Conducting a Preliminary Patent Search

Akron PTRC
Science & Technology Division
Akron-Summit County Public Library
60 S. High St.
Akron, OH 44326
Phone: (330) 643-9075
Basic Patent Information

A patent:

- is a form of intellectual property granted by the US Government to an inventor.
- allows the inventor to exclude others from making, using, offering for sale, or selling the invention throughout the US or importing the invention into the US
- is granted in exchange for public disclosure of the invention
- is granted for a limited period of time
Basic Patent Information

3 Types of Patents:

• Utility Patents
  – new and useful processes, machines, articles of manufacture, composition of matter or useful improvements thereof
  – granted for 20 years from date of application filing
  – the vast majority of patents are Utility Patents.

• Design Patents
  – new, original, and ornamental designs for an article of manufacture
  – granted for 15 years from date of application filing

• Plant Patents
  – new and distinct asexually reproduced variety of plant
  – granted for 20 years from date of application filing
Basic Patent Information

3 Types of Patents:
Not mutually exclusive – you may seek and be granted multiple patents on a single invention.
Basic Patent Information

What can be Patented:

– processes, machines, manufactured articles, compositions of matter, animals, asexually reproduced plants, ornamental designs of useful objects

– improvements of these

What cannot be Patented:

– a mere suggestion or idea, laws of nature, physical phenomena, abstract ideas, printed matter, nuclear weapons
Basic Patent Information

Utility Patents:
• invention must be novel – nothing identical can have previously existed
• invention must be non-obvious – someone skilled in the particular field would view it as an unexpected or surprising development
• invention must be useful – must provide some practical benefit or help complete real world tasks

To whom... the Patent Examiner
Prior Art

• To prove novelty you must examine the prior art for your invention...

• Prior Art is:
  – any body of knowledge, especially published documents, that contains a discussion or description relevant to an invention for which a patent is being sought or enforced.

• Can include, but is not limited to:
  – journal or magazine articles,
  – books, manuals, catalogs, websites,
  – conference proceedings, scientific papers
  – US or foreign patents or published applications
Classification

• To find prior art for your invention you need to examine all the similar patents
• Patents are grouped in a hierarchical category system based on their characteristics and relationships
• As of January 1, 2015 patent classification system is called the CPC (Cooperative Patent Classification)
Classification

• Patents from 1790-2014 used US Patent Classification System

• USPTO moved to CPC because:
  – CPC was jointly adopted by USPTO and EPO in 2013
  – CPC is jointly updated by USPTO and EPO as examiners/classifiers and technologies change
  – CPC reduces duplication of effort in classification by patent offices
  – CPC is an extension of the International Patent Classification System (IPC) used by every patent office
  – CPC offers more subdivisions for categorizing patents than all previous systems

• US Patent backfile has been reclassified to CPC (so are searchable using CPC)
Classification

• CPC Main Sections:

  A - HUMAN NECESSITIES
  B - PERFORMING OPERATIONS; TRANSPORTING
  C - CHEMISTRY; METALLURGY
  D - TEXTILES; PAPER
  E - FIXED CONSTRUCTIONS
  F - MECHANICAL ENGINEERING; LIGHTING; HEATING; WEAPONS;
      BLASTING ENGINES OR PUMPS
  G - PHYSICS
  H - ELECTRICITY
  Y - GENERAL TAGGING OF NEW TECHNOLOGICAL DEVELOPMENTS;
      GENERAL TAGGING OF CROSS-OVER TECHNOLOGIES SPANNING
      OVER SEVERAL SECTIONS OF THE IPC
Classification

• CPC Classification Structure

Example: A23G 9/26

A (Section): Human Necessities
A23 (Class): Foods or Foodstuffs...
A23G (Subclass): Cocoa, Cocoa Products, e.g. Chocolate...
A23G 9/00 (Main Group): Frozen Sweets...
Classification

- CPC Class Scheme is similar to an Outline

**CPC Class Scheme**

A23G 1/00  **Cocoa; Cocoa products, e.g. chocolate; Substitutes therefor** (kitchen equipment for cocoa preparation A47J, e.g. apparatus for making beverages A47J 31/00)

**NOTE**

Attention is drawn to the internal note after the subclass title

- A23G 1/0003  
  {Processes of manufacture not relating to composition or compounding ingredients}

- A23G 1/0006  
  {Processes specially adapted for manufacture or treatment of cocoa or cocoa products (A23G 1/002 to A23G 1/005 take precedence)}

- A23G 1/0009  
  {Manufacture or treatment of liquid, cream, paste, granule, shred or powder}

- A23G 1/0013  
  {Weighing, portioning processes}

- A23G 1/0016  
  {Transformation of liquid, paste, cream, lump, powder, granule or shred into powder, granule or shred; Manufacture or treatment of powder}

- A23G 1/002  
  {Processes for preparing or treating cocoa beans or nibs}

- A23G 1/0023  
  {Cocoa butter extraction by pressing}
7 Step Patent Search Strategy

1. Brainstorm terms to describe your invention based on its purpose, composition and use.
2. Use these terms to find initial relevant Cooperative Patent Classification.
3. Review the CPC Classification Definitions to verify the relevancy of CPC classification.
4. Retrieve U.S. patent documents for the CPC classification you selected.
5. Conduct an in-depth review of relevant patents
6. Retrieve U.S. published patent applications with the CPC classification you selected
7. Broaden your search to find additional patent and non-patent publications
• Think of as many terms as you can that describe your invention.
  – Consider the **purpose** of the invention ... Is the patent for a useful object or an ornamental design?
  – Is the invention a **process** or **product**?
  – What is the invention **made of**?
  – How is the invention **used**?
  – What keywords or technical terms describe the nature of the invention?
Brainstorm terms to describe your invention

• Example: An Improvement to Umbrellas
  – **Purpose**: this improvement has a new rib design to prevent collapse or inversion in high wind
  – **Invention**: this improvement will eliminate the need for frequent umbrella replacement
  – **Components**: a framework of ribs, stretchers and a main frame securing rings, mounting brackets, joint connectors, fabric connectors, fabric, linking bar
  – **How Used**: used to protect user from the elements
  – **Additional Terms**: parasol, sunshade, windproof, wind resistant
2 Use these terms to find a CPC code

- Access the CPC Classification Scheme using uspto.gov site search box in the upper right hand corner.
- Search “CPC Scheme” + your term
2

Use these terms to find a CPC code

• On the Search Results page, click on the entry for a Class-Subclass Scheme page
Use these terms to find a CPC code

- Scan the Class-Subclass Scheme page to find relevant classifications.
- First, scan the Main Groups (ending in “/00”) to find those that are most relevant to your invention.
- Then look at the Subgroups to see if they are pertinent.
Use these terms to find a CPC code

• What if the Scheme is too long to scan easily
  – Use the “Find” feature on your browser window to locate pertinent terms.
  In Chrome, use CTRL+F to initiate Find and add the term (e.g. wind), then click “v” to move to the highlighted result.
Use these terms to find a CPC code

- Look at the classification’s place in the entire class-subclass scheme (check the dot indents) and determine if this classification is specific enough for your invention.
- Look for subgroups which might be a better match.
Use these terms to find a CPC code

• What if you don’t find any matching classes
  – Return and repeat your search using other terms you brainstormed
  – If none of your brainstormed terms locate matching classes, check the WIPO Catchword index located at:
Review the CPC Classification Definitions

• Review the Classification Definitions by clicking on the underlined text

A45B 25/18
A45B 2025/183
A45B 2025/186
A45B 25/20
A45B 25/22

Devices for increasing the resistance of umbrellas to wind

Definition statement
This subgroup covers:

[Diagrams of umbrellas and resistance mechanisms]
Review the CPC Classification Definitions

• Some classes may have references designated to help you locate other relevant classes

<table>
<thead>
<tr>
<th>Informative references</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Attention is drawn to the following places, which may be of interest for search:</strong></td>
</tr>
<tr>
<td>Automatic closing devices</td>
</tr>
<tr>
<td>Automatic openers</td>
</tr>
</tbody>
</table>
• Review the CPC Classification Definitions

At the top of the definition page you will also find useful searching aids

A45B

WALKING STICKS; UMBRELLAS; LADIES’ OR LIKE FANS (cane or umbrella stands or holders A47G 25/12)

Definition statement

This subclass covers:
• Sticks with supporting, hanging or carrying means;
• Sticks combined with, or convertible into, other objects;
• Other sticks;
• Details of sticks;
• Umbrellas characterised by their shape or attachment;
• Special folding or telescoping of umbrellas;
• Other umbrellas;
• Details of umbrellas;
• Ladies’ fans.

References relevant to classification in this subclass/group

This subclass does not cover:

<table>
<thead>
<tr>
<th>Walkers</th>
<th>A61H 3/00</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crutches</td>
<td>A61H 3/02</td>
</tr>
</tbody>
</table>

Informative references
Retrieve and review U.S. patent documents

- Use your classifications to locate US patents issued in that category to see if your idea has already been patented
- Remember that if your invention has previously been disclosed you cannot now get a patent on it yourself.
Retrieve and review U.S. patent documents

- Use the “Quick Links” tab on the uspto.gov homepage
- Select “PatFT” from the PatFT | AppFT links
Retrieve and review U.S. patent documents

• Enter your CPC classification in the Term1 box
• Choose “Current CPC Classification” from the Field1 menu
• Choose “1790 to present” from the “Select years” menu
• Click “Search”
Retrieve and review U.S. patent documents

- Click the patent number or title

Results of Search in US Patent Collection db for:
Hits 1 through 50 out of 179

Next 50 Hits

Jump To

Refine Search CPC/A45B25/22

<table>
<thead>
<tr>
<th>PAT. NO.</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 8,960,210</td>
<td>Flexible umbrella systems</td>
</tr>
<tr>
<td>3 8,939,163</td>
<td>Umbrella anti-inversion apparatus</td>
</tr>
<tr>
<td>4 8,783,275</td>
<td>Compact folding umbrella with hybrid ribs to resist damage due to inversion</td>
</tr>
<tr>
<td>5 8,720,457</td>
<td>Bottom-triggering wind safety umbrella</td>
</tr>
<tr>
<td>6 8,656,937</td>
<td>Outdoor umbrella stabilizer system</td>
</tr>
<tr>
<td>7 8,607,808</td>
<td>Light windproof umbrella</td>
</tr>
<tr>
<td>8 8,556,141</td>
<td>Backpack with integral umbrella</td>
</tr>
<tr>
<td>9 8,511,327</td>
<td>Anti-wind eccentric umbrella</td>
</tr>
</tbody>
</table>
Retrieve and review U.S. patent documents

- The full text of the patent is displayed. To view the actual patent as published click “Images”
Retrieve and review U.S. patent documents

- You will see the front page of the patent. To see other pages use the “go to page” box, gold arrow buttons, or section links to the left.
Retrieve and review U.S. patent documents

• The front page of a patent contains a variety of information in a standard format:
  – Patent Number
  – Date of Patent
  – Title
  – Applicant
  – Inventor
  – Assignee
  – Abstract
  – Classification Numbers
  – Representative Drawings

• All Sections of the patent are numbered, the numbering system is consistent internationally
Retrieve and review U.S. patent documents

Title
Inventor
Assignee
Classification Numbers

Patent Number
Date of Patent

Abstract

Representative Drawings
Retrieve and review U.S. patent documents

- Review all the patents in the classification:
  - Scan the Abstract
  - Examine the Drawing
  - If it is similar to your invention note the number for later review
Retrieve and review U.S. patent documents

- Pre-1970 Patent Records – As you move down the list you will see a change in format
- For patents issued prior to 1970 you must click on the patent number as the title does not display
Conduct an in-depth review of relevant patents

• Review those patents you identified as relevant, paying special attention to
  – Additional Classifications
  – References Cited
  – Drawing sheets
  – Specifications
    • Field and background of the invention
    • Summary of the invention
    • Descriptions of the drawings
  – Claims
    • Define what aspects of the patent are protected by the patent
Conduct an in-depth review of relevant patents

- Additional Classifications
Conduct an in-depth review of relevant patents

- References Cited
Conduct an in-depth review of relevant patents

- Drawing Sheets
Conduct an in-depth review of relevant patents

• Specifications

CROSS-REFERENCE TO RELATED APPLICATION

The present application is related to and claims priority from prior provisional application Ser. No. 61/024,855, filed Jan. 30, 2008, entitled “FLEXIBLE UMBRELLA SYSTEMS”; and, this application is related to and claims priority from prior provisional application Ser. No. 61/043,105, filed Apr. 7, 2008, entitled “FLEXIBLE UMBRELLA SYSTEMS”; and, this application is related to and claims priority from prior provisional application Ser. No. 61/061,612, filed Jun. 14, 2008, entitled “FLEXIBLE UMBRELLA SYSTEMS”, the contents of all of which are incorporated herein by this reference and are not admitted to be prior art with respect to the present invention by the mention in this cross-reference section.

BACKGROUND

This invention relates to providing a system for improved umbrellas. More particularly, this invention relates to providing a system for the general protection of fixed outdoor umbrellas, especially during windy conditions.

Conventional outdoor patio umbrellas, for protection from rain or sun, typically comprise a cover portion supported by a rigid shaft. Such conventional outdoor patio umbrellas are often used to shade patio tables or other outdoor furniture. Large outdoor patio-type umbrellas are generally designed to withstand small to moderate wind loading. It is common for the supportive shafts of such umbrellas to fracture or even snap in half under heavy wind loads, especially if made out of a material prone to fracture, such as many woods, etc. Moreover, the supportive members within the fabric canopy are susceptible to impact damage should the umbrella tip, as may occur following a strong wind gust.
Conduct an in-depth review of relevant patents

• Claims

embodiments of this invention, it will be understood that the broadest scope of this invention includes modifications such as diverse shapes, sizes, and materials. Such scope is limited only by the below claims as read in connection with the above specification. Further, many other advantages of applicant’s invention will be apparent to those skilled in the art from the above descriptions and the below claims.

What is claimed is:

1. An umbrella system related to reducing wind damage in outdoor umbrellas subjected to at least one wind load during use, said system comprising:
   a) at least one umbrella structured and arranged to provide a shade protection;
   b) wherein said at least one umbrella comprises
      i) at least one umbrella shade structured and arranged to provide said shade protection,
      ii) at least one shaft support being coupled with said at least one umbrella shade wherein said at least one shaft support is structured and arranged to support said at least one umbrella shade in at least one operable position, and

2. The umbrella system according to claim 1 wherein said at least one umbrella comprises at least one coiled spring.

3. The umbrella system according to claim 2 wherein said at least one coiled spring is capable of storing at least one spring return force of sufficient magnitude to return said at least one first shaft portion and said at least one second shaft portion to such at least one substantially coaxial orientation when such force applied to said at least one first shaft portion is substantially absent.

4. The umbrella system according to claim 3 wherein said at least one coiled spring comprises coiled spring load bearing members.

5. The umbrella system according to claim 4 wherein said at least one coiled spring comprises at least one coiled spring.

6. The umbrella system according to claim 5 wherein said at least one coiled spring has a movement of said at least one first longitudinal axis and said at least one second longitudinal axis away from such at least one substantially coaxial orientation when a predetermined level of force is applied to said at least one first substantially rigid shaft portion.

7. The umbrella system according to claim 6 wherein said at least one coiled spring comprises at least one coiled spring.

8. The umbrella system according to claim 7 further comprising:
   a) at least one outer cover structured and arranged to cover said at least one coiled spring;
Conduct an in-depth review of relevant patents

• Move forward?

If you find your invention was previously patented
If you find your invention was NOT previously patented

• You may be able to modify your invention and seek a patent on the improvement
Retrieve and review U.S. published patent applications

• Patent Applications have been published since 2001.

• Review this prior art to see if someone has applied for a patent on your invention but it has not yet been granted.
Retrieve and review U.S. published patent applications

- Use the “Quick Links” tab on the uspto.gov homepage
- Select “AppFT” from the PatFT | AppFT links
Retrieve and review U.S. published patent applications

- Enter your CPC classification in the **Term1** box
- Choose “Current CPC Classification” from the **Field1** menu
- Click “Search”
Retrieve and review U.S. published patent applications

• Click the application number or title to see the full application

<table>
<thead>
<tr>
<th>PUB. APP. NO.</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>20150096601</td>
<td>UMBRELLA HAVING IMPROVED SHAFT AND RIB ASSEMBLY</td>
</tr>
<tr>
<td>20140345659</td>
<td>Windproof Umbrella Frame</td>
</tr>
<tr>
<td>20140332043</td>
<td>Large Parasol With a Binding System</td>
</tr>
<tr>
<td>20140326284</td>
<td>UMBRELLA COVER AND BEACH UMBRELLA</td>
</tr>
<tr>
<td>20140326283</td>
<td>WIND RESISTANT BEACH UMBRELLA</td>
</tr>
<tr>
<td>20140283888</td>
<td>Umbrella Anti-Inversion Apparatus</td>
</tr>
<tr>
<td>20140209132</td>
<td>UMBRELLA ANCHORING DEVICE</td>
</tr>
<tr>
<td>20140000666</td>
<td>LIGHT WINDPROOF UMBRELLA</td>
</tr>
<tr>
<td>20130313295</td>
<td>Port A Shade</td>
</tr>
</tbody>
</table>
Retrieve and review U.S. published patent applications

- View the application images
- Review each application
  - Scan the Abstract
  - Examine the Drawing
  - If it is similar to your invention note the application number for later review
Retrieve and review U.S. published patent applications

- Move forward?

If you find your invention was previously applied for

If you find your invention was NOT previously applied for

- You may be able to modify your invention and seek a patent on the improvement
Broaden your search to find additional patent and non-patent publications

• Search for foreign patent documents ([http://worldwide.espacenet.com](http://worldwide.espacenet.com))

• Search US patent using USPC (While no longer being used, there are over 100 years of patent documents using USPC)

• Search for patents using keywords* (to find patents which were poorly classified or for which classification has changed over time)

• Search in non-patent literature (books, magazines, journals, websites, catalogs)

• Consult a patent attorney or agent
Broaden your search to find additional patent and non-patent publications

- Limitations of keyword searching
  - Vague or inconsistent terminology
    “ball” vs “generally spherical object”
  - Obsolete names or terms
    “LP,” “hi-fi,” “laserdisc,” “water closet”
  - Different meanings in different fields
    “mouse” (animal) vs “mouse” (for a computer)
  - Synonyms
    “rodent extermination device”
  - PatFT keyword search is limited to patents after 1970 (so keyword searching misses anything prior to that date)
7 Step Patent Search Strategy

1. Brainstorm terms to describe your invention based on its purpose, composition and use.
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6. Retrieve U.S. published patent applications with the CPC classification you selected
7. Broaden your search to find additional patent and non-patent publications
Other useful resources on the PTO website

• Official Gazettes
  – Listing of newly granted patents published each Tuesday by the PTO
Other useful resources on the PTO website

- Forms & Fees
Other useful resources on the PTO website

• Patent Attorneys & Agents
  
  *We cannot recommend one person over another*
  
  – Can limit by geographic region
Other useful resources on the PTO website

- Inventors Resources Page
Inventors & Entrepreneurs Resources

Resources & Contacts

- Patents
- Patent Help
- Patent Process Overview
- Search for Patents
- Inventors Assistance Center
- Official Gazette for Patents

Trademarks for Inventors & Entrepreneurs

- Trademark Basics
- Trademark Electronic Search System (TESS)
- Trademark Electronic Application System (TEAS)
- Trademark Status and Document Retrieval (TSDR)
- Electronic Trademark Assignment System (ETAS)
- Assignments on the Web (AOTW)
- Trademark Trial and Appeal Board (TTAB)
- Trademark Manual of Examining Procedure (TMEP)

Education & Information

- Scam Prevention
- Provisional Application for Patent
- General Information Concerning Patents
- Basic Facts About Trademarks
- Financial Manager
- Inventors Assistance Center
- Patents Ombudsman Program
- BusinessUSA®
- Trademark Assistance Center

Scam Prevention

While the USPTO does not investigate complaints or participate in any legal proceedings against invention promoters/promotion firms, under the American Inventors Protection Act, the USPTO does have a role in educating inventors about potential scams.

Pro Se - Pro Bono

Are you an inventor or small business who has limited resources and needs help applying for a patent on an invention? If so, you may be eligible to receive pro bono (“for free”) attorney help.

Current Events

Information about conferences and conventions.

State Resources

- United States Map
- Upcoming Events
- Inventors Eye | Events & Announcements
Provisional Patent Application

• Is entirely optional
• Allows you to establish an earlier filing date
• Allows you to use the term “Patent Pending”
• Lasts for one year from date of provisional application (does not become a full patent application)
• You must file a full patent application to proceed
• Are not published, there is no way to search these
Keeping Track

Q: I’ve decided I want to apply for a patent... what do I do now?

A: Begin or continue an **inventor’s notebook**
   - Use a bound notebook (spiral or sewn in binding)
   - Make notes in ink about each step of your inventing or research process, sign and date them
   - Include
     - Your idea and how you got it
     - Problems you have and how you solve them
     - Add sketches and drawings to make things clear
     - List all parts, sources, and costs of materials
     - steps and results of your preliminary patent search
Resources & Contacts

• Local Inventors Clubs

• Inventors Connection Greater Cleveland
  PO Box 360804
  Strongsville, OH 44136
  Tel: (216)381-6599 or 440-941-6567
  icgc@aol.com

• Inventors Council of Canton
  Frank Fleischer
  303 55th Street NW
  No. Canton, OH 44720
  (330) 499-1262 or (330)499-7794
  FFleischer@neo.rr.com

• Inventors Network, Inc.
  Bob Stonecypher
  1275 Kinnear Rd.
  Columbus, OH 43212
  Tel: (614) 470-0144
  13832667@msn.com

• Inventor's Council of Cincinnati
  Tel: (513) 898-2110
  InventorsCouncil@inventcinci.org

• Inventors Council of Dayton
  Stephen Frey, president
  SWFDAY@aol.com
  http://tech.groups.yahoo.com/group/inventors_council/
Resources & Contacts

• Producing a Prototype

• Syn/Hak – The Akron Hackerspace
  48 S. Summit St, Akron
  330-597-5002
  www.synhak.org

• Lorain Community College’s Fab Lab
  www.lorainccc.edu/fab
Resources & Contacts

• Making Money with your Invention

Licensing vs. Venturing: sell your patent rights to someone else to produce, or manufacture and sell yourself?

Inventors often do not have the skills needed to be an entrepreneur. Some things to research before starting a business are the need for your product, the technical feasibility of producing your product, and your competition. You need to considering marketing and promotion, including second opinions, test markets, surveys, industry consultants, current trends, and trade shows. The Library’s Business & Government division, 330-643-9020, can provide information on starting a business.

• Some websites for local assistance are:

• Akron Global Business Accelerator
  http://www.akronaccelerator.com/

• Akron Score Chapter 81
  www.akronscore.org

• Small Entrepreneur and Economic Development (SEED) Legal Clinic
  University of Akron, School of Law
  330-972-7111
  www.uakron.edu/law/clinical/seed

• Inventors Assistance Center
  on the USPTO website uspto.gov
Resources & Contacts

• Additional Resources
  
  • U.S. Patent & Trademark Help Line 1-800-PTO-9199
  
  • NOLO (publisher of self-help legal manuals, great website) www.nolo.com
  
  • Inventor’s Digest Magazine Available in print at library or at www.inventorsdigest.com
  
  • About.com Inventors Online tutorials http://inventors.about.com/od/firststeps/
  
  • United States Small Business Administration www.sba.gov
  
• Google Patents www.google.com/patents
  
• World Intellectual Property Organization http://www.wipo.int/
  
• Espacenet (European Patent Office) http://worldwide.espacenet.com/
  
• And, of course, us! Patent & Trademark Resource Center, Science & Technology Division. 330-643-9075 email: stdiv@akronlibrary.org http://ascplst.akronlibrary.org/patents-etc
Akron PTRC
Science & Technology Division
Akron-Summit County Public Library
60 S. High St.
Akron, OH 44326
Phone: (330) 643-9075