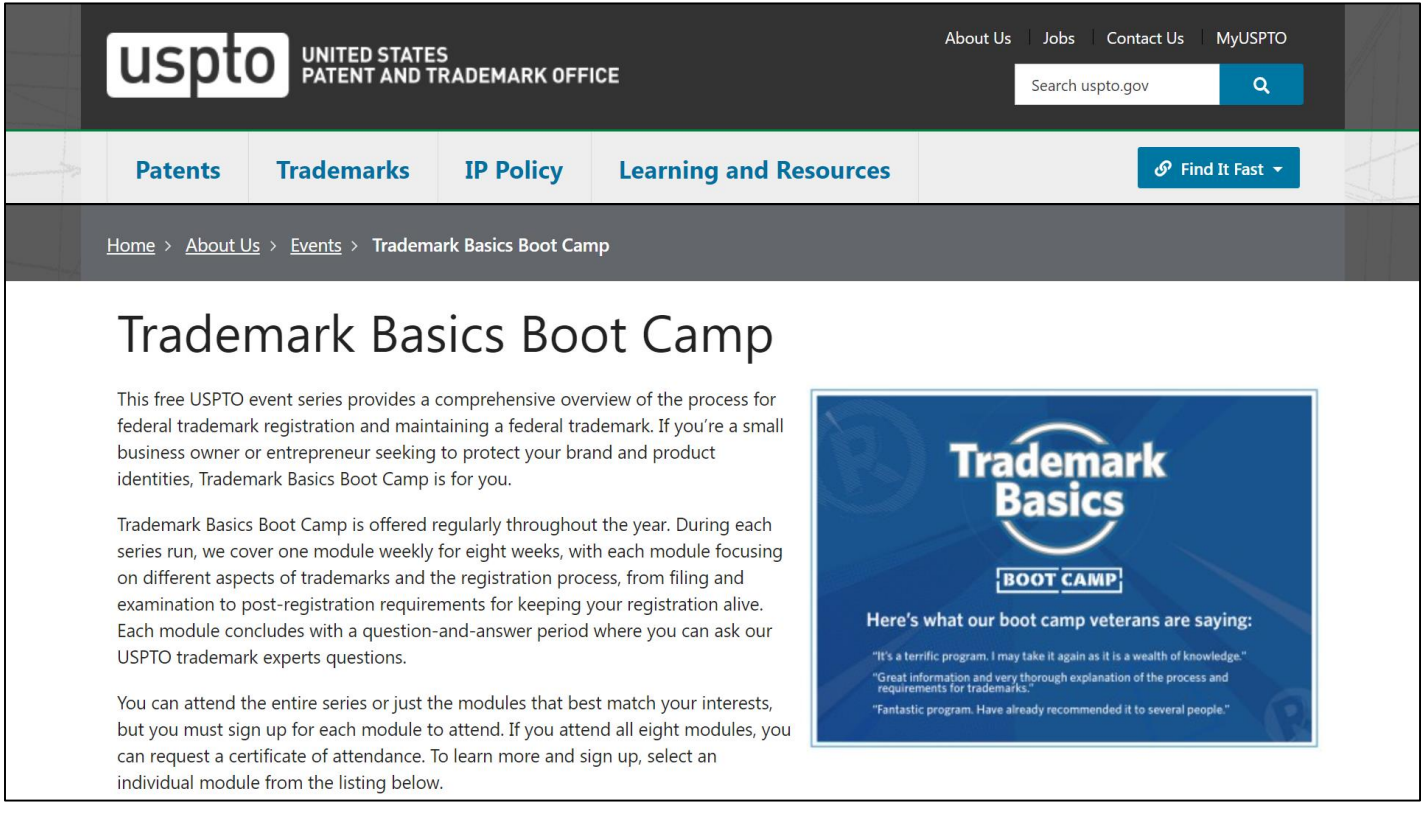
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