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Introduction to Searching Bioengineering and Medical Patents on the Internet



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Today's Agenda

- General Information – “Why Search Patents?”
- Before We Begin Our Patent Search
- Searching Patents on the Internet and the 7 Step Strategy
- Selected Internet and Printed Patent Resources



Why Search Patents?

- U.S. Patent database is the largest technical database in the world!

More than 6,800,000 U.S. patents classified into 462 classes, or major technology divisions, and 154,409 subclasses

- New technology is submitted to the USPTO *before* presented at conferences or submitted to technical journals
- Estimated 75 - 80% of published patents contain technical information never published anywhere else

*“If you’re looking for the “state-of-the-art,”
you must search the U.S. Patent database!”*



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Before We Begin..

- Everything we do here is '**Preliminary Searching**' - PTDL staff can give no legal opinions on patentability
- To be considered '**complete,**' your search must cover all relevant technology ('prior art') back to 1790 in both the U.S. and all foreign countries
- Be aware of the **limitations** of the patent database in which you're currently searching
 - ✓ time period
 - ✓ National scope
 - ✓ Subjects covered
- Must search by **classification numbers**, not by keywords alone!



Searching U.S. Patents on the Internet



You can “*search patents*” on the Internet, but you can’t “*do a patent search!*”

- To “do a patent search” is to legally determine the *patentability* of a given invention
- Internet searchers can’t search back far enough or examine all *prior art* (esp. foreign countries)



U.S. Patent and Trademark Office

Web Page (www.uspto.gov)

- **Images of all U.S. Patents from 1790 to the present!**
Images may be viewed and printed with TIFF software
- USPTO Web Patents Database
searchable full-text patents from 1976 to present,
available the morning they issue!
- USPTO Published Applications Database
all pre-grant patent applications published after 15
March 2001
- USPTO Web Trademarks Database *with designs!*



U.S. Patent and Trademark Office Web Page (www.uspto.gov), cont.

- Secure Patent and Trademark applications over the Internet
- General Patent and Trademark Information
- Searchable Patent Manuals such as *Manual of Patent Examining Procedure (MPEP)*
- Current USPTO Notices
- Downloadable copies of patent application forms



How Can We Determine the Right Classification Number?

- Use the *Manual of Classification* and other USPTO classification tools
- Search by keyword, company, or inventor in USPTO Web Patent Database for related inventions, and look at the classifications for those patents you think are similar to your idea (the “fishing” technique)
- Find similar, patented products in the marketplace, and look up their classification numbers
- Submit a *Field of Search* request form to USPTO and wait for results to be mailed back (7 - 10 days)



How Can We Determine the Right Classification Number?, cont.

- Search by name of other inventors or researchers who also work in your field of research
- Search by name of companies who market inventions similar to yours
- Consult a patent attorney or agent



The Seven Step Strategy

Step 1: Index to the U.S. Patent Classification System (USPC)

Begin with this alphabetical subject index to the *Manual of Classification*. Look up common terms describing the invention and its function, effect, end-product, structure, and use. Note suggested class and subclass numbers.

*[USPTO Web Pages; in paper (SuDocs C 21.12/2: in Patents Reference); or on **Cassis** Patent ASSIST DVD-ROM]*



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Step 1: Index to the USPC

Start by looking up appropriate keywords in the Web or print version of the *Index to the U.S. Patent Classification System*. Looking under 'Artificial Heart' only leads us to 'artificial heart valve,' but looking under 'Heart' leads us to:

Heart

Artificial	623 / 3.1
Artery	623 / 1.1
Valve	623 / 2.1
Energized magnet actuator	251 / 65
Motor operated by motivating ...	60 / 516
Mass	60 / 516
Pivoted, line condition	137 / 527
Change responsive	137 / 527
Cardiac assist device	600 / 16+
Expansible chamber pump	417 / 472
Heart cam, register	235 / 144 HC
Heart-lung digest	128 / DIG 3
Pacemaker	607 / 9+
Shaped packaging	D09 / 315



Step 2: Manual of Classification

- Outline of all patentable technologies, arranged according to our current understanding of the art
- Complete and current
 - ✓ all U.S. patents from 1790 to present
 - ✓ all patents kept in current classifications with the latest patents for a similar technology
 - ✓ classifications are continuously revised as our understanding of the technologies changes
- 462 Utility and Design Classes
- 154,000+ Subclasses



[USPTO Web Pages; in paper (SuDoc C 21.12: in Patents Reference); or on Cassis

*Patents ASSIST CD-ROM]
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Step 2: Manual of Classification

Main or First Line Subclasses

**Class 623 PROSTHESIS (I.E., ARTIFICIAL BODY MEMBERS),
PARTS THEREOF, OR AIDS AND ACCESSORIES THEREFOR**

1.1 ARTERIAL PROSTHESIS (I.E., BLOOD VESSEL)

2.1 HEART VALVE

**3.1 CORPOREAL ARTIFICIAL HEART, HEART ASSIST (E.G.,
IMPLANTABLE BLOOD PUMP, ETC.), CONTROL REGULATOR,
OR POWER SUPPLY THEREFOR, OR METHOD OF OPERATION
THEREFOR**

**4.1 EYE PROSTHESIS (E.G., LENS OR CORNEAL IMPLANT,
OR ARTIFICIAL EYE, ETC.)**

7 BREAST PROSTHESIS

**9 LARYNX, TRACHEA, TRACHEOBRONCHIAL PROSTHESIS
OR COMBINATION THEREOF**

10 EAR OR NOSE PROSTHESIS

11.11 IMPLANTABLE PROSTHESIS



Step 2: Manual of Classification

Second Line Indents

3.1 CORPOREAL ARTIFICIAL HEART, HEART ASSIST (E.G., IMPLANTABLE BLOOD PUMP, ETC.), CONTROL REGULATOR, OR POWER SUPPLY THEREFOR, OR METHOD OF OPERATION THEREFOR

3.11 . Including electrical or magnetic means adjacent to flexible diaphragm or chamber to effect contraction thereto (e.g., electromagnet, shape memory material, etc.)

3.12 . Powered by muscle

3.13 . Having enclosed rotary member for directly impelling blood flow

3.16 . Having flexible diaphragm or chamber 

3.26 . Having connecting means to allow blood flow

3.27 . Including electrical power generating means

3.28 . Including condition responsive means

3.29 . Material characteristic

3.3 . Method of teaching use of artificial heart or part thereof



Step 2: Manual of Classification

Third Line Indents

**3.1 CORPOREAL ARTIFICIAL HEART, HEART ASSIST (E.G.,
IMPLANTABLE BLOOD PUMP, ETC.), CONTROL REGULATOR,
OR POWER SUPPLY THEREFOR, OR METHOD OF
OPERATION THEREFOR**

...


3.16 . Having flexible diaphragm or chamber

**3.17 .. Flexible diaphragm or chamber directly compressed by
mechanical member**

**3.18 ... Reciprocating mechanical member attached to rotary drive
means**

**3.19 ... Reciprocating mechanical member attached to reciprocating
drive means**

**3.2 ... Reciprocating mechanical member driven by pressurized
working fluid**

**3.21 .. Flexible chamber or diaphragm directly compressed by 
pressurized working fluid**



Step 2: Final Hierarchy of Classification for Class 623, Subclass 3.21

**Class 623 PROSTHESIS (I.E., ARTIFICIAL BODY MEMBERS),
PARTS THEREOF, OR AIDS AND ACCESSORIES
THEREFOR**

3.1 Corporeal Artificial Heart, Heart Assist (E.G., Implantable Blood Pump, Etc.), Control Regulator, Or Power Supply Therefor, Or Method Of Operation Therefor

3.16 . Having flexible diaphragm or chamber

3.21 .. Flexible chamber or diaphragm directly compressed by pressurized working fluid



Step 3: Classification Definitions

- Detailed definitions of the subject matter in each class and subclass of the US Patent Classification system
- Includes valuable search notes and suggestions for other classifications to consider not found anywhere else

Please Note!

 *If you're doing a "real" patent search, you must consult the Classification Definitions!*

*[USPTO Web Pages; **Cassis** Patents ASSIST DVD-ROM; or SuDocs microfiche*

C21.3/2: in Patents Reference]



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Step 3: Classification Definitions for Class 623, Subclass 3.21

3.21 Flexible chamber or diaphragm directly compressed by pressurized working fluid:

This subclass is indented under subclass 3.16. Subject matter wherein the resilient membrane or bag-like member is in contact with and pressed or squeezed by a compressed fluid.



Step 4: Check Patent Titles

Find out if you're on the right path -- retrieve and browse through titles of patents issued in a given class and subclass using the USPTO Web Patent Database or **Cassis** Patents BIB DVD-ROM:

“Is this the right subject area for my invention?”

If not, *redirect* the search -- retrieve lists of patents containing applicable keywords; note their class and subclass numbers and go back to Step 2.



Step 4: Check Patent Titles, cont.

Refine search: CCL/"623/3.21"

PAT. NO. Title

- 1 6,540,659 Cardiac assistance systems having bi-directional pumping elements
- 2 6,540,658 Left-right flow control algorithm in a two chamber cardiac prosthesis
- 3 6,471,633 Mechanical auxillary ventricle blood pump with reduced waist portion
- 4 6,398,715 Apparatus for assisting systolic and diastolic cardiac function
- 5 6,254,525 Cardiac assist system and method thereof
- 6 6,238,334 Method and apparatus for assisting a heart to pump blood
- 7 6,206,820 Device for supporting cardiac function having elastic filling chambers
- 8 6,168,624 Apparatus and methods for revascularization and perfusion
- 9 6,001,127 Annuloplasty ring holder
- 10 5,971,910 Method and apparatus for assisting a heart to pump blood by ..
- 11 5,397,349 Muscle and air powered LVAD

Etc..



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Step 5: Subclass Listing

Once the most relevant classes and subclasses are identified, display the complete listings of all patents currently placed into each relevant subclass

*[USPTO Web Pages or **Cassis** Patents CLASS DVD-ROM]*

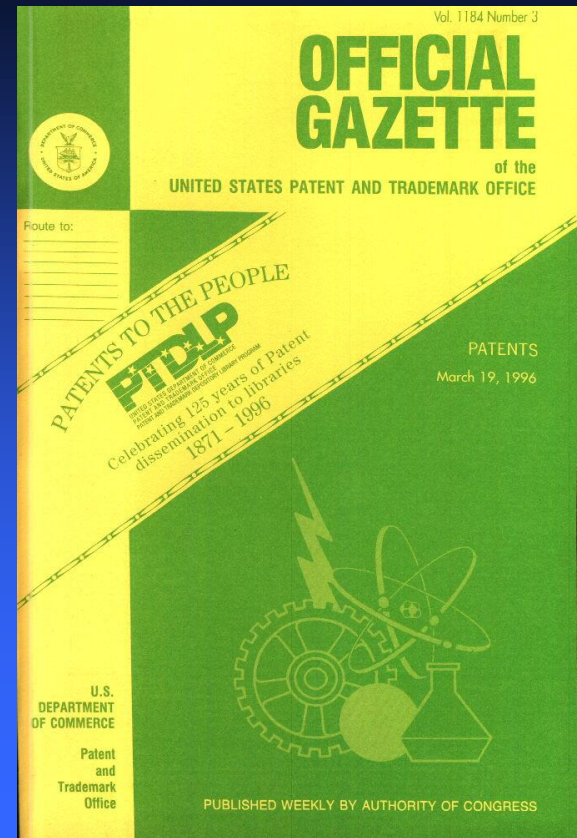


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Step 6: Official Gazette (now optional)

Before US Patents were mounted on the Internet, researchers would go to the weekly *Official Gazette (Patent Section)* and look up summaries and a representative drawing for every patent on their subclass lists to eliminate those patents clearly unrelated to their invention.

[In paper (*SuDocs C 21.5: in Patents Reference*) or on microfilm in *Locked Reference*]



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Step 7: Complete Patent Documents

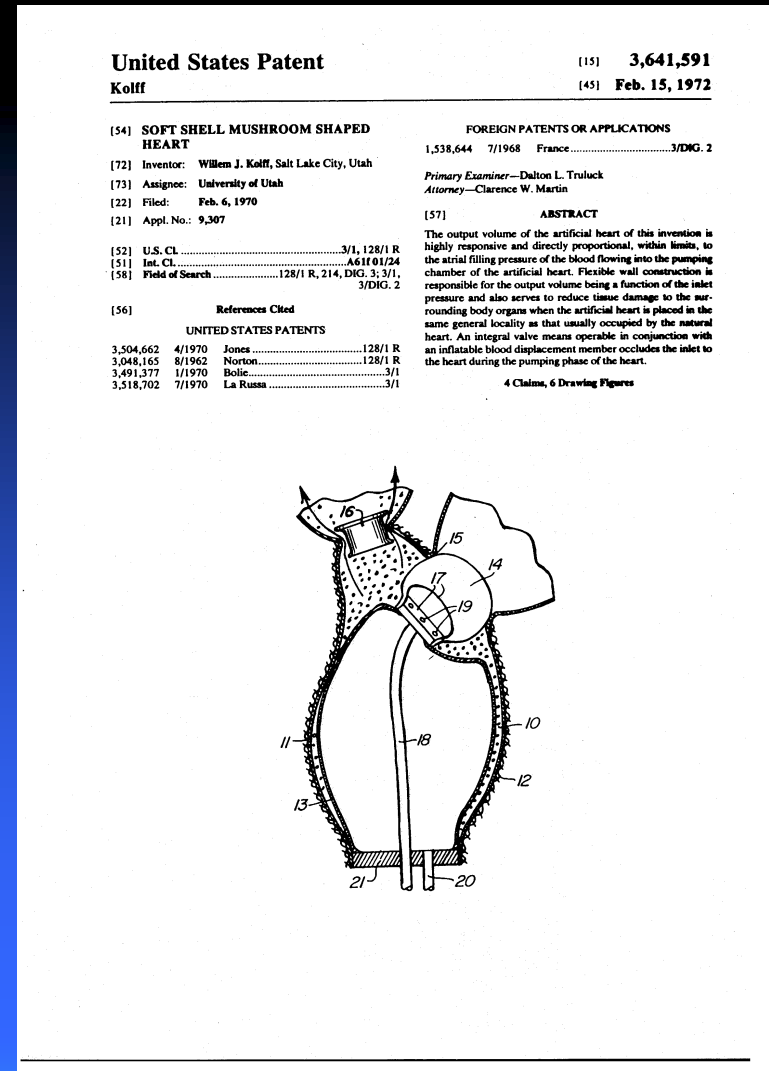
Examine full-text U.S. patent copies on Web or on *USAPat* DVD-ROMs from 1790 to present, of all patents that may be similar to your idea.

Front page of a representative patent from Class 623, Subclass 3.21

[USPTO Web Patent Database or USAPat DVD-ROMs in Locked Reference]



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Selected PTDL Web Sites

- Georgia Tech (Atlanta)
ibid.library.gatech.edu/~mp17/patents/
- U. of Michigan (Ann Arbor)
www.lib.umich.edu/ummu/pattm.html
- Oklahoma State University (Stillwater)
www.library.okstate.edu/patents/index.htm
- University of Texas (Austin)
www.lib.utexas.edu/engin/uspat.html



Patent Search Tutorials On the Internet

Preliminary Patent Searching on the Web

www.library.okstate.edu/patents/websrch.htm

University of Central Florida Patent Tutorial

http://library.ucf.edu/GovDocs/PAT_TRAD.htm

(Click on 'Patents' and then on 'UCF Patent Tutorial')

Patent Searching Using the Esp@cenet Patent Database

www.european-patent-office.org/espacenet/info/index.htm



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International Patent Sites

- Japanese Patent Office
www.jpo.go.jp
- European Patent Office
www.european-patent-office.org/index.htm
- Canadian Intellectual Property Office (in English)
http://strategis.gc.ca/sc_mrksv/cipo/welcome/welcom-e.html
- World Intellectual Property Office (WIPO)
www.wipo.org
- Search WIPO's Intellectual Property Digital Library
<http://ipdl.wipo.int/>



Selected Commercial Patent Sites

- Derwent Information

www.derwent.com

- MicroPatent

www.micropatent.com

- Optipat

www.optipat.com

- Delphion (IBM)

www.delphion.com

- British Library's Patent Express

<http://www.bl.uk/services/document/patent.html>



Selected Commercial Patent Sites, cont.

- Copyright Clearance Center

www.copyright.com/default.asp

- Inventors Network

www.inventnet.com

- STO's Website

www.bustpatents.com



Other Selected Web Pages

- U.S. Copyright Office
www.copyright.gov/
- Intellectual Property Basics from the Franklin Pierce Law Center
<http://www.piercelaw.edu/tfield/ipbasics.htm>
- Lemelson-MIT's Handbook for Inventors
<http://web.mit.edu/invent/www/handbook/index.htm>
- Yahoo Patent Sites
www.yahoo.com/ (and search for 'patents')



Federal Regulations re Engineered Tissues

- Federal regulations compiled annually into the 50 ‘titles’ of the *Code of Federal Regulations*
- Regulations on human tissues found in *21 CFR 1270* and *21 CFR 1271*, which cover “human cells, tissues, and cellular and tissue-based products”
- Proposed changes to federal regulations must be published in the *Federal Register*



Federal Regulations re Engineered Tissues, cont.

- The *Center for Biologics Evaluation and Research* of the *Food and Drug Administration* is one office that monitors engineered human tissues
 - ✓ Check out their pages on *Tissue* and *Tissue Related Documents*
 - ✓ Also check out PDF and Powerpoint presentations under *Tissue Minutes/Summaries/Transcripts*



For Further Information...

USPTO Information Line
800-PTO-9199

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801-581-8394
www.lib.utah.edu/documents



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Any Questions?



Thanks!



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