An Introduction to Patent Searching

Marriott Library Spring Semester Training Workshop

Dave Morrison
Federal Government Information
Patent and Trademarks Librarian
dave.morrison@utah.edu

Marriott Library
University of Utah
801-585-6802

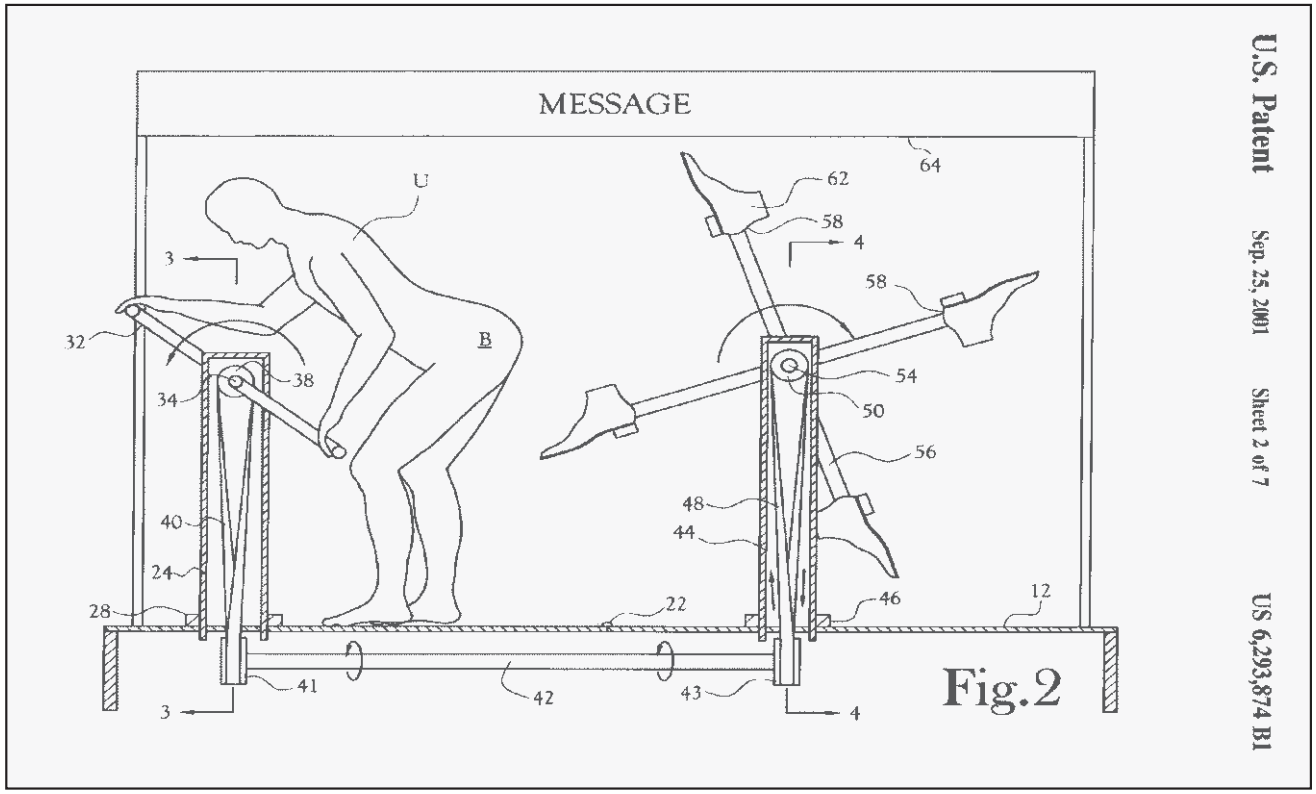
What is Intellectual Property (IP)?

Property rights for intellectual creations that have been put into fixed, tangible format

Four types of intellectual property

- **Patents** – protects new inventions
- **Trademarks** – anything that identifies the source of a product or service offered in commerce
- **Copyrights** – protect the specific expression of an idea in text, music, choreography, graphic arts
- **Trade Secrets** – any secret formula, process, or business method that offers a commercial advantage to the holder

PATENTS


MESSAGE
64
U
62
58
4
3
58
32
B
38
54
34
50
56
48
40
44
24
28
22
46
12
41
42
43
3
4
Fig.2
U.S. Patent
Sep. 25, 2001
Sheet 2 of 7
US 6,293,874 B1

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 Terms

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

Once these terms expire, the invention is now 'public domain,' and may be made, used or sold by anyone without licensing!

How do we organize our search?!

Go from the most specific information available to the more general:

1. Start your search from a known piece of information – a patent number, inventor name, company or university. Look for inventions that are similar to yours, and look at their classifications for similar inventions.
2. 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.
3. Use the Patent Classification tools – http://www.uspto.gov/patents/resources/classification/index.jsp

Eye Spy: Scientists Develop Eye-Shaped Camera - News and Analysis by PC Magazine - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Search Favorites

Address http://www.pcmag.com/article2/0,2704,2327363,00.asp

News and Analysis

MORE ON THIS

Related Topics

- Chicago
- Nature Publishing Group
- University of Illinois at Urbana-Champai...

powered by Inform

news

9.5.2008
Eyes On: Gunnar's Glasses Ease LCD Eyestrain

9.5.2008
Find Local Events with Praized, and Rate Them

9.5.2008
Samsung Says It Might Buy SanDisk

9.5.2008
Spore Mobile for iPhone Spawns Monday

9.5.2008
Report: Dell Trying to Sell Factories

View All

Eye Spy: Scientists Develop Eye-Shaped Camera

08.06.08

Discuss Total posts: 1

By Reuters

CHICAGO - Borrowing one of nature's best designs, U.S. scientists have built an eye-shaped camera using standard sensor materials and say it could improve the performance of digital cameras and enhance imaging of the human body.

The device might even lead to the development of prosthetic devices including a bionic eye, they said.

"This is the first time we've demonstrated a camera on a curved surface to really make it look like a human eye," said Yonggang Huang of Northwestern University in Evanston, Illinois, who reported his findings on Wednesday in the journal Nature.

Huang, who worked on the project with John Rogers of the University of Illinois at Urbana-Champaign, developed a relatively simple solution to the long-running problem of transferring microelectronic components onto a curved surface without breaking them.

"If you simply bend it, those materials are brittle like a ceramic bowl. They break," Huang said in a telephone interview.

Let's begin with specific references to a new technology – here we have the inventors' names, and their research affiliations.

"This approach allows us to put electronics in places where we couldn't before," Rogers said in a statement.

With funding from the National Science Foundation and the U.S. Department of Energy, Huang and Rogers built a digital camera that has

The page you are looking for is currently unavail

The page cannot be displaye

The page you are looking for is currently unavail
site might be experiencing technical difficulties, o
to adjust your browser settings.

Please try the following:

- Click the Refresh button, or try again la
- If you typed the page address in the Addr
  sure that it is spelled correctly.
- To check your connection settings, click th
  and then click **Internet Options**. On the
  tab, click **Settings**. The settings should m

Firefox

http://www.uspto.gov/

Google

uspto.GOV

The United States Patent and Trademark Office
an agency of the Department of Commerce

search for patents | search for trademarks

Search our site

PATENTS | TRADEMARKS | IP LAW & POLICY | PRODUCTS & SERVICES | INVENTORS | NEWS & NOTICES | FAQs | ABOUT US

USPTO Announces Historic Satellite Office Expansion

Along with our newly opened location in Detroit, the United States Patent and Trademark Office announces historic satellite office expansion to Dallas, Denver and Silicon Valley areas.

Now Hiring

Electrical, chemical, and mechanical disciplines

America Invents Act

Your guide»

USPTO Track One

Prioritized patent examination

POPULAR LINKS

Patent Search

Patents: File Online [EFS-Web]

>> patents

>> trademarks

>> iplaw&policy

USPTO NEWS

USPTO Hosting Two Public Information

KSL Dea
August's

<http://

Patent Process

- **Search for Patents**
- Patent Full-Text Databases (PatFT & AppFT)
- Patent Application Information Retrieval (PAIR)
- Patent Assignment Database (AOTW-P)
- Scientific and Technical Information Center (STIC) Information
- USPTO Patent Document Authority Files
- Accessing Published Applications
- Filing Years and Patent Application Serial Numbers Since 1882
- Withdrawn Patent Numbers
- View Fee Schedule
- File Online
- Check Status
- Maintain/Pay Fees
- Appeal (BPAI)
- Change Ownership

Patent Classification

Search for Patents

New to Patent Searching? See this important information about searching for patents:

- **How do I know if my invention is patentable?**
- **How to Conduct a Preliminary U.S. Patent Search: A Step by Step Strategy** - Web Based Tutorial (36 minutes)
- **The Seven-Step Strategy** - Outlines a suggested procedure for patent searching

Patents may be searched using the following resources:

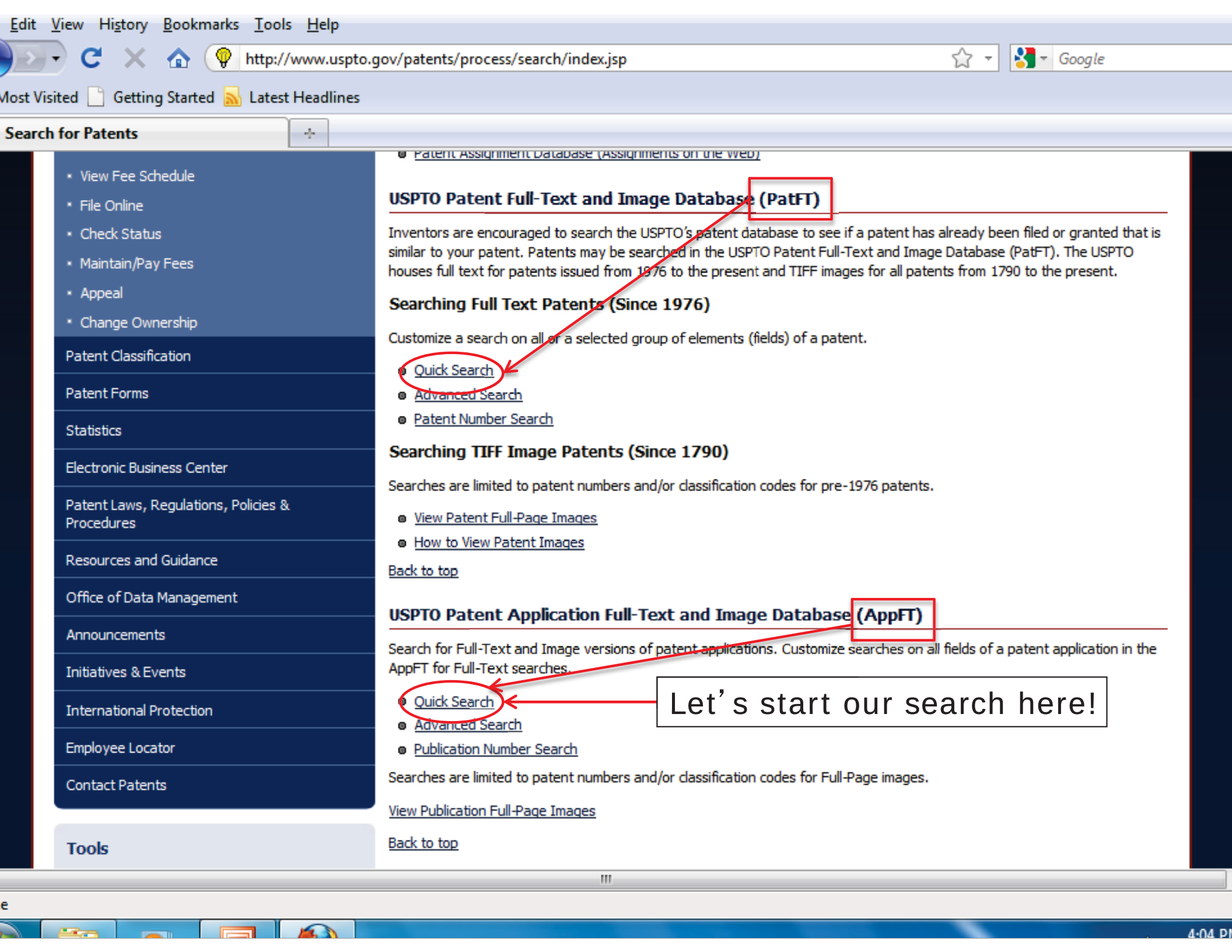
- USPTO Patent Full-Text and Image Database (PatFT)
- USPTO Patent Application Full-Text and Image Database (AppFT)
- Patent Application Information Retrieval (PAIR)
- Public Search Facility
- Patent and Trademark Resource Centers (PTRCs)
- Patent Official Gazette
- Common Citation Document (CCD)
- Search International Patent Offices
- Search Published Sequences
- Patent Assignment Database (Assignments on the Web)

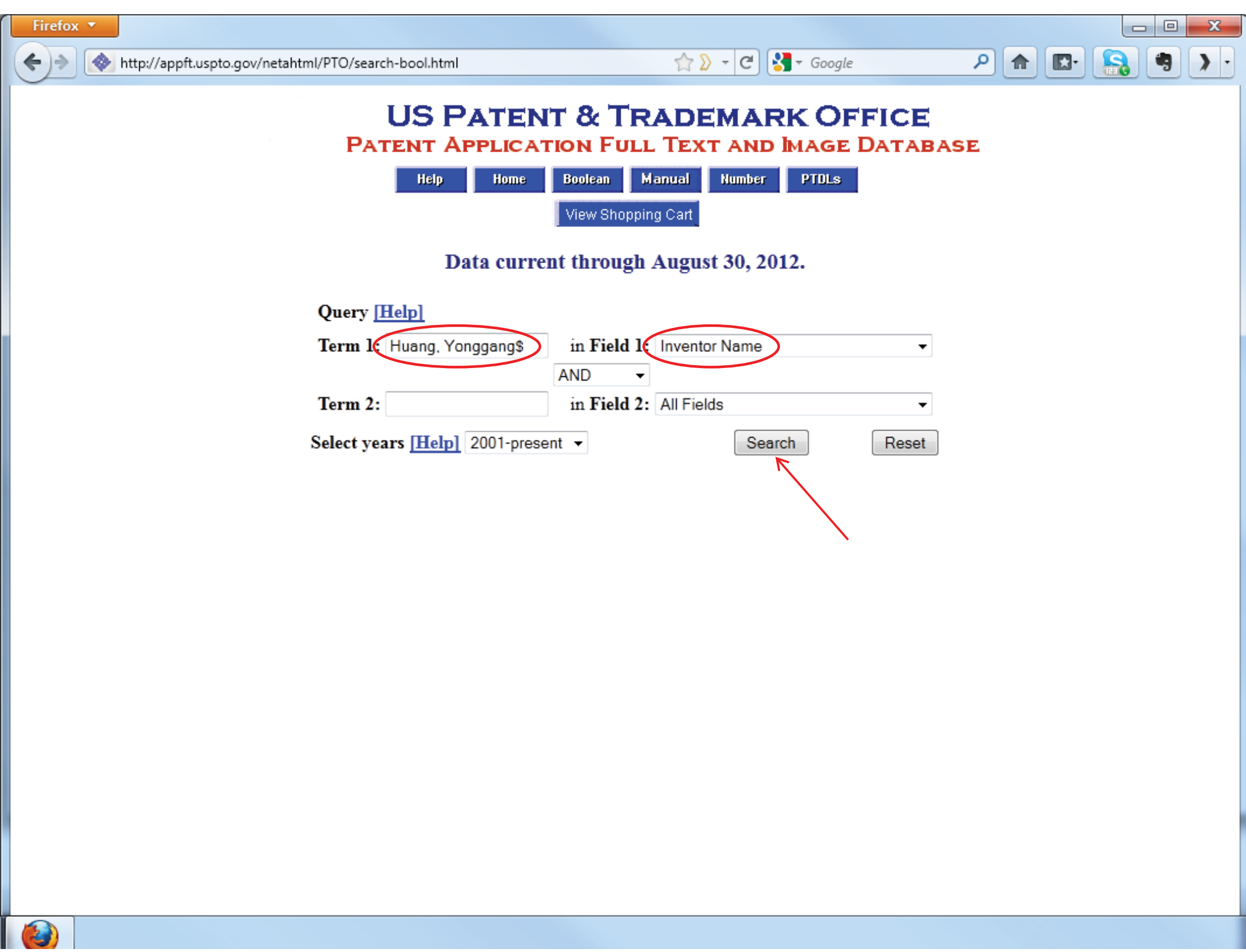
Page down

USPTO Patent Full-Text and Image Database (PatFT)

Inventors are encouraged to search the USPTO's patent database to see if a patent has already been filed or granted that is similar to your patent. Patents may be searched in the USPTO Patent Full-Text and Image Database (PatFT). The USPTO houses full text for patents issued from 1976 to the present and TIFF images for all patents from 1790 to the present.

Searching Full Text Patents (Since 1976)


Edit View History Bookmarks Tools Help
http://www.uspto.gov/patents/process/search/index.jsp
Google
Most Visited Getting Started Latest Headlines
Search for Patents
View Fee Schedule
File Online
Check Status
Maintain/Pay Fees
Appeal
Change Ownership
Patent Classification
Patent Forms
Statistics
Electronic Business Center
Patent Laws, Regulations, Policies & Procedures
Resources and Guidance
Office of Data Management
Announcements
Initiatives & Events
International Protection
Employee Locator
Contact Patents
Tools
Patent Assignment Database (Assignments on the Web)
USPTO Patent Full-Text and Image Database (PatFT)
Inventors are encouraged to search the USPTO's patent database to see if a patent has already been filed or granted that is similar to your patent. Patents may be searched in the USPTO Patent Full-Text and Image Database (PatFT). The USPTO houses full text for patents issued from 1976 to the present and TIFF images for all patents from 1790 to the present.
Searching Full Text Patents (Since 1976)
Customize a search on all or a selected group of elements (fields) of a patent.
Quick Search
Advanced Search
Patent Number Search
Searching TIFF Image Patents (Since 1790)
Searches are limited to patent numbers and/or classification codes for pre-1976 patents.
View Patent Full-Page Images
How to View Patent Images
Back to top
USPTO Patent Application Full-Text and Image Database (AppFT)
Search for Full-Text and Image versions of patent applications. Customize searches on all fields of a patent application in the AppFT for Full-Text searches.
Quick Search
Let's start our search here!
Advanced Search
Publication Number Search
Searches are limited to patent numbers and/or classification codes for Full-Page images.
View Publication Full-Page Images
Back to top


Firefox
http://appft.uspto.gov/netahtml/PTO/search-bool.html
Google
US PATENT & TRADEMARK OFFICE
PATENT APPLICATION FULL TEXT AND IMAGE DATABASE
Help
Home
Boolean
Manual
Number
PTDLs
View Shopping Cart
Data current through August 30, 2012.
Query [Help]
Term 1: Huang, Yonggang$
in Field 1: Inventor Name
AND
Term 2:
in Field 2: All Fields
Select years [Help] 2001-present
Search
Reset

US PATENT & TRADEMARK OFFICE

PATENT APPLICATION FULL TEXT AND IMAGE DATABASE

Searching AppFT Database...

Results of Search in AppFT Database for:
IN/Huang-Yonggang$: 6 applications.
*Hits **1** through **6** out of **6***

No. 3 is the 2008 patent application from the news article, and no. 2 might be a more recent (2010) technical advancement by the same inventor!

Jump To

Refine Search IN/Huang-Yonggang$

	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

US PATENT & TRADEMARK OFFICE

PATENT APPLICATION FULL TEXT AND IMAGE DATABASE

Full images of every page of the granted patent or published application, but your computer must be able to display TIFF graphic files from the web browser.

United States Patent Application **20080157235**
Kind Code **A1**
Rogers; John A. ; et al. **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:
GREENLEE WINNER AND SULLIVAN P C
4875 PEARL EAST CIRCLE, SUITE 200
BOULDER
CO

Publication Images - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Search Favorites

Address http://aiw1.uspto.gov/.aiw?Docid=20080157235&homeurl=http%3A%2F%2Fappft1.uspto.gov%2Fnetacgi%2Fnph-Parser%3FSect1%3DPTO2%2526Sect2%3DHITOFF%

Go Links

Full Text

Help

Go to Page:

Go

Sections:

- Front Page
- Drawings
- Specifications
- Claims

AlternaTIFF

US 20080157235A1

(19) **United States**

(12) **Patent Application Publication**

Rogers et al.

(10) **Pub. No.: US 2008/0157235 A1**

(43) **Pub. Date: Jul. 3, 2008**

(54) **CONTROLLED BUCKLING STRUCTURES IN SEMICONDUCTOR INTERCONNECTS AND NANOMEMBRANES FOR STRETCHABLE ELECTRONICS**

(76) Inventors: **John A. Rogers**, Champaign, IL (US); **Matthew Meitl**, Raleigh, NC (US); **Yugang Sun**, Naperville, IL (US); **Heung Cho Ko**, Urbana, IL (US); **Andrew Carlson**, Urbana, IL (US); **Won Mook Choi**, Champaign, IL (US); **Mark Stoykovich**, Dover, NH (US); **Hanqing Jiang**, Urbana, IL (US); **Yonggang Huang**, Glencoe, IL (US)

Correspondence Address:
GREENLEE WINNER AND SULLIVAN P C
4875 PEARL EAST CIRCLE, SUITE 200
BOULDER, CO 80301

(21) Appl. No.: **11/851,182**

(22) Filed: **Sep. 6, 2007**

Related U.S. Application Data

(63) Continuation-in-part of application No. 11/145,574, filed on Jun. 2, 2005, Continuation-in-part of application No. 11/145,542, filed on Jun. 2, 2005, Continuation-in-part of application No. 11/423,287, filed on Jun. 9, 2006, which is a continuation-in-part of application No. 11/145,542, filed on Jun. 2, 2005, which is a continuation-in-part of application No. 11/145,574, filed on Jun. 2, 2005.

(60) Provisional application No. 60/944,626, filed on Jun. 18, 2007, provisional application No. 60/824,683, filed on Sep. 6, 2006, provisional application No. 60/577,077, filed on Jun. 4, 2004, provisional application No. 60/601,061, filed on Aug. 11, 2004, provisional application No. 60/650,305, filed on Feb. 4, 2005, provisional application No. 60/663,391, filed on Mar. 18, 2005, provisional application No. 60/677,617, filed on May 4, 2005, provisional application No. 60/577,077, filed on Jun. 4, 2004, provisional applica-

Publication Classification

(51) **Int. Cl.**

H01L 29/84 (2006.01)

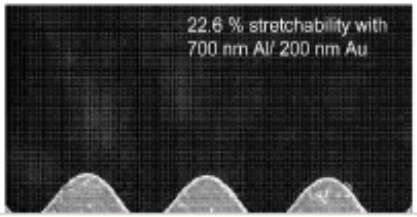
H01L 21/00 (2006.01)

H05K 1/00 (2006.01)

(52) **U.S. Cl.** **257/415**; 438/53; 174/254; 257/E29.324; 257/E21.001

(57) **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.



Available for free through the USPTO web pages, or at www.alternatiff.com .

(52) **U.S. Cl.** **257/415**; 438/53; 174/254; 257/E29.324; 257/E21.001

To leave the Alternatiff software and go back to the 'Full Text,' click here.

US PATENT & TRADEMARK OFFICE

PATENT APPLICATION FULL TEXT AND IMAGE DATABASE

To go to the 'Classification Manual,' click the 'Home' button..

United States Patent Applicatio **20080157235**
Kind Code **A1**
Rogers; John A. ; et al. **July 3, 2008**

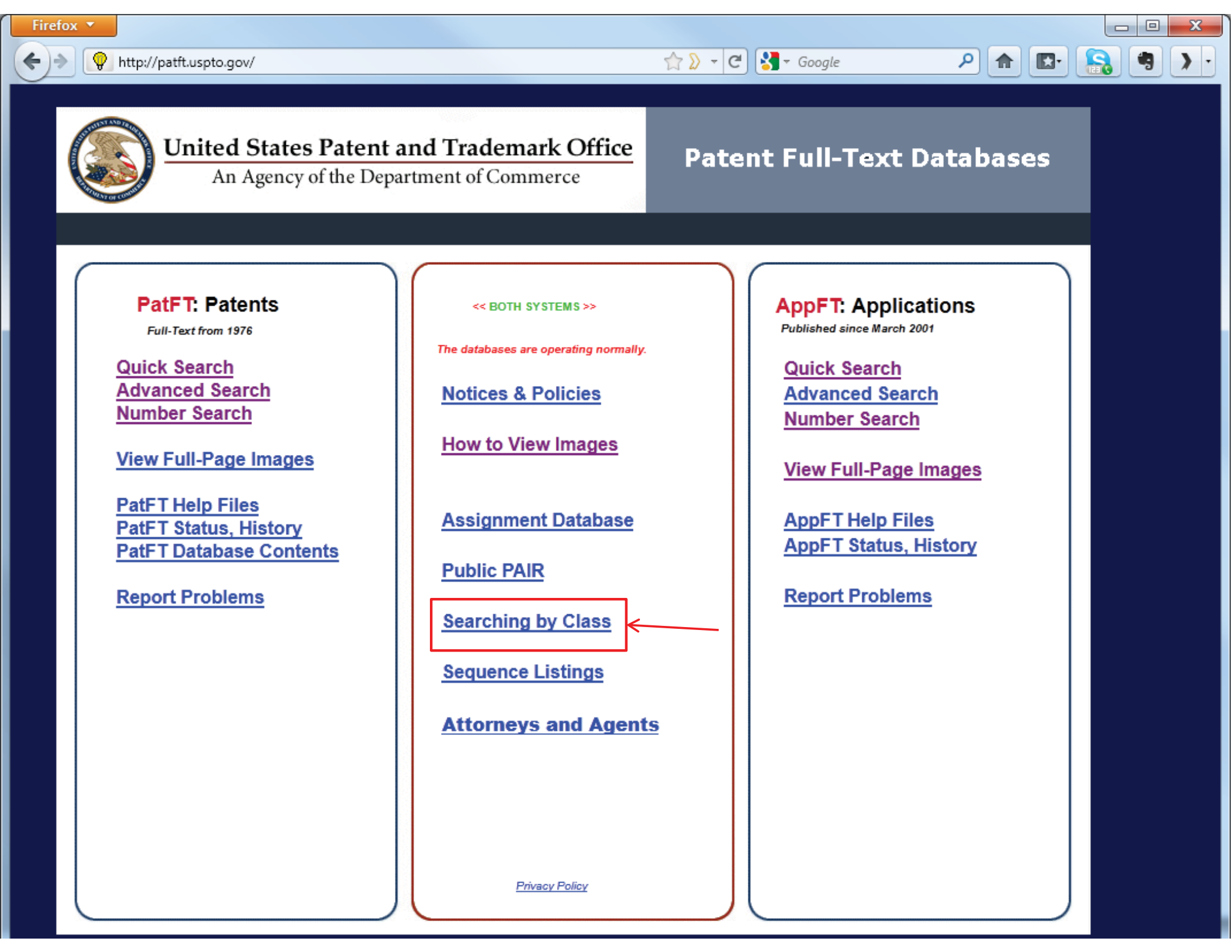
CONTROLLED BUCKLING STRUCTURES IN SEMICONDUCTOR INTERCONNECTS AND NANOMEMBRANES FOR STRETCHABLE ELECTRONICS

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:
GREENLEE WINNER AND SULLIVAN P C
4875 PEARL EAST CIRCLE, SUITE 200
BOULDER


Firefox
http://patft.uspto.gov/
Google
United States Patent and Trademark Office
An Agency of the Department of Commerce
Patent Full-Text Databases
PatFT: Patents
Full-Text from 1976
Quick Search
Advanced Search
Number Search
View Full-Page Images
PatFT Help Files
PatFT Status, History
PatFT Database Contents
Report Problems
<< BOTH SYSTEMS >>
The databases are operating normally.
Notices & Policies
How to View Images
Assignment Database
Public PAIR
Searching by Class
Sequence Listings
Attorneys and Agents
Privacy Policy
AppFT: Applications
Published since March 2001
Quick Search
Advanced Search
Number Search
View Full-Page Images
AppFT Help Files
AppFT Status, History
Report Problems

Firefox

United States Patent and Trademark Offi...

uspto.GOV

The United States Patent and Trademark Office
an agency of the Department of Commerce

search for patents | search for trademark

Search our site

PATENTS | TRADEMARKS | IP LAW & POLICY | PRODUCTS & SERVICES | INVENTORS | NEWS & NOTICES | FAQs | ABOUT U

Patent Classification Home » Classification Search

Main | CPC Sections | USPC Class Numbers & Titles | He

May search with 'Cooperative Patent Classification' or 'U.S. Patent Classification' for now.

Access Classification Information by Symbol

Select Classification System: (•) CPC ( ) USPC

Enter Classification symbol: [ ] [ ] / [ ]

e.g., B02C 19/0081 or D06P 1/5264

Select output format: (•) HTML ( ) PDF

Select Content: Scheme Definitions

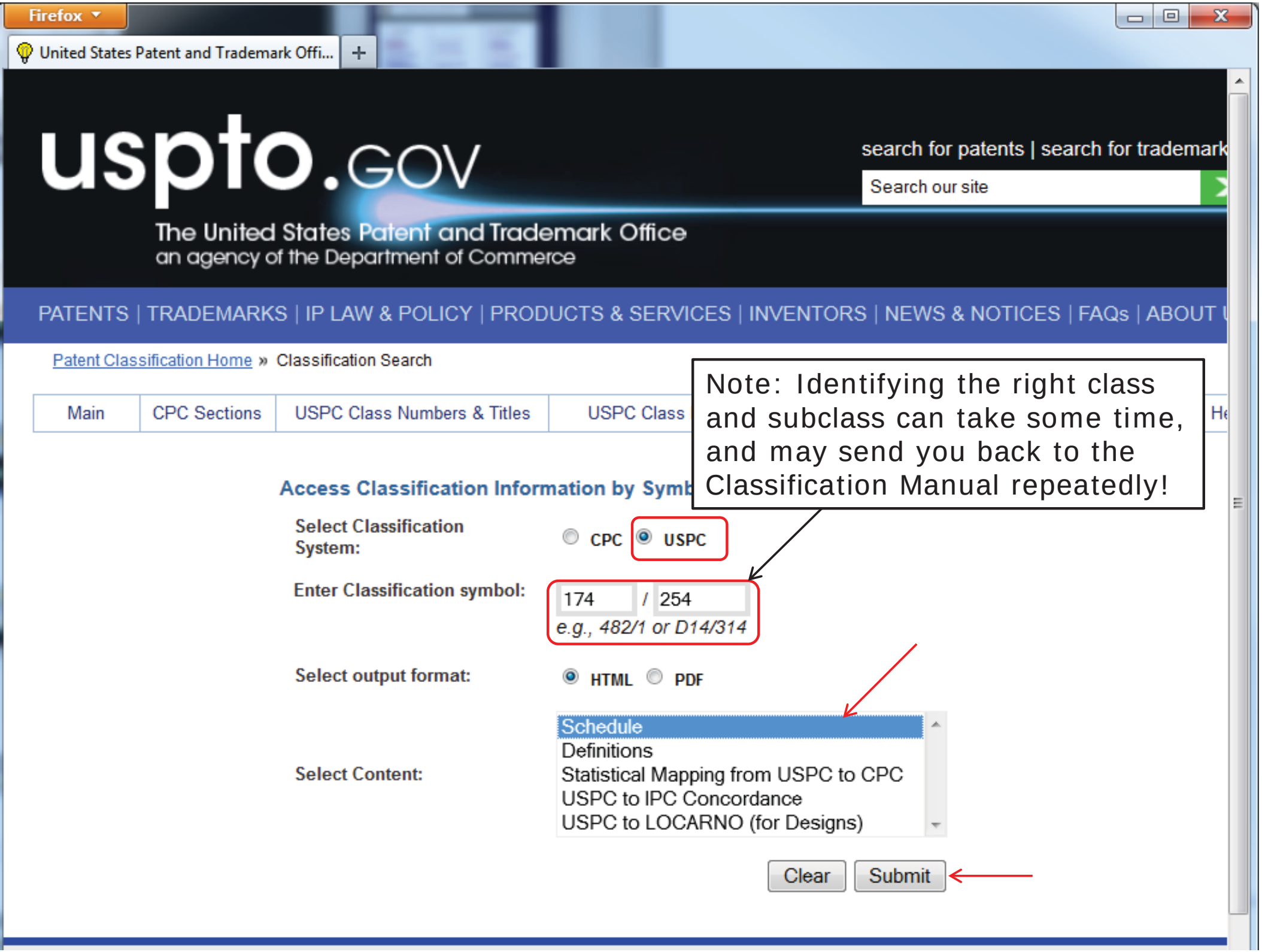
Clear Submit

» Accessibility
» Privacy Policy
» Terms of Use

» Federal Activities Inventory Reform (FAIR) Act
» Notification and Federal

» Department of Commerce NoFEAR Act Report
» Regulations.gov

» Strategy Targeting Orgar Piracy (STOP!)
» Careers


Firefox
United States Patent and Trademark Offi...
uspto.gov
The United States Patent and Trademark Office
an agency of the Department of Commerce
search for patents | search for trademark
Search our site
PATENTS | TRADEMARKS | IP LAW & POLICY | PRODUCTS & SERVICES | INVENTORS | NEWS & NOTICES | FAQs | ABOUT
Patent Classification Home » Classification Search
Main
CPC Sections
USPC Class Numbers & Titles
USPC Class
Note: Identifying the right class and subclass can take some time, and may send you back to the Classification Manual repeatedly!
Access Classification Information by Symb
Select Classification System:
CPC
USPC
Enter Classification symbol:
174 / 254
e.g., 482/1 or D14/314
Select output format:
HTML
PDF
Select Content:
Schedule
Definitions
Statistical Mapping from USPC to CPC
USPC to IPC Concordance
USPC to LOCARNO (for Designs)
Clear
Submit

	A	P	254 .. Convertible shape (e.g., flexible) or circuit (e.g., breadboard)
	A	P	255 .. With particular substrate or support structure
-	A	P	256 .. With particular material
	A	P	257 ... Conducting (e.g., ink)
	A	P	258 ... Insulating
	A	P	259 ... Adhesive/bonding
	A	P	260 .. With electrical device
-	A	P	261 .. With particular conductive connection (e.g., crossover)
-	A	P	262 ... Feedthrough
	A	P	263 .... With solder
-	A	P	264 .... Voidless (e.g., solid)
	A	P	265 .....▪ Preform in hole
	A	P	266 .... Hollow (e.g., plated cylindrical hole)
	A	P	267 ... Termination post
	A	P	268 .. With single conductive plane (e.g., tape, cable)
	A	P	69 . Extensible
-	A	P	70R . Combined
-	A	P	71R .. Branched
-	A	P	72R ... Multi-duct conduit and/or plural branch
	A	P	72A .... Wire harness
	A	P	72B .... Bus bars
	A	P	72C .... Casing, moldings
	A	P	72TR .... Ribbon type
	A	P	71B ... Bus bars
	A	P	71C ... Coaxial
	A	P	73.1 .. With joint or end structure conductive stress distributing means
-	A	P	74R .. With end structure
-	A	P	75R ... With joint
	A	P	75B .... Bootleg
	A	P	75D .... With detachable joint (e.g., potheads)
	A	P	75F .... Flexible spring type
	A	P	75C .... Coaxial

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

	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 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
+	70R	· Combined

Mainline

One-dot indention

Two-dot indention

Class Schedule for Class 174 ELECTRICITY: CONDUCTORS AND INSULATORS - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Search Favorites

Address http://www.uspto.gov/go/classification/uspc174/sched174.htm#C1745254000

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
257	···	Conducting (e.g., ink)
258	···	Insulating
259	···	Adhesive/bonding
260	··	With electrical device
261	··	With particular conductive connection (e.g., crossover)
262	···	Feedthrough
263	····	With solder
264	····	Voidless (e.g., solid)
265	····▪	Preform in hole
266	····	Hollow (e.g., plated cylindrical hole)
267	···	Termination post
268	··	With single conductive plane (e.g., tape, cable)
69	·	Extensible
70R	·	Combined
71R	··	Branched
72R	···	Multi-duct conduit and/or plural branch
72A	····	Wire harness
72B	····	Bus bars
72C	····	Casing, moldings
72TR	····	Ribbon type
71B	···	Bus bars
71C	···	Coaxial
73.1		With joint or end structure conductive stress distributing means

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)

Class Definition for Class 174 - ELECTRICITY: CONDUCTORS AND INSULATORS - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Search Favorites

Address http://www.uspto.gov/go/classification/uspc174/defs174.htm#C1745254000

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 mea 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 electr 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 o 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.

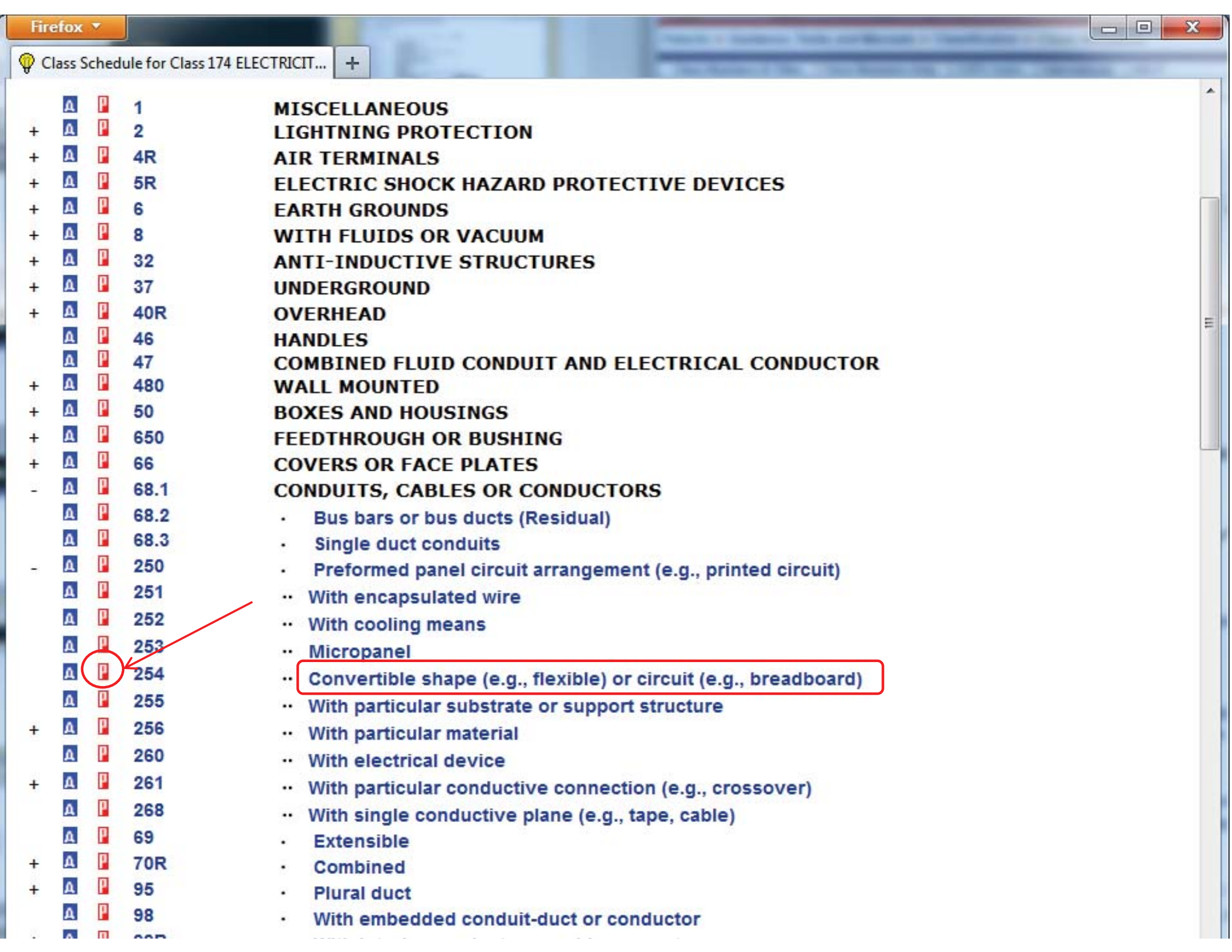
258 **Insulating:**
This subclass is indented under **subclass 256**. Subject matter including a material on or through which essentially no electrical curren flow.

259 **Adhesive/bonding:**
This subclass is indented under **subclass 256**. Subject matter including a material which causes parts of the structure to stick, bind fasten together.

SEE OR SEARCH THIS CLASS, SUBCLASS:

263, for soldered feed through connections where the composition of the solder is nominal.

SEE OR SEARCH CLASS:


Firefox
Class Schedule for Class 174 ELECTRICIT...
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 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
+ 70R · Combined
+ 95 · Plural duct
98 · With embedded conduit-duct or conductor

USPTO Patent Full-Text and Image Database

Searching US Patent Collection...

Results of Search in US Patent Collection db for:
CCL/174/254: 1302 patents.
*Hits **1** through **50** out of **1302***

Next 50 Hits

Jump To

Refine Search CCL/174/254

	PAT. NO.	Title
1	8,514,589	Electronic apparatus
2	8,513,534	Semiconductor device and bonding material
3	8,513,533	Multilayer stacked circuit arrangement with localized separation section
4	8,513,532	Flexible circuit structure with stretchability and method of manufacturing the same
5	8,513,531	Electrodynamic arrays having nanomaterial electrodes
6	8,507,802	Ultra-low current printed circuit board
7	8,507,801	Printed wiring board
8	8,503,134	Wiring substrate with a torsion restrictor for a terminal

Firefox

Class Schedule for Class 174 ELECTRICIT...

	A	1	MISCELLANEOUS
+	A	2	LIGHTNING PROTECTION
+	A	4R	AIR TERMINALS
+	A	5R	ELECTRIC SHOCK HAZARD PROTECTIVE DEVICES
+	A	6	EARTH GROUNDS
+	A	8	WITH FLUIDS OR VACUUM
+	A	32	ANTI-INDUCTIVE STRUCTURES
+	A	37	UNDERGROUND
+	A	40R	OVERHEAD
	A	46	HANDLES
	A	47	COMBINED FLUID CONDUIT AND ELECTRICAL CONDUCTOR
+	A	480	WALL MOUNTED
+	A	50	BOXES AND HOUSINGS
+	A	650	FEEDTHROUGH OR BUSHING
+	A	66	COVERS OR FACE PLATES
-	A	68.1	CONDUITS, CABLES OR CONDUCTORS
	A	68.2	· Bus bars or bus ducts (Residual)
	A	68.3	· Single duct conduits
-	A	250	· Preformed panel circuit arrangement (e.g., printed circuit)
	A	251	·· With encapsulated wire
	A	252	·· With cooling means
	A	253	·· Micropanel
	A	254	·· Convertible shape (e.g., flexible) or circuit (e.g., breadboard)
	A	255	·· With particular substrate or support structure
+	A	256	·· With particular material
	A	260	·· With electrical
+	A	261	·· With particular
	A	268	·· With single co
	A	69	· Extensible
+	A	70R	· Combined
+	A	95	· Plural duct
	A	98	· With embedded conduit-duct or conductor

If we go back and click on the blue ‘A’ in the Classification Schedule, we get a list of all applications published since 2001 that have a classification in 174/254.

US PATENT & TRADEMARK OFFICE

PATENT APPLICATION FULL TEXT AND IMAGE DATABASE

Searching PGPUB Full-Text Database...

Results of Search in PGPUB Full-Text Database for:
CCL/"174"/254: 659 applications.
*Hits **1** through **50** out of **659***

All applications published since 2001 that have a classification in 174/254.

Next 50 Hits

Jump To

Refine Search CCL/"174"/254

	PUB. APP. NO.	Title
1	20130187988	CORROSION PROTECTED FLEXIBLE PRINTED WIRING MEMBER
2	20130180764	Flexible Circuitry with Heat and Pressure Spreading Layers
3	20130176693	CIRCUIT BOARD FOR DISPLAY AND DISPLAY MODULE WITH DISPLAY AND CIRCUIT BOARD
4	20130176692	METHOD FOR PRODUCING A CIRCUIT BOARD CONSISTING OF A PLURALITY OF CIRCUIT BOARD AREAS AND CIRCUIT BOARD
5	20130171520	AQUEOUS POLYIMIDE PRECURSOR SOLUTION COMPOSITION AND METHOD FOR PRODUCING AQUEOUS POLYIMIDE PRECURSOR SOLUTION COMPOSITION
6	20130170158	Knitted textile substrate with different stitch patterns and electronic textile
7	20130163253	WHITE REFLECTIVE FLEXIBLE PRINTED CIRCUIT BOARD

We may search any one of 30 specific fields on the 'Quick Search' or 'Boolean' search screens in either the PatFT or AppFT databases. Note that the 'Field' name must be changed to 'Current US Classification' to use a Classification number as the search term.


Firefox
US Published Application Full-Text Data...
US PATENT & TRADEMARK OFFICE
PATENT APPLICATION FULL TEXT AND IMAGE DATABASE
Help
Home
Boolean
Manual
Number
View Shopping Cart
Data current through August 15, 2013.
Query [Help]
Term 1: "flexible circuit board$"
in Field 1: All Fields
AND
Term 2:
in Field 2: All Fields
Select years [Help] 2001-present
Search
Reset
Here's an example of searching for an exact keyword phrase in the Applications database. Note the dollar sign ($) used as a 'wild card,' and the quotation marks to search for that exact phrase as a whole, not the words individually.

Firefox

PreGrant Publication Database Search Re...

Searching PGPUB Full-Text Database...

Results of Search in PGPUB Full-Text Database for:
"flexible circuit board$": 4008 applications.
*Hits **1** through **50** out of **4008***

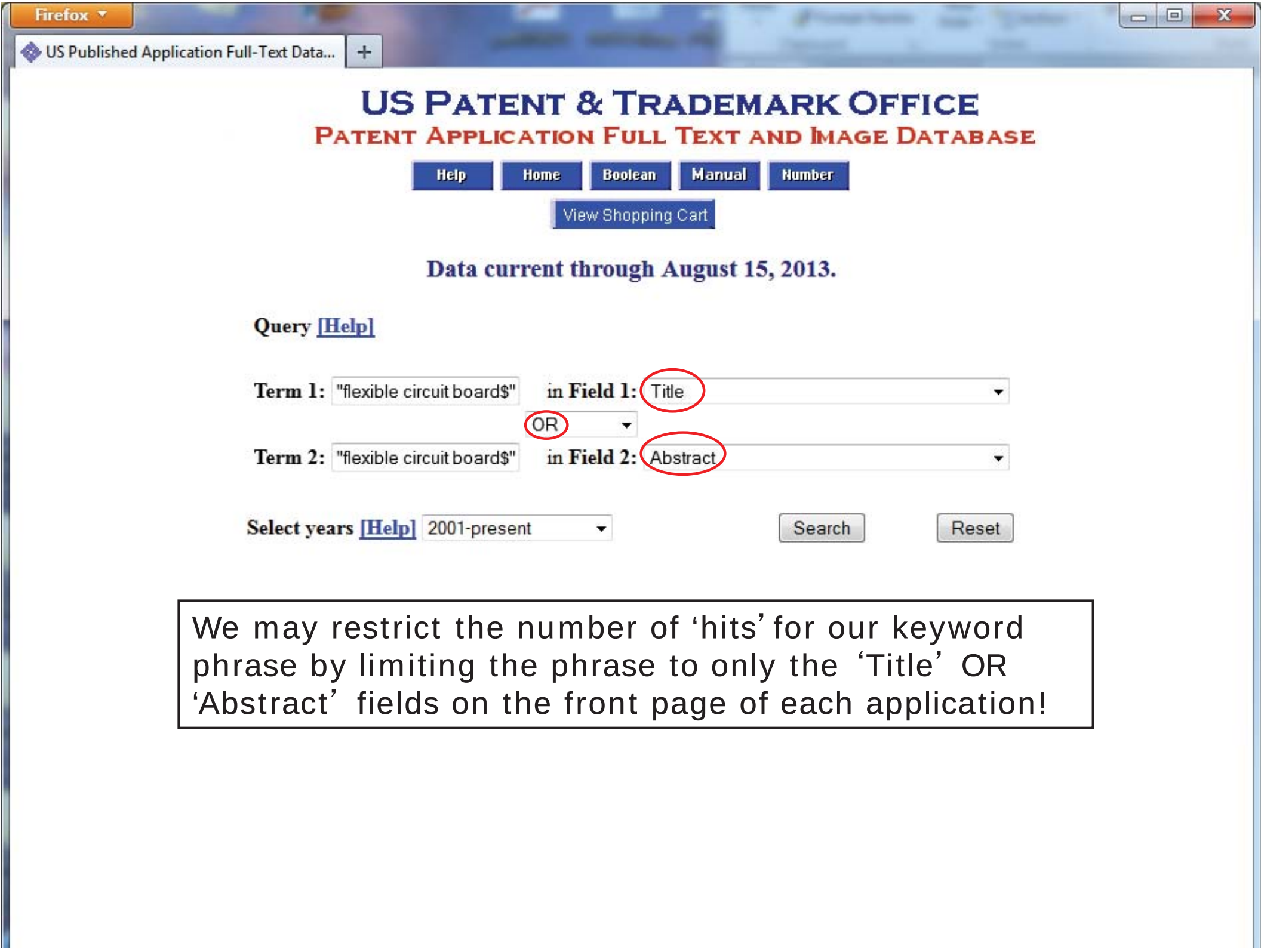
Too many applications to look through! How can we reduce the number of applications we must examine? Remember, we only need a few examples of similar patents, which will then lead us to the appropriate classifications!

Next 50 Hits

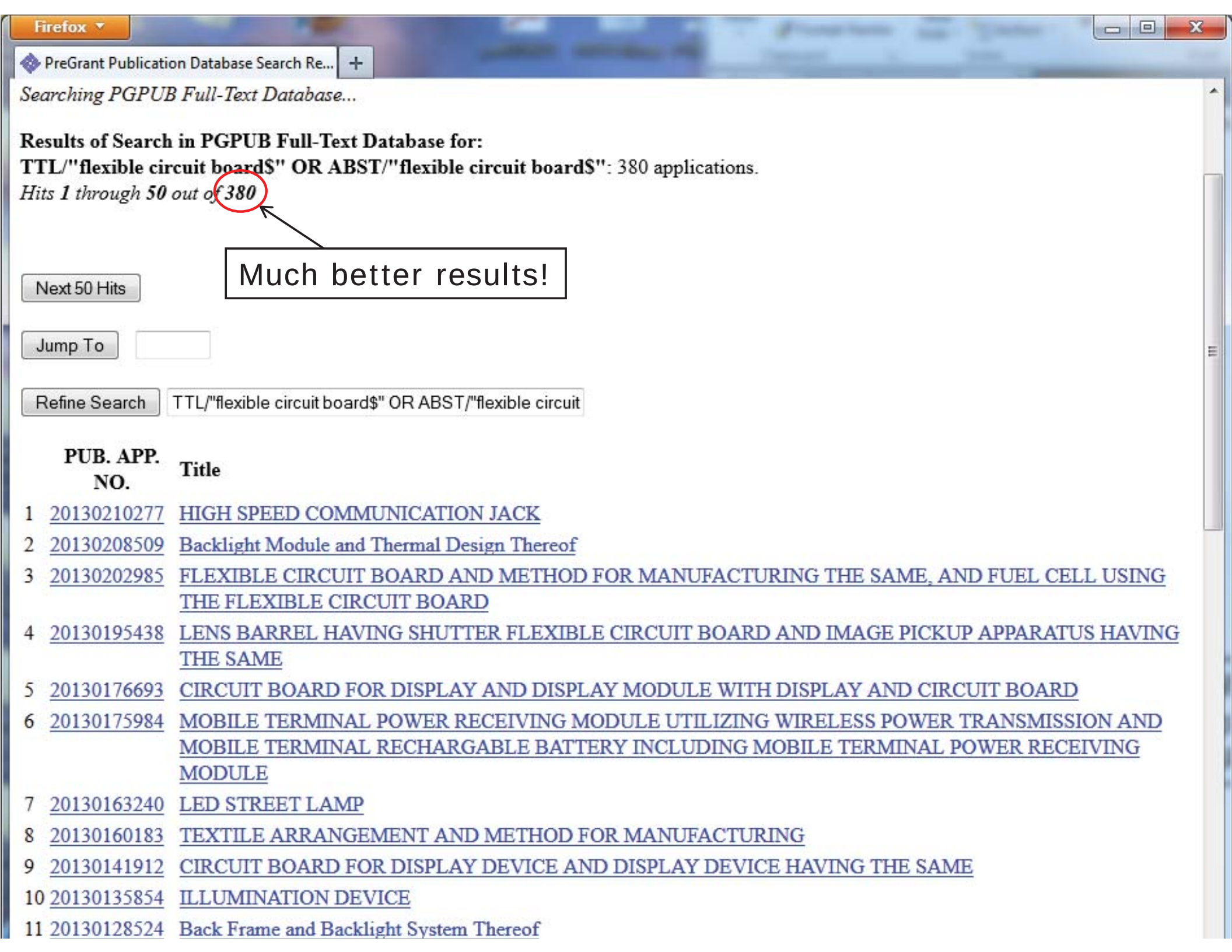
Jump To

Refine Search "flexible circuit board$"

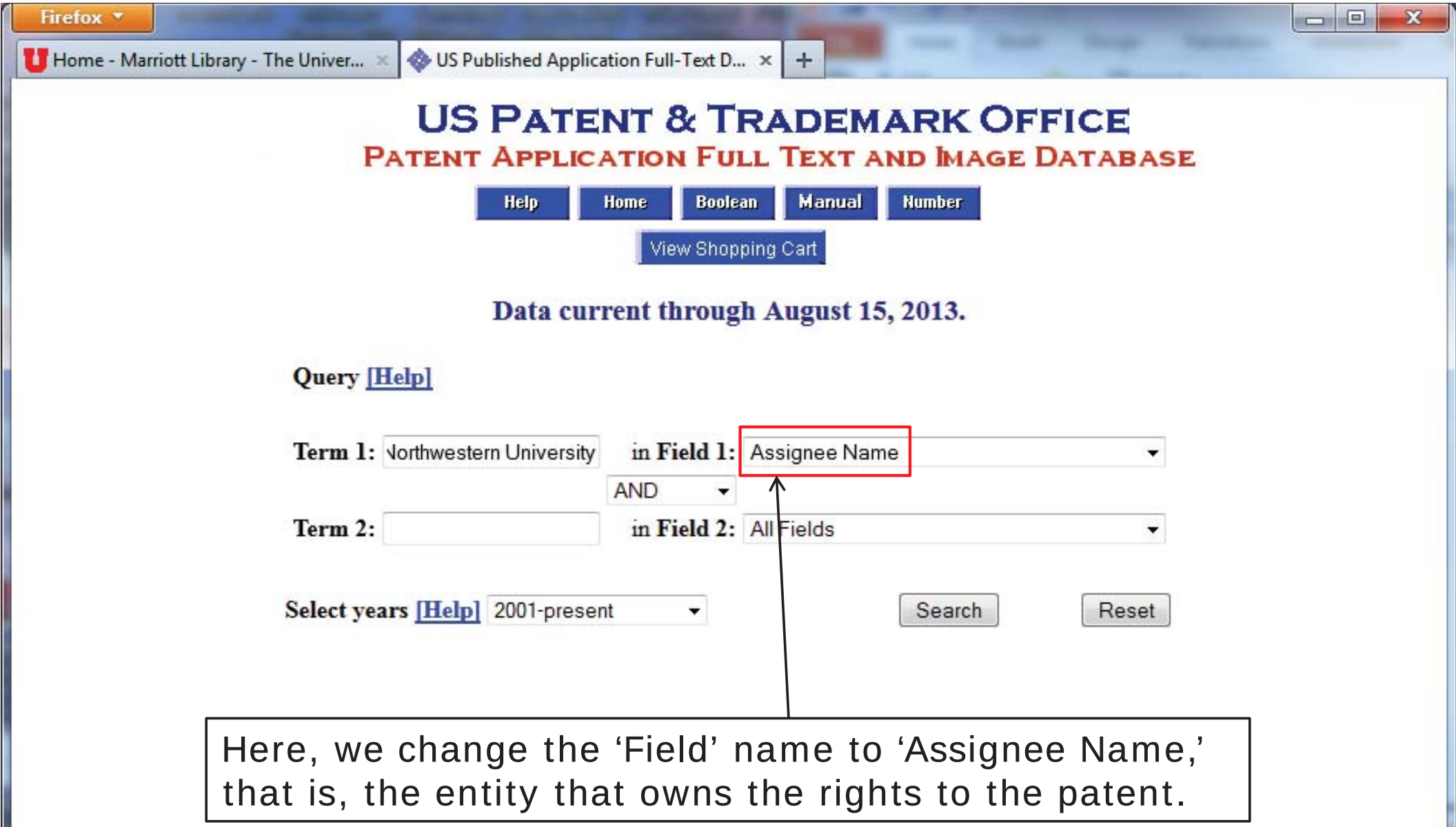
	PUB. APP. NO.	Title
1	20130211372	Body Cavity Physiological Measurement Device
2	20130211322	SYSTEMS AND METHODS FOR TREATING CHRONIC LIVER FAILURE BASED ON PERITONEAL DIALYSIS
3	20130211291	PERSONAL EMERGENCY RESPONSE (PER) SYSTEM
4	20130210277	HIGH SPEED COMMUNICATION JACK
5	20130208509	Backlight Module and Thermal Design Thereof
6	20130208408	DEVICE MODULE
7	20130208233	THREE DIMENSIONAL GLASSES
8	20130207946	FLEXIBLE DISPLAY
9	20130207856	HYBRID ANTENNA FOR PORTABLE COMMUNICATION DEVICES
10	20130207596	ELECTROCHEMICAL ENERGY CONVERTER DEVICE WITH A CELL HOUSING, A BATTERY WITH AT LEAST TWO OF SAID ELECTROCHEMICAL ENERGY CONVERTER DEVICES, AND A METHOD FOR THE MANUFACTURE OF AN ELECTROCHEMICAL ENERGY CONVERTER DEVICE
11	20130206844	PROTECTIVE COVER OF MOBILE ELECTRONIC PRODUCT
12	20130206721	METHOD FOR MANUFACTURING A TOUCH PANEL
13	20130202985	FLEXIBLE CIRCUIT BOARD AND METHOD FOR MANUFACTURING THE SAME, AND FUEL CELL USING



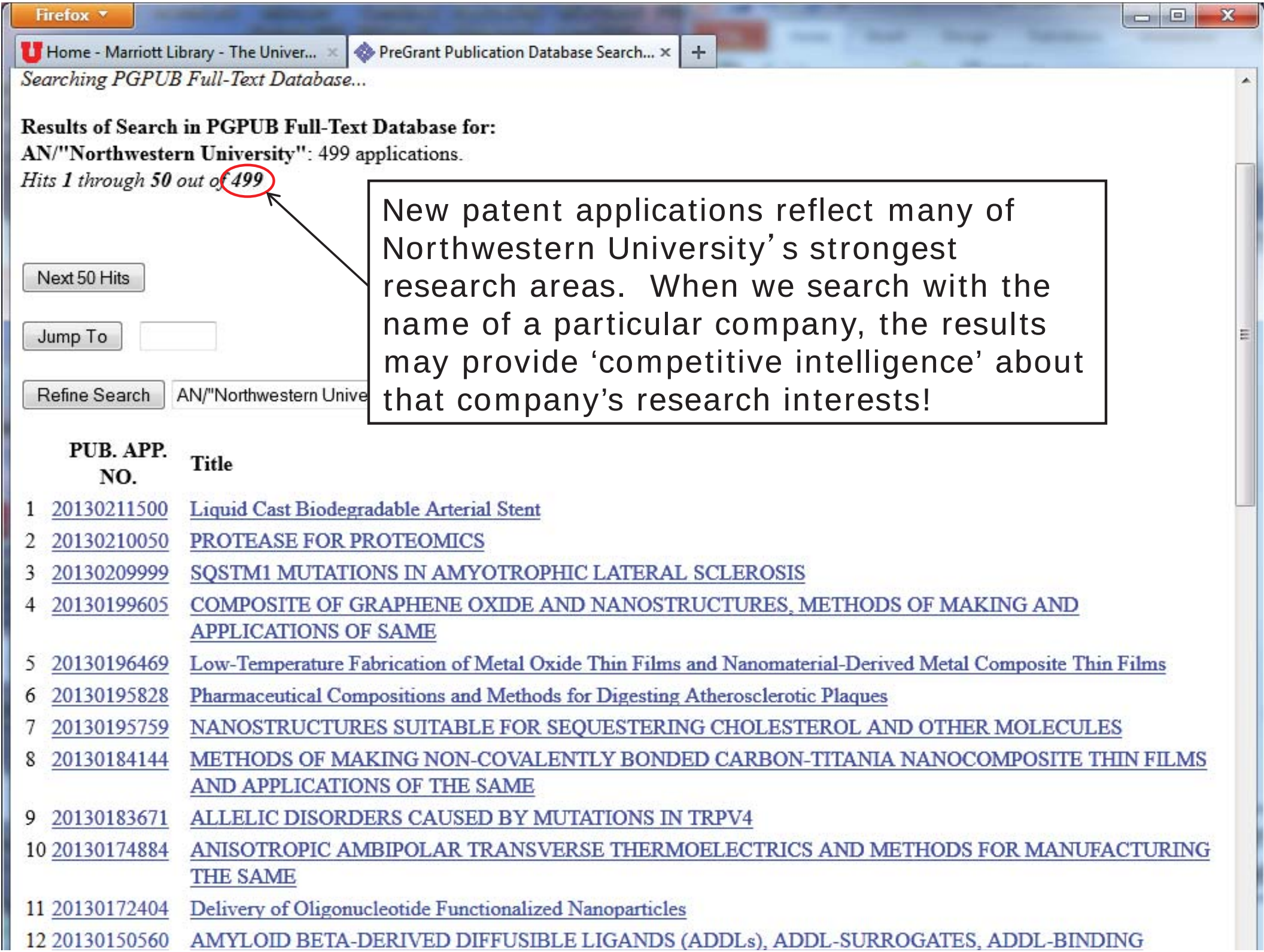
We may restrict the number of 'hits' for our keyword phrase by limiting the phrase to only the 'Title' OR 'Abstract' fields on the front page of each application!


Firefox
PreGrant Publication Database Search Re...
Searching PGPUB Full-Text Database...
Results of Search in PGPUB Full-Text Database for:
TTL/"flexible circuit board$" OR ABST/"flexible circuit board$": 380 applications.
Hits 1 through 50 out of 380
Much better results!
Next 50 Hits
Jump To
Refine Search
TTL/"flexible circuit board$" OR ABST/"flexible circuit
PUB. APP. NO.
Title
1 20130210277 HIGH SPEED COMMUNICATION JACK
2 20130208509 Backlight Module and Thermal Design Thereof
3 20130202985 FLEXIBLE CIRCUIT BOARD AND METHOD FOR MANUFACTURING THE SAME, AND FUEL CELL USING THE FLEXIBLE CIRCUIT BOARD
4 20130195438 LENS BARREL HAVING SHUTTER FLEXIBLE CIRCUIT BOARD AND IMAGE PICKUP APPARATUS HAVING THE SAME
5 20130176693 CIRCUIT BOARD FOR DISPLAY AND DISPLAY MODULE WITH DISPLAY AND CIRCUIT BOARD
6 20130175984 MOBILE TERMINAL POWER RECEIVING MODULE UTILIZING WIRELESS POWER TRANSMISSION AND MOBILE TERMINAL RECHARGABLE BATTERY INCLUDING MOBILE TERMINAL POWER RECEIVING MODULE
7 20130163240 LED STREET LAMP
8 20130160183 TEXTILE ARRANGEMENT AND METHOD FOR MANUFACTURING
9 20130141912 CIRCUIT BOARD FOR DISPLAY DEVICE AND DISPLAY DEVICE HAVING THE SAME
10 20130135854 ILLUMINATION DEVICE
11 20130128524 Back Frame and Backlight System Thereof

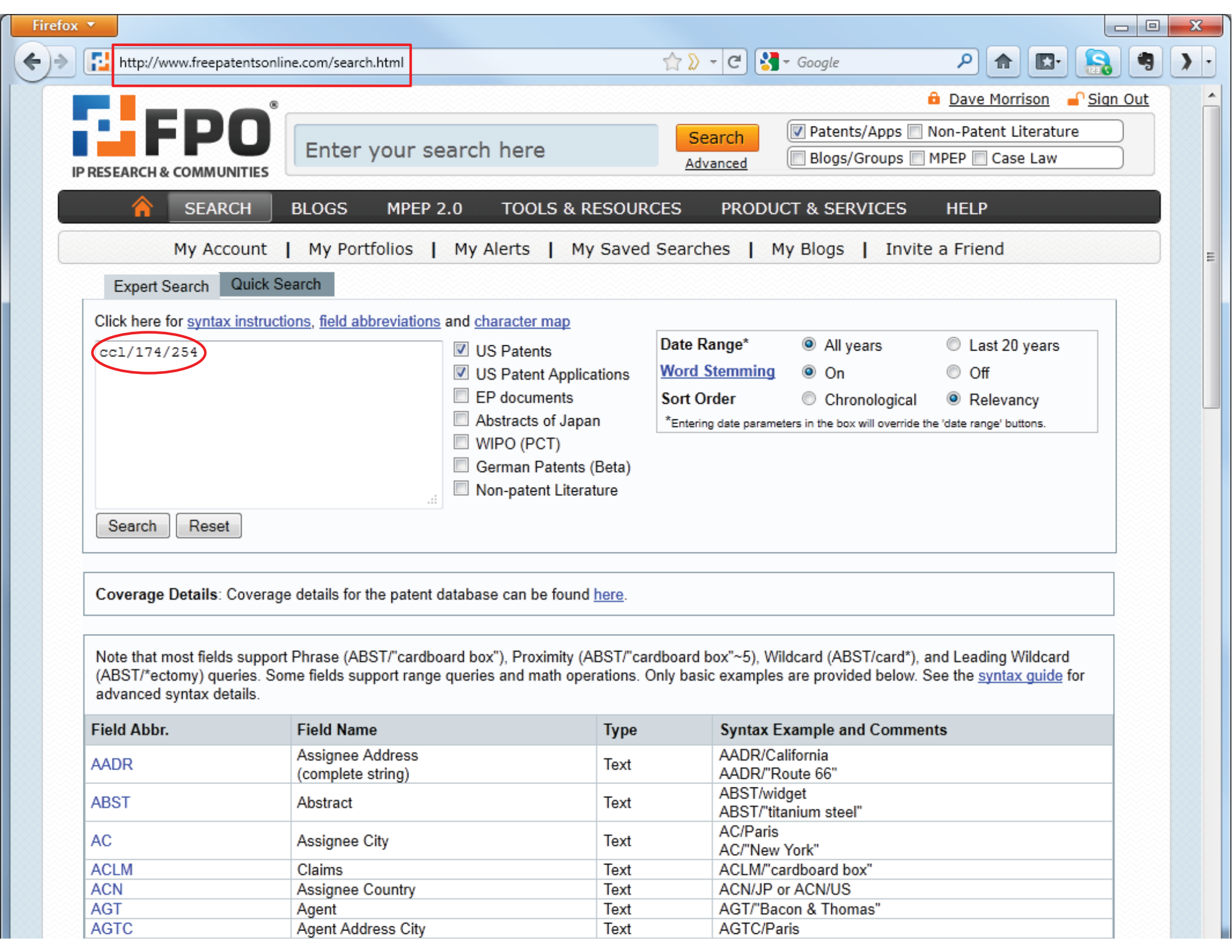
How can we find out about the research strengths of a particular business or research institution? Such as – in the case of our current example – Northwestern University?!



Here, we change the 'Field' name to 'Assignee Name,' that is, the entity that owns the rights to the patent.


Firefox
Home - Marriott Library - The Univer...
PreGrant Publication Database Search...
Searching PGPUB Full-Text Database...
Results of Search in PGPUB Full-Text Database for:
AN/"Northwestern University": 499 applications.
Hits 1 through 50 out of 499
Next 50 Hits
Jump To
Refine Search
AN/"Northwestern Unive
New patent applications reflect many of Northwestern University's strongest research areas. When we search with the name of a particular company, the results may provide 'competitive intelligence' about that company's research interests!
PUB. APP. NO.
Title
1 20130211500 Liquid Cast Biodegradable Arterial Stent
2 20130210050 PROTEASE FOR PROTEOMICS
3 20130209999 SQSTM1 MUTATIONS IN AMYOTROPHIC LATERAL SCLEROSIS
4 20130199605 COMPOSITE OF GRAPHENE OXIDE AND NANOSTRUCTURES, METHODS OF MAKING AND APPLICATIONS OF SAME
5 20130196469 Low-Temperature Fabrication of Metal Oxide Thin Films and Nanomaterial-Derived Metal Composite Thin Films
6 20130195828 Pharmaceutical Compositions and Methods for Digesting Atherosclerotic Plaques
7 20130195759 NANOSTRUCTURES SUITABLE FOR SEQUESTERING CHOLESTEROL AND OTHER MOLECULES
8 20130184144 METHODS OF MAKING NON-COVALENTLY BONDED CARBON-TITANIA NANOCOMPOSITE THIN FILMS AND APPLICATIONS OF THE SAME
9 20130183671 ALLELIC DISORDERS CAUSED BY MUTATIONS IN TRPV4
10 20130174884 ANISOTROPIC AMBIPOLAR TRANSVERSE THERMOELECTRICS AND METHODS FOR MANUFACTURING THE SAME
11 20130172404 Delivery of Oligonucleotide Functionalized Nanoparticles
12 20130150560 AMYLOID BETA-DERIVED DIFFUSIBLE LIGANDS (ADDLs), ADDL-SURROGATES, ADDL-BINDING

Our search results may be more easily utilized in spreadsheet format. We can easily do this using the tools available at the website www.freepatentsonline.com with a free subscription.



Field Abbr.	Field Name	Type	Syntax Example and Comments
AADR	Assignee Address (complete string)	Text	AADR/California AADR/"Route 66"
ABST	Abstract	Text	ABST/widget ABST/"titanium steel"
AC	Assignee City	Text	AC/Paris AC/"New York"
ACLM	Claims	Text	ACLM/"cardboard box"
ACN	Assignee Country	Text	ACN/JP or ACN/US
AGT	Agent	Text	AGT/"Bacon & Thomas"
AGTC	Agent Address City	Text	AGTC/Paris

Firefox

FPO IP Research & Communities

FPO
IP RESEARCH & COMMUNITIES

Dave Morrison | Sign Out

Enter your search here | Search

Patents/Apps | Non-Patent Literature | Blogs/Groups | MPEP | Case Law

SEARCH | BLOGS | MPEP 2.0 | TOOLS & RESOURCES | PRODUCT & SERVICES | HELP

My Account | My Portfolios | My Alerts | My Saved Searches | My Blogs | Invite a Friend

Portfolio:

Add all (up to 1000) to portfolio Choose or add to a new portfolio, named ccl_174_254 Go

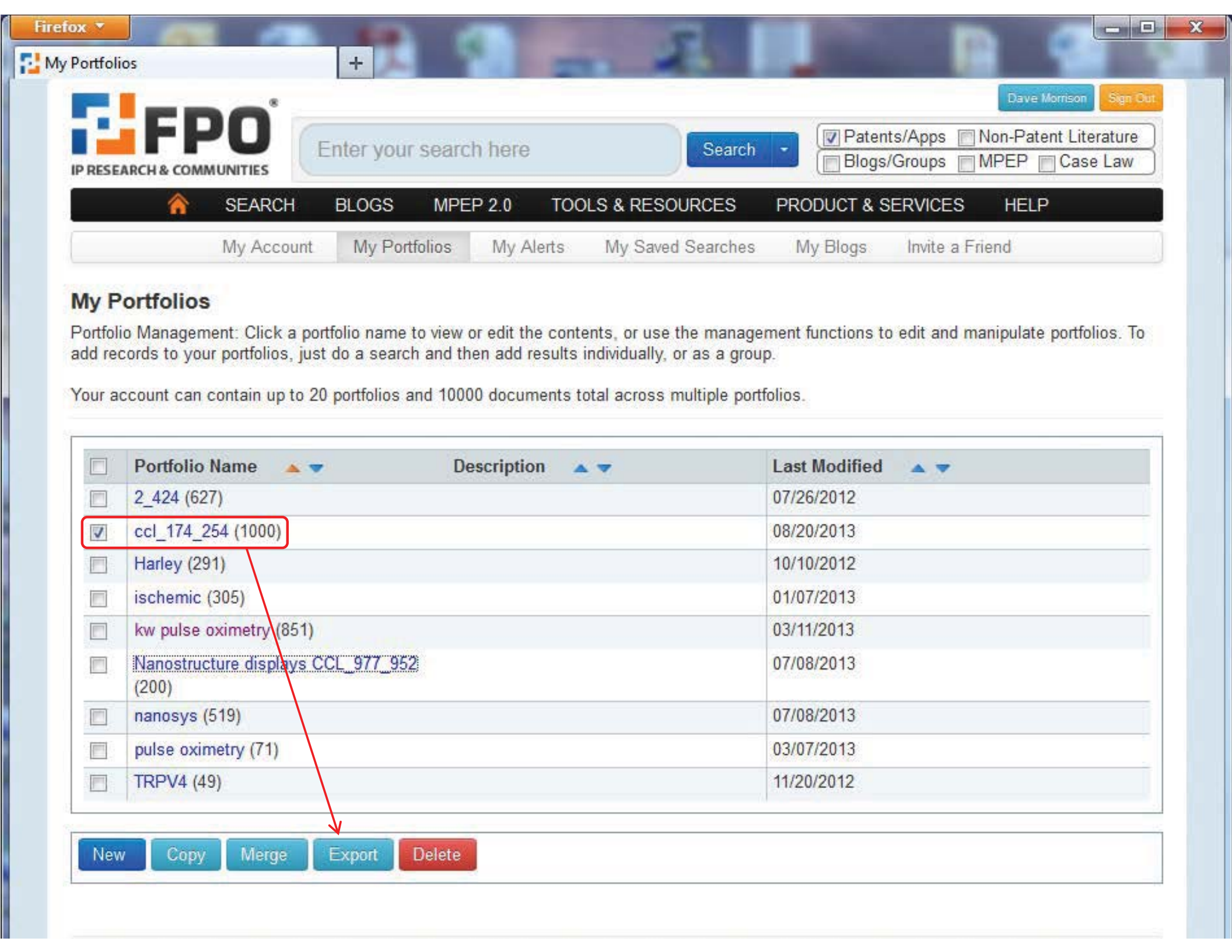
Save Search:

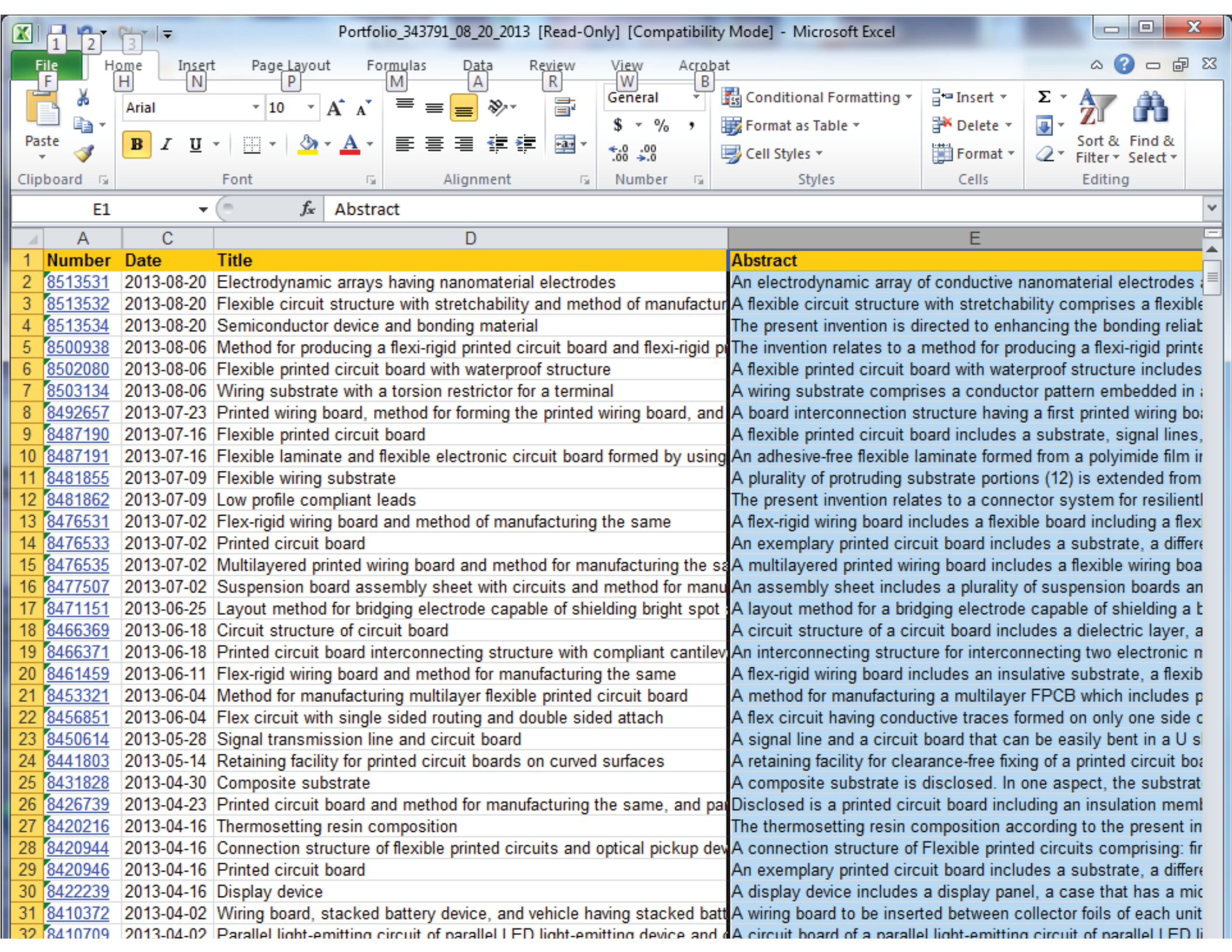
Search name | Click here to save this search | Save

Matches 1 - 50 out of 1963

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 >

Match	Document	Document Title	Score	PDF
1	US20100252307	FLEXIBLE PRINTED CIRCUIT BOARD A flexible printed circuit board includes a substrate, signal lines, a first reinforcing layer, and a second reinforcing layer. The first surface of the substrate includes a layout zone and a...	1000	
2	US20080257587	Rigid-flex printed circuit board with weakening structure A rigid-flex PCB includes at least one rigid PCB (RPCB) and at least one flexible PCB (FPCB). Each RPCB has a connection section; first and second sections separately extended from two lateral...	1000	
3	US20120325528	BUNDLED FLEXIBLE FLAT CIRCUIT CABLE A bundled flexible flat circuit cable includes a flexible substrate that forms at least one cluster section having an end forming at least one first connection section and an opposite end forming...	1000	
4	8399775	Flex-rigid wiring board and method of manufacturing the same A flex-rigid wiring board includes a first rigid substrate, a second rigid substrate arranged at a distance from the first rigid substrate to provide a space between the first and second rigid...	1000	


Firefox
My Portfolios
FPO
IP RESEARCH & COMMUNITIES
Dave Morrison
Sign Out
Enter your search here
Search
Patents/Apps
Non-Patent Literature
Blogs/Groups
MPEP
Case Law
SEARCH
BLOGS
MPEP 2.0
TOOLS & RESOURCES
PRODUCT & SERVICES
HELP
My Account
My Portfolios
My Alerts
My Saved Searches
My Blogs
Invite a Friend
My Portfolios
Portfolio Management: Click a portfolio name to view or edit the contents, or use the management functions to edit and manipulate portfolios. To add records to your portfolios, just do a search and then add results individually, or as a group.
Your account can contain up to 20 portfolios and 10000 documents total across multiple portfolios.
Portfolio Name
Description
Last Modified
2_424 (627) 07/26/2012
ccl_174_254 (1000) 08/20/2013
Harley (291) 10/10/2012
ischemic (305) 01/07/2013
kw pulse oximetry (851) 03/11/2013
Nanostructure displays CCL_977_952 (200) 07/08/2013
nanosys (519) 07/08/2013
pulse oximetry (71) 03/07/2013
TRPV4 (49) 11/20/2012
New
Copy
Merge
Export
Delete



Portfolio_343791_08_20_2013 [Read-Only] [Compatibility Mode] - Microsoft Excel

File Home Insert Page Layout Formulas Data Review View Acrobat

Arial 10 General

Conditional Formatting Format as Table Cell Styles

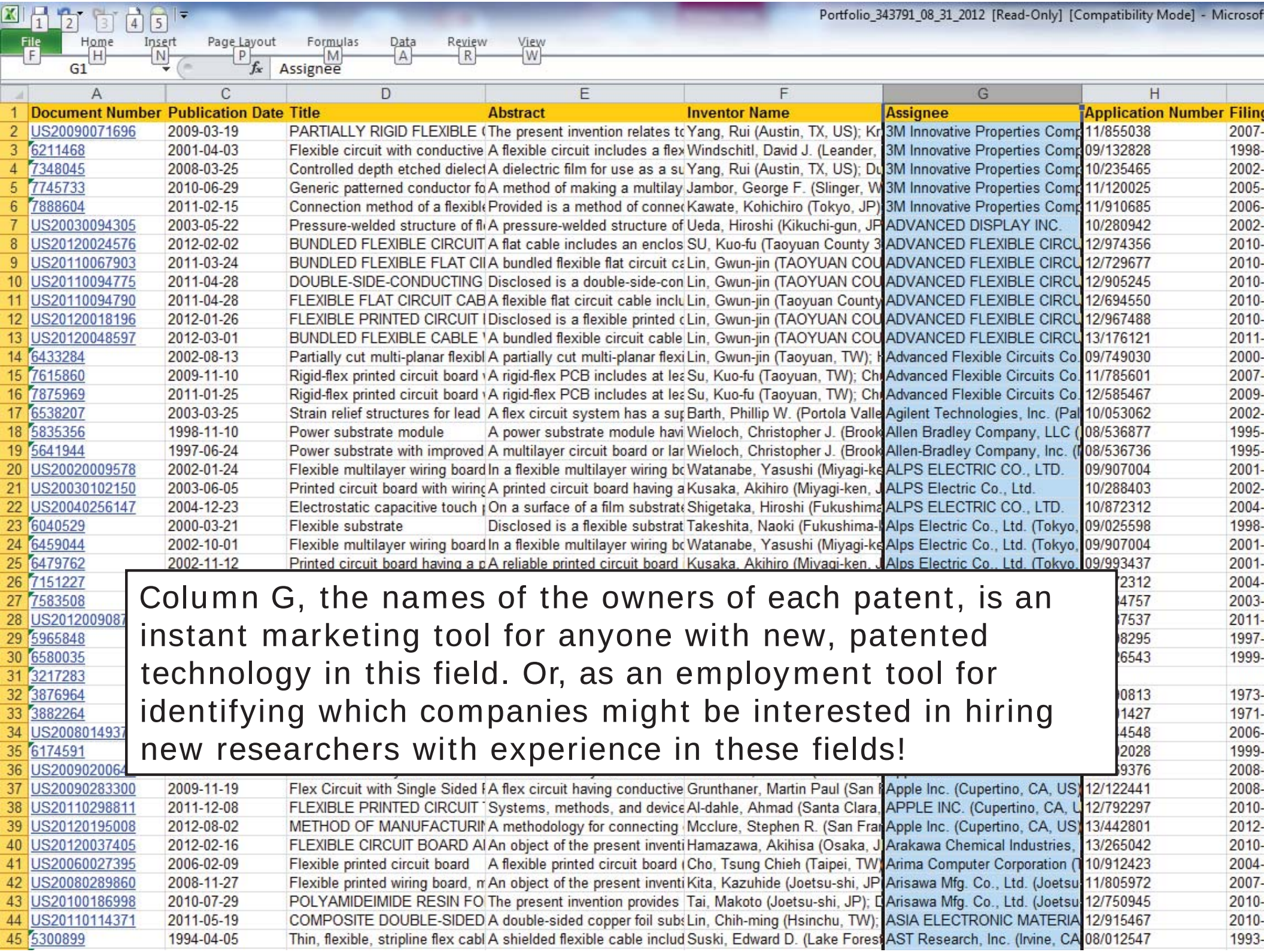
Insert Delete Format

Sort & Filter Find & Select

Clipboard Font Alignment Number Styles Cells Editing

E1 Abstract

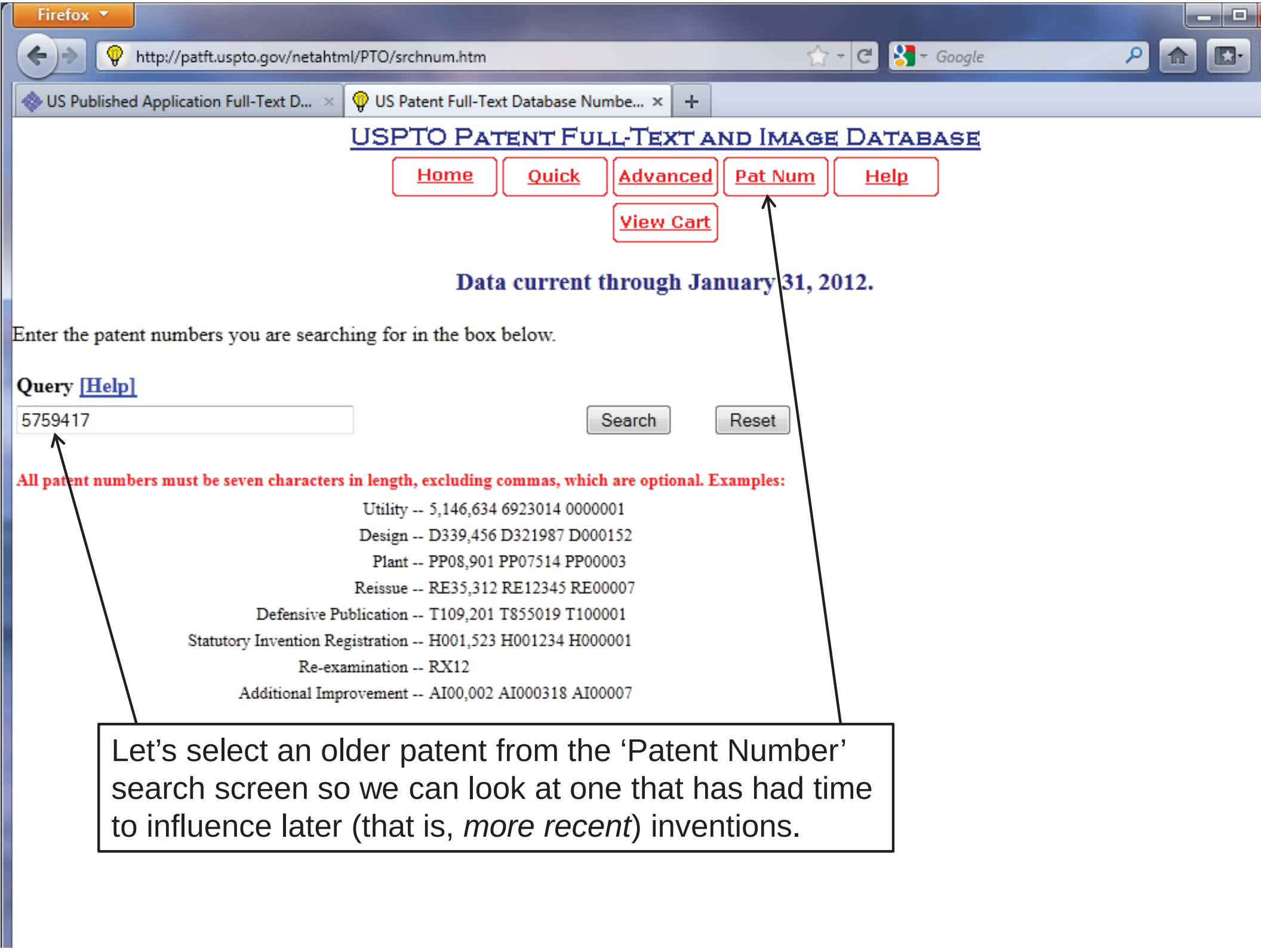
	A	C	D	E
1	Number	Date	Title	Abstract
2	8513531	2013-08-20	Electrodynamic arrays having nanomaterial electrodes	An electrodynamic array of conductive nanomaterial electrodes a
3	8513532	2013-08-20	Flexible circuit structure with stretchability and method of manufactur	A flexible circuit structure with stretchability comprises a flexible
4	8513534	2013-08-20	Semiconductor device and bonding material	The present invention is directed to enhancing the bonding reliab
5	8500938	2013-08-06	Method for producing a flexi-rigid printed circuit board and flexi-rigid p	The invention relates to a method for producing a flexi-rigid printe
6	8502080	2013-08-06	Flexible printed circuit board with waterproof structure	A flexible printed circuit board with waterproof structure includes
7	8503134	2013-08-06	Wiring substrate with a torsion restrictor for a terminal	A wiring substrate comprises a conductor pattern embedded in a
8	8492657	2013-07-23	Printed wiring board, method for forming the printed wiring board, and	A board interconnection structure having a first printed wiring boa
9	8487190	2013-07-16	Flexible printed circuit board	A flexible printed circuit board includes a substrate, signal lines,
10	8487191	2013-07-16	Flexible laminate and flexible electronic circuit board formed by using	An adhesive-free flexible laminate formed from a polyimide film in
11	8481855	2013-07-09	Flexible wiring substrate	A plurality of protruding substrate portions (12) is extended from
12	8481862	2013-07-09	Low profile compliant leads	The present invention relates to a connector system for resilientl
13	8476531	2013-07-02	Flex-rigid wiring board and method of manufacturing the same	A flex-rigid wiring board includes a flexible board including a flexi
14	8476533	2013-07-02	Printed circuit board	An exemplary printed circuit board includes a substrate, a differe
15	8476535	2013-07-02	Multilayered printed wiring board and method for manufacturing the sa	A multilayered printed wiring board includes a flexible wiring boa
16	8477507	2013-07-02	Suspension board assembly sheet with circuits and method for manu	An assembly sheet includes a plurality of suspension boards an
17	8471151	2013-06-25	Layout method for bridging electrode capable of shielding bright spot	A layout method for a bridging electrode capable of shielding a b
18	8466369	2013-06-18	Circuit structure of circuit board	A circuit structure of a circuit board includes a dielectric layer, a
19	8466371	2013-06-18	Printed circuit board interconnecting structure with compliant cantilev	An interconnecting structure for interconnecting two electronic n
20	8461459	2013-06-11	Flex-rigid wiring board and method for manufacturing the same	A flex-rigid wiring board includes an insulative substrate, a flexib
21	8453321	2013-06-04	Method for manufacturing multilayer flexible printed circuit board	A method for manufacturing a multilayer FPCB which includes p
22	8456851	2013-06-04	Flex circuit with single sided routing and double sided attach	A flex circuit having conductive traces formed on only one side c
23	8450614	2013-05-28	Signal transmission line and circuit board	A signal line and a circuit board that can be easily bent in a U sh
24	8441803	2013-05-14	Retaining facility for printed circuit boards on curved surfaces	A retaining facility for clearance-free fixing of a printed circuit boa
25	8431828	2013-04-30	Composite substrate	A composite substrate is disclosed. In one aspect, the substrat
26	8426739	2013-04-23	Printed circuit board and method for manufacturing the same, and pa	Disclosed is a printed circuit board including an insulation memb
27	8420216	2013-04-16	Thermosetting resin composition	The thermosetting resin composition according to the present in
28	8420944	2013-04-16	Connection structure of flexible printed circuits and optical pickup dev	A connection structure of Flexible printed circuits comprising: fir
29	8420946	2013-04-16	Printed circuit board	An exemplary printed circuit board includes a substrate, a differe
30	8422239	2013-04-16	Display device	A display device includes a display panel, a case that has a mic
31	8410372	2013-04-02	Wiring board, stacked battery device, and vehicle having stacked batt	A wiring board to be inserted between collector foils of each unit
32	8410709	2013-04-02	Parallel light-emitting circuit of parallel LED light-emitting device and	A circuit board of a parallel light-emitting circuit of parallel LED li



	A	C	D	E	F	G	H	
1	Document Number	Publication Date	Title	Abstract	Inventor Name	Assignee	Application Number	Filing
2	US20090071696	2009-03-19	PARTIALLY RIGID FLEXIBLE (	The present invention relates to	Yang, Rui (Austin, TX, US); Kr	3M Innovative Properties Comp	11/855038	2007-
3	6211468	2001-04-03	Flexible circuit with conductive	A flexible circuit includes a flex	Windschitl, David J. (Leander,	3M Innovative Properties Comp	09/132828	1998-
4	7348045	2008-03-25	Controlled depth etched dielect	A dielectric film for use as a su	Yang, Rui (Austin, TX, US); Du	3M Innovative Properties Comp	10/235465	2002-
5	7745733	2010-06-29	Generic patterned conductor fo	A method of making a multilay	Jambor, George F. (Slinger, W	3M Innovative Properties Comp	11/120025	2005-
6	7888604	2011-02-15	Connection method of a flexible	Provided is a method of connec	Kawate, Kohichiro (Tokyo, JP)	3M Innovative Properties Comp	11/910685	2006-
7	US20030094305	2003-05-22	Pressure-welded structure of fl	A pressure-welded structure of	Ueda, Hiroshi (Kikuchi-gun, JP	ADVANCED DISPLAY INC.	10/280942	2002-
8	US20120024576	2012-02-02	BUNDLED FLEXIBLE CIRCUIT	A flat cable includes an enclos	SU, Kuo-fu (Taoyuan County 3	ADVANCED FLEXIBLE CIRCU	12/974356	2010-
9	US20110067903	2011-03-24	BUNDLED FLEXIBLE FLAT CII	A bundled flexible flat circuit ca	Lin, Gwun-jin (TAOYUAN COU	ADVANCED FLEXIBLE CIRCU	12/729677	2010-
10	US20110094775	2011-04-28	DOUBLE-SIDE-CONDUCTING	Disclosed is a double-side-con	Lin, Gwun-jin (TAOYUAN COU	ADVANCED FLEXIBLE CIRCU	12/905245	2010-
11	US20110094790	2011-04-28	FLEXIBLE FLAT CIRCUIT CAB	A flexible flat circuit cable inclu	Lin, Gwun-jin (Taoyuan County	ADVANCED FLEXIBLE CIRCU	12/694550	2010-
12	US20120018196	2012-01-26	FLEXIBLE PRINTED CIRCUIT I	Disclosed is a flexible printed c	Lin, Gwun-jin (TAOYUAN COU	ADVANCED FLEXIBLE CIRCU	12/967488	2010-
13	US20120048597	2012-03-01	BUNDLED FLEXIBLE CABLE '	A bundled flexible circuit cable	Lin, Gwun-jin (TAOYUAN COU	ADVANCED FLEXIBLE CIRCU	13/176121	2011-
14	6433284	2002-08-13	Partially cut multi-planar flexibl	A partially cut multi-planar flexi	Lin, Gwun-jin (Taoyuan, TW); H	Advanced Flexible Circuits Co.	09/749030	2000-
15	7615860	2009-11-10	Rigid-flex printed circuit board	A rigid-flex PCB includes at lea	Su, Kuo-fu (Taoyuan, TW); Ch	Advanced Flexible Circuits Co.	11/785601	2007-
16	7875969	2011-01-25	Rigid-flex printed circuit board	A rigid-flex PCB includes at lea	Su, Kuo-fu (Taoyuan, TW); Ch	Advanced Flexible Circuits Co.	12/585467	2009-
17	6538207	2003-03-25	Strain relief structures for lead	A flex circuit system has a sup	Barth, Phillip W. (Portola Valle	Agilent Technologies, Inc. (Pal	10/053062	2002-
18	5835356	1998-11-10	Power substrate module	A power substrate module havi	Wieloch, Christopher J. (Brook	Allen Bradley Company, LLC (	08/536877	1995-
19	5641944	1997-06-24	Power substrate with improved	A multilayer circuit board or lar	Wieloch, Christopher J. (Brook	Allen-Bradley Company, Inc. (I	08/536736	1995-
20	US20020009578	2002-01-24	Flexible multilayer wiring board	In a flexible multilayer wiring bo	Watanabe, Yasushi (Miyagi-ke	ALPS ELECTRIC CO., LTD.	09/907004	2001-
21	US20030102150	2003-06-05	Printed circuit board with wiring	A printed circuit board having a	Kusaka, Akihiro (Miyagi-ken, J	ALPS Electric Co., Ltd.	10/288403	2002-
22	US20040256147	2004-12-23	Electrostatic capacitive touch p	On a surface of a film substrate	Shigetaka, Hiroshi (Fukushima	ALPS ELECTRIC CO., LTD.	10/872312	2004-
23	6040529	2000-03-21	Flexible substrate	Disclosed is a flexible substrat	Takeshita, Naoki (Fukushima-I	Alps Electric Co., Ltd. (Tokyo,	09/025598	1998-
24	6459044	2002-10-01	Flexible multilayer wiring board	In a flexible multilayer wiring bo	Watanabe, Yasushi (Miyagi-ke	Alps Electric Co., Ltd. (Tokyo,	09/907004	2001-
25	6479762	2002-11-12	Printed circuit board having a p	A reliable printed circuit board	Kusaka, Akihiro (Miyagi-ken, J	Alps Electric Co., Ltd. (Tokyo,	09/993437	2001-
26	7151227						72312	2004-
27	7583508						4757	2003-
28	US2012009087						7537	2011-
29	5965848						8295	1997-
30	6580035						6543	1999-
31	3217283							
32	3876964						0813	1973-
33	3882264						1427	1971-
34	US2008014937						4548	2006-
35	6174591						2028	1999-
36	US2009020064						9376	2008-
37	US20090283300	2009-11-19	Flex Circuit with Single Sided F	A flex circuit having conductive	Grunthaner, Martin Paul (San F	Apple Inc. (Cupertino, CA, US)	12/122441	2008-
38	US20110298811	2011-12-08	FLEXIBLE PRINTED CIRCUIT	Systems, methods, and device	Al-dahle, Ahmad (Santa Clara,	APPLE INC. (Cupertino, CA, U	12/792297	2010-
39	US20120195008	2012-08-02	METHOD OF MANUFACTURI	A methodology for connecting	Mcclure, Stephen R. (San Fran	Apple Inc. (Cupertino, CA, US)	13/442801	2012-
40	US20120037405	2012-02-16	FLEXIBLE CIRCUIT BOARD AI	An object of the present inventi	Hamazawa, Akihisa (Osaka, J	Arakawa Chemical Industries,	13/265042	2010-
41	US20060027395	2006-02-09	Flexible printed circuit board	A flexible printed circuit board	Cho, Tsung Chieh (Taipei, TW)	Arima Computer Corporation (T	10/912423	2004-
42	US20080289860	2008-11-27	Flexible printed wiring board, m	An object of the present inventi	Kita, Kazuhide (Joetsu-shi, JP)	Arisawa Mfg. Co., Ltd. (Joetsu	11/805972	2007-
43	US20100186998	2010-07-29	POLYAMIDEIMIDE RESIN FO	The present invention provides	Tai, Makoto (Joetsu-shi, JP); D	Arisawa Mfg. Co., Ltd. (Joetsu	12/750945	2010-
44	US20110114371	2011-05-19	COMPOSITE DOUBLE-SIDED	A double-sided copper foil subs	Lin, Chih-ming (Hsinchu, TW);	ASIA ELECTRONIC MATERIA	12/915467	2010-
45	5300899	1994-04-05	Thin, flexible, stripline flex cabl	A shielded flexible cable includ	Suski, Edward D. (Lake Forest	AST Research, Inc. (Irvine, CA	08/012547	1993-

How a technology changes over time

We can 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.


Firefox
http://patft.uspto.gov/netahtml/PTO/srchnum.htm
Google
US Published Application Full-Text D...
US Patent Full-Text Database Numbe...
USPTO PATENT FULL-TEXT AND IMAGE DATABASE
Home
Quick
Advanced
Pat Num
Help
View Cart
Data current through January 31, 2012.
Enter the patent numbers you are searching for in the box below.
Query [Help]
5759417
Search
Reset
All patent numbers must be seven characters in length, excluding commas, which are optional. Examples:
Utility -- 5,146,634 6923014 0000001
Design -- D339,456 D321987 D000152
Plant -- PP08,901 PP07514 PP00003
Reissue -- RE35,312 RE12345 RE00007
Defensive Publication -- T109,201 T855019 T100001
Statutory Invention Registration -- H001,523 H001234 H000001
Re-examination -- RX12
Additional Improvement -- AI00,002 AI000318 AI00007
Let's select an older patent from the 'Patent Number' search screen so we can look at one that has had time to influence later (that is, *more recent*) inventions.

United States Patent
Inaba

5,759,417
June 2, 1998

Definitely 'an older invention!'

Flexible circuit board and production method therefor

Abstract

A desired circuit wiring pattern is formed by forming by plating means a conductive layer having excellent resistance at least to an etching solution on a metal layer which is removed in the post-process by etching means using a resist layer. A surface protective layer having a hole for exposing part of the circuit wiring pattern is formed on both sides of the circuit wiring pattern at a predetermined position as an external connection terminal portion. The circuit wiring pattern can be formed in multiple layers by coating the conductive layer with a circuit wiring layer of another conductive material and a bump is formed to fill the hole as required.

Inventors: **Inaba; Masaichi** (Ushiku, **JP**)
Assignee: **Nippon Mektron, Ltd.** (Tokyo, **JP**)
Appl. No.: **08/724,080**
Filed: **September 30, 1996**

Foreign Application Priority Data

United States Patent **5,759,417**
Inaba **June 2, 1998**

Flexible circuit board and production method therefor

Abstract

A desired circuit wiring pattern is formed by forming by plating means a conductive layer having excellent resistance at least to an etching solution on a metal layer which is removed in the post-process by etching means using a resist layer. A surface protective layer having a hole for exposing part of the circuit wiring pattern is formed on both sides of the circuit wiring pattern at a predetermined position as an external connection terminal portion. The circuit wiring pattern can be formed in multiple layers by coating the conductive layer with a circuit wiring layer of another conductive material and a bump is formed to fill the hole as required.

Inventors: **Inaba; Masaichi** (Ushiku, JP)
Assignee: **Nippon Mektron, Ltd.** (Tokyo, JP)
Appl. No.: **08/724,080**
Filed: **September 30, 1996**

Foreign Application Priority Data

7-279726

Current U.S. Class: **430/312** ; 216/18; 427/97.2; 430/315; 430/319
Current International Class: H05K 3/40 (20060101); H05K 3/28 (20060101); H05K 3/42 (20060101); H05K 1/00 (20060101); H01B 013/22 ()
Field of Search: 427/96,97,98,99 438/108,613,614,343 361/767,771,779 174/254 430/312,315,319 216/18

Later patents that refer back to this 1998 patent as part of their *'prior art.'*

Prior Art – or earlier inventions that show *earlier steps* in the development of this technology.

References Cited [Referenced By]

U.S. Patent Documents

4604160	August 1986	Murakami et al.
5448020	September 1995	Pendse

Primary Examiner: Beck; Shrive P.

Firefox

http://patft.uspto.gov/netacgi/nph-Parser?Sect1=PTO2&Sect2=HITOFF&p=1&u=%2Fnetahtml?

US Published Application Full-Text D... | Patent Database Search Results: ref/5...

Searching US Patent Collection...

Results of Search in US Patent Collection db for:
REF/5759417: 13 patents.
*Hits **1** through **13** out of **13***

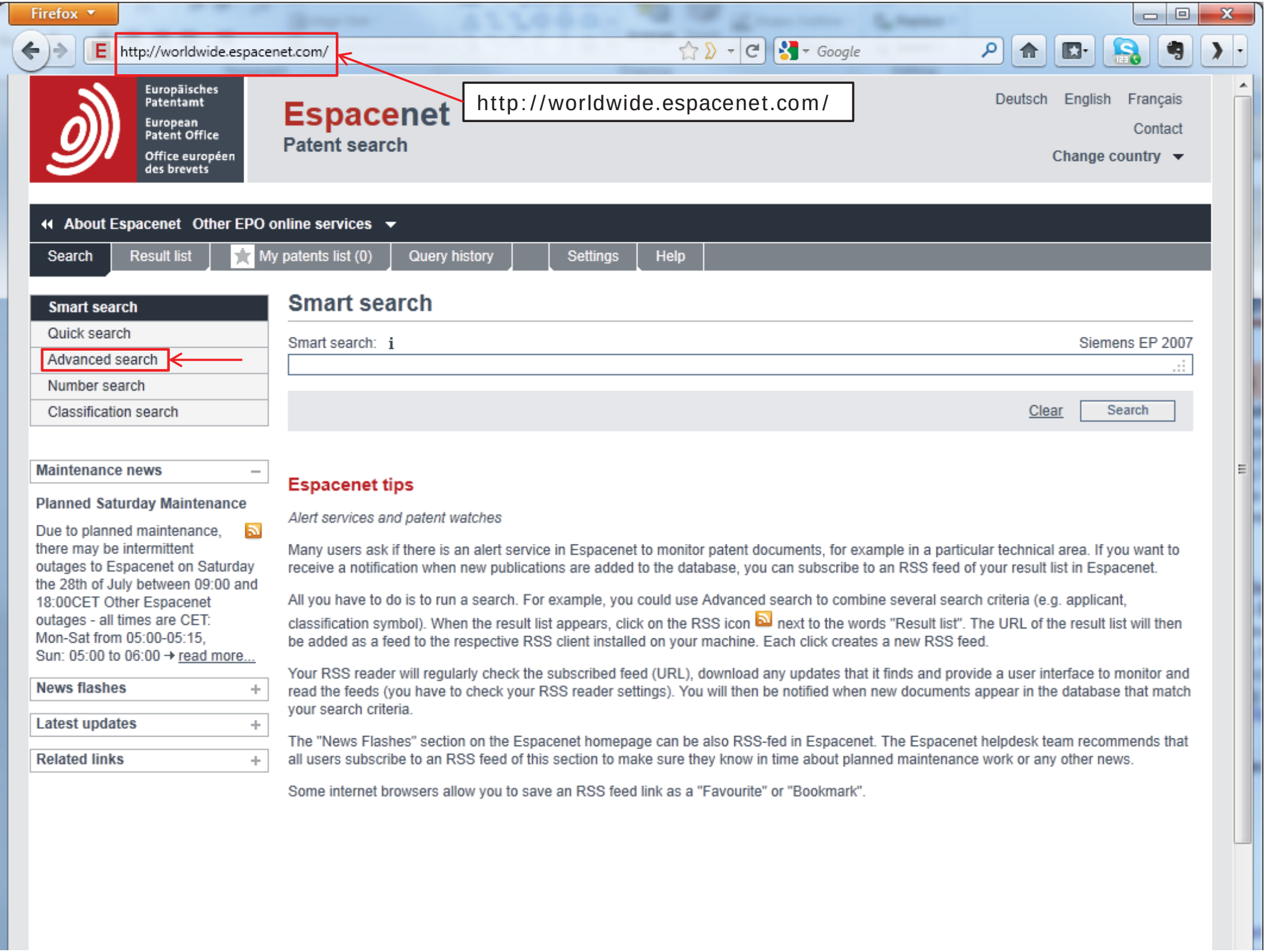
These thirteen more recent patents all refer back to US5759417 as part of the '*Prior Art,*' or earlier line of development, for their invention.

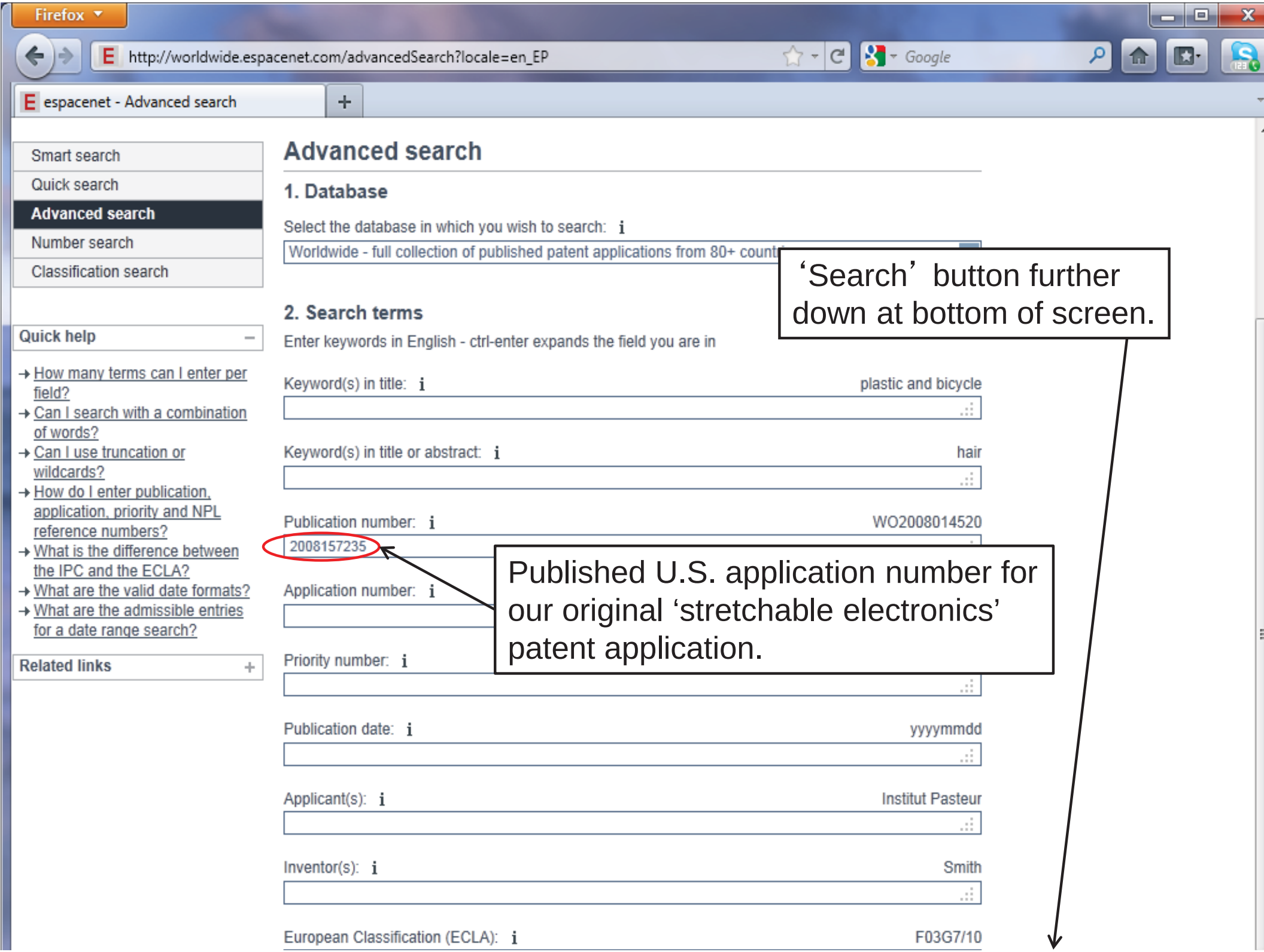
Jump To

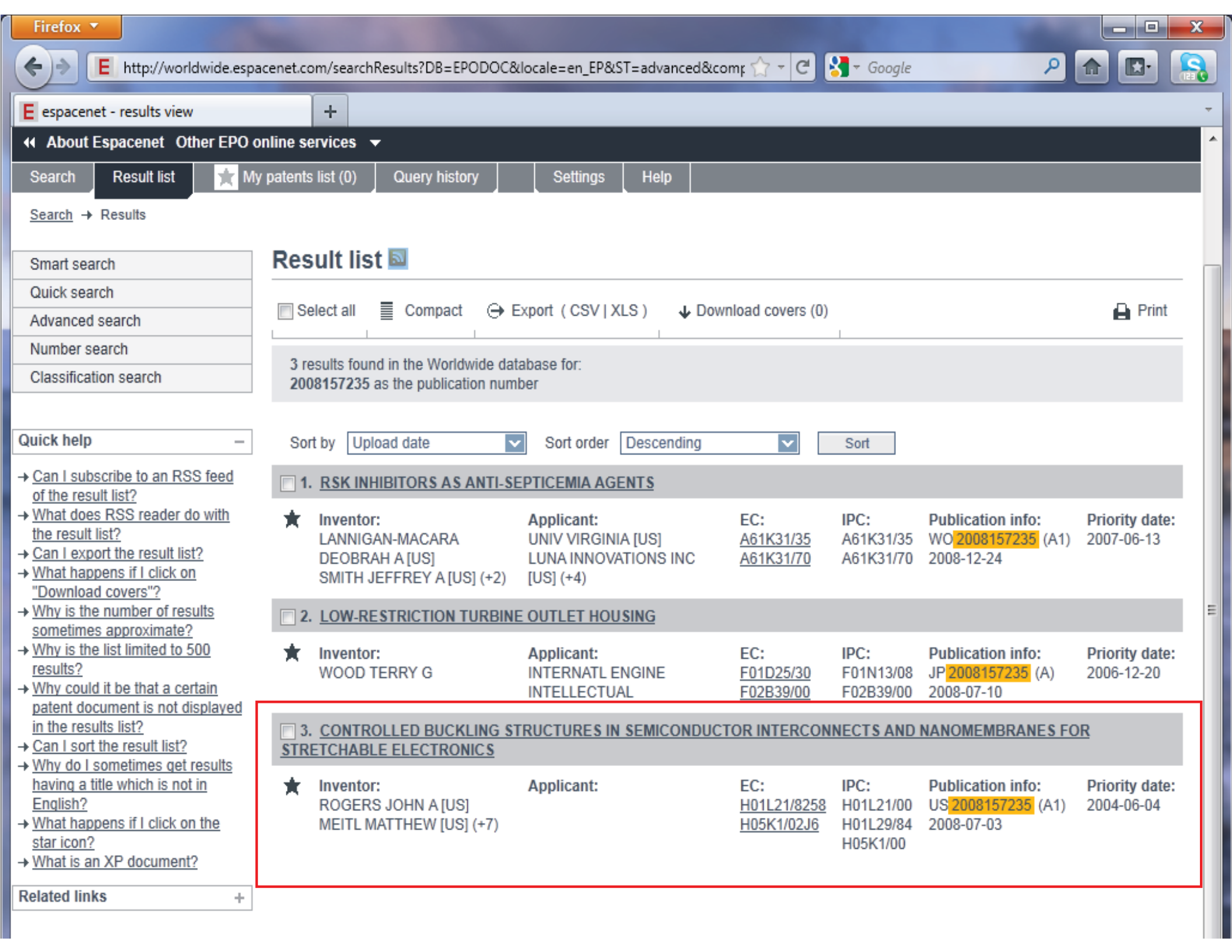
Refine Search ref/5759417

	PAT. NO.	Title
1	8,008,130	Multilayer interconnection board, semiconductor device having the same, and method of forming the same as well as method of mounting the semicondutor chip on the interconnection board
2	7,053,312	Flexible wiring boards
3	6,977,349	Method for manufacturing wiring circuit boards with bumps and method for forming bumps
4	6,848,176	Process for manufacturing flexible wiring boards
5	6,720,127	Printed circuit substrate with controlled placement covercoat layer
6	6,643,923	Processes for manufacturing flexible wiring boards
7	6,562,250	Method for manufacturing wiring circuit boards with bumps and method for forming bumps
8	6,544,430	Methods for detaching a layer from a substrate
9	6,461,527	Method for fabricating a flexible printed circuit board with access on both sides
10	6,423,470	Printed circuit substrate with controlled placement covercoat layer
11	6,391,220	Methods for fabricating flexible circuit structures
12	5,989,786	Embossed metal gasket and method of manufacturing the same
13	5,914,179	Flexible circuit board and production method therefor

- 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.


Firefox
http://worldwide.espacenet.com/
Google
http://worldwide.espacenet.com/
Europäisches Patentamt
European Patent Office
Office européen des brevets
Espacenet
Patent search
Deutsch English Français
Contact
Change country
About Espacenet Other EPO online services
Search Result list My patents list (0) Query history Settings Help
Smart search
Quick search
Advanced search
Number search
Classification search
Maintenance news
Planned Saturday Maintenance
Due to planned maintenance, there may be intermittent outages to Espacenet on Saturday the 28th of July between 09:00 and 18:00CET Other Espacenet outages - all times are CET: Mon-Sat from 05:00-05:15, Sun: 05:00 to 06:00 → read more...
News flashes
Latest updates
Related links
Smart search
Smart search:
Siemens EP 2007
Clear
Search
Espacenet tips
Alert services and patent watches
Many users ask if there is an alert service in Espacenet to monitor patent documents, for example in a particular technical area. If you want to receive a notification when new publications are added to the database, you can subscribe to an RSS feed of your result list in Espacenet.
All you have to do is to run a search. For example, you could use Advanced search to combine several search criteria (e.g. applicant, classification symbol). When the result list appears, click on the RSS icon next to the words "Result list". The URL of the result list will then be added as a feed to the respective RSS client installed on your machine. Each click creates a new RSS feed.
Your RSS reader will regularly check the subscribed feed (URL), download any updates that it finds and provide a user interface to monitor and read the feeds (you have to check your RSS reader settings). You will then be notified when new documents appear in the database that match your search criteria.
The "News Flashes" section on the Espacenet homepage can be also RSS-fed in Espacenet. The Espacenet helpdesk team recommends that all users subscribe to an RSS feed of this section to make sure they know in time about planned maintenance work or any other news.
Some internet browsers allow you to save an RSS feed link as a "Favourite" or "Bookmark".


Firefox
http://worldwide.espacenet.com/advancedSearch?locale=en_EP
Google
espacenet - Advanced search
Smart search
Quick search
Advanced search
Number search
Classification search
Quick help
How many terms can I enter per field?
Can I search with a combination of words?
Can I use truncation or wildcards?
How do I enter publication, application, priority and NPL reference numbers?
What is the difference between the IPC and the ECLA?
What are the valid date formats?
What are the admissible entries for a date range search?
Related links
Advanced search
1. Database
Select the database in which you wish to search:
Worldwide - full collection of published patent applications from 80+ countr
2. Search terms
Enter keywords in English - ctrl-enter expands the field you are in
Keyword(s) in title: plastic and bicycle
Keyword(s) in title or abstract: hair
Publication number: WO2008014520
2008157235
Application number:
Priority number:
Publication date: yyyymmdd
Applicant(s): Institut Pasteur
Inventor(s): Smith
European Classification (ECLA): F03G7/10
'Search' button further down at bottom of screen.
Published U.S. application number for our original 'stretchable electronics' patent application.


Firefox
http://worldwide.espacenet.com/searchResults?DB=EPODOC&locale=en_EP&ST=advanced&comp
Google
espacenet - results view
About Espacenet Other EPO online services
Search
Result list
My patents list (0)
Query history
Settings
Help
Search → Results
Smart search
Quick search
Advanced search
Number search
Classification search
Result list
Select all
Compact
Export (CSV | XLS)
Download covers (0)
Print
3 results found in the Worldwide database for:
2008157235 as the publication number
Sort by
Upload date
Sort order
Descending
Sort
1. RSK INHIBITORS AS ANTI-SEPTICEMIA AGENTS
Inventor:
LANNIGAN-MACARA DEOBRAH A [US]
SMITH JEFFREY A [US] (+2)
Applicant:
UNIV VIRGINIA [US]
LUNA INNOVATIONS INC [US] (+4)
EC:
A61K31/35
A61K31/70
IPC:
A61K31/35
A61K31/70
Publication info:
WO 2008157235 (A1)
2008-12-24
Priority date:
2007-06-13
2. LOW-RESTRICTION TURBINE OUTLET HOUSING
Inventor:
WOOD TERRY G
Applicant:
INTERNATL ENGINE INTELLECTUAL
EC:
F01D25/30
F02B39/00
IPC:
F01N13/08
F02B39/00
Publication info:
JP 2008157235 (A)
2008-07-10
Priority date:
2006-12-20
3. CONTROLLED BUCKLING STRUCTURES IN SEMICONDUCTOR INTERCONNECTS AND NANOMEMBRANES FOR STRETCHABLE ELECTRONICS
Inventor:
ROGERS JOHN A [US]
MEITL MATTHEW [US] (+7)
Applicant:
EC:
H01L21/8258
H05K1/02J6
IPC:
H01L21/00
H01L29/84
H05K1/00
Publication info:
US 2008157235 (A1)
2008-07-03
Priority date:
2004-06-04
Quick help
Can I subscribe to an RSS feed of the result list?
What does RSS reader do with the result list?
Can I export the result list?
What happens if I click on "Download covers"?
Why is the number of results sometimes approximate?
Why is the list limited to 500 results?
Why could it be that a certain patent document is not displayed in the results list?
Can I sort the result list?
Why do I sometimes get results having a title which is not in English?
What happens if I click on the star icon?
What is an XP document?
Related links

Quick help
- What does A1, A2, A3 and B stand for after a publication number?
- What happens if I click on "In my patents list"?
- What happens if I click on the "Register" button?
- Why are some sidebar options deactivated for certain documents?
- How can I bookmark this page?
- Why does a list of documents with the heading "Also published as" sometimes appear, and what are these documents?
- What is a cited document?
- What are citing documents?
- What information will I find if I click on the link "View all"?

Bibliographic data: US2008157235 (A1) — 2008-07-03

In my patents list | Previous | 3 / 3 | Next | EP Register | Report data error | Print

CONTROLLED BUCKLING STRUCTURES IN SEMICONDUCTOR INTERCONNECTS AND NANOMEMBRANES FOR STRETCHABLE ELECTRONICS

Page bookmark US2008157235 (A1) - CONTROLLED BUCKLING STRUCTURES IN SEMICONDUCTOR INTERCONNECTS AND NANOMEMBRANES FOR STRETCHABLE ELECTRONICS

Inventor(s): ROGERS JOHN A [US]; MEITL MATTHEW [US]; SUN YUGANG [US]; KO HEUNG CHO [US]; CARLSON ANDREW [US]; CHOI WON MOOK [US]; STOYKOVICH MARK [US]; JIANG HANQING [US]; HUANG YONGGANG [US] +

Applicant(s):

Classification: - international: *H01L21/00; H01L29/84; H05K1/00*

- European: H01L21/8258; H05K1/02J6

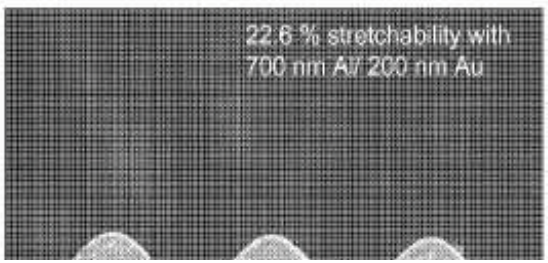
Application number: US20070851182 20070906

Priority number(s): US20070851182 20070906; US20050145574 20050602; US20050145542 20050602; US20060423287 20060609; US20070944626P 20070618; US20060824683P 20060906; US20040577077P 20040604; US20040601061P 20040811; US20050650305P 20050204; US20050663391P 20050318; US20050677617P 20050504; US20060790104P 20060407

Abstract of US2008157235 (A1)

Translate this text

21 Languages including English!



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,

US2008157235 (A1)
Bibliographic data
Description
Claims
Mosaics
Original document
Cited documents
Citing documents
INPADOC legal status
INPADOC patent family

Quick help
- Can I export this list?
- What happens if I click on "Download covers"?
- Can I sort the list?
- What happens if I click on the star icon?
- What is a patent family?
- What happens if I tick the "show citations" box?
- What is an INPADOC patent family?
- Are all the documents in an INPADOC family equivalents?
- Why is the same document published several times in the same country?

Family list: US2008157235 (A1) — 2008-07-03

Select all (0/25) | Compact | Export (CSV | XLS) | Download covers | CCD | Pr

Approximately **51** application(s) for: US2008157235 (A1) 1

Sort by: Priority date | Sort order: Descending | Sort | show citations

1. Methods and devices for fabricating and assembling printable semiconductor elements

Inventor:	Applicant:	CPC:	IPC:	Publication info:	Priority d
ETIENNE MENARD [US] JAE LEE KEON [US] (+3)	UNIV ILLINOIS [US]	B81C2201/0185 B82Y10/00 H01L21/02628 (+15)	B81C1/00 H01L21/00 H01L21/20 (+11)	CN101120433 (A) 2008-02-06 CN101120433 (B) 2010-12-08	2004-06-

2. Printable semiconductor structures and related methods of making and assembling

Inventor:	Applicant:	CPC:	IPC:	Publication info:	Priority d
NUZZO RALPH G ROGERS JOHN A (+8)	UNIV ILLINOIS		H01L21/302	CN101632156 (A) 2010-01-20 CN101632156 (B) 2012-06-20	2005-06-

3. Controlled buckling structures in semiconductor interconnects and nanomembranes for stretchable electronics

Inventor:	Applicant:	CPC:	IPC:	Publication info:	Priority d
ROGERS JOHN A MATTHEW MEITL (+15)	UNIV ILLINOIS [US]	B81B3/0078 B82Y10/00 H01L21/6835 (+25)	H01B7/06 H01R35/00	CN101681695 (A) 2010-03-24 CN101681695 (B) 2013-04-10	2006-09-

4. Methods and devices for fabricating and assembling printable semiconductor elements

Inventor:	Applicant:	CPC:	IPC:	Publication info:	Priority d
NUZZO RALPH G ROGERS JOHN A	UNIV ILLINOIS	B81C2201/0185 B82Y10/00	B81C1/00 H01L21/336	CN102097458 (A) 2011-06-15	2004-06-

	Inventor:	Applicant:	EC:	IPC:	Publication info:	Priority date:
6. METHODS AND DEVICES FOR FABRICATING AND ASSEMBLING PRINTABLE SEMICONDUCTOR ELEMENTS	NUZZO RALPH G [US] ROGERS JOHN A [US] (+6)	UNIV ILLINOIS [US]	B82Y10/00 H01L21/02K4E3L5 (+4)	B81C1/00 H01L21/02 H01L21/20 (+11)	EP1759422 (A2) 2007-03-07 EP1759422 (A4) 2011-04-06	2004-06-04
7. PRINTABLE SEMICONDUCTOR STRUCTURES AND RELATED METHODS OF MAKING AND ASSEMBLING	NUZZO RALPH G [US] ROGERS JOHN A [US] (+8)	UNIV ILLINOIS [US]	B82Y10/00 H01L21/336D (+5)	H01L21/302 H01L21/8242 H01L23/62 (+2)	EP1915774 (A2) 2008-04-30	2005-06-02
8. CONTROLLED BUCKLING STRUCTURES IN SEMICONDUCTOR INTERCONNECTS AND NANOMEMBRANES FOR STRETCHABLE ELECTRONICS	ROGERS JOHN A [US] MEITL MATTHEW [US] (+15)	UNIV ILLINOIS [US]	B81B3/00S2Z B82Y10/00 (+11)	H01B7/06 H01R35/00	EP2064710 (A2) 2009-06-03 EP2064710 (A4) 2011-05-04	2006-09-06
9. PATTERN TRANSFER PRINTING BY DYNAMIC CONTROL OF ADHESION ON ELASTOMER STAMP	NUZZO RALPH G ROGERS JOHN A (+6)	UNIV ILLINOIS [US]		H01L21/02 H01L27/12	JP2007027693 (A) 2007-02-01	2005-06-02
10. SHRINKABLE SINGLE CRYSTAL SILICON FOR HIGH PERFORMANCE ELECTRONICS ON RUBBER SUBSTRATE	ROGERS JOHN A KHANG DAHL-YOUNG (+1)	UNIV ILLINOIS [US]	H01L29/16G H01L29/786A	H01L21/02 H01L21/336 H01L27/12 (+1)	JP2007281406 (A) 2007-10-25	2006-04-07
11. METHODS AND DEVICES FOR FABRICATING AND ASSEMBLING PRINTABLE SEMICONDUCTOR ELEMENTS	Inventor:	Applicant:	EC:	IPC:	Publication info:	Priority date:

11. METHODS AND DEVICES FOR FABRICATING AND ASSEMBLING PRINTABLE SEMICONDUCTOR ELEMENTS					
★	**Inventor:**	**Applicant:**	**EC:** B82Y10/00 H01L21/02K4E3L5 (+4)	**IPC:** B81C1/00 H01L21/02 H01L21/329 (+13)	**Publication info:** JP2008502151 (A) 2008-01-24
Priority date: 2004-06-04					
12. PRINTABLE SEMICONDUCTOR STRUCTURES AND RELATED METHODS OF MAKING AND ASSEMBLING					
★	**Inventor:**	**Applicant:**	**EC:**	**IPC:** H01L21/02 H01L21/336 H01L21/338 (+5)	**Publication info:** JP2009508322 (A) 2009-02-26
Priority date: 2005-06-02					
13. CONTROLLED BUCKLING STRUCTURES IN SEMICONDUCTOR INTERCONNECTS AND NANOMEMBRANES FOR STRETCHABLE ELECTRONICS					
★	**Inventor:**	**Applicant:**	**EC:** B81B3/00S2Z B82Y10/00 (+11)	**IPC:** B81B3/00 H01L21/28 H01L21/288 (+11)	**Publication info:** JP2010503238 (A) 2010-01-28
Priority date: 2006-09-06					
14. PATTERN TRANSFER PRINTING BY KINETIC CONTROL OF ADHESION TO AN ELASTOMERIC STAMP					
★	**Inventor:** NUZZO RALPH G [US] ROGERS JOHN A [US] (+6)	**Applicant:** UNIV ILLINOIS [US]	**EC:** B82Y10/00 H01L21/336D (+5)	**IPC:** H01L21/027	**Publication info:** KR20060125620 (A) 2006-12-06 KR100798431 (B1) 2008-01-28
Priority date: 2005-06-02					
15. METHODS AND DEVICES FOR FABRICATING AND ASSEMBLING PRINTABLE SEMICONDUCTOR ELEMENTS					
★	**Inventor:** NUZZO RALPH G [US] ROGERS JOHN A [US] (+6)	**Applicant:** UNIV ILLINOIS [US]	**EC:** B82Y10/00 H01L21/02K4E3L5 (+4)	**IPC:** B81C1/00 H01L21/77 H01L27/12 (+4)	**Publication info:** KR20070037484 (A) 2007-04-04
Priority date: 2004-06-04					

Link to patent family at Esp@cenet

http://worldwide.espacenet.com/publicationDetails/inpadocPatentFamily?page=0&FT=D&CC=US&locale=en_EP&DB=EPODOC&NR=2008157235A1&date=20080703&ND=3&KC=A1

Bibliographic data: US2008157235 (A1) — 2008-07-03

CONTROLLED BUCKLING STRUCTURES IN SEMICONDUCTOR INTERCONNECTS AND NANOMEMBRANES FOR STRETCHABLE ELECTRONICS

Page bookmark US2008157235 (A1) - CONTROLLED BUCKLING STRUCTURES IN SEMICONDUCTOR INTERCONNECTS AND NANOMEMBRANES FOR STRETCHABLE ELECTRONICS

Inventor(s): ROGERS JOHN A [US]; MEITL MATTHEW [US]; SUN YUGANG [US]; KO HEUNG CHO [US]; CARLSON ANDREW [US]; CHOI WON MOOK [US]; STOYKOVICH MARK [US]; JIANG HANQING [US]; HUANG YONGGANG [US] +

Applicant(s):

Classification: - international: ***H01L21/00; H01L29/84; H05K1/00***

- European: H01L21/8258; H05K1/02J6

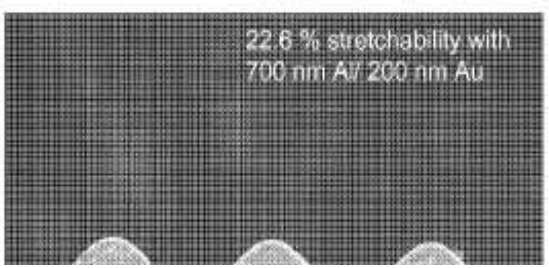
Application number: US20070851182 20070906

Priority number(s): US20070851182 20070906; US20050145574 20050602; US20050145542 20050602; US20060423287 20060609; US20070944626P 20070618; US20060824683P 20060906; US20040577077P 20040604; US20040601061P 20040811; US20050650305P 20050204; US20050663391P 20050318; US20050677617P 20050504; US20060790104P 20060407

Abstract of US2008157235 (A1)

Translate this text

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,



INPADOC legal status: US2008157235 (A1) — 2008-07-03

CONTROLLED BUCKLING STRUCTURES IN SEMICONDUCTOR INTERCONNECTS AND NANOMEMBRANES FOR STRETCHABLE ELECTRONICS

Legal status of US2008157235 (A1) 2008-07-03:

US	**F**	**85118207 A** (Patent of invention)
	PRS Date :	2008/03/24
	PRS Code :	AS
	Code Expl.:	ASSIGNMENT
	NEW OWNER :	THE BOARD OF TRUSTEES OF THE UNIVERSITY OF ILLINOI
	FURTHER INFORMATION :	ASSIGNMENT OF ASSIGNORS INTEREST;ASSIGNORS:ROGERS, JOHN A.;MEITL, MATTHEW;SUN, YUGANG;AND OTHERS;REEL/FRAME:020691/0972;SIGNING DATES FROM 20071106 TO 20080220

Bibliographic data: US2008157235 (A1) — 2008-07-03

CONTROLLED BUCKLING STRUCTURES IN SEMICONDUCTOR INTERCONNECTS AND NANOMEMBRANES FOR STRETCHABLE ELECTRONICS

Page bookmark US2008157235 (A1) - CONTROLLED BUCKLING STRUCTURES IN SEMICONDUCTOR INTERCONNECTS AND NANOMEMBRANES FOR STRETCHABLE ELECTRONICS

Inventor(s): ROGERS JOHN A [US]; MEITL MATTHEW [US]; SUN YUGANG [US]; KO HEUNG CHO [US]; CARLSON ANDREW [US]; CHOI WON MOOK [US]; STOYKOVICH MARK [US]; JIANG HANQING [US]; HUANG YONGGANG [US] +

Applicant(s):

Classification: - international: *H01L21/00; H01L29/84; H05K1/00*

- European: H01L21/8258; H05K1/02J6

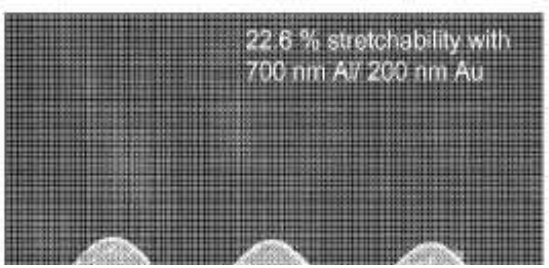
Application number: US20070851182 20070906

Priority number(s): US20070851182 20070906; US20050145574 20050602; US20050145542 20050602; US20060423287 20060609; US20070944626P 20070618; US20060824683P 20060906; US20040577077P 20040604; US20040601061P 20040811; US20050650305P 20050204; US20050663391P 20050318; US20050677617P 20050504; US20060790104P 20060407

Abstract of US2008157235 (A1)

Translate this text

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,



LIST OF CITING DOCUMENTS: US2008157235 (A1) — 2008-07-03

Select all | Compact | Export (CSV | XLS) | Download covers (0) | Print

9 documents citing **US2008157235 (A1)**

Sort by Priority date | Sort order Descending | Sort

1. ELECTROPHYSIOLOGY IN-VIVO USING CONFORMAL ELECTRONICS

Inventor:	Applicant:	EC:	IPC:	Publication info:	Priority date:
ROGERS JOHN A [US] KIM DAE-HYEONG [US] (+4)	UNIV ILLINOIS [US] UNIV PENNSYLVANIA [US] (+6)	A61B5/07D A61B5/68D2 (+4)	A61B5/00 A61B5/05 A61B8/12 (+1)	WO2011084450 (A1) 2011-07-14	2009-12-16

2. SEMICONDUCTOR NANOWIRE WITH BUILT-IN STRESS

Inventor:	Applicant:	EC:	IPC:	Publication info:	Priority date:
SEKARIC LIDIJA [US] CHIDAMBARRAO DURESETI [US] (+1)	IBM [US]	B82Y10/00 H01L21/335D (+1)	H01L21/336	US2011104860 (A1) 2011-05-05 US7989233 (B2) 2011-08-02	2009-04-03

3. SYSTEMS AND METHODS FOR SELF-ASSEMBLING ORDERED THREE-DIMENSIONAL PATTERNS BY BUCKLING OF THIN FILMS BONDED TO CURVED COMPLIANT SUBSTRATES

Inventor:	Applicant:	EC:	IPC:	Publication info:	Priority date:
CHEN XI [US]	UNIV COLUMBIA [US] CHEN XI [US]		H01L29/72 H01L29/84	WO2011050161 (A1) 2011-04-28	2009-10-21

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

Inventor:	Applicant:	EC:	IPC:	Publication info:	Priority date:
LOEHER THOMAS [DE] OSTMANN ANDREAS [DE] (+1)	FRAUNHOFER GES FORSCHUNG [DE] UNIV BERLIN TECH [DE] (+3)	H05K3/28D	H05K3/28	WO2011000580 (A1) 2011-01-06	2009-06-29

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						
★	Inventor: LOEHER THOMAS [DE] OSTMANN ANDREAS [DE] (+1)	Applicant: FRAUNHOFER GES FORSCHUNG [DE] UNIV BERLIN TECH [DE] (+3)	EC: H05K3/28D	IPC: H05K3/28	Publication info: WO2011000580 (A1) 2011-01-06	Priority date: 2009-06-29
5. MASKLESS PROCESS FOR SUSPENDING AND THINNING NANOWIRES						
★	Inventor: BANGSARUNTIP SARUNYA [US] COHEN GUY [US] (+1)	Applicant: IBM [US] BANGSARUNTIP SARUNYA [US] (+2)	EC: B82Y10/00 H01L21/335D (+2)	IPC: H01L29/78	Publication info: WO2010090978 (A1) 2010-08-12	Priority date: 2009-02-04
6. INDIVIDUALLY ADDRESSABLE NANO-SCALE MECHANICAL ACTUATORS						
★	Inventor: YANG JIANHUA [US] WILLIAMS R STANLEY [US] (+1)	Applicant: HEWLETT PACKARD DEVELOPMENT CO [US] YANG JIANHUA [US] (+2)	EC:	IPC: B81B7/00 B81B7/04	Publication info: WO2011002443 (A1) 2011-01-06	Priority date: 2009-06-30
7. Reinforced Composite Stamp for Dry Transfer Printing of Semiconductor Elements						
★	Inventor: MENARD ETIENNE [US]	Applicant: SEMPRIUS, INC	EC: B82Y10/00 G03F7/00A	IPC: B41K1/42	Publication info: US2010018420 (A1) 2010-01-28 US7927976 (B2) 2011-04-19	Priority date: 2008-07-23
8. RELEASE STRATEGIES FOR MAKING TRANSFERABLE SEMICONDUCTOR STRUCTURES, DEVICES AND DEVICE COMPONENTS						
★	Inventor: ROGERS JOHN A [US] NUZZO RALPH G [US] (+5)	Applicant: THE BOARD OF TRUSTEES OF THE UNIVERSITY OF ILLINOIS	EC: B81C1/00F2F H01L21/78B2 (+8)	IPC: H01L21/30 H01L31/18	Publication info: US2008108171 (A1) 2008-05-08 US7932123 (B2) 2011-04-26	Priority date: 2006-09-20
9. P-n heterojuction structure of zinc oxide-based nanorod and semiconductor thin film, preparation thereof, and nano-device comprising same						

Bibliographic data: US2008157235 (A1) — 2008-07-03

CONTROLLED BUCKLING STRUCTURES IN SEMICONDUCTOR INTERCONNECTS AND NANOMEMBRANES FOR STRETCHABLE ELECTRONICS

Page bookmark US2008157235 (A1) - CONTROLLED BUCKLING STRUCTURES IN SEMICONDUCTOR INTERCONNECTS AND NANOMEMBRANES FOR STRETCHABLE ELECTRONICS

Inventor(s): ROGERS JOHN A [US]; MEITL MATTHEW [US]; SUN YUGANG [US]; KO HEUNG CHO [US]; CARLSON ANDREW [US]; CHOI WON MOOK [US]; STOYKOVICH MARK [US]; JIANG HANQING [US]; HUANG YONGGANG [US] +

Applicant(s):

Classification: - international: *H01L21/00; H01L29/84; H05K1/00*

- European: H01L21/8258; H05K1/02J6

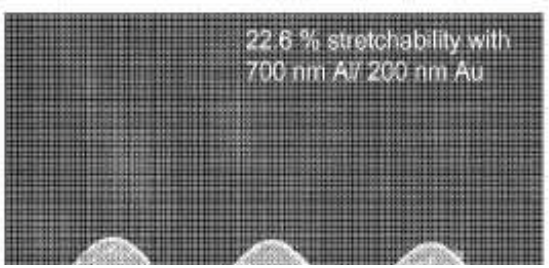
Application number: US20070851182 20070906

Priority number(s): US20070851182 20070906; US20050145574 20050602; US20050145542 20050602; US20060423287 20060609; US20070944626P 20070618; US20060824683P 20060906; US20040577077P 20040604; US20040601061P 20040811; US20050650305P 20050204; US20050663391P 20050318; US20050677617P 20050504; US20060790104P 20060407

Abstract of US2008157235 (A1)

Translate this text

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,



Original document: US2008157235 (A1) — 2008-07-03

CONTROLLED BUCKLING STRUCTURES IN SEMICONDUCTOR INTERCONNECTS AND NANOMEMBRANES FOR STRETCHABLE ELECTRONICS

US 20080157235A1

(19) **United States**

(12) **Patent Application Publication**

Rogers et al.

(10) **Pub. No.: US 2008/0157235 A1**

(43) **Pub. Date: Jul. 3, 2008**

(54) **CONTROLLED BUCKLING STRUCTURES IN SEMICONDUCTOR INTERCONNECTS AND NANOMEMBRANES FOR STRETCHABLE ELECTRONICS**

(76) Inventors: **John A. Rogers**, Champaign, IL (US); **Matthew Meitl**, Raleigh, NC (US); **Yugang Sun**, Naperville, IL (US); **Heung Cho Ko**, Urbana, IL (US); **Andrew Carlson**, Urbana, IL (US); **Won Mook Choi**, Champaign, IL (US); **Mark Stoykovich**, Dover, NH (US); **Hanqing Jiang**, Urbana, IL (US); **Yonggang Huang**, Glencoe, IL (US)

filed on Sep. 6, 2006, provisional application No. 60/577,077, filed on Jun. 4, 2004, provisional application No. 60/601,061, filed on Aug. 11, 2004, provisional application No. 60/650,305, filed on Feb. 4, 2005, provisional application No. 60/663,391, filed on Mar. 18, 2005, provisional application No. 60/677,617, filed on May 4, 2005, provisional application No. 60/577,077, filed on Jun. 4, 2004, provisional application No. 60/601,061, filed on Aug. 11, 2004, provisional application No. 60/650,305, filed on Feb. 4, 2005, provisional application No. 60/663,391, filed on Mar. 18, 2005, provisional application No. 60/677,617, filed on May 4, 2005, provisional application No. 60/790,104, filed on Apr. 7, 2006.

Publication Classification

Live link from Esp@cenet.

USPTO Web Sites

- USPTO Patents Main Page
  [www.uspto.gov/main/patents.htm]
- USPTO Resources and Guidance
  [http://uspto.gov/patents/resources/index.jsp]
- *General Information Concerning Patents*
  "The best introduction to patents and trademarks I've ever found! Originally about 87 pages in print, plus a handy list of FAQs."
  [http://www.uspto.gov/patents/resources/general_info_concerning_patents.jsp]

USPTO Web Sites, cont.

- *Pro Se and Pro Bono*

  "The page for those inventors either filing on their own behalf (pro se) or are seeking free or greatly reduced services from patent professionals."

  [http://www.uspto.gov/inventors/proseprobono/index.jsp]

- *The Inventors Eye*

  "The USPTO's bimonthly publication for the independent inventor community"

  [http://www.uspto.gov/inventors/independent/eye/index.jsp]

- *Trademark Information Network (TMIN) Videos*

  [http://www.uspto.gov/trademarks/process/TMIN.jsp]

Selected PTRCs (Patent and Trademark Resource Centers) on the Web

- University of Utah
  http://campusguides.lib.utah.edu/content.php?pid=71473
- Georgia Tech (Atlanta)
  http://www.library.gatech.edu/research_help/subject/index.php?/patents
- University of Maryland, College Park
  https://secure.utah.gov/trademark/index.html
- University of Michigan (Ann Arbor)
  http://guides.lib.umich.edu/content.php?pid=35640
- Oklahoma State University (Stillwater)
  www.library.okstate.edu/patents/index.htm
- University of Texas (Austin)
  http://www.lib.utexas.edu/engin/patent/index.html

Selected Patent Search Tutorials Available On the Web

- 'Basic Patent Training for the Independent Inventor and Small Businesses' (USPTO)
  - https://uspto.connectsolutions.com/certificationpackage/
- 'Patent Searching' video (Auburn PTRC)
  http://diglib.auburn.edu/tutorials/uspto6.htm
- Preliminary Patent Searching on the Web (Stillwater PTRC)
  http://www.library.okstate.edu/patents/services.htm
- University of Central Florida Patent Tutorial (Orlando PTRC)
  http://library.ucf.edu/GovDocs/PatentsTrademarks/default.asp
- Patent Searching Using the Esp@cenet Patent Database
  http://www.european-patent-office.org/wbt/espacenet/

Selected International Patent Sites

- Esp@cenet
  http://worldwide.espacenet.com/
- Japanese Patent Office
  www.jpo.go.jp
- European Patent Office
  www.european-patent-office.org/index.htm
- World Intellectual Property Office (WIPO)
  www.wipo.org
  - WIPO Patentscope
    http://www.wipo.int/patentscope/search/en/search.jsf
  - Search WIPO's Intellectual Property Digital Library
    http://ipdl.wipo.int/

Highly recommended!

Selected Web Sites

- U.S. Copyright Office (www.copyright.gov/)
  - Especially see Circular 1, "Copyright Basics"
- Lemelson-MIT's Handbook for Inventors
  - http://web.mit.edu/invent/h-main.html
- Intellectual Property Basics (U. of New Hampshire School of Law, formerly Franklin Pierce Law Center)
  - http://law.unh.edu/thomasfield/ipbasics/index.php
- Google Patent Search
  - http://www.google.com/patents
- Inventors Network
  - www.inventnet.com

Dave's Current Favorite Patent Tools On The Web!

- Esp@cenet

  http://worldwide.espacenet.com/

- freepatentsonline.com

  www.freepatentsonline.com

  My favorite non-USPTO website, along with the Esp@cenet database! Export U.S. patents and applications into .xls files for easier sorting and analysis.

- Pat2PDF

  www.pat2pdf.org

  Free full-text U.S. Patent copies downloadable as PDF files; excellent for printing or sharing by email!

For Further Information ..

- USPTO Information Line

  800-PTO-9199

  Live assistance, 8:30am-5:00pm EST

- Dave Morrison, Marriott Library, University of Utah

  801-585-6802

http://campusguides.lib.utah.edu/content.php?pid=71473

Questions?!

Thanks!


THE PATENT
SYSTEM ADDED THE FUEL
OF INTEREST TO THE FIRE
OF GENIUS - LINCOLN