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Patent Searching and Search Resources -- An Introduction

USPTO – Office of Patents Stakeholder Experience
Pro Se Assistance Center

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Objectives

- At the conclusion of this presentation participants will be able to:
  - Realize the need for a Prior Art Search.
  - Identify Prior Art.
  - Recognize various examples of prior art.
  - Understand common patent classification systems.
  - Perform all three parts of a complete prior art patent search, and
  - Locate useful patent research databases, both U.S. and foreign.

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Does my Invention already exist?

- When an inventor has an idea for a new product, a Prior Art study can be helpful in understanding the landscape of the field of invention. Such as:
  - Is the field of Invention crowded
  - Opportunities for Innovation
  - Competitors in the field
  - Sharpening your invention to differentiate from competitors
- According to the patent law in the United States, an invention ***cannot*** be patented if the claimed invention was:
  - Patented or
  - Described in a Printed Publication or
  - In Public Use or
  - On Sale or
  - Available to the public

  Before the effective filing date of the claimed invention.

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Prior art defined

- Information known publicly before the effective filing date of a U.S. patent application is called prior art.
- Prior art consists of information available 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

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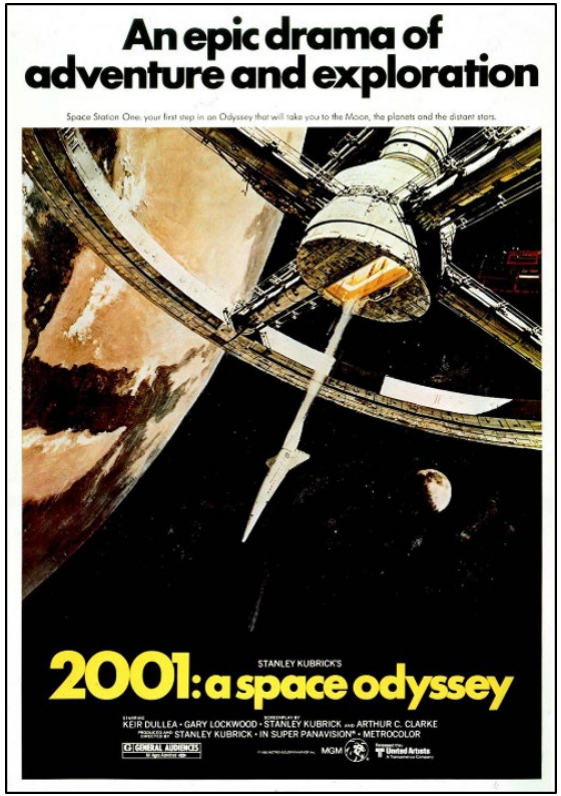
Examples of prior art

- Prior art may be published on paper ***or*** electronic format.
- Websites, social media, and various other forms of online publications are frequently cited as valid sources of prior art.

Examples of prior art

- In 2011 the computer company Apple sued Samsung, claiming that the company had copied its design of the iPad for its Galaxy Tab.
- In defense, Samsung attorneys contended that Apple had patented a common design of a square display with rounded corners which is seen often in movies.
- As evidence of prior art, Samsung referred to scenes from "2001: A Space Odyssey," a science fiction film released in 1968.



Sample invention, “camping bicycle”

- You have an friend who is an inventor and an avid outdoorsman.
- Recently he approached you with an idea for a bicycle with a folding frame that converts into a backpack.

Sample invention, “camping bicycle”

- The bicycle is light, portable and easy to pack on camping trips.
- Backpackers and climbers can carry the bicycle uphill and once at the top of a trail unfold the bicycle before making a speedy descent down a mountain.

Sample patent search exercise

- Any invention or product that ***resembles*** your friends "camping bicycle," *could* be considered prior art by the USPTO.
- Perform research to find inventions that are similar or identical to the camping bicycle.
- Confidentiality is important, you do not want someone to copy or steal your friends idea.

Three types of patent research

- Three major types of prior art patent searches:
  - Text searching,
  - Patent classification searching, and
  - Patent citation searching.
- A complete patent search will involve all three of these methods.

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Text searching

- Identify main concepts of the invention.
- Develop words and terms for each concept.
- Perform text research using multiple databases.

Identifying main concepts

- Describe the invention in a single written sentence. Perform the same exercise a minimum of three (3) times.

  1) Bicycle with a hinged frame and removable front and rear wheels.

  2) A portable bicycle that when collapsed may be carried as a backpack.

  3) A bicycle with a folding frame and detachable wheels that can be carried in a rucksack by a single person.

- Review all three sentences for words and terms that appear frequently.

Identifying main concepts

- Repetition of certain words or a phrase often indicate a major concept.

1) Bicycle with a hinged frame and removable front and rear wheels.

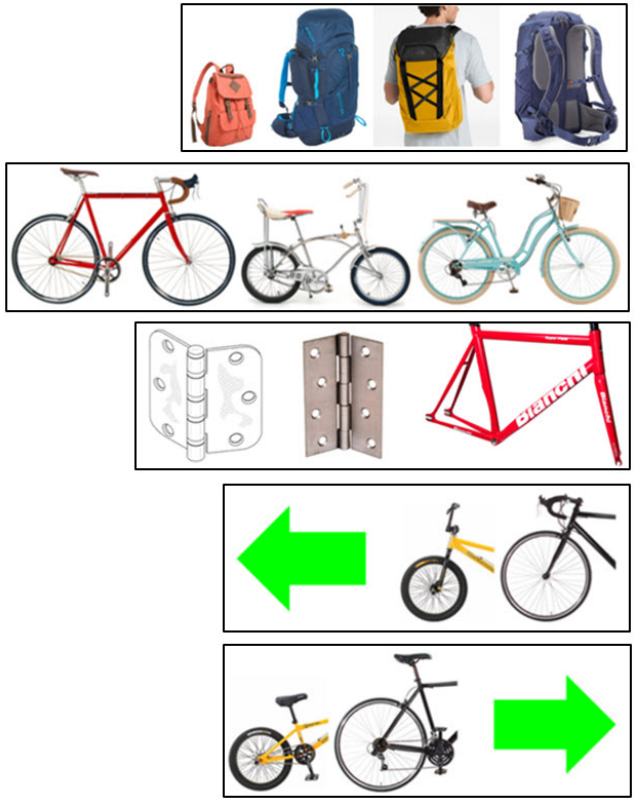
2) A portable bicycle that when collapsed may be carried as a backpack.

3) A bicycle with a folding frame and detachable wheels that can be carried in a rucksack by a single person.

Camping bicycle, main search concepts

Use dictionaries, technical manuals, and the internet to discover additional words and terms for concepts.

- Backpack or Rucksack or Knapsack
- Bicycle or “Two Wheeled Vehicle”
- (Folding or Hinged or Collapsible) Bicycle Frame
- (Front or Lead or Steering) Wheel
- (Rear or Back or Trail) Wheel



The broad to narrow searching method

- The broad to narrow research strategy is the foundation of many successful patent searches.
- A researcher begins by identifying main concepts of an invention, and then selecting a primary concept, the single concept that all search results must have in order to be relevant.
- When a broad to narrow patent search is conducted correctly, it virtually guarantees that the primary concept will be present in the final results.
- In the following example the backpack has been selected by the searcher as the primary concept, through which all other concepts will filtered.

Camping bicycle, broad to narrow search

- In this broad to narrow search the X1 (backpack) primary concept becomes a filter to which all other concepts are added.
- Set numbers X1 – X5 may be thought as an order of priority list, where X1 represents the most critical concept in the patent search.
- The search may be paused temporarily when a set of results is small enough to review (X8 and X11).

Set Number	Database Commands	Hits/Results
X1	Backpack or Rucksack	10,000
X2	Bicycle or "Two Wheeled Vehicle"	1,500,000
X3	Folding Bicycle Frame	40,000
X4	Front Wheel	200,000
X5	Rear Wheel	3,000,000
X6	X1 AND X2	4,000
X7	X6 AND X3	500
X8	X7 AND X4	50
X9	X1 AND X5	8,000
X10	X9 AND X2	400
X11	X10 AND X3	30

Camping bicycle, broad to narrow search

X1		10,000
X2		1,500,000
X3		40,000
X4		200,000
X5		3,000,000
X6	X1 AND X2	4,000
X7	X6 AND X3	500
X8	X7 AND X4	50
X9	X1 AND X5	8,000
X10	X9 AND X2	400
X11	X10 AND X3	30

Classification searching

- Use of classification codes to search for prior art.
- Determine the area of technology relevant to an invention.
- Limit, focus, or target the search to a specific area of art when searching patent files.

Classification systems

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

What is Cooperative Patent Classification (CPC)?

- Joint partnership with USPTO and the European Patent Office (EPO)
- Harmonization of United States Patent Classification (USPC) and European Classification System (ECLA).
- The CPC is divided into 8 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

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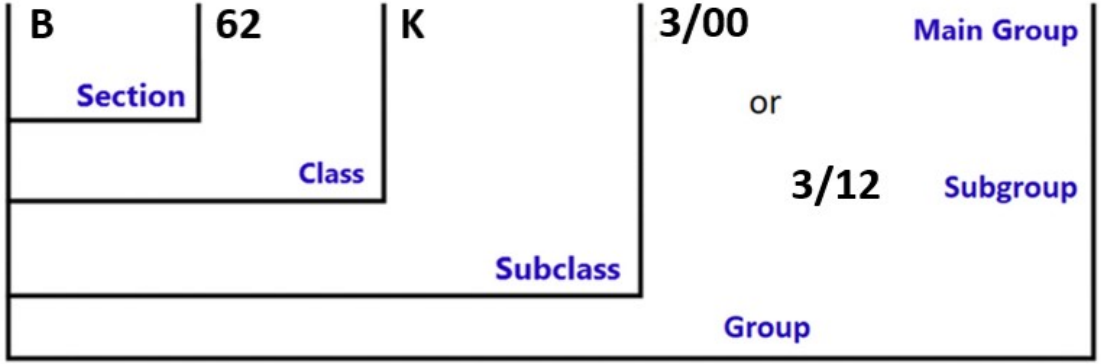
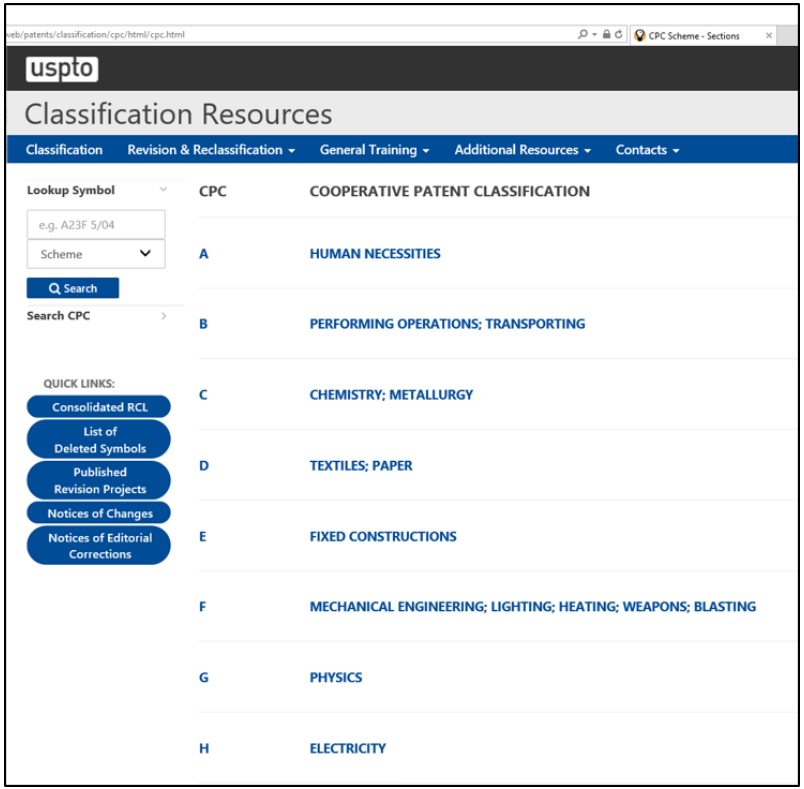
CPC classification structure

B	Performing Operations; Transporting
B62	Land Vehicles for Travelling
B62K	Cycles; Cycle Frames; Cycle Steering Devices
B62K3/00	Bicycles
B62K3/12	Tandem Bicycles



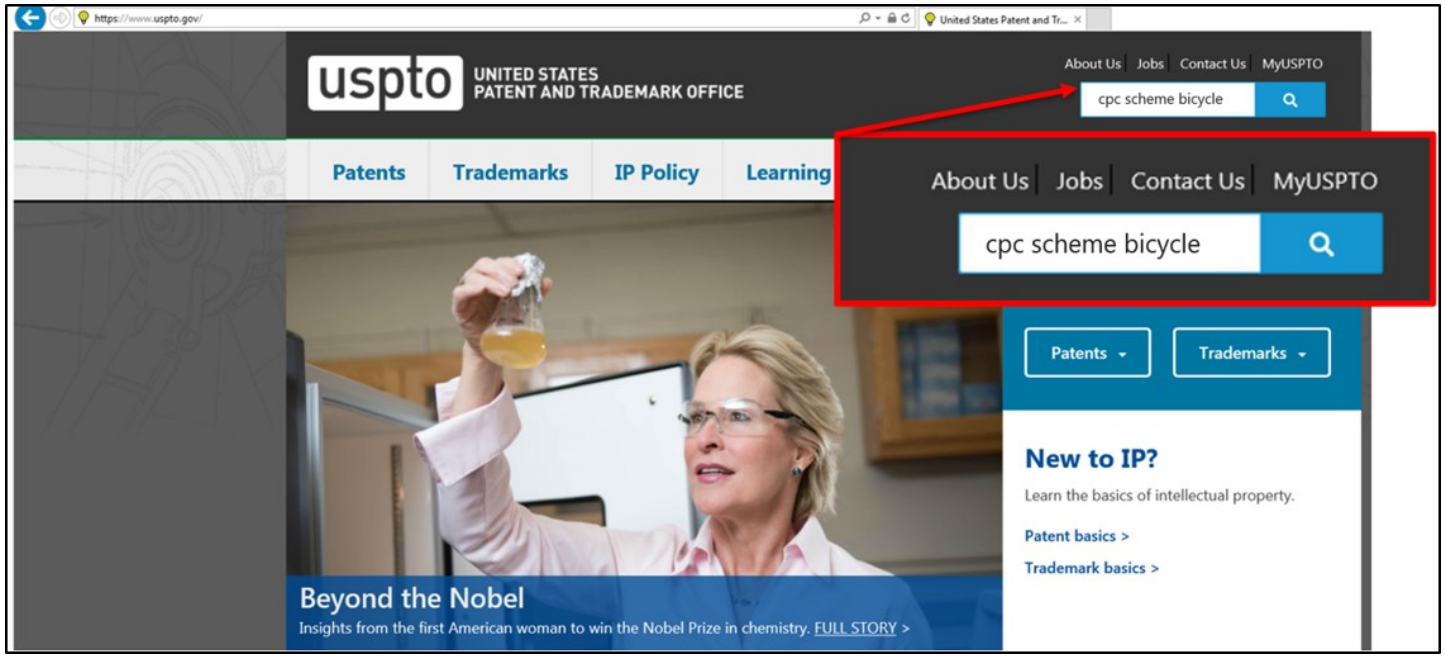
CPC patent classification search

- An electronic version of the CPC classification scheme is available online through the USPTO website.
- Researchers use the CPC scheme in order to determine the appropriate classification for inventions.
- Using the USPTO website, it should be possible to find CPC classes that are relevant to your friend's camping bicycle invention.



CPC scheme search

- Navigate to www.uspto.gov.
- Access the electronic CPC scheme by typing the phrase "cpc scheme" followed by search term(s).



CPC scheme search results

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155 results

cpc scheme bicycle

CPC Scheme - B PERFORMING OPERATIONS; TRANSPORTING

https://www.uspto.gov/web/patents/classification/cpc/html/cpc-B.html

CPC Sections **CPC** Section B Printable version [PDF] Version: 2019.08 Loading...Loading **Scheme**... xThis area was updated. Please refer to the **CPC** ...

CPC Scheme - B62K CYCLES; CYCLE FRAMES; CYCLE STEERING DEVICES; RIDER-OPERATED TERMINAL CONTROLS SPECIALLY ADAPTED FOR CYCLES; CYCLE AXLE SUSPENSIONS; CYCLE SIDE-CARS, FORECARS, OR THE LIKE

https://www.uspto.gov/web/patents/classification/cpc/html/cpc-B62K.html

CPC Sections **CPC** Section B **CPC** Class B62 **CPC** Subclass B62K Printable version...[PDF] Version: 2019.08 Loading **Scheme**... **CPC** COOPERATIVE PATENT ...

B62K 3/00 Land vehicles, bicycles

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Lookup Symbol

e.g. A23F 5/04

Scheme

Search

Search CPC

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Display Level
Color ON
Curly Brackets ON
References ON
Date Revised OFF
Path title OFF

QUICK LINKS:
PDF
Scheme
CPC-to-IPC
Definition
Compilation of Changes

CPC Sections > CPC Section B > CPC Class B62 > CPC Subclass B62K

Printable version [PDF]

Version: 2019.08

D CPC B62K

COOPERATIVE PATENT CLASSIFICATION

CYCLES; CYCLE FRAMES; CYCLE STEERING DEVICES; RIDER-OPERATED TERMINAL CONTROLS SPECIALLY ADAPTED FOR CYCLES; CYCLE AXLE SUSPENSIONS; CYCLE SIDE-CARS, FORECARS, OR THE LIKE

NOTE

In this subclass, each of the main groups B62K 7/00 - B62K 15/00 takes precedence over all the preceding main groups, e.g. a child's bicycle is classified in B62K 9/00 and not in B62K 3/00

WARNING

In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme

D	B62K 1/00	Unicycles
D -	B62K 3/00	Bicycles
D	B62K 3/002	. {without a seat, i.e. the rider operating the vehicle in a standing position, e.g. motorized scooters with skis or runners}
D	B62K 3/005	. {Recumbent-type bicycles}
D -	B62K 3/02	. Frames (tandem frames B62K 3/14)
	B62K 3/04	. . having a substantially horizontal top bar
-	B62K 3/06	. . of open type
	B62K 3/08	. . . having crossing members
	B62K 3/10	. . of single-beam type, i.e. connecting steering head to rear axle

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B62K 15/00 Collapsible or foldable cycles

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Lookup Symbol

e.g. A23F 5/04

Scheme

Search

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Curly Brackets ON
References ON
Date Revised OFF
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QUICK LINKS:
PDF
Scheme
CPC-to-IPC
Definition

CPC Sections > CPC Section B > CPC Class B62 > CPC Subclass B62K

Printable version [PDF]

Version: 2019.08

D CPC B62K

COOPERATIVE PATENT CLASSIFICATION

CYCLES; CYCLE FRAMES; CYCLE STEERING DEVICES; RIDER-OPERATED TERMINAL CONTROLS SPECIALLY ADAPTED FOR CYCLES; CYCLE AXLE SUSPENSIONS; CYCLE SIDE-CARS, FORECARS, OR THE LIKE

NOTE

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WARNING

In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

D -	B62K 15/00	Collapsible or foldable cycles
	B62K 2015/001	. {Frames adapted to be easily dismantled}
	B62K 2015/003	. {having a foldable crank or pedal}
	B62K 2015/005	. {having additional wheels for use when folded or collapsed}
-	B62K 15/006	. {the frame being foldable}
	B62K 15/008	. . {foldable about 2 or more axes}

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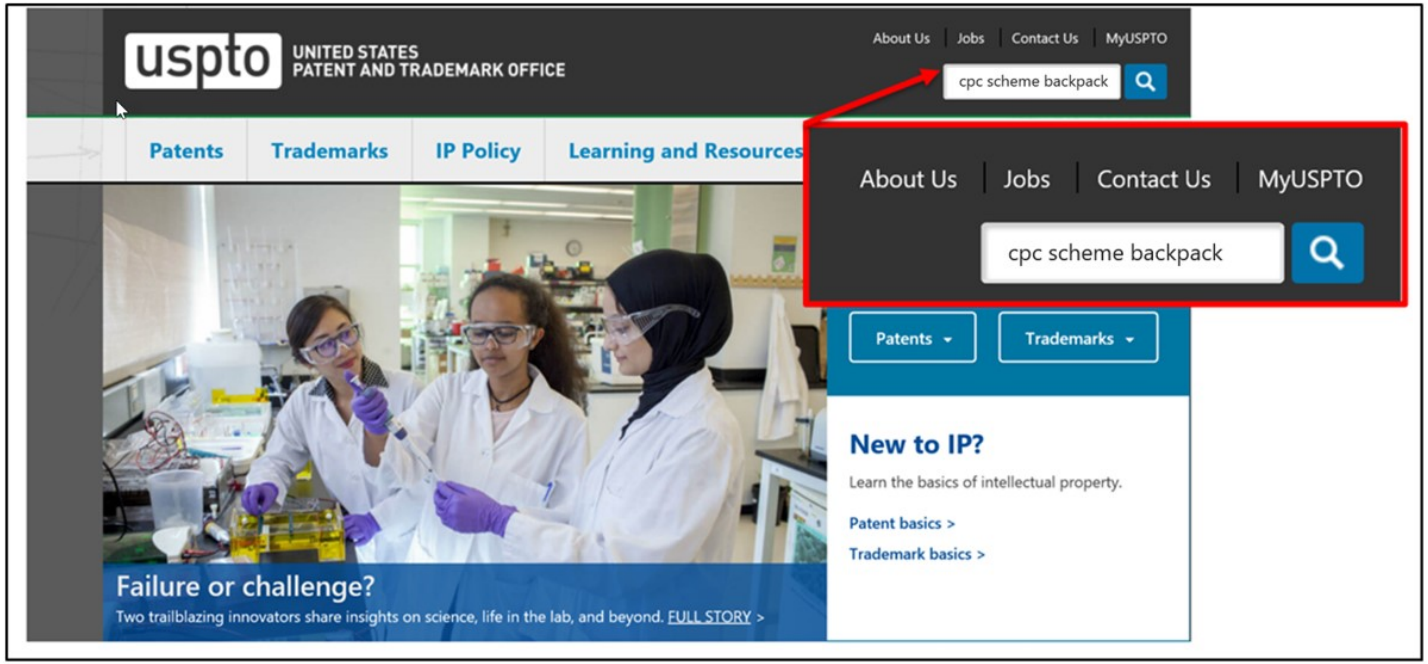
CPC scheme search

- Navigate to www.uspto.gov
- Access the electronic CPC scheme by typing the phrase "cpc scheme" followed by search term(s).



CPC scheme search results

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Browse site

Everything Videos

22 results

cpc scheme backpack

CPC Scheme - A45F TRAVELLING OR CAMP EQUIPMENT: SACKS OR PACKS CARRIED ON THE BODY
https://www.uspto.gov/web/patents/classification/cpc/html/cpc-A45F.html
CPC Sections **CPC** Section A **CPC** Class A45 **CPC** Subclass A45F Printable version...[PDF] Version: 2019.08
Loading **Scheme**... **CPC** COOPERATIVE PATENT ...

CPC Scheme - B67D DISPENSING, DELIVERING OR TRANSFERRING LIQUIDS, NOT OTHERWISE PROVIDED FOR
https://www.uspto.gov/web/patents/classification/cpc/html/cpc-B67D.html
CPC Sections **CPC** Section B **CPC** Class B67 **CPC** Subclass B67D Printable version...[PDF] Version: 2019.08
Loading **Scheme**... **CPC** COOPERATIVE PATENT ...

CPC Scheme - B63C LAUNCHING, HAULING-OUT, OR DRY-DOCKING OF VESSELS; LIFE-SAVING IN WATER; EQUIPMENT FOR DWELLING OR WORKING UNDER WATER; MEANS FOR SALVAGING OR SEARCHING FOR UNDERWATER OBJECTS
https://www.uspto.gov/web/patents/classification/cpc/html/cpc-B63C.html
CPC Sections **CPC** Section B **CPC** Class B63 **CPC** Subclass B63C Printable version...[PDF] Version: 2019.08
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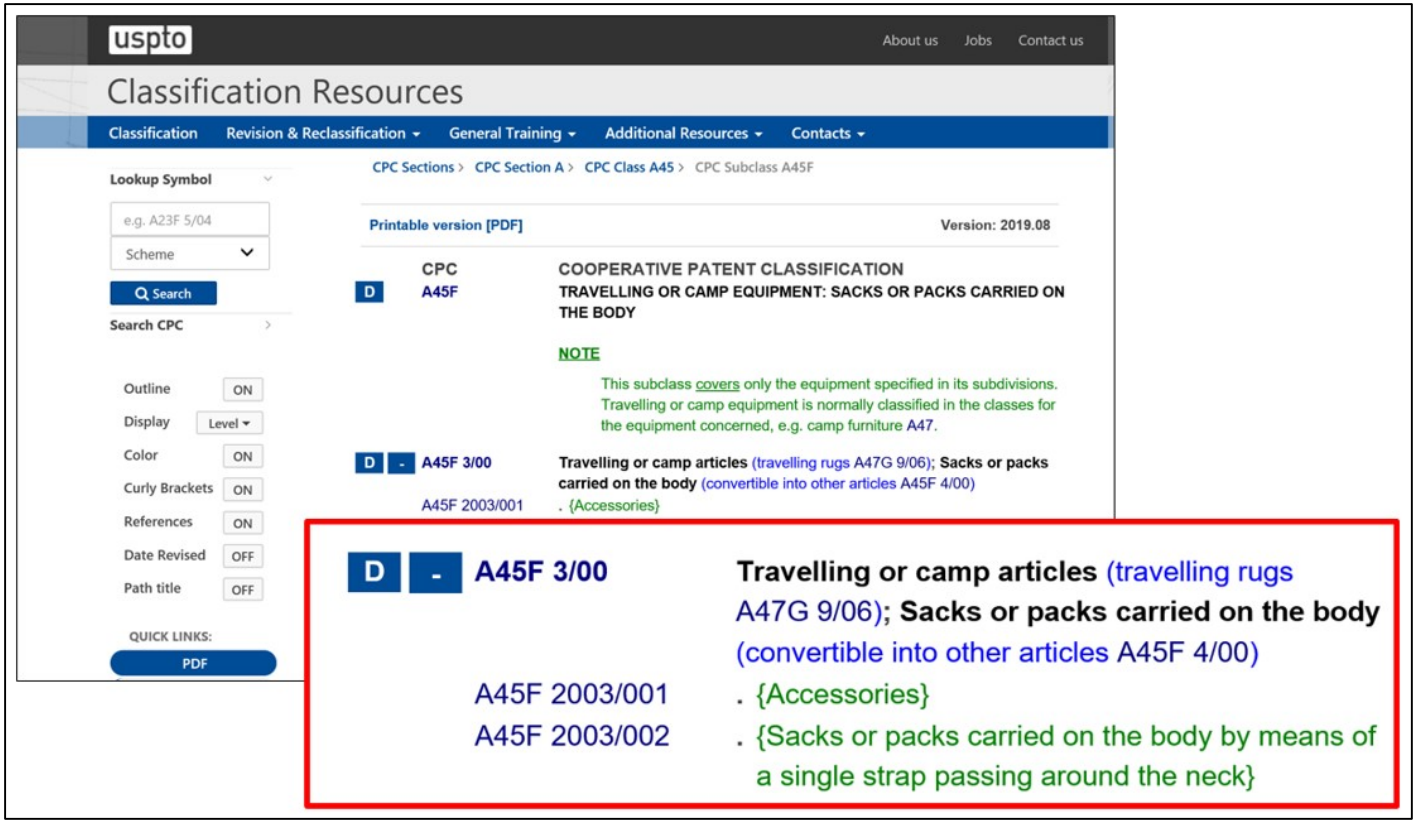
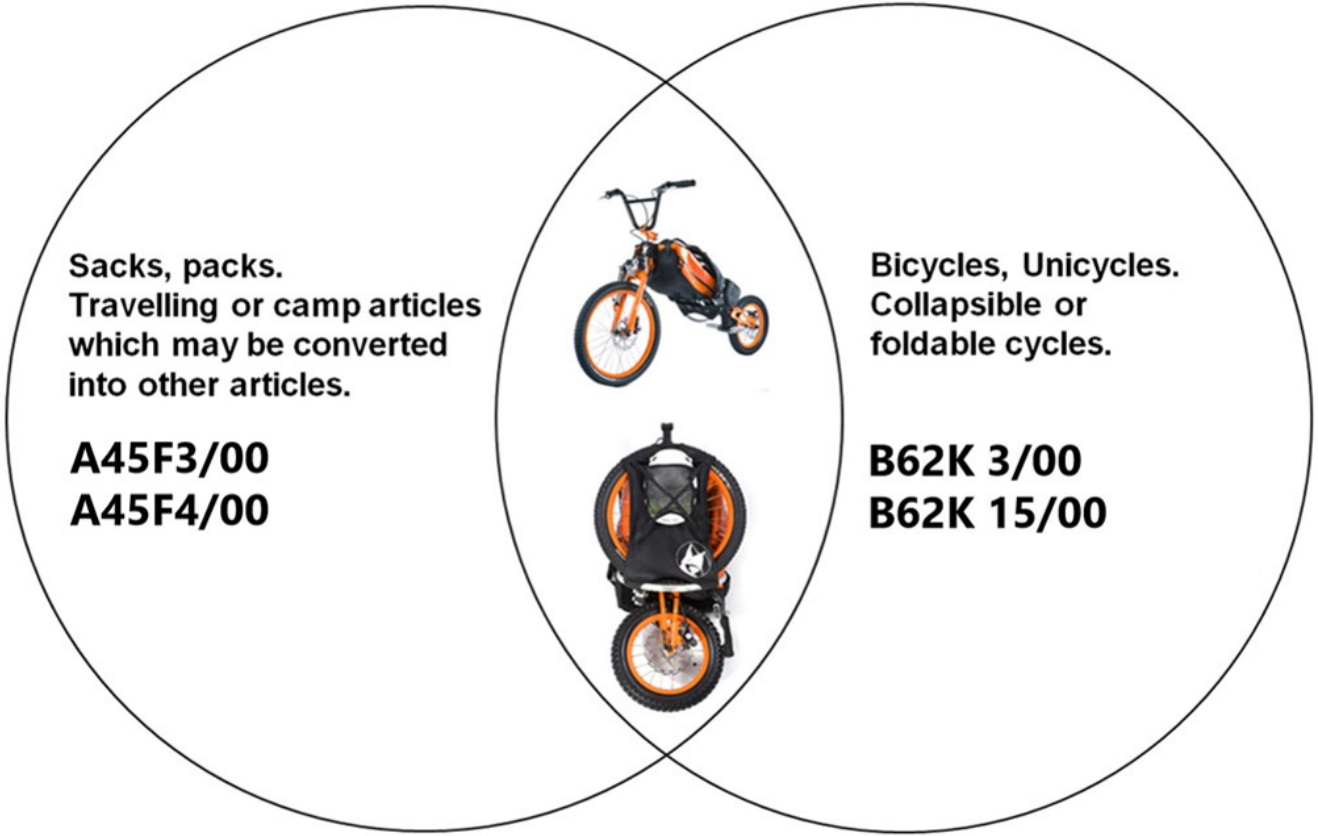
CPC subclasses A45F3/00, A45F4/00



Boolean classification search



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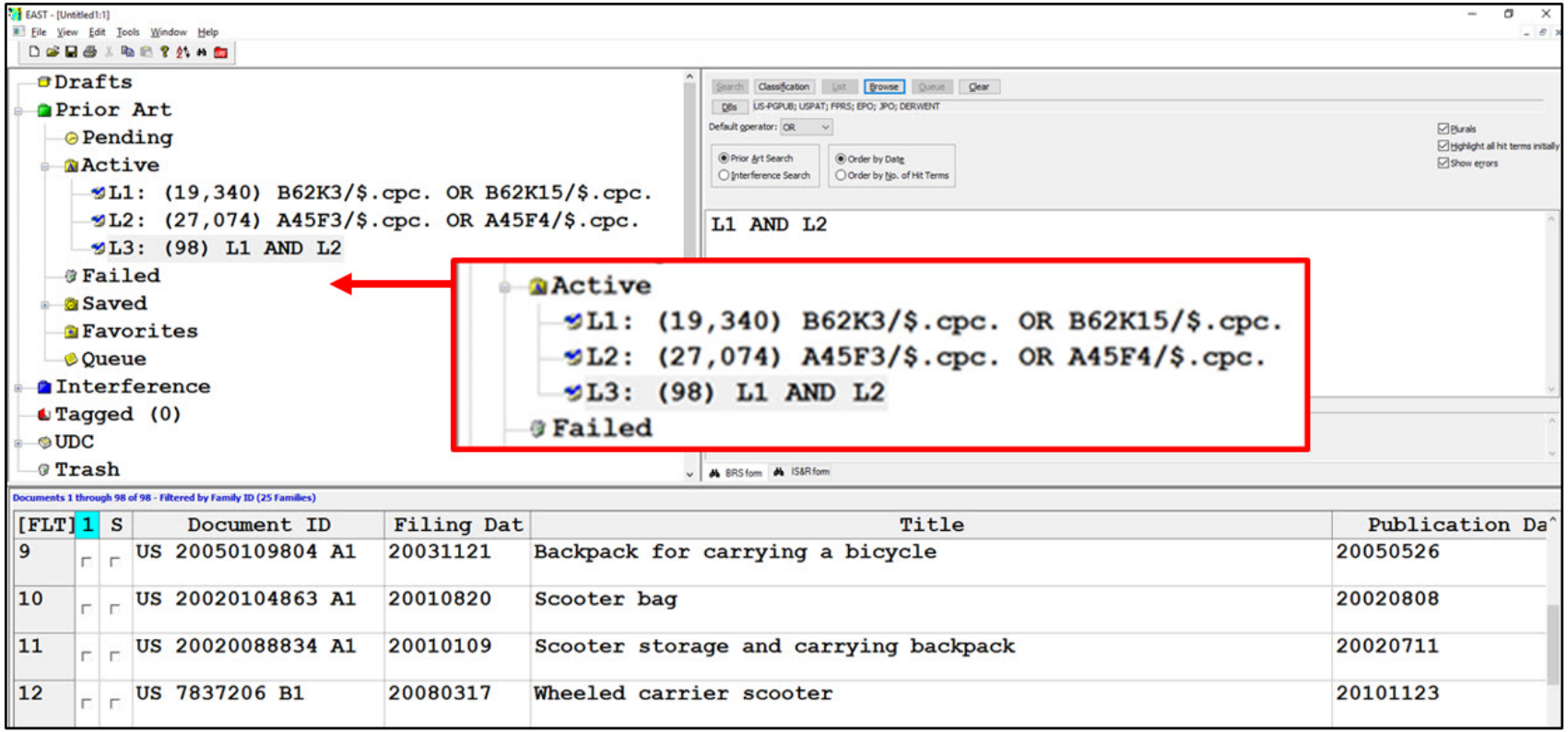
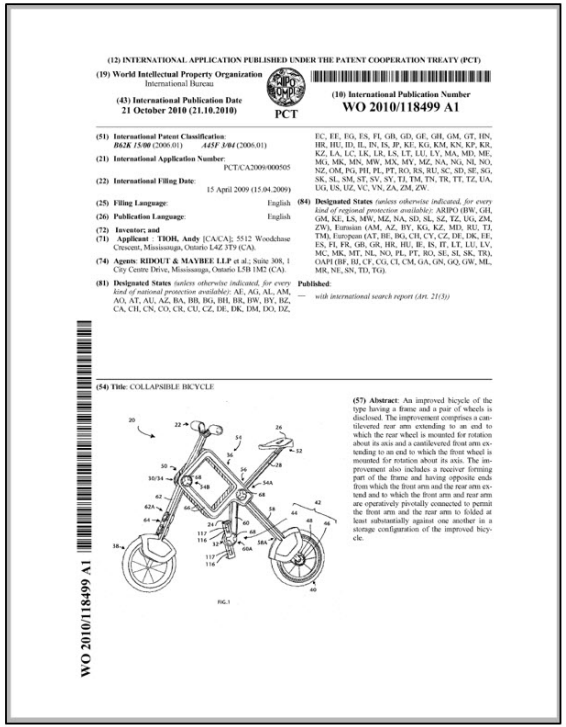


Classification search sample result



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(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
21 October 2010 (21.10.2010)

PCT

(10) International Publication Number
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(21) International Application Number:
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(22) International Filing Date:
15 April 2009 (15.04.2009)

(25) Filing Language: English

(26) Publication Language: English

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(74) Agents: **RIDOUT & MAYBEE LLP** et al.; Suite 308, 1 City Centre Drive, Mississauga, Ontario L5B 1M2 (CA).

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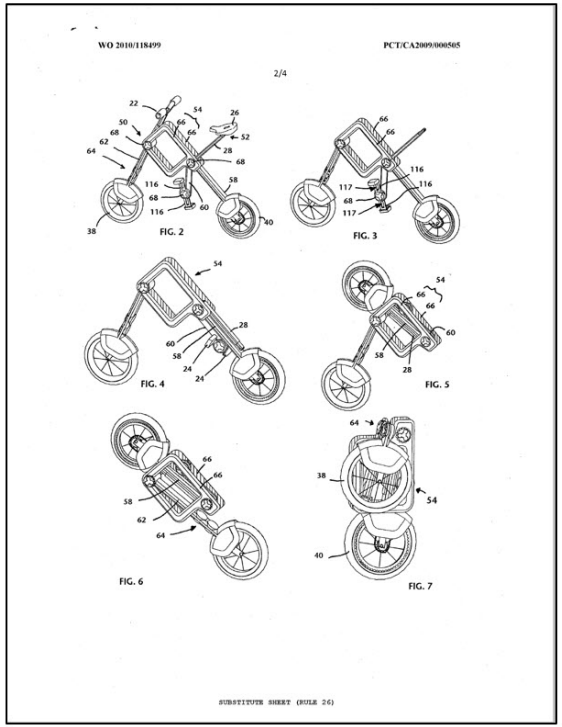
Published:
— *with international search report (Art. 21(3))*

(54) Title: COLLAPSIBLE BICYCLE

(57) Abstract: An improved bicycle of the type having a frame and a pair of wheels is disclosed. The improvement comprises a cantilevered rear arm extending to an end to which the rear wheel is mounted for rotation about its axis and a cantilevered front arm extending to an end to which the front wheel is mounted for rotation about its axis. The improvement also includes a receiver forming part of the frame and having opposite ends from which the front arm and the rear arm extend and to which the front arm and rear arm are operatively pivotally connected to permit the front arm and the rear arm to folded at least substantially against one another in a storage configuration of the improved bicycle.

FIG.1

WO 2010/118499 A1



WO 2010/118499 PCT/CA2009/000505

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FIG. 2 FIG. 3 FIG. 4 FIG. 5 FIG. 6 FIG. 7

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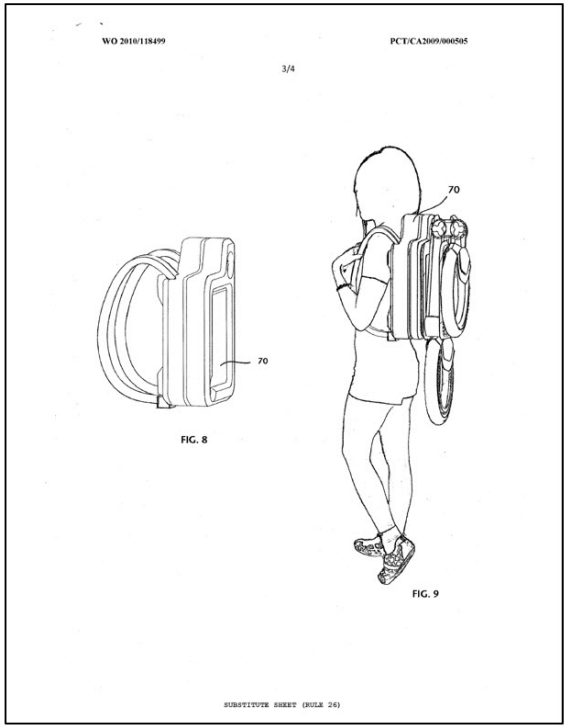

WO 2010/118499 PCT/CA2009/000505

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FIG. 8 FIG. 9

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- Examiner's Automated Search Tool (Pub***EAST***)
- Web-based Examiner Search Tool (Pub***WEST***)
- USPTO Patent Full-text and Image Database (***PatFT***)
- USPTO Patent Application Full-text and Image Database (***AppFT***)
- Patent Application Image Retrieval (***PAIR***)
- Patent Assignment Database
- Global Dossier

Searching Resources

USPTO Resources cont'd…

- Pub***EAST*** & Pub***WEST***
  - Are tools used by Patent Examiners at USPTO
  - Supports both Text and Classification searches
  - Available for public use ***only*** at USPTO Offices and Patent and Trademark Resource Centers (PTRC).
  - Searches U.S. Patents and U.S. Patent Applications (PG-PUBS)
- USPTO Patent Full-text and Image Database (***PatFT***)
  - Searches U.S. Patents. The USPTO houses full text for patents issued from 1976 to the present and PDF images for all patents from 1790 to the present.
  - Available publicly at: https://www.uspto.gov/patents/search
- USPTO Patent Application Full-text and Image Database (***AppFT***)
  - Search for Full-Text and Image versions of published patent applications
  - Available publicly at: https://www.uspto.gov/patents/search

Searching Resources

USPTO Resources cont'd…

- Patent Image Retrieval (***PAIR***)
  - Access to complete prosecution history of issued U.S. Patents and published U.S. patent applications.
- Global Dossier
  - Global Dossier was released to the public in November 2015
  - The information available via Global Dossier includes search and examination results of all applications that comprise a family and that have been filed in participating IP offices.
  - Available publicly at: https://www.uspto.gov/patents/basics/international-protection/global-dossier-initiative
- Patent Assignment Database
  - Is a website to search for a USPTO record of patent assignments and changes in ownership.
  - Available publicly at: https://assignment.uspto.gov/patent/index.html#/patent/search

Searching Resources

Non-USPTO Resources

- Google Patent Search™ service
  - https://patents.google.com/
- Any web-based search engine
  - www.archive.org
  - Wayback Machine which shows older cached versions of the webpage URL.
- Other Pertinent Databases
  - Video websites
  - IEEE Databases
  - Scientific Journals and Databases
  - Magazines, Newspapers and associated Databases.

Searching Resources

Foreign Resources

- European Patent Office (EPO)
  - The EPO provides the ability to search over a network of Europe's patent databases.
  - This site also provides access to machine translation of European patents for some languages.
  - https://worldwide.espacenet.com/singleLineSearch?locale=en_EP
- Japanese Patent Office (JPO)
  - The JPO provides access to machine translations of Japanese patents.
- Korean Intellectual Property Office (KIPO)
  - The KIPO provides the ability to search and translations of Korean patents.
  - http://eng.kipris.or.kr/enghome/main.jsp
- World Intellectual Property Organization (WIPO)
  - Using PATENTSCOPE you can search 94 million patent documents including 4.0 million published international patent applications (PCT).
  - https://patentscope.wipo.int/search/en/search.jsf

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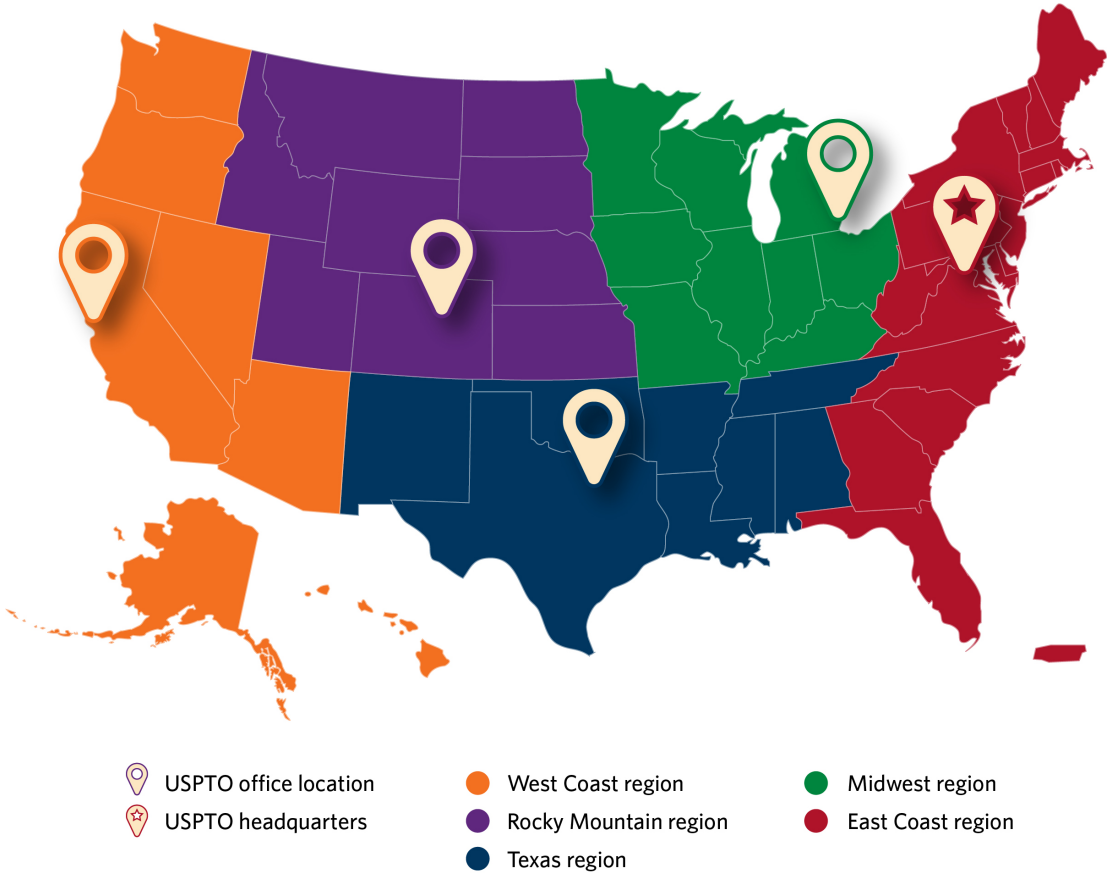

USPTO offices:

Headquarters:

- Alexandria, VA

Regional offices:

- Detroit
- Denver
- Silicon Valley
- Dallas

Additional resources:

- Pro Se Assistance Center
- Inventors Assistance Center (IAC)
- Patents Ombudsman
- Application Assistance Unit (AAU)

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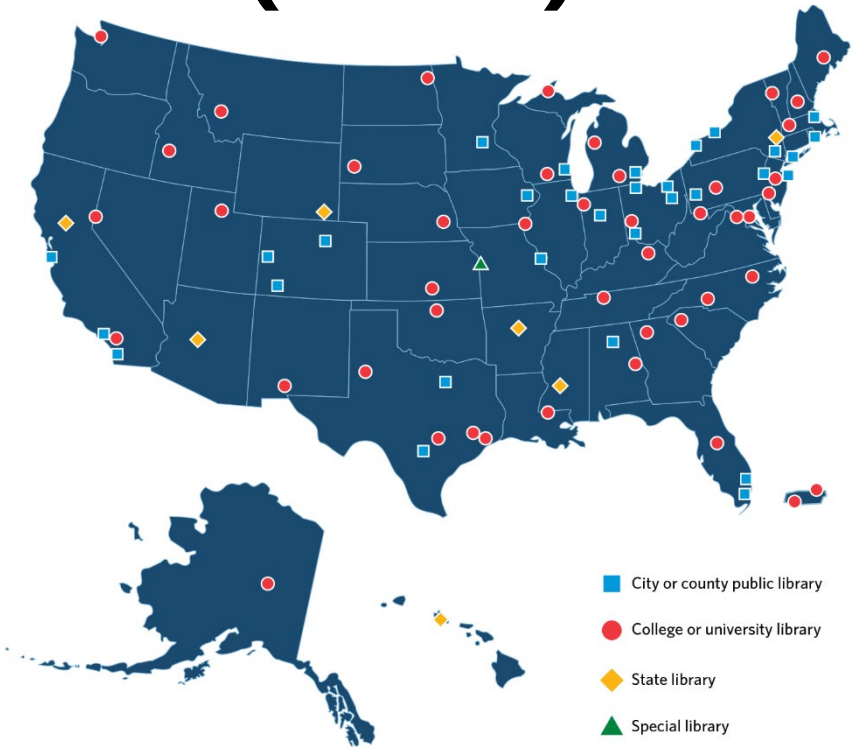
Patent and Trademark Resource Centers (PTRC)

Nationwide network of public, state, and academic libraries designated by the USPTO to disseminate patent and trademark information and support the intellectual property needs of the public.



For more information, visit www.uspto.gov/ptrc.

Pro se Assistance Center

- **Thoroughly customer-focus business unit with dedicated personnel** to assist and educate inventors who have limited resources and needing help applying for a patent.
  - How to navigate uspto.gov to find needed information or education
  - How to obtain and complete forms (e.g., application data sheet)
- **Targeted support** to connect independent inventors, small business owners, and entrepreneurs with helpful and relevant resources and information.
- ***One-on-one*** **assistance at USPTO headquarters (currently virtual)** and **virtual assistance from select Patent and Trademark Resource Centers (PTRCs).**

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The Pro Se Assistance Program provides outreach and education to applicants (also known as "pro se" applicants) who file patent applications without the assistance of a registered patent attorney or agent. USPTO employees cannot give legal advice. However, through increased assistance and resources for independent inventor and small business communities, the program aims to increase the quality of pro se applications and assist pro se applicants with making informed decisions regarding their patent applications.

Patent process training

To assist applicants at all stages of the patent examination process the Office of Innovation Development (OID) also provides ongoing education:

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- Tools for filing an application
- Quick Clinic Video Series
- Knowledge packs for pre-filing
- Prior Inventor Info Chats

Other USPTO resources

Helpline: 1-800-PTO-9199

Resource	Website
Utility patent application guide	www.uspto.gov/patents/resources/types/utility.jsp
Patent process	www.uspto.gov/patents/process
Patent search guide	www.uspto.gov/patents/process/search
Inventor and entrepreneur resources	www.uspto.gov/inventors
Pro se assistance	www.uspto.gov/ProSePatents
Micro entity Information	www.uspto.gov/PatentMicroentity

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