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FDLC Meeting and Conference
October 17th, 2012

Dave Morrison
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What is a patent?

A Patent is a property right granted by the United States to the original inventor(s) for a limited time in exchange for public disclosure of the invention.

The Patent gives the inventor the [negative] right "to exclude others from making, using, offering for sale, or selling" the invention in the United States, or importing the invention into the United States.

Three types of patents

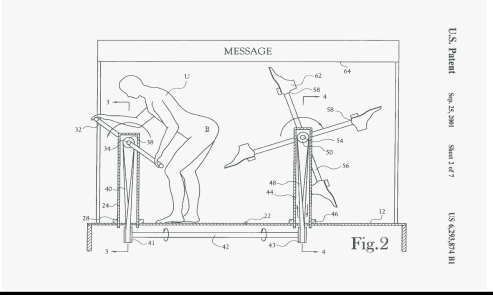
- Utility Patents – Granted for a process; machine or manufacture; composition of matter; or an improvement thereof. Utility patents have sequential numbers.
- Design Patents – Protects the new, ornamental design (i.e. "outward appearance") for an article of manufacture. Design patent numbers are preceded by the letter "D."
- Plant Patents – granted on any distinct and new variety of an asexually reproduced plant. Plant patent numbers are preceded by "PP."

Patent Protection Terms

- Utility patent – twenty years from non-provisional patent filing date
- Design patent – fourteen years from the issue date
- Plant patent – twenty years from filing date

Once these terms expire, the invention is now 'public domain' *and anyone may now use it without licensing!*

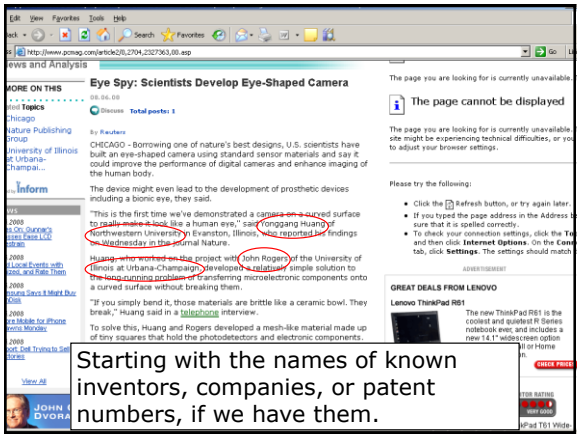
Please Note! – Obtaining a patent does not guarantee commercial success!



How do we start?

From the most specific to the more general:

- Start your search from a known piece of information – a patent number, inventor name, company or university. Look at inventions that are similar to yours, and look at their classifications for similar inventions.
- Search the patent databases using likely keywords or combinations, and examine the resulting 'hits' for similarity; then look at the classifications on the most similar patents.
- Use the Patent Classification tools – http://www.uspto.gov/patents/resources/classification/index.jsp


Eye Spy: Scientists Develop Eye-Shaped Camera
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Starting with the names of known inventors, companies, or patent numbers, if we have them.


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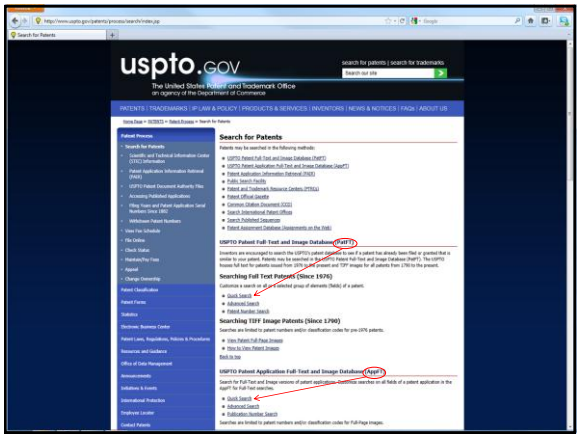
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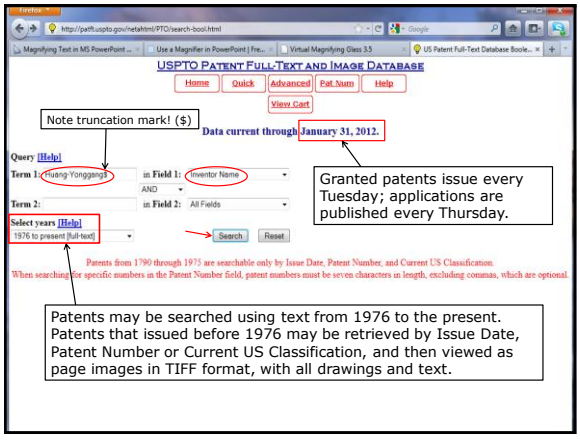
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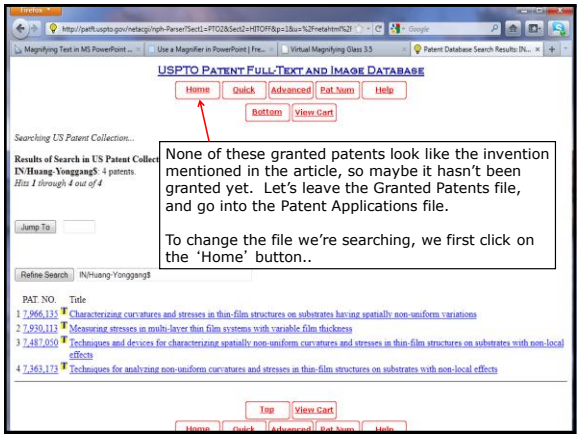
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IN/Huang-Yonggang$: 4 patents.
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PAT. NO. Title
1 7,966,135 Characterizing curvatures and stresses in thin-film structures on substrates having spatially non-uniform variations
2 7,930,113 Measuring stresses in multi-layer thin film systems with variable film thickness
3 7,487,050 Techniques and devices for characterizing spatially non-uniform curvatures and stresses in thin-film structures on substrates with non-local effects
4 7,363,173 Techniques for analyzing non-uniform curvatures and stresses in thin-film structures on substrates with non-local effects
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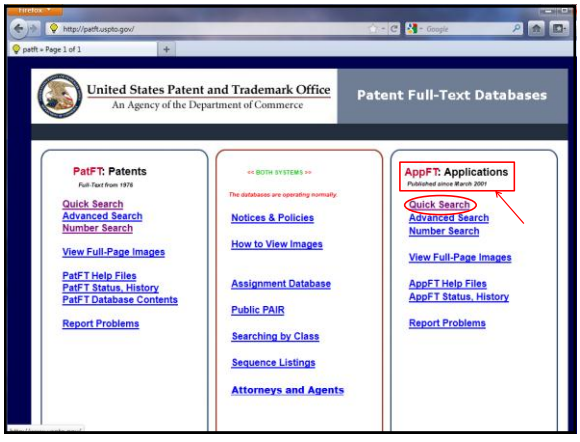
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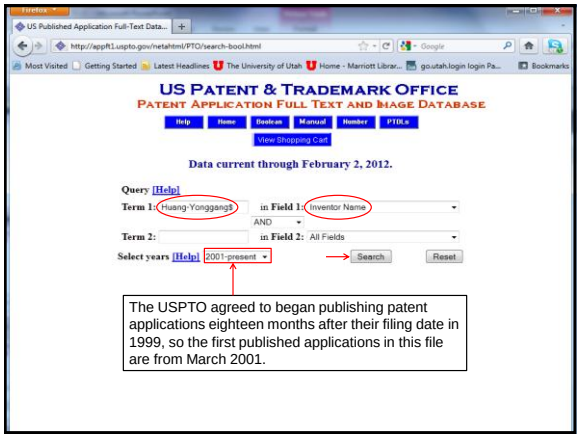
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The USPTO agreed to began publishing patent applications eighteen months after their filing date in 1999, so the first published applications in this file are from March 2001.


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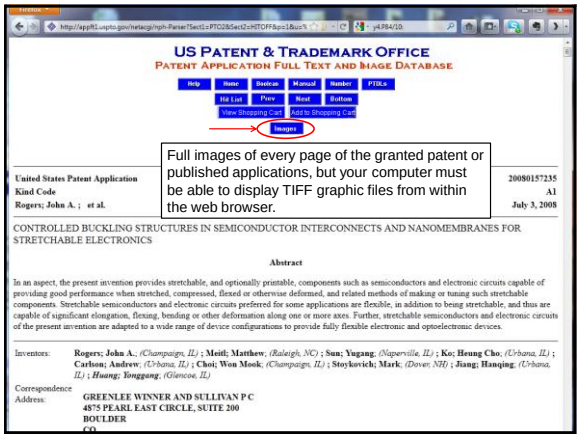
PUB. APP. NO. Title
1 20110230747 IMPLANTABLE BIOMEDICAL DEVICES ON BIORESORBABLE SUBSTRATES
2 20100002402 Stretchable and Foldable Electronic Devices
3 20080157235 CONTROLLED BUCKLING STRUCTURES IN SEMICONDUCTOR INTERCONNECTS AND NANOMEMBRANES FOR STRETCHABLE ELECTRONICS
4 20070180919 Characterizing Curvatures and Stresses in Thin-Film Structures on Substrates having Spatially Non-Uniform Variations
5 20060276977 Techniques and devices for characterizing spatially non-uniform curvatures and stresses in thin-film structures on substrates with non-local effects
6 20050278126 Techniques for analyzing non-uniform curvatures and stresses in thin-film structures on substrates with non-local effects
The first three applications had not been granted patents by January 2012, when I captured this screen.
No. 3 is the patent from the original news article, and no. 2 might be a more recent (2010) technical advancement by the same inventor!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United States Patent Application
Kind Code
Rogers; John A. ; et al.
20080157235
A1
July 3, 2008
CONTROLLED BUCKLING STRUCTURES IN SEMICONDUCTOR INTERCONNECTS AND NANOMEMBRANES FOR STRETCHABLE ELECTRONICS
Abstract
In an aspect, the present invention provides stretchable, and optionally printable, components such as semiconductors and electronic circuits capable of providing good performance when stretched, compressed, flexed or otherwise deformed, and related methods of making or tuning such stretchable components. Stretchable semiconductors and electronic circuits preferred for some applications are flexible, in addition to being stretchable, and thus are capable of significant elongation, flexing, bending or other deformation along one or more axes. Further, stretchable semiconductors and electronic circuits of the present invention are adapted to a wide range of device configurations to provide fully flexible electronic and optoelectronic devices.
Inventors:
Rogers; John A.; (Champaign, IL) ; Meitl; Matthew; (Raleigh, NC) ; Sun; Yugang; (Naperville, IL) ; Ko; Heung Cho; (Urbana, IL) ; Carlson; Andrew; (Urbana, IL) ; Choi; Won Mook; (Champaign, IL) ; Stoykovich; Mark; (Dover, NH) ; Jiang; Hanqing; (Urbana, IL) ; Huang; Yonggang; (Glencoe, IL)
Correspondence Address:
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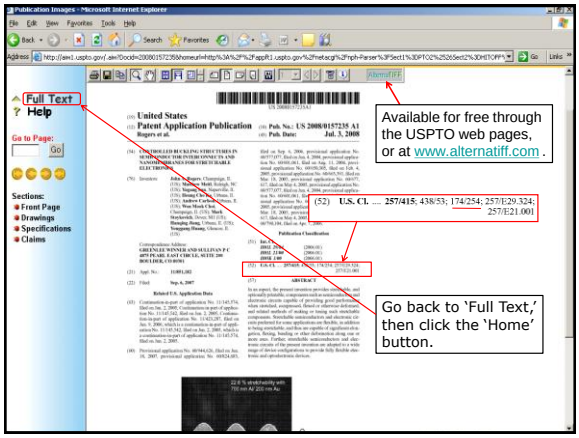
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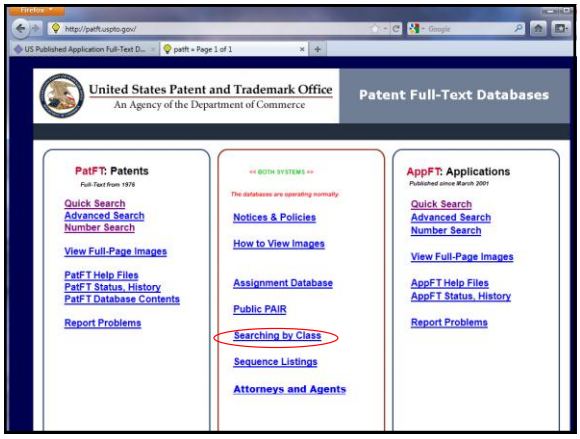
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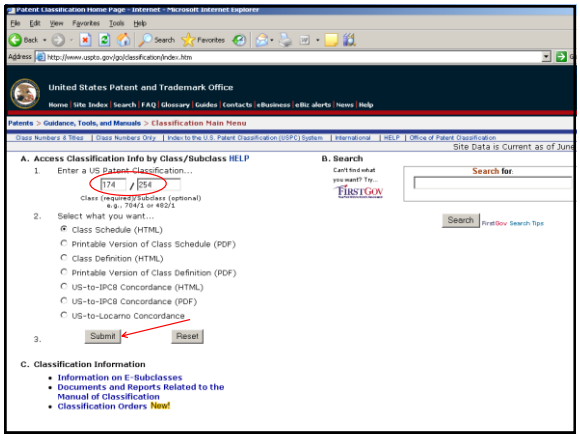
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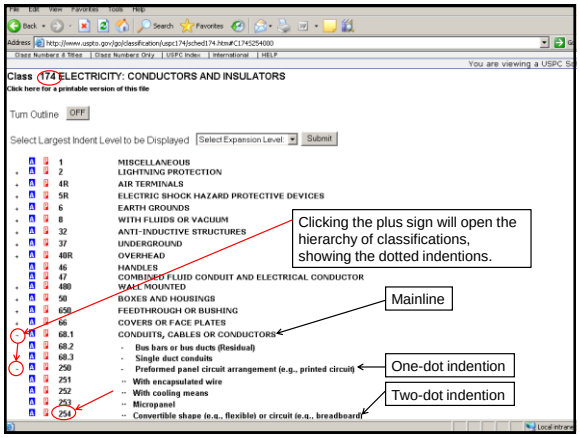
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5R ELECTRIC SHOCK HAZARD PROTECTIVE DEVICES
6 EARTH GROUNDS
8 WITH FLUIDS OR VACUUM
32 ANTI-INDUCTIVE STRUCTURES
37 UNDERGROUND
48R OVERHEAD
46 HANDLES
47 COMBINED FLUID CONDUIT AND ELECTRICAL CONDUCTOR
480 WALL MOUNTED
50 BOXES AND HOUSINGS
650 FEEDTHROUGH OR BUSHING
66 COVERS OR FACE PLATES
68.1 CONDUITS, CABLES OR CONDUCTORS
68.2 - Bus bars or bus ducts (Residual)
68.3 - Single duct conduits
250 - Preformed panel circuit arrangement (e.g., printed circuit)
251 -- With encapsulated wire
252 -- With cooling means
253 -- Micropanel
254 -- Convertible shape (e.g., flexible) or circuit (e.g., breadboard)
Clicking the plus sign will open the hierarchy of classifications, showing the dotted indentions.
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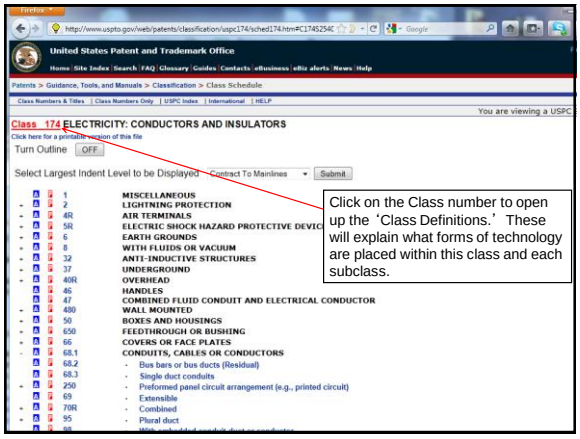
One-dot indention
Two-dot indention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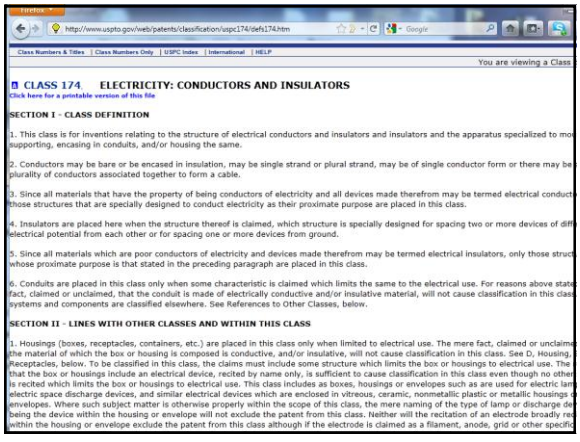
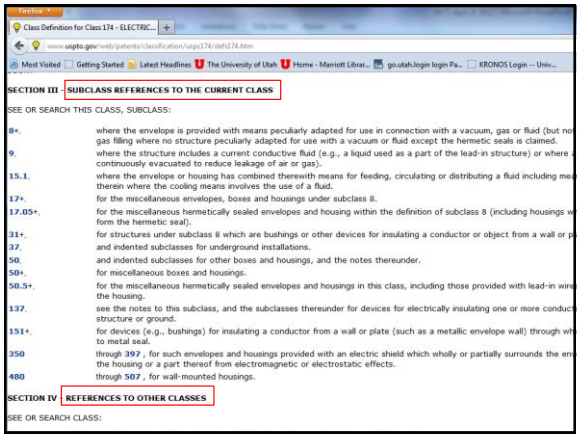
50 BOXES AND HOUSINGS
650 FEEDTHROUGH OR BUSHING
66 COVERS OR FACE PLATES
68.1 CONDUITS, CABLES OR CONDUCTORS
68.2 - Bus bars or bus ducts (Residual)
68.3 - Single duct conduits
250 - Preformed panel circuit arrangement (e.g., printed circuit)
69 - Extensible
70R - Combined
95 - Plural duct
Click on the Class number to open up the 'Class Definitions.' These will explain what forms of technology are placed within this class and each subclass.


CLASS 174 ELECTRICITY: CONDUCTORS AND INSULATORS
SECTION I - CLASS DEFINITION
1. This class is for inventions relating to the structure of electrical conductors and insulators and insulators and the apparatus specialized to mo supporting, encasing in conduits, and/or housing the same.
2. Conductors may be bare or be encased in insulation, may be single strand or plural strand, may be of single conductor form or there may be plurality of conductors associated together to form a cable.
3. Since all materials that have the property of being conductors of electricity and all devices made therefrom may be termed electrical conduct those structures that are specially designed to conduct electricity as their proximate purpose are placed in this class.
4. Insulators are placed here when the structure thereof is claimed, which structure is specially designed for spacing two or more devices of diff electrical potential from each other or for spacing one or more devices from ground.
5. Since all materials which are poor conductors of electricity and devices made therefrom may be termed electrical insulators, only those struct whose proximate purpose is that stated in the preceding paragraph are placed in this class.
6. Conduits are placed in this class only when some characteristic is claimed which limits the same to the electrical use. For reasons above state fact, claimed or unclaimed, that the conduit is made of electrically conductive and/or insulative material, will not cause classification in this class systems and components are classified elsewhere. See References to Other Classes, below.
SECTION II - LINES WITH OTHER CLASSES AND WITHIN THIS CLASS
1. Housings (boxes, receptacles, containers, etc.) are placed in this class only when limited to electrical use. The mere fact, claimed or unclaime the material of which the box or housing is composed is conductive, and/or insulative, will not cause classification in this class. See D, Housing, Receptacles, below. To be classified in this class, the claims must include some structure which limits the box or housings to electrical use. The that the box or housings include an electrical device, recited by name only, is sufficient to cause classification in this class even though no other is recited which limits the box or housings to electrical use. This class includes as boxes, housings or envelopes such as are used for electric lamp electric space discharge devices, and similar electrical devices which are enclosed in vitreous, ceramic, nonmetallic plastic or metallic housings envelopes. Where such subject matter is otherwise properly within the scope of this class, the mere naming of the type of lamp or discharge de being the device within the housing or envelope will not exclude the patent from this class. Neither will the recitation of an electrode broadly re within the housing or envelope exclude the patent from this class although if the electrode is claimed as a filament, anode, grid or other specific



SECTION III - SUBCLASS REFERENCES TO THE CURRENT CLASS

SEE OR SEARCH THIS CLASS, SUBCLASS:

8+,	where the envelope is provided with means peculiarly adapted for use in connection with a vacuum, gas or fluid (but not gas filling where no structure peculiarly adapted for use with a vacuum or fluid except the hermetic seals is claimed.
9,	where the structure includes a current conductive fluid (e.g., a liquid used as a part of the lead-in structure) or where continuously evacuated to reduce leakage of air or gas).
15.1,	where the envelope or housing has combined therewith means for feeding, circulating or distributing a fluid including me therein where the cooling means involves the use of a fluid.
17+,	for the miscellaneous envelopes, boxes and housings under subclass 8.
17.05+,	for the miscellaneous hermetically sealed envelopes and housing within the definition of subclass 8 (including housings w form the hermetic seal).
31+,	for structures under subclass 8 which are bushings or other devices for insulating a conductor or object from a wall or p
37,	and indented subclasses for underground installations.
50,	and indented subclasses for other boxes and housings, and the notes thereunder.
50+,	for miscellaneous boxes and housings.
50.5+,	for the miscellaneous hermetically sealed envelopes and housings in this class, including those provided with lead-in wire the housing.
137,	see the notes to this subclass, and the subclasses thereunder for devices for electrically insulating one or more conduct structure or ground.
151+,	for devices (e.g., bushings) for insulating a conductor from a wall or plate (such as a metallic envelope wall) through wh to metal seal.
350	through 397 , for such envelopes and housings provided with an electric shield which wholly or partially surrounds the en the housing or a part thereof from electromagnetic or electrostatic effects.
480	through 507 , for wall-mounted housings.

SECTION IV - REFERENCES TO OTHER CLASSES

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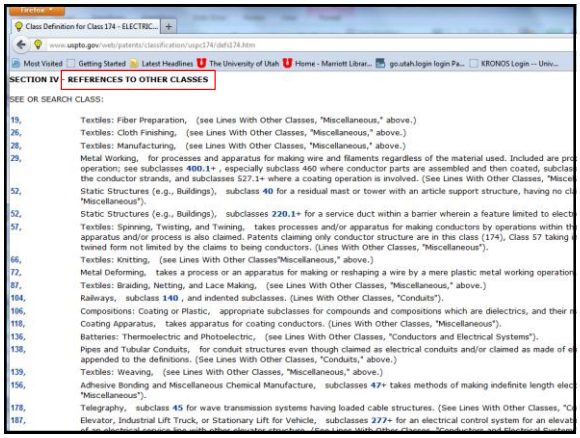
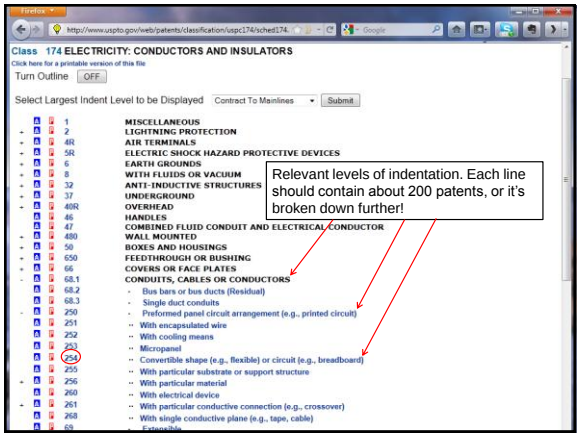


SECTION IV - REFERENCES TO OTHER CLASSES

SEE OR SEARCH CLASS:

19,	Textiles: Fiber Preparation, (see Lines With Other Classes, "Miscellaneous," above.)
26,	Textiles: Cloth Finishing, (see Lines With Other Classes, "Miscellaneous," above.)
28,	Textiles: Manufacturing, (see Lines With Other Classes, "Miscellaneous," above.)
29,	Metal Working, for processes and apparatus for making wire and filaments regardless of the material used. Included are pro operation; see subclasses 400.1+ , especially subclass 460 where conductor parts are assembled and then coated, subclas the conductor strands, and subclasses 527.1+ where a coating operation is involved. (See Lines With Other Classes, "Misce
52,	Static Structures (e.g., Buildings), subclass 40 for a residual mast or tower with an article support structure, having no cl "Miscellaneous").
52,	Static Structures (e.g., Buildings), subclasses 220.1+ for a service duct within a barrier wherein a feature limited to electr
57,	Textiles: Spinning, Twisting, and Twining, takes processes and/or apparatus for making conductors by operations within th apparatus and/or process is also claimed. Patents claiming only conductor structure are in this class (174), Class 57 taking twined form not limited by the claims to being conductors. (Lines With Other Classes, "Miscellaneous").
66,	Textiles: Knitting, (see Lines With Other Classes"Miscellaneous," above.)
72,	Metal Deforming, takes a process or an apparatus for making or reshaping a wire by a mere plastic metal working operation
87,	Textiles: Braiding, Netting, and Lace Making, (see Lines With Other Classes, "Miscellaneous," above.)
104,	Railways, subclass 140 , and indented subclasses. (Lines With Other Classes, "Conduits").
106,	Compositions: Coating or Plastic, appropriate subclasses for compounds and compositions which are dielectrics, and their r
118,	Coating Apparatus, takes apparatus for coating conductors. (Lines With Other Classes, "Miscellaneous").
136,	Batteries: Thermoelectric and Photoelectric, (see Lines With Other Classes, "Conductors and Electrical Systems").
138,	Pipes and Tubular Conduits, for conduit structures even though claimed as electrical conduits and/or claimed as made of e appended to the definitions. (See Lines With Other Classes, "Conduits," above.)
139,	Textiles: Weaving, (see Lines With Other Classes, "Miscellaneous," above.)
156,	Adhesive Bonding and Miscellaneous Chemical Manufacture, subclasses 47+ takes methods of making indefinite length elec "Miscellaneous").
178,	Telegraphy, subclass 45 for wave transmission systems having loaded cable structures. (See Lines With Other Classes, "C
187,	Elevator, Industrial Lift Truck, or Stationary Lift for Vehicle, subclasses 272+ for an electrical control system for an elevat



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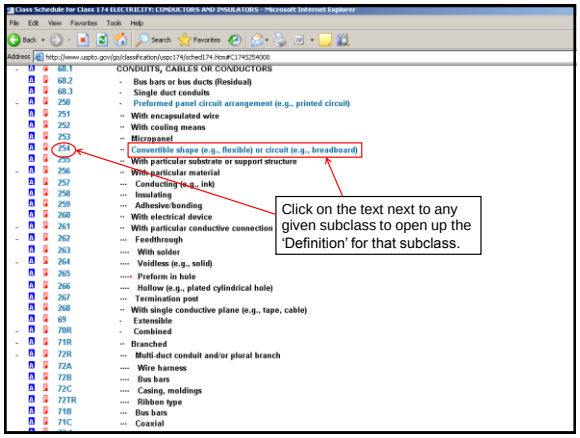
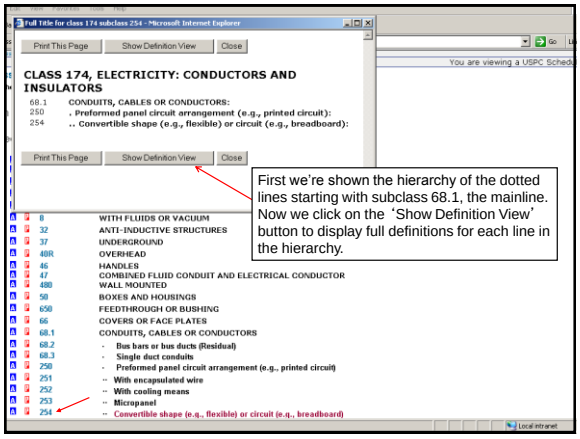
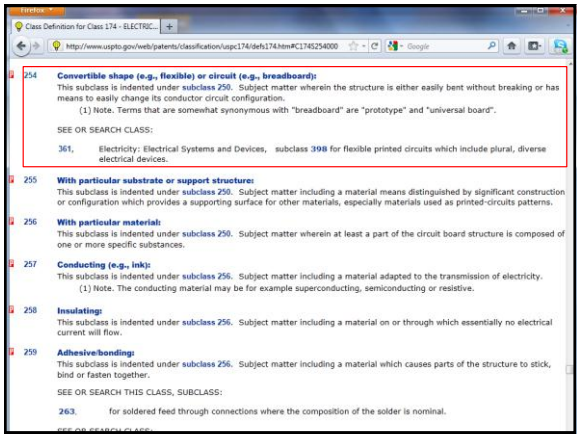
+	5R	ELECTRIC SHOCK HAZARD PROTECTIVE DEVICES
+	6	EARTH GROUNDS
+	8	WITH FLUIDS OR VACUUM
+	32	ANTI-INDUCTIVE STRUCTURES
+	37	UNDERGROUND
+	40R	OVERHEAD
	46	HANDLES
	47	COMBINED FLUID CONDUIT AND ELECTRICAL CONDUCTOR
+	480	WALL MOUNTED
+	50	BOXES AND HOUSINGS
+	650	FEEDTHROUGH OR BUSHING
+	66	COVERS OR FACE PLATES
-	68.1	CONDUITS, CABLES OR CONDUCTORS
	68.2	· Bus bars or bus ducts (Residual)
	68.3	· Single duct conduits
-	250	· Preformed panel circuit arrangement (e.g., printed circuit)
	251	·· With encapsulated wire
	252	·· With cooling means
	253	·· Micropanel
	254	·· Convertible shape (e.g., flexible) or circuit (e.g., breadboard)
	255	·· With particular substrate or support structure
+	256	·· With particular material
	260	·· With electrical device
+	261	·· With particular conductive connection (e.g., crossover)
	268	·· With single conductive plane (e.g., tape, cable)
	69	· Extensible

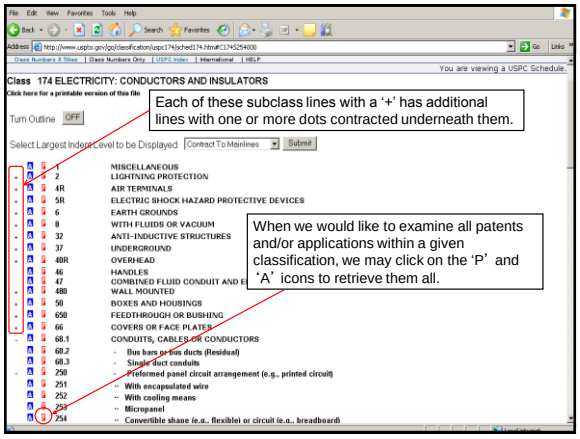
Relevant levels of indentation. Each line should contain about 200 patents, or it's broken down further!

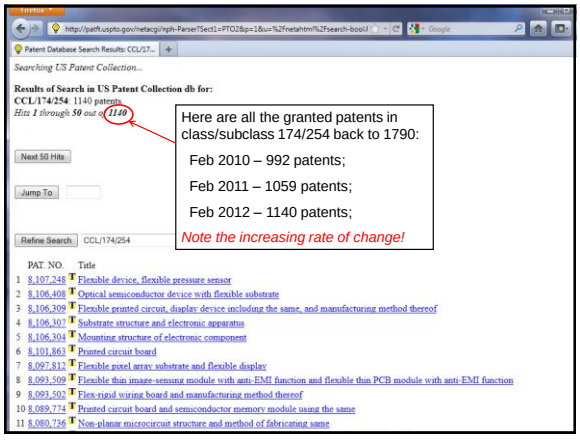


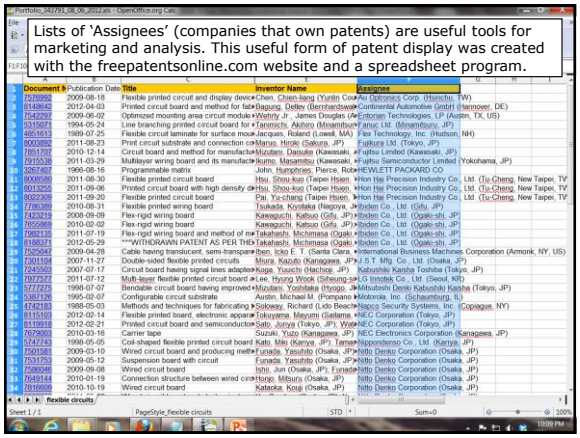


http://www.uspto.gov/web/patents/classification/shadowFiles/defs174sf.htm?174_254&S&78&7B&7F#7F

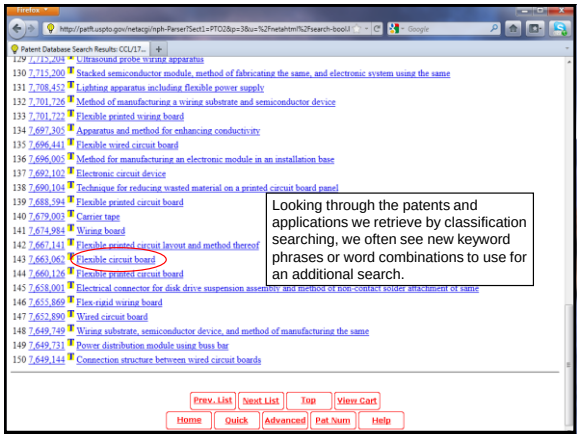

Class Definition for Class 174 - ELECTRIC...
http://www.uspto.gov/web/patents/classification/uspc174/defs174.htm#C174S254000
254 Convertible shape (e.g., flexible) or circuit (e.g., breadboard):
This subclass is indented under subclass 250. Subject matter wherein the structure is either easily bent without breaking or has means to easily change its conductor circuit configuration.
(1) Note. Terms that are somewhat synonymous with "breadboard" are "prototype" and "universal board".
SEE OR SEARCH CLASS:
361, Electricity: Electrical Systems and Devices, subclass 398 for flexible printed circuits which include plural, diverse electrical devices.
255 With particular substrate or support structure:
This subclass is indented under subclass 250. Subject matter including a material means distinguished by significant construction or configuration which provides a supporting surface for other materials, especially materials used as printed-circuits patterns.
256 With particular material:
This subclass is indented under subclass 250. Subject matter wherein at least a part of the circuit board structure is composed of one or more specific substances.
257 Conducting (e.g., ink):
This subclass is indented under subclass 256. Subject matter including a material adapted to the transmission of electricity.
(1) Note. The conducting material may be for example superconducting, semiconducting or resistive.
258 Insulating:
This subclass is indented under subclass 256. Subject matter including a material on or through which essentially no electrical current will flow.
259 Adhesive/bonding:
This subclass is indented under subclass 256. Subject matter including a material which causes parts of the structure to stick, bind or fasten together.
SEE OR SEARCH THIS CLASS, SUBCLASS:
263. for soldered feed through connections where the composition of the solder is nominal.


Class 174 ELECTRICITY: CONDUCTORS AND INSULATORS
Click here for a printable version of this file
Turn Outline OFF
Select Largest Indent Level to be Displayed Contract To Mainlines Submit
You are viewing a USPC Schedule.
Each of these subclass lines with a '+' has additional lines with one or more dots contracted underneath them.
When we would like to examine all patents and/or applications within a given classification, we may click on the 'P' and 'A' icons to retrieve them all.
1 MISCELLANEOUS
2 LIGHTNING PROTECTION
4R AIR TERMINALS
5R ELECTRIC SHOCK HAZARD PROTECTIVE DEVICES
6 EARTH GROUNDS
8 WITH FLUIDS OR VACUUM
32 ANTI-INDUCTIVE STRUCTURES
37 UNDERGROUND
40R OVERHEAD
46 HANDLES
47 COMBINED FLUID CONDUIT AND E
48D WALL MOUNTED
50 BOXES AND HOUSINGS
65D FEEDTHROUGH OR BUSHING
66 COVERS OR FACE PLATES
68.1 CONDUITS, CABLES OR CONDUCTORS
68.2 Bus bars or bus ducts (Residual)
68.3 Single duct conduits
250 Preformed panel circuit arrangement (e.g., printed circuit)
251 With encapsulated wire
252 With cooling means
253 Micropanel
254 Convertible shape (e.g., flexible) or circuit (e.g., breadboard)

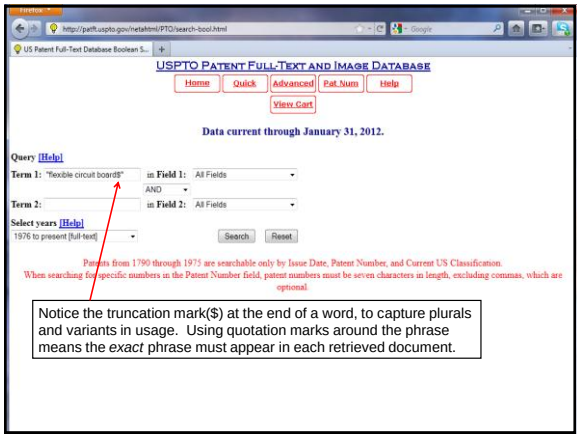

Searching US Patent Collection...
Results of Search in US Patent Collection db for:
CCL/174/254: 1140 patents.
Hits 1 through 50 out of 1140
Here are all the granted patents in class/subclass 174/254 back to 1790:
Feb 2010 – 992 patents;
Feb 2011 – 1059 patents;
Feb 2012 – 1140 patents;
Note the increasing rate of change!
Next 50 Hits
Jump To
Refine Search CCL/174/254
PAT. NO. Title
1 8,107,248 Flexible device, flexible pressure sensor
2 8,106,408 Optical semiconductor device with flexible substrate
3 8,106,309 Flexible printed circuit, display device including the same, and manufacturing method thereof
4 8,106,307 Substrate structure and electronic apparatus
5 8,106,304 Mounting structure of electronic component
6 8,101,863 Printed circuit board
7 8,097,812 Flexible pixel array substrate and flexible display
8 8,093,509 Flexible thin image-sensing module with anti-EMI function and flexible thin PCB module with anti-EMI function
9 8,093,502 Flex-rigid wiring board and manufacturing method thereof
10 8,089,774 Printed circuit board and semiconductor memory module using the same
11 8,080,736 Non-planar microcircuit structure and method of fabricating same



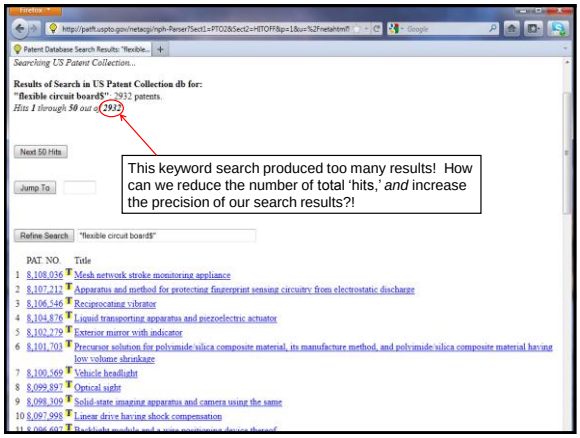
Lists of 'Assignees' (companies that own patents) are useful tools for marketing and analysis. This useful form of patent display was created with the freepatentsonline.com website and a spreadsheet program.

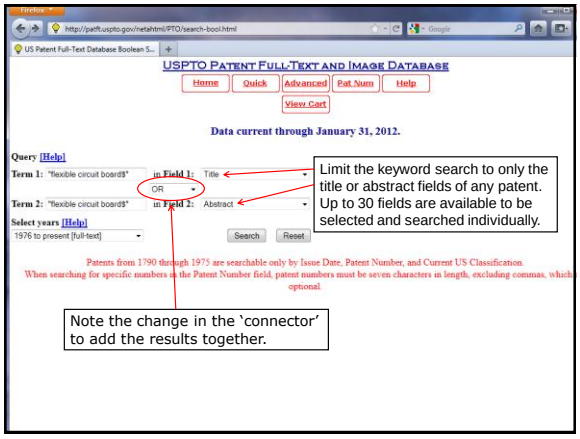


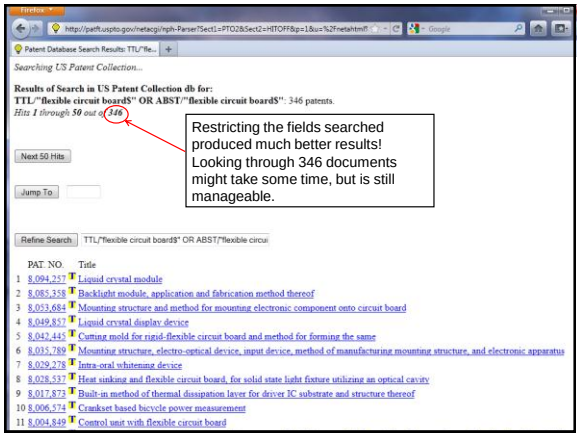
Looking through the patents and applications we retrieve by classification searching, we often see new keyword phrases or word combinations to use for an additional search.



Notice the truncation mark($) at the end of a word, to capture plurals and variants in usage. Using quotation marks around the phrase means the *exact* phrase must appear in each retrieved document.

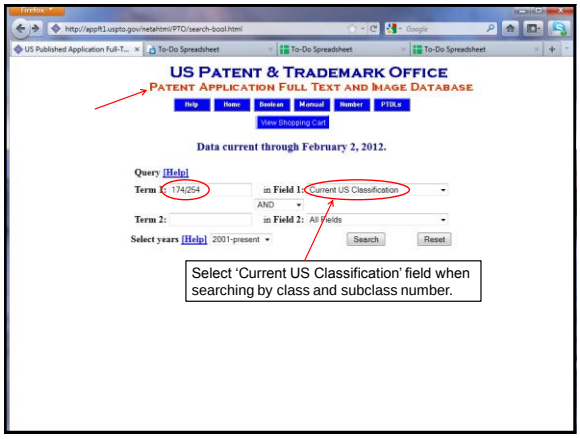

Searching US Patent Collection...
Results of Search in US Patent Collection db for:
"flexible circuit board$": 2932 patents.
Hits 1 through 50 out of 2932
Next 50 Hits
Jump To
Refine Search "flexible circuit board$"
PAT. NO. Title
1 8,108,036 Mesh network stroke monitoring appliance
2 8,107,212 Apparatus and method for protecting fingerprint sensing circuitry from electrostatic discharge
3 8,106,546 Reciprocating vibrator
4 8,104,876 Liquid transporting apparatus and piezoelectric actuator
5 8,102,279 Exterior mirror with indicator
6 8,101,703 Precursor solution for polyimide/silica composite material, its manufacture method, and polyimide/silica composite material having low volume shrinkage
7 8,100,569 Vehicle headlight
8 8,099,897 Optical sight
9 8,098,309 Solid-state imaging apparatus and camera using the same
10 8,097,998 Linear drive having shock compensation
This keyword search produced too many results! How can we reduce the number of total 'hits,' and increase the precision of our search results?!

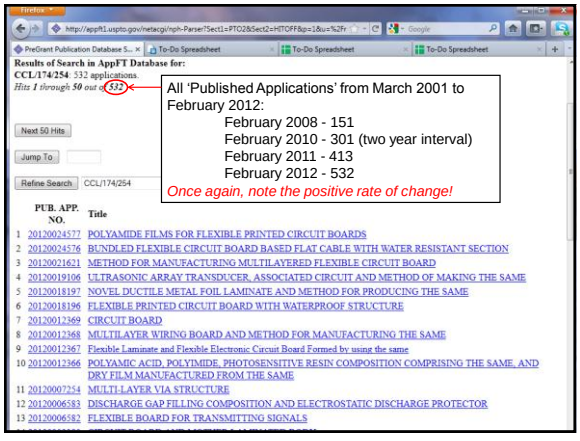

USPTO Patent Full-Text and Image Database
Home Quick Advanced Pat Num Help
View Cart
Data current through January 31, 2012.
Query [Help]
Term 1: "flexible circuit board$" in Field 1: Title
OR
Term 2: "flexible circuit board$" in Field 2: Abstract
Select years [Help]
1976 to present [full-text]
Search Reset
Patents from 1790 through 1975 are searchable only by Issue Date, Patent Number, and Current US Classification.
When searching for specific numbers in the Patent Number field, patent numbers must be seven characters in length, excluding commas, which are optional.
Limit the keyword search to only the title or abstract fields of any patent. Up to 30 fields are available to be selected and searched individually.
Note the change in the 'connector' to add the results together.

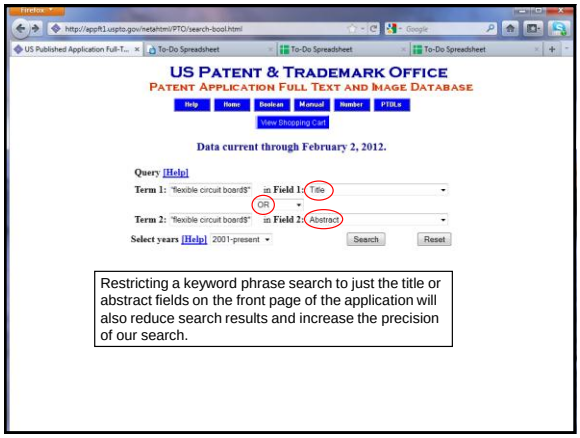

Searching US Patent Collection...
Results of Search in US Patent Collection db for:
TTL/"flexible circuit board$" OR ABST/"flexible circuit board$": 346 patents.
Hits 1 through 50 out of 346
Next 50 Hits
Jump To
Refine Search TTL/"flexible circuit board$" OR ABST/"flexible circui
PAT. NO. Title
1 8,094,257 Liquid crystal module
2 8,085,358 Backlight module, application and fabrication method thereof
3 8,053,684 Mounting structure and method for mounting electronic component onto circuit board
4 8,049,857 Liquid crystal display device
5 8,042,445 Cutting mold for rigid-flexible circuit board and method for forming the same
6 8,035,789 Mounting structure, electro-optical device, input device, method of manufacturing mounting structure, and electronic apparatus
7 8,029,278 Intra-oral whitening device
8 8,028,537 Heat sinking and flexible circuit board, for solid state light fixture utilizing an optical cavity
9 8,017,873 Built-in method of thermal dissipation layer for driver IC substrate and structure thereof
10 8,006,574 Crankset based bicycle power measurement
11 8,004,849 Control unit with flexible circuit board
Restricting the fields searched produced much better results! Looking through 346 documents might take some time, but is still manageable.

Make Sure to Search in Both the Granted Patents (PatFT) and Published Applications (AppFT) Databases!

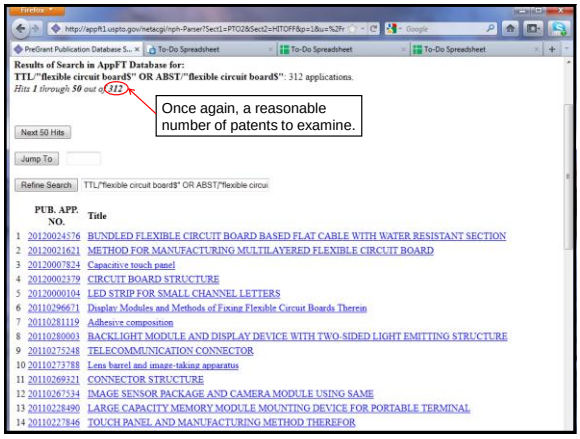
- Applications that have been published often have different claims from the patents that are eventually granted
- There are published applications that were never granted, but are now *prior art* and may not be granted to another inventor



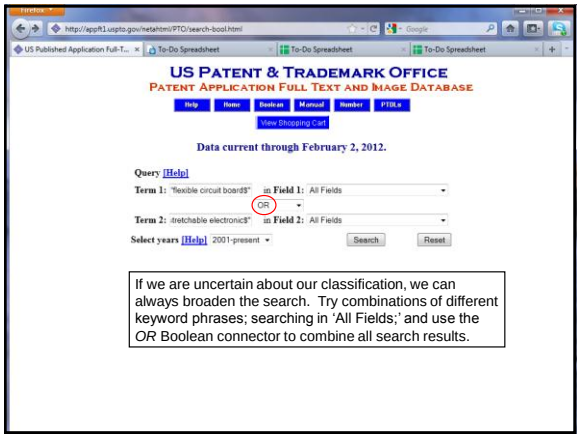




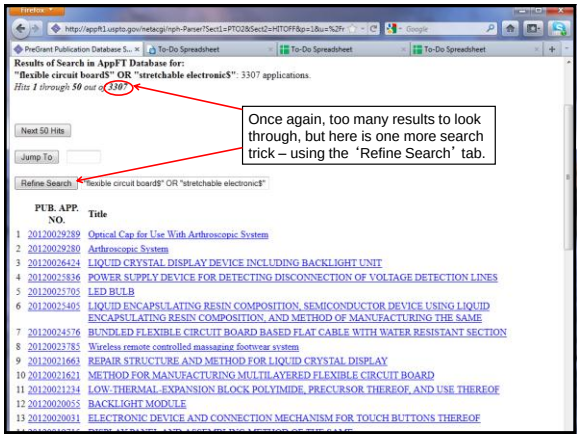
Restricting a keyword phrase search to just the title or abstract fields on the front page of the application will also reduce search results and increase the precision of our search.

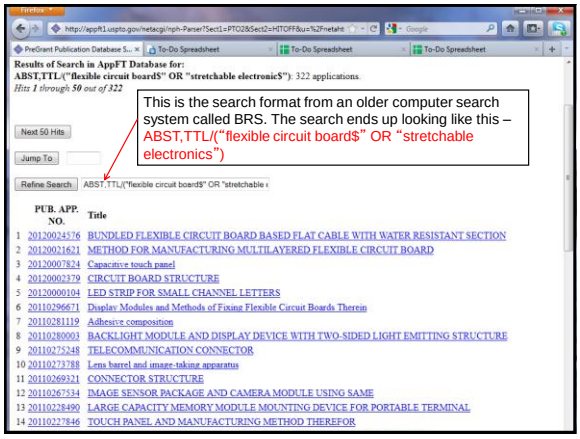


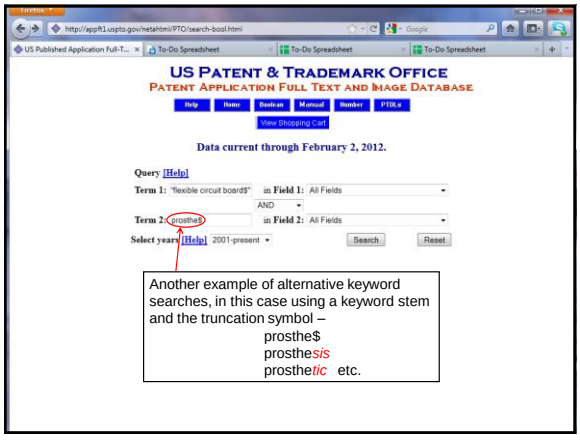
Once again, a reasonable number of patents to examine.



If we are uncertain about our classification, we can always broaden the search. Try combinations of different keyword phrases; searching in 'All Fields;' and use the *OR* Boolean connector to combine all search results.


Results of Search in AppFT Database for:
"flexible circuit board$" OR "stretchable electronic$": 3307 applications.
Hits 1 through 50 out of 3307
Next 50 Hits
Jump To
Refine Search "flexible circuit board$" OR "stretchable electronic$"
PUB. APP. NO.
Title
1 20120029289 Optical Cap for Use With Arthroscopic System
2 20120029280 Arthroscopic System
3 20120026424 LIQUID CRYSTAL DISPLAY DEVICE INCLUDING BACKLIGHT UNIT
4 20120025836 POWER SUPPLY DEVICE FOR DETECTING DISCONNECTION OF VOLTAGE DETECTION LINES
5 20120025705 LED BULB
6 20120025405 LIQUID ENCAPSULATING RESIN COMPOSITION, SEMICONDUCTOR DEVICE USING LIQUID ENCAPSULATING RESIN COMPOSITION, AND METHOD OF MANUFACTURING THE SAME
7 20120024576 BUNDLED FLEXIBLE CIRCUIT BOARD BASED FLAT CABLE WITH WATER RESISTANT SECTION
8 20120023785 Wireless remote controlled massaging footwear system
9 20120021663 REPAIR STRUCTURE AND METHOD FOR LIQUID CRYSTAL DISPLAY
10 20120021621 METHOD FOR MANUFACTURING MULTILAYERED FLEXIBLE CIRCUIT BOARD
11 20120021234 LOW-THERMAL-EXPANSION BLOCK POLYIMIDE, PRECURSOR THEREOF, AND USE THEREOF
12 20120020055 BACKLIGHT MODULE
13 20120020031 ELECTRONIC DEVICE AND CONNECTION MECHANISM FOR TOUCH BUTTONS THEREOF
Once again, too many results to look through, but here is one more search trick – using the 'Refine Search' tab.


Results of Search in AppFT Database for:
ABST,TTL/("flexible circuit board$" OR "stretchable electronic$"): 322 applications.
Hits 1 through 50 out of 322
Next 50 Hits
Jump To
Refine Search ABST,TTL/("flexible circuit board$" OR "stretchable
PUB. APP. NO.
Title
1 20120024576 BUNDLED FLEXIBLE CIRCUIT BOARD BASED FLAT CABLE WITH WATER RESISTANT SECTION
2 20120021621 METHOD FOR MANUFACTURING MULTILAYERED FLEXIBLE CIRCUIT BOARD
3 20120007824 Capacitive touch panel
4 20120002379 CIRCUIT BOARD STRUCTURE
5 20120000104 LED STRIP FOR SMALL CHANNEL LETTERS
6 20110296671 Display Modules and Methods of Fixing Flexible Circuit Boards Therein
7 20110281119 Adhesive composition
8 20110280003 BACKLIGHT MODULE AND DISPLAY DEVICE WITH TWO-SIDED LIGHT EMITTING STRUCTURE
9 20110275248 TELECOMMUNICATION CONNECTOR
10 20110273788 Lens barrel and image-taking apparatus
11 20110269321 CONNECTOR STRUCTURE
12 20110267534 IMAGE SENSOR PACKAGE AND CAMERA MODULE USING SAME
13 20110228490 LARGE CAPACITY MEMORY MODULE MOUNTING DEVICE FOR PORTABLE TERMINAL
14 20110227846 TOUCH PANEL AND MANUFACTURING METHOD THEREFOR
This is the search format from an older computer search system called BRS. The search ends up looking like this – ABST,TTL/("flexible circuit board$" OR "stretchable electronics")


US PATENT & TRADEMARK OFFICE
PATENT APPLICATION FULL TEXT AND IMAGE DATABASE
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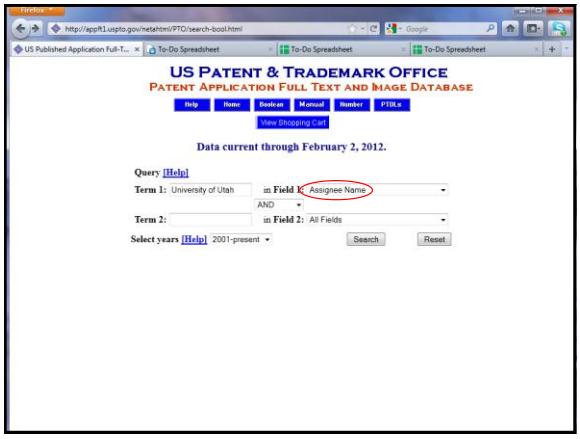
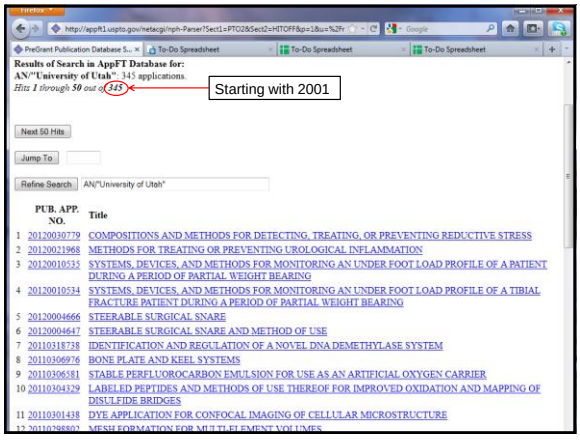
Manual
Number
PTDLs
View Shopping Cart
Data current through February 2, 2012.
Query [Help]
Term 1: "flexible circuit board$" in Field 1: All Fields
AND
Term 2: prosthe$ in Field 2: All Fields
Select years [Help] 2001-present
Search
Reset
Another example of alternative keyword searches, in this case using a keyword stem and the truncation symbol –
prosthe$
prosthesis
prosthetic etc.

Some Basic Competitive Intelligence

We may use the patent databases to identify some of the research interests, strengths and faculty of a particular institution or research facility.

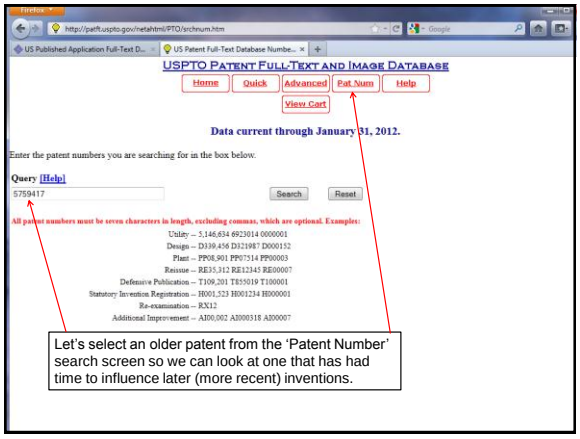
For example, let's look at published patent applications 'assigned to' (i.e., 'owned by') the University of Utah.

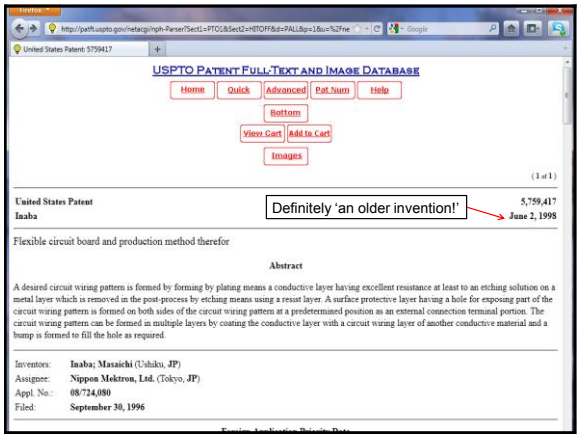


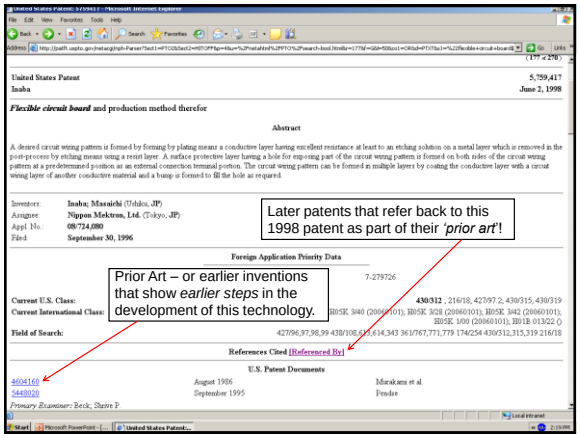


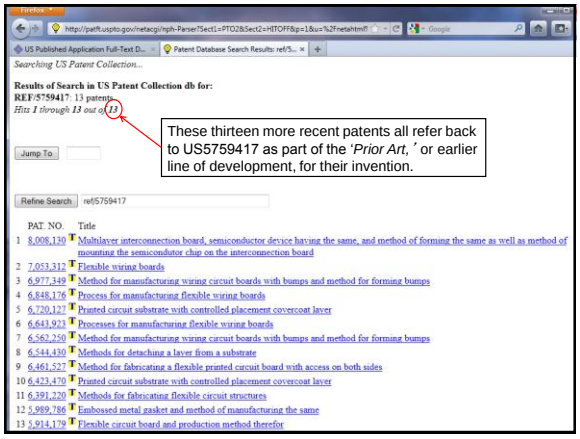
Changes in a given technology over time

Trace the development of a given technology over time by looking at the '*prior art*' and '*cited by*' links on the front page of U.S. patents.



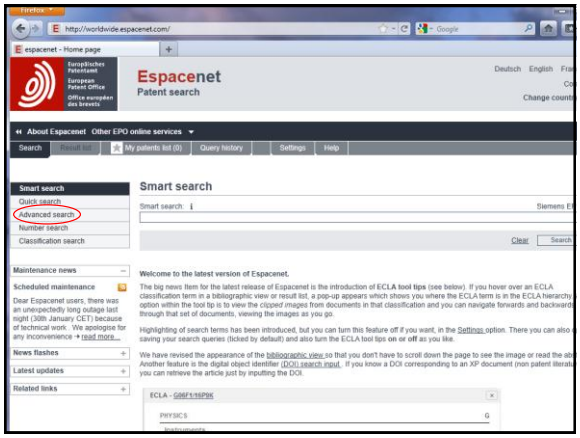


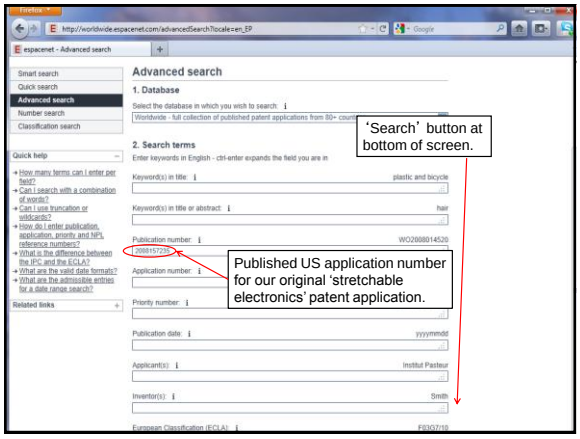


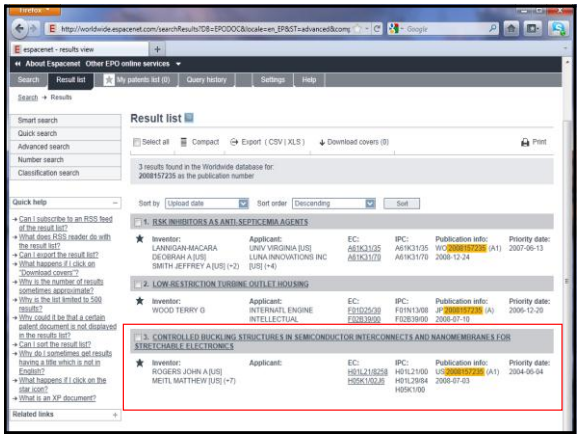


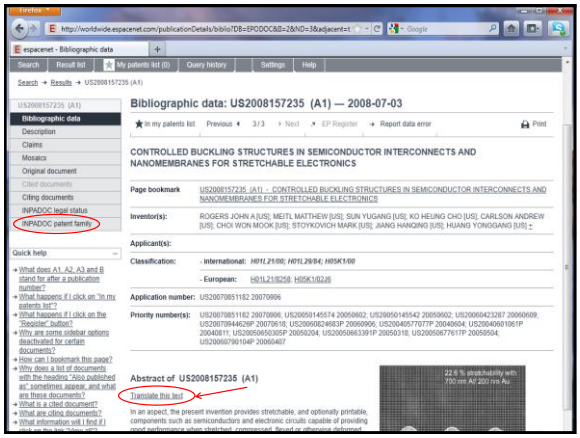
esp@cenet

- European Patent Office
  - http://worldwide.espacenet.com
- Coverage:
  - EPO and PCT published applications from the most recent 24 months.
  - In January 2012, *esp@cenet*® held data on 70 million patents from 90 countries. Most include an English-language abstract. Coverage from 1836 (US) forward (varies by country).
  - JPO published abstracts in English from October 1976 forward.
  - Updated weekly.


Espacenet
Patent search
Smart search
Quick search
Advanced search
Number search
Classification search


Advanced search
1. Database
2. Search terms
'Search' button at bottom of screen.
Published US application number for our original 'stretchable electronics' patent application.


Result list
3 results found in the Worldwide database for:
2008157235 as the publication number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Search
Result list
My patents list (0)
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Settings
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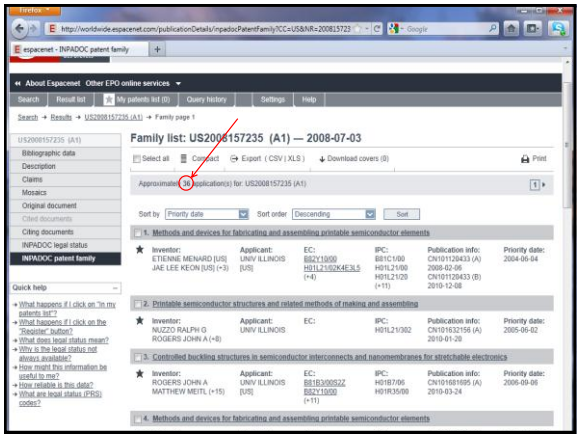
Search → Results → US2008157235 (A1)
US2008157235 (A1)
Bibliographic data
Description
Claims
Mosaics
Original document
Cited documents
Citing documents
INPADOC legal status
INPADOC patent family
Quick help
Bibliographic data: US2008157235 (A1) — 2008-07-03
CONTROLLED BUCKLING STRUCTURES IN SEMICONDUCTOR INTERCONNECTS AND NANOMEMBRANES FOR STRETCHABLE ELECTRONICS
Page bookmark
Inventor(s):
Applicant(s):
Classification:
- international: H01L21/00; H01L29/84; H05K1/00
- European:
Application number: US20070851182 20070906
Priority number(s):
Abstract of US2008157235 (A1)
Translate this text
22.6 % stretchability with 700 nm Ag/ 200 nm Au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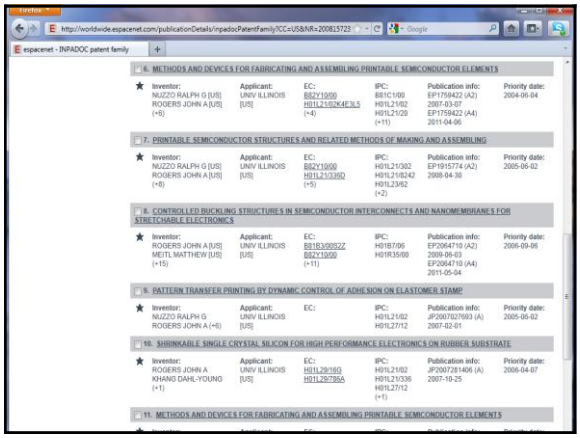
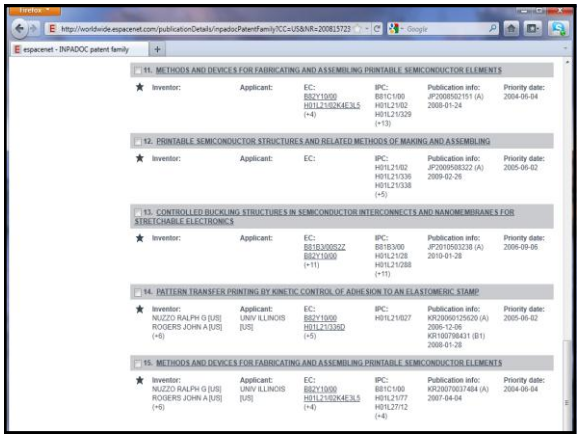
Search → Results → US2008157235 (A1) → Family page 1
US2008157235 (A1)
Bibliographic data
Description
Claims
Mosaics
Original document
Cited documents
Citing documents
INPADOC legal status
INPADOC patent family
Quick help
Family list: US2008157235 (A1) — 2008-07-03
Select all
Export (CSV | XLS)
Download covers (0)
Print
Approximately 38 application(s) for: US2008157235 (A1)
Sort by
Priority date
Sort order
Descending
Sort
1. Methods and devices for fabricating and assembling printable semiconductor elements
2. Printable semiconductor structures and related methods of making and assembling
3. Controlled buckling structures in semiconductor interconnects and nanomembranes for stretchable electronics
4. Methods and devices for fabricating and assembling printable semiconductor elements


espacenet - INPADOC patent family
6. METHODS AND DEVICES FOR FABRICATING AND ASSEMBLING PRINTABLE SEMICONDUCTOR ELEMENTS
7. PRINTABLE SEMICONDUCTOR STRUCTURES AND RELATED METHODS OF MAKING AND ASSEMBLING
8. CONTROLLED BUCKLING STRUCTURES IN SEMICONDUCTOR INTERCONNECTS AND NANOMEMBRANES FOR STRETCHABLE ELECTRONICS
9. PATTERN TRANSFER PRINTING BY DYNAMIC CONTROL OF ADHESION ON ELASTOMER STAMP
10. SHRINKABLE SINGLE CRYSTAL SILICON FOR HIGH PERFORMANCE ELECTRONICS ON RUBBER SUBSTRATE
11. METHODS AND DEVICES FOR FABRICATING AND ASSEMBLING PRINTABLE SEMICONDUCTOR ELEMENTS


http://worldwide.espacenet.com/publicationDetails/inpadocPatentFamily?CC=US&NR=2008157235
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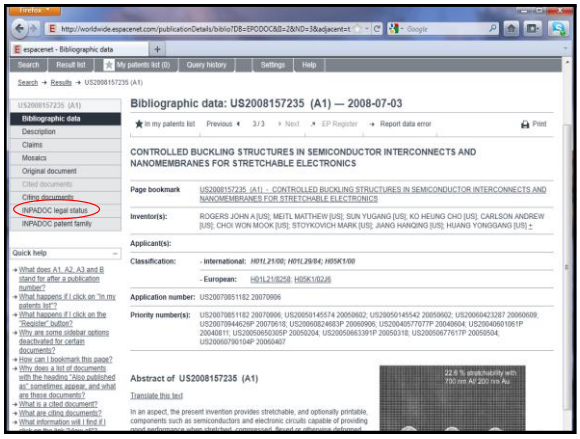
11. METHODS AND DEVICES FOR FABRICATING AND ASSEMBLING PRINTABLE SEMICONDUCTOR ELEMENTS
12. PRINTABLE SEMICONDUCTOR STRUCTURES AND RELATED METHODS OF MAKING AND ASSEMBLING
13. CONTROLLED BUCKLING STRUCTURES IN SEMICONDUCTOR INTERCONNECTS AND NANOMEMBRANES FOR STRETCHABLE ELECTRONICS
14. PATTERN TRANSFER PRINTING BY KINETIC CONTROL OF ADHESION TO AN ELASTOMERIC STAMP
15. METHODS AND DEVICES FOR FABRICATING AND ASSEMBLING PRINTABLE SEMICONDUCTOR ELEMENTS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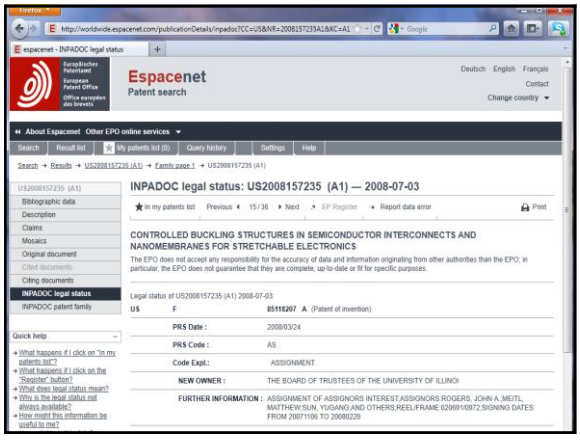
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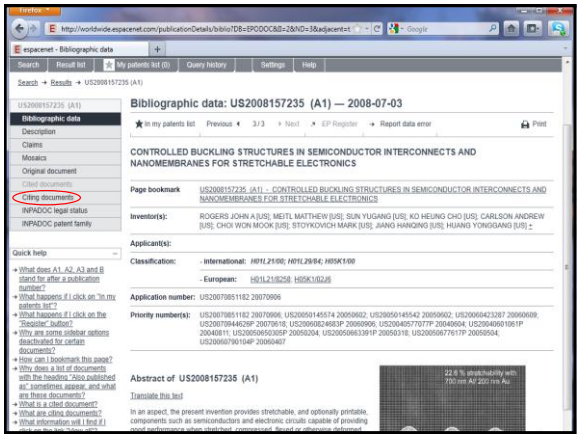
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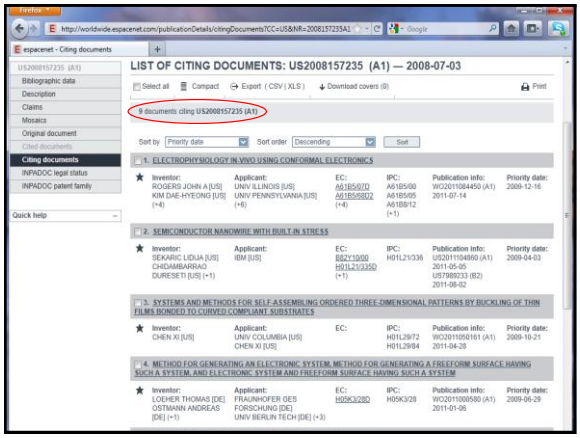
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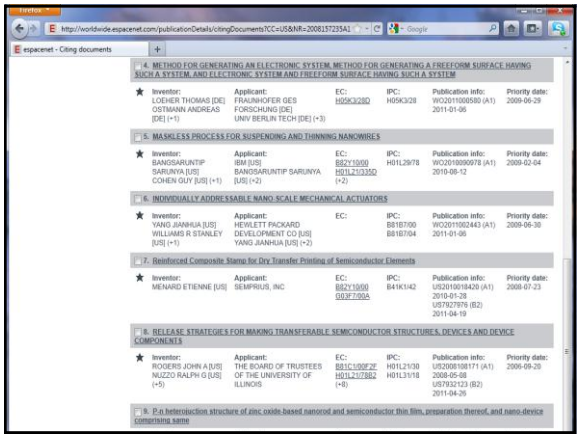
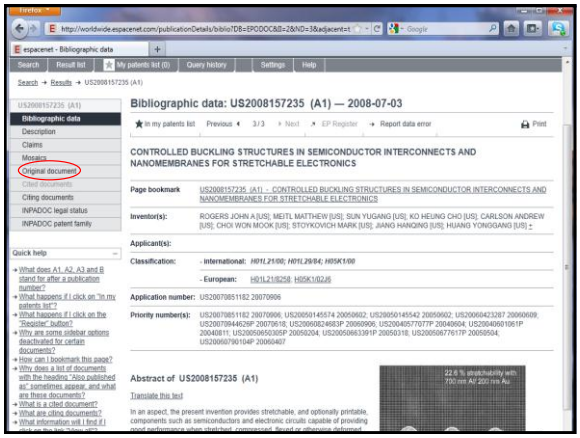

4. METHOD FOR GENERATING AN ELECTRONIC SYSTEM, METHOD FOR GENERATING A FREEFORM SURFACE HAVING SUCH A SYSTEM, AND ELECTRONIC SYSTEM AND FREEFORM SURFACE HAVING SUCH A SYSTEM
5. MASKLESS PROCESS FOR SUSPENDING AND THINNING NANOWIRES
6. INDIVIDUALLY ADDRESSABLE NANO-SCALE MECHANICAL ACTUATORS
7. Reinforced Composite Stamp for Dry Transfer Printing of Semiconductor Elements
8. RELEASE STRATEGIES FOR MAKING TRANSFERABLE SEMICONDUCTOR STRUCTURES, DEVICES AND DEVICE COMPONENTS
9. P-n heterojunction structure of zinc oxide-based nanorod and semiconductor thin film, preparation thereof, and nano-device comprising same



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