

# SOYBEAN COMPETITION PATENT SEARCHING

WHY, HOW, WHERE

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**PURDUE**  
UNIVERSITY

# DISCLAIMER

JUST F.Y.I.

**I AM NOT A LAWYER**

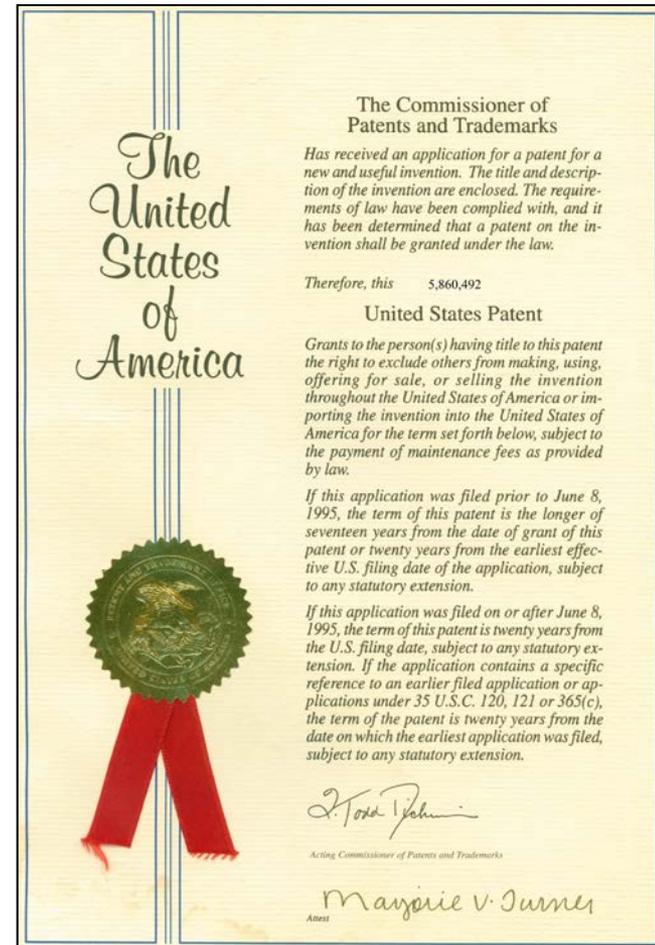


# PATENT SEARCHING WHY?

# WHY ARE WE DOING THIS?

## WHAT'S THE POINT OF PATENTS?

- Patents are limited monopolies granted by the government in exchange for making the details of the invention public
  - Control use, distribution, import, sale, etc.
- Patents have value
  - Technical details
  - Economic impact



# BUT WHY DO *WE* CARE?

WHAT DOES THIS HAVE TO DO WITH SOYBEANS?

- Patent searching is a requirement for this competition
- You need to know the intellectual landscape relating to your product
  - Is it patented? If so, is the patent active?
  - Is there useful technical information in other patents that we can use?
- Just because a product never made it to market doesn't mean there isn't a patent issue

# WHAT ARE PATENTS?

## AND HOW DO THEY WORK?

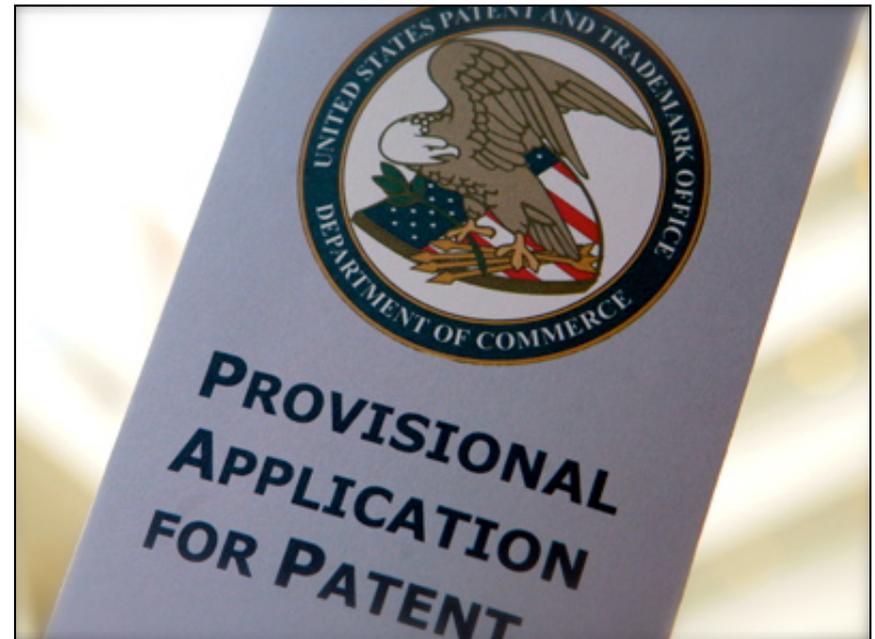
- Three criteria
  - Novel
  - Useful
  - Non-obvious
- “First to File” wins
- Administered by USPTO
  - Can take 2-3 years from application to grant of patent rights
- 20 years from filing date of application paperwork



# WHAT ARE PATENTS?

## HOW ABOUT PROVISIONAL PATENT APPLICATIONS?

- Provisional Patent Applications save your place in the “first to file” line
- Provisionals ARE NOT patents
- If you do a provisional, you have ONE YEAR to do a full application, or it all gets thrown out



# WHAT ARE PATENTS?

## PARTS OF A PATENT – FRONT PAGE

**United States Patent** [19]  
**Stillinger**

[11] **Patent Number:** **4,756,529**

[45] **Date of Patent:** **Jul. 12, 1988**

[54] **GENERALLY SPHERICAL OBJECT WITH FLOPPY FILAMENTS TO PROMOTE SURE CAPTURE**

4,149,723 4/1979 Simon ..... 273/428 X  
4,522,396 6/1985 Girard et al. .... 273/58 K

### FOREIGN PATENT DOCUMENTS

3121758 12/1982 Fed. Rep. of Germany ..... 446/901

*Primary Examiner*—Richard T. Stouffer  
*Attorney, Agent, or Firm*—Kolisch, Hartwell & Dickinson

### [57] ABSTRACT

An amusement device which has a substantially spherical configuration, and which is formed from a large plurality of floppy, elastomeric filaments that radiate in a dense, bushy manner from a central core region. The filaments are sufficiently floppy to collapse on impact, thus to absorb enough energy to avoid any tendency to bounce. They are also sufficiently dense and floppy that they tend to quickly thread their way between the fingers of a user on contact with the hand. These features promote sure and quick capture of the device during the act of catching.

**8 Claims, 2 Drawing Sheets**

[75] **Inventor:** **Scott H. Stillinger**, Los Gatos, Calif.

[73] **Assignee:** **OddzOn Products**, Campbell, Calif.

[21] **Appl. No.:** **60,640**

[22] **Filed:** **Jun. 11, 1987**

[51] **Int. Cl.<sup>4</sup>** ..... **A63B 37/14**

[52] **U.S. Cl.** ..... **273/58 K; 273/428; 446/268; 446/490**

[58] **Field of Search** ..... **446/490, 901, 268; 273/58 R, 58 J, 58 K, 199 R, 199 A, 415, 428; 15/244.1, 244.3**

### [56] References Cited

#### U.S. PATENT DOCUMENTS

2,290,216 7/1942 Steinmetz et al. .... 15/244.1  
2,521,703 9/1950 Emmitt ..... 273/58 K  
2,789,305 4/1957 Weil ..... 15/244.1  
3,759,518 9/1973 Mroz ..... 273/58 K X  
4,131,276 12/1978 Judkins ..... 273/58 C

Title

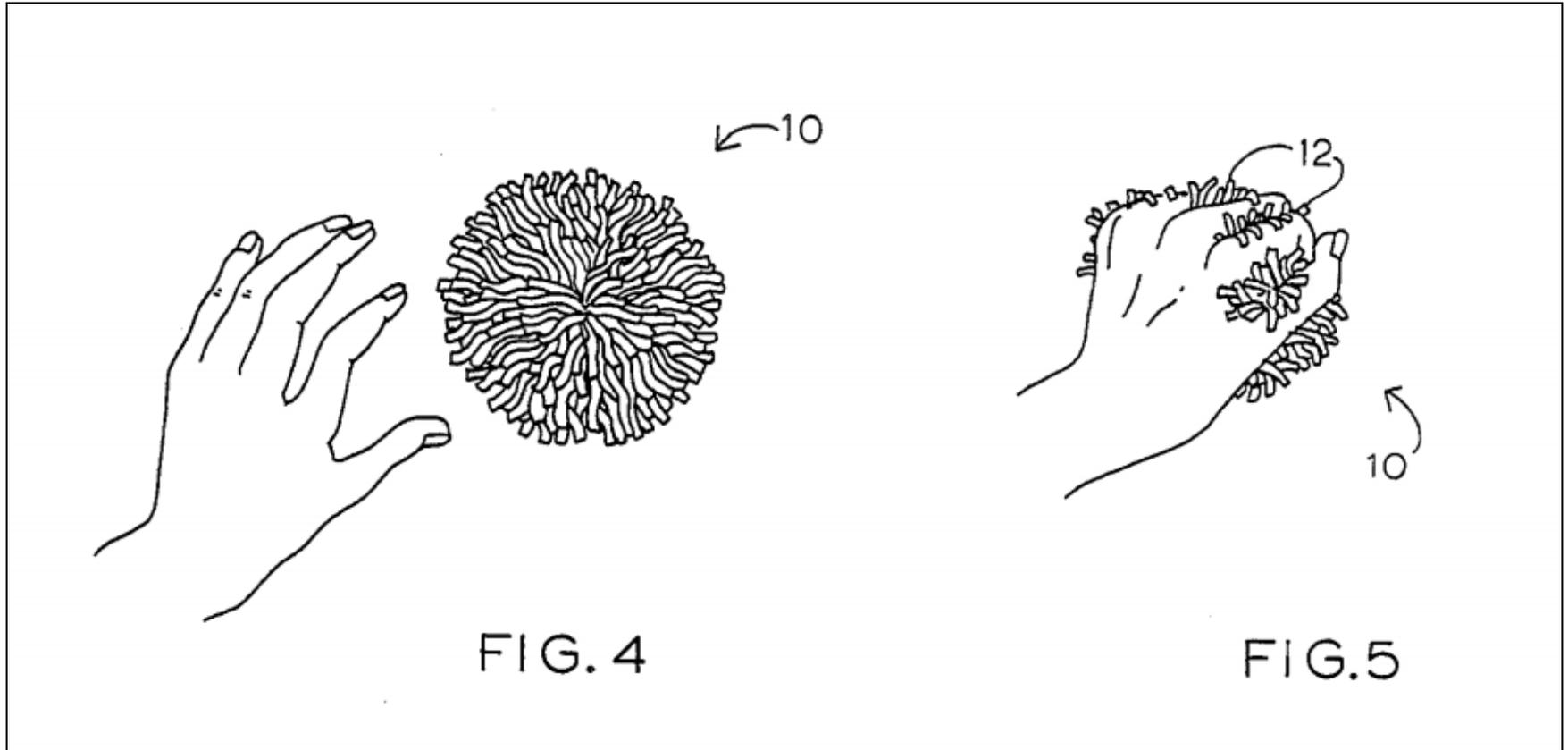
Owners

Classes

See also

# WHAT ARE PATENTS?

## PARTS OF A PATENT – DRAWINGS



# WHAT ARE PATENTS?

## PARTS OF A PATENT – SUMMARY & DESCRIPTION

1 4,756,529 2

**GENERALLY SPHERICAL OBJECT WITH FLOPPY FILAMENTS TO PROMOTE SURE CAPTURE**

**BACKGROUND AND SUMMARY OF THE INVENTION**

This invention pertains to an amusement device, and more particularly, to a throwing/catching device which is especially easy to catch.

To youngsters who are just developing motor control, to youngsters and others who may have some motor control disfunctionality, as well as to many who simply enjoy throwing and catching, it is often difficult and frustrating to try to catch various typically available throwing/catching amusement devices, such as balls, etc.

One of the problems with many conventional throwing/catching devices is that, on impact, they do not absorb much energy, and accordingly, tend to bounce and get away from one's grasp easily. Also, they sometimes hurt to catch. Another problem is that, typically, they do not offer a surface configuration that promotes quick, sure gripping.

A general object of the present invention is to provide a unique amusement (throwing/catching) device which avoids these significant disadvantages in a very practical and satisfactory manner.

More particularly, an object of the invention is to provide such a device which tends to absorb a substantial amount of energy on impact through the act of collapsing, thereby avoiding any tendency to bounce and leap away from one's grip.

Yet another object of the invention is to provide a device of the type just generally outlined which has a surface characteristic that significantly promotes sure and quick grasping in a catch.

A further object of the invention is to provide a device such that suggested above which has a structure that prevents, because of wind resistance, throwing or hitting it very far, and which also eliminates the possibility of a catch that hurts.

An object related to the object just stated is to provide such a device which is extremely unlikely to break anything on contact.

According to a preferred embodiment of the invention, the same takes the form of a plurality of elongate, floppy, elastomeric-like filaments which are somewhat spaghetti-like in aspect, and which are joined in a core region in such a manner that they radiate outwardly, in plural offset planes, in a dense, bushy fashion to create a substantially spherical object. Preferably, the surfaces of these filaments, whether by treatment or just because of the nature of the material used in them, have frictioning characteristics which make them tend to cling to, rather than slide in, a person's hand.

Other objects, and the various important advantages offered by the invention, will now become more fully apparent when the description which follows is read in conjunction with the accompanying drawings.

**DESCRIPTION OF THE DRAWINGS**

FIG. 1 is a view showing an amusement device constructed in accordance with the invention.

FIG. 2 shows the device of FIG. 1 in an early assembly stage.

FIG. 3 is an enlarged detail of the central portion of FIG. 2 showing the device of the invention in a slightly later stage of construction.

FIG. 4 shows the device of the invention about to be caught in a person's hand, and FIG. 5 shows the device in a caught condition.

FIGS. 6 and 7 are fragmentary details showing two different modified forms of the invention.

FIG. 8 is an aesthetically modified form of the invention to give it a humorous, critter-like visual appeal.

**DETAILED DESCRIPTION OF THE INVENTION**

Turning now to the drawings, and referring first of all to FIG. 1, indicated generally at 10 is a preferred embodiment of a throwing/catching amusement device constructed in accordance with the present invention. As will become apparent, this device offers remarkable and reliable, no-injury catchability. It is especially suitable, inter alia, for people, youngsters or others, who have motor control difficulties vis-a-vis quickly gripping a thrown object.

Device 10 is formed with a large plurality of elongate, floppy, elastomeric filaments 12, each of which, as is clearly evident in FIG. 1, has cross-sectional dimensions which are extremely small in relation to the length of the filament. As will be more fully explained shortly, these filaments are joined in a central core region in such a manner that they radiate outwardly in a fairly uniform, dense and bushy fashion, in multiple angularly offset planes, to form a substantially spherical configuration. While the outside diameter of device 10 may be of any desired size, I have found that a very satisfactory diameter lies in the range of about 3- to about 5-inches.

Preferably, although not necessarily, the surfaces of filaments 12, either by virtue of surface treatment, or simply because of the inherent nature of the material chosen, have a frictioning characteristic which makes them tend to grip, rather than to slide or slip on, a person's skin. A material which I have found to be very useful for these filaments is extruded natural rubber.

While, to be sure, various techniques and devices may be used for joining these filaments to produce the desired resultant object, device 10 has been formed, as is illustrated in FIGS. 2 and 3.

Referring first to FIG. 2, three long lengths of extruded rubber filaments are each wound in a pattern of reverse bend loops and then stretched as loops to lengths of about 16-inches typically. The three stretched loop units are then placed relative to one another along three orthogonal axis. This is shown at 10a, 10b, 10c in FIG. 2. Next, and now referring to FIG. 3, a conventional cinching device 14 is wound as illustrated where the wound filament loops centrally cross one another, and drawn tight to gather them. The reverse-bend ends (six ends) are then cut, with the result that the stretched filaments spring back toward their gathered centers, with a natural tendency to fan out radially in all planes to have the substantially spherical form which is desired.

As one should easily be able to imagine from the description which has just been given, device 10 is extremely simple to catch. The floppy filaments cause the device to collapse significantly upon impact, thus to absorb energy and resist bouncing away. The high plurality of tiny filaments offers substantial gripping surface area, and the filaments, on contact with the hand, tend quickly to thread their way between the fingers

- Each element of the drawings must be completely described
- This is often where the technical detail is included in the patent

# WHAT ARE PATENTS?

## PARTS OF A PATENT – CLAIMS

3	4,756,529	4
<p>and thus further promote sure and quick catching. This situation is clearly depicted in FIGS. 4 and 5. Aiding in this respect even more is the fact that the surfaces of the filaments herein have a high-frictioning characteristic.</p> <p>Obviously, because of the nature of device 10 as just described, it is virtually impossible to hurt one self while catching it. Also, the device is unlikely to break any object which it might hit.</p> <p>Clearly, the device is extremely simple and inexpensive in construction.</p> <p>The specific nature of device 10 can be altered, of course, by changing cross-sectional dimensions, cross-sectional aspect ratios and specific materials employed for the filaments and curliness.</p> <p>Two other ways of modifying the device are illustrated respectively in FIG. 6 and 7. For example, in FIG. 6, the outer ends of the filaments are formed with enlargements 16. In FIG. 7, the filaments take the form of reversely bent loops 18.</p> <p>Finally, designed more especially for youngsters, and illustrated in FIG. 8, is a somewhat humorous, critter-like modification, where a small side portion of the core region bears humorous face-like features. These can, of course, be made in any desired way.</p> <p>It should be apparent now how the device proposed by the present invention meets all of the objects, and offers all of the advantages, expressed and suggested herein. While a preferred embodiment of the device, and certain modifications, have been described herein, it is appreciated that other variations and modifications may be made without departing from the spirit of the invention.</p> <p>It is claimed and desired to secure by Letters Patent:</p> <p>1. An amusement device comprising a core region, and plural, elongate, floppy, tiny-diameter, elastomeric filaments, each having a cross-sectional dimension which is extremely small in relation to its length, said filaments radiating in plural angularly offset planes in a dense, bushy configuration from said core region to form a generally spherical object, with the filaments being sufficiently floppy to col-</p>		<p>lapse significantly on impact, thus to absorb enough energy to avoid any tendency to bounce, and with the filaments being sufficiently dense and floppy that a large plurality thereof tend to thread their way between adjacent fingers of a user's hand upon contact of the filaments with the hand during the act of catching, thereby to promote sure and quick capture of the device.</p> <p>2. The device of claim 1, wherein the outer ends of at least some of the filaments include enlargements.</p> <p>3. The device of claim 1, wherein each of said filaments, where it radiates from the core region, takes the form of a reverse bend.</p> <p>4. The device of claims 1, 2 or 3, wherein the surfaces of said filaments have frictioning characteristics.</p> <p>5. An amusement comprising a plurality of elongate, floppy, tiny-diameter, elastomeric filaments, each having a cross-sectional dimension which is extremely small in relation to its length, and means joining said filaments intermediate their ends in such a manner that they radiate from a core region to form a dense, bushy configuration, said filaments collectively forming a generally spherical object, and being sufficiently floppy to collapse significantly on impact, thus to absorb enough energy to avoid any tendency to bounce, with the filaments being sufficiently dense and floppy that a large plurality thereof tend to thread their way between adjacent fingers of a user's hand upon contact with the hand during the act of catching, thus to promote sure and quick capture of the device.</p> <p>6. The device of claim 5, wherein said joining means comprises means cinching and gathering the filaments intermediate their ends.</p> <p>7. The device of claim 6, wherein said filaments have substantially the same lengths.</p> <p>8. The device of claims 5, 6 or 7, wherein the surfaces of said filaments have frictioning characteristics.</p> <p>* * * * *</p>

- Usually begins with “It is claimed” or “We claim” (or similar)
- Defines the *precise legal limits* of the patent
- The drawings and descriptions are great, but only claims matter

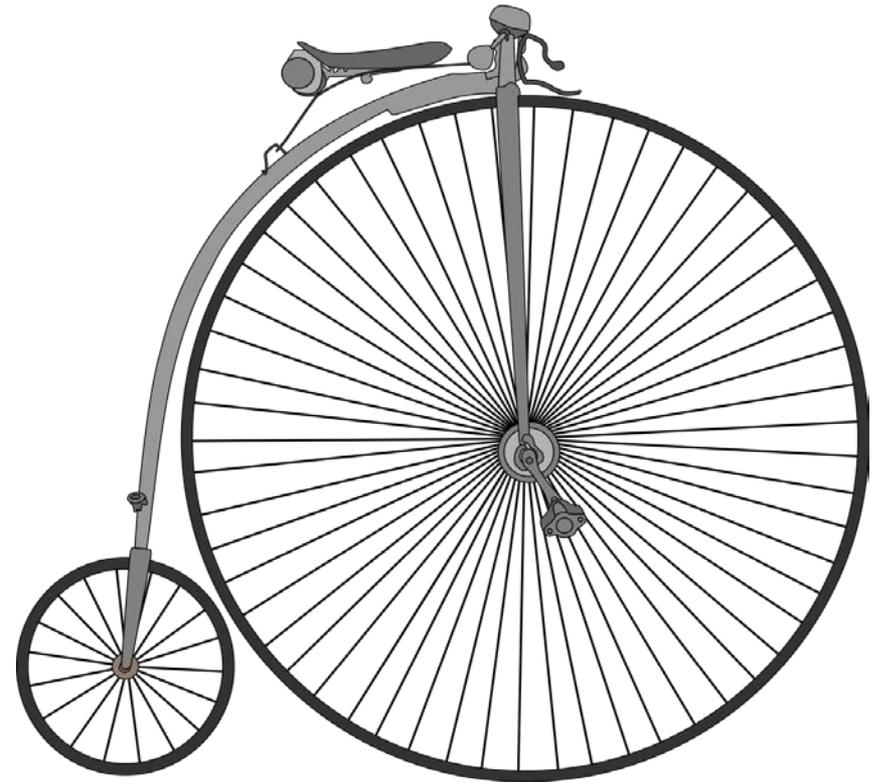


# PATENT SEARCHING HOW?

# HOW DO WE SEARCH PATENTS?

WHY ISN'T GOOGLE GOOD ENOUGH?

- Patents are tough to search
- Jargon, obscure and obsolete vocabulary, deliberate obfuscation, etc.
- Keywords don't work all that well



# HOW DO WE SEARCH FOR PATENTS?

## CLASSIFICATION SYSTEMS

- If keywords don't work, then what does?
- Classification systems break down the world of technology into manageable chunks
- Find the right class, and you find all the patents, no matter how they're described



# HOW DO WE SEARCH FOR PATENTS?

## CLASSIFICATION SYSTEMS

- There are lots of options, but your best bet is to use the **CPC**
- Cooperative Patent Classification, a joint venture of US & EU
- Hierarchical, with very specific categories



# HOW DO WE SEARCH FOR PATENTS?

## CLASSIFICATION SYSTEMS – EXAMPLE

- A → • Human necessities
- A23 → • Foods
- A23C → • Dairy products
- A23C 11 → • Milk substitutes
- A23C 11/103 → • Milk substitutes containing only proteins from oilseeds or nuts



<http://worldwide.espacenet.com/classification>

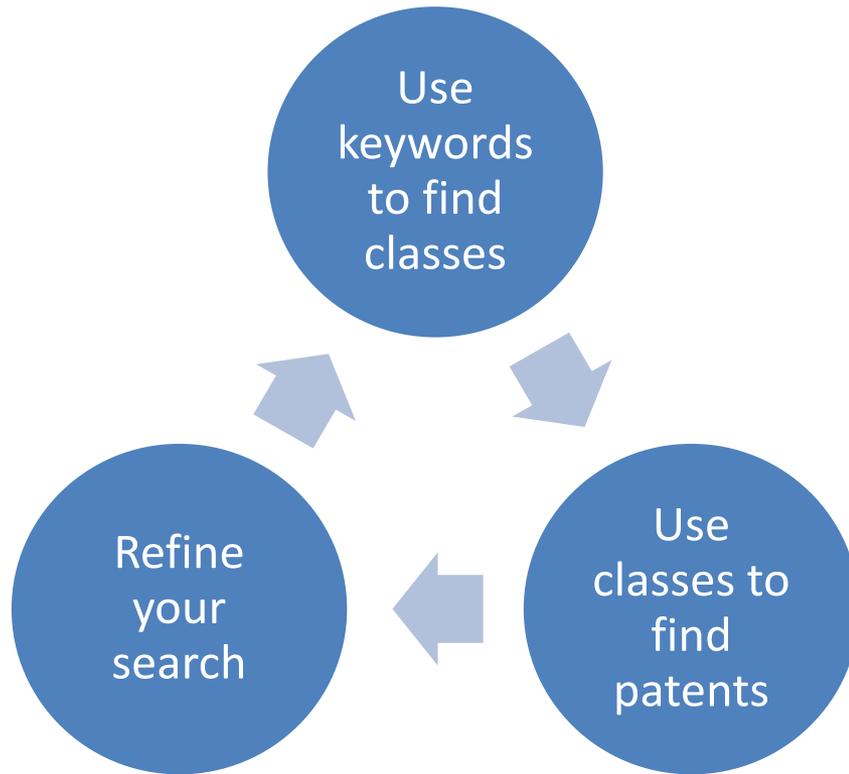
# HOW DO WE SEARCH FOR PATENTS?

## THE OFFICIAL SEVEN STEP METHOD

1. Brainstorm lots of keywords
2. Search classification system with those keywords and identify potentially relevant classes
3. Check the classification definitions for those classes
4. Use those classes to find patents
5. Read those patents
6. Use those patents to augment your search, using the references and the other classes listed
7. Expand your search to include patent applications, international patents, scholarly literature, etc.

# HOW DO WE SEARCH FOR PATENTS?

HERE'S WHAT I DO



- Iterative process
- Brainstorm possible alternate keywords
- Don't expect to get it right on the first try
- Mix keyword and classification searches to get new ideas

# HOW DO WE SEARCH FOR PATENTS

## A QUICK NOTE ABOUT APPLICATIONS

- Patent applications are published 18 months after they're filed
- They may never become a granted patent, but they're still public records
- Most databases show you both at the same time (except USPTO)
- Patent application numbers have the filing year as the first four digits. Most of the time (but not always) they end with A1 or A2.
  - e.g. US**2009**326290-A1



# PATENT SEARCHING WHERE?

# WHERE DO WE FIND PATENTS?

WHICH GOVERNMENT WEBSITES ARE THE BEST?

- USPTO.gov
  - Official U.S. government site for patents & apps
  - If you want to obtain a patent, it's definitive
  - Difficulty Level: **High**
- Espacenet.com
  - Official EU government site
  - International coverage, translation resources
  - Difficulty Level: **Medium**



# WHERE DO WE FIND PATENTS?

WHICH FREE WEBSITES ARE THE BEST?

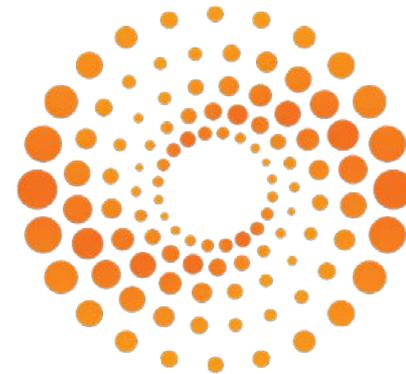
- Google Patents
  - International coverage
  - Not great for classification searching
  - OCR keyword problems
  - Google's relevance ranking doesn't always make the right choices
  - Difficulty level: **Low**
- Lens.org
  - International coverage
  - Modern search tools
  - Difficulty Level: **Low**



# WHERE DO WE FIND PATENTS?

WHICH PURDUE RESOURCES ARE THE BEST?

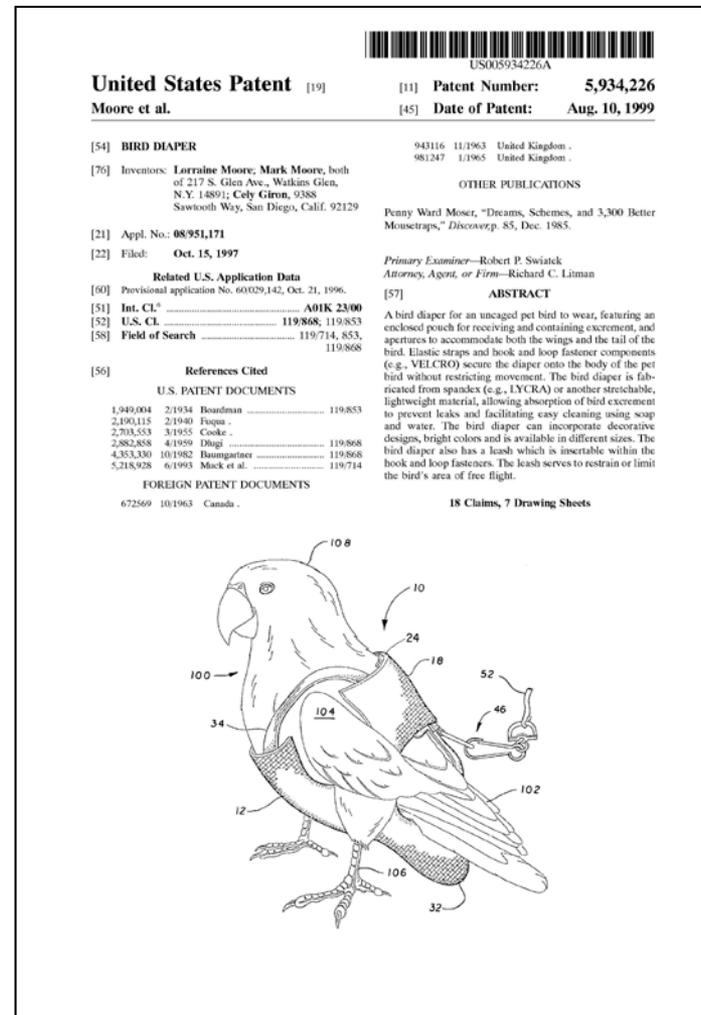
- PubWEST & PubEAST
  - Super-powerful version of USPTO database
  - By appointment only
  - Difficulty Level: **Very High**
- Derwent Innovations Index
  - Better keyword searches
  - Easier to read titles
  - Better for exploration than for patentability
  - Access via Web of Science, from Purdue Libraries website
  - Difficulty Level: **Low**



# WHERE DO WE FIND PATENTS?

## LINKS

- USPTO.gov
  - [patft.uspto.gov](http://patft.uspto.gov) (patents)
  - [appft.uspto.gov](http://appft.uspto.gov) (applications)
- Espacenet
  - [worldwide.espacenet.com](http://worldwide.espacenet.com)
- Google Patents
  - [google.com/patents](http://google.com/patents)
- Lens
  - [lens.org](http://lens.org)
- PubWEST & PubEAST
  - Contact a librarian
- Derwent Innovations Index
  - [purl.lib.purdue.edu/db/diidw](http://purl.lib.purdue.edu/db/diidw)





# PATENT SEARCHING WHAT NEXT?

# WHO CAN HELP WITH PATENTS?

LIBRARIANS, BASICALLY

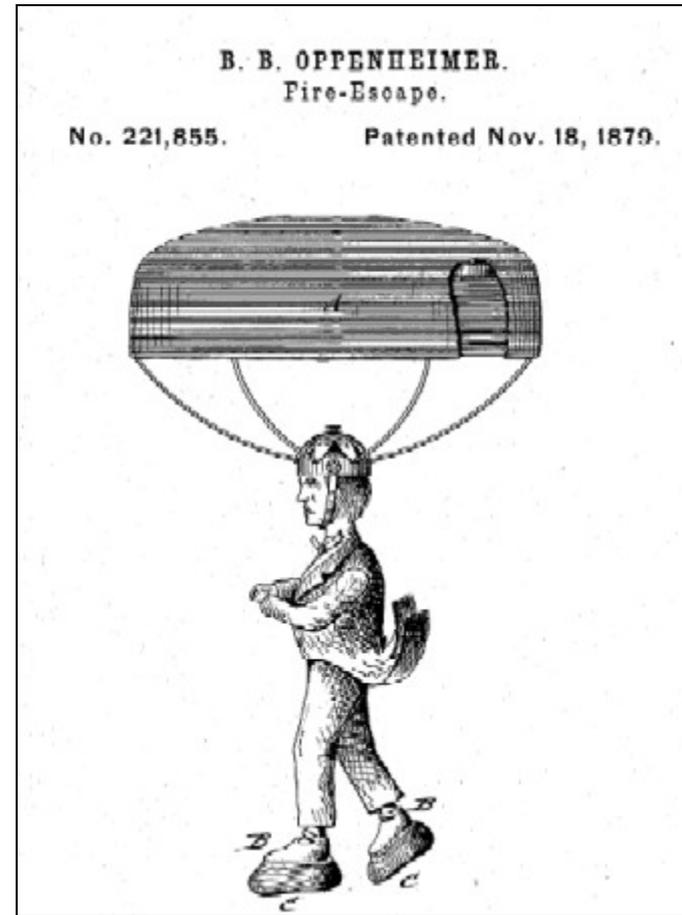
- Dave Zwicky
  - Chemical Information Specialist & Patent Specialist
  - Library of Engineering & Science (in WALC)
  - E-mail:
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  - Website:
    - <http://guides.lib.purdue.edu/patents>



# WHAT DO WE DO NEXT?

## HOW DO WE GET STARTED?

- Do some basic searching to get a feel for the patent resources and the type of information you can find
- Make an appointment with a librarian to refine and improve your search strategy
- Watch USPTO videos to see the “official” method for patentability searching



# WHERE CAN I LEARN MORE?

## LINKS

- Purdue Library Guide
  - [guides.lib.purdue.edu/patents](https://guides.lib.purdue.edu/patents)
- USPTO 7-Step Strategy
  - [uspto.gov/products/library/ptdl/services/step7.js](https://uspto.gov/products/library/ptdl/services/step7.js)  
[p](#)
  - The “official” strategy
- How to Conduct a Patent Search
  - [uspto.gov/video/cbt/ptrcsearching/](https://uspto.gov/video/cbt/ptrcsearching/)
  - Video presentation, approx. 30 minutes