Patents, Literature Search, and Client Interview

BIOE 435
What is a Patent?

- A Property Right
  - Right to exclude others from making, using, selling, offering for sale or importing the claimed invention
  - Limited term
  - Territorial: protection only in territory that granted patent; NO world-wide patent
What is a Patent?

- Protect Inventions
- Encourage Inventions
- Promote commercialization and application of invention
- Accelerate the commercialization of invention to the whole society
What is a Patent?

A patent is a grant by the U.S. government that entitles the owner (e.g., an individual inventor or company) to exclude others from:

- Making, Using, Selling, Offering to sell or Importing into the United States a patented invention.
- A domestic patent only provides these exclusive rights in the United States.
- A patent does NOT necessarily give the owner the right to practice the patent, because of others’ potential prior patent rights.
The United States.

To all whom these presents shall come, greeting.

Whereas, Samuel Hopkins of the city of Philadelphia and State of Pennsylvania hath discovered an improvement, not before known, hereinafter called, such as may be applied in the making of Oat ale and Pearl ale, by means of apparatus and process that I, the inventor, in the making of Pearl ale, by having the

raw barley in a furnace, 

by degrading and boiling themselves in running water, and 

by drawing off and setting the barley and 

by boiling the liquor into boiler, which when the liquor is clear, and also in the making of Oat ale by flowing the Pearl ale so made as a previous, which operation of

hearing the grain ashes in a furnace furnaces within Delegation and boiling in running water, herein State Pennsylvania; and produces a much greater

in quantity of dextors. These are therefore in pursuance of the Act, entitled "An Act deeming the Oatmeal a food for the inhabitants," his Honor, Administrator and Justice, for the Town of fourteen States, in the State and exclusive Right and liberty of using and vending to others the said Samuel Hopkins, for awarding or his being, and in the making of the said dextors, in pursuance to their being, of the Act, in pursuance. In testimony whereof, he has caused the said letters to be made patent, and the seal of the United States affixed thereto,

written and submitted at the time of New York this thirty first day of July in the year of our Lord one thousand seven hundred and ninety.

City of New York, July 31, 1790.

I, hereby certify that the foregoing patent, in consideration of the Act, entitled "An Act deeming the Oatmeal a food for the inhabitants," have examined the same, and find them conformable to the said Act.

Samuel Hopkins, Attorney General for the United States.
Patent Types

**Utility** - 20 years from filing date

**Design** - 14 years from date granted

**Plant** - 20 years from filing date
Patent Types

**Design Patent**
- protects a design of a useful item (the way something looks). (Ex. Cars, shoes, rings, computer icons, phones are all examples.
- application process is simple relative to other applications.

**Utility Patent** ("patents for invention")
- by far the most common type of patent applied for and issued.
- can be drafted to protect any human-made chemical, machine, device, system, computer program, or method or doing or making almost anything.
Patent Types

**Provisional Patent**
- a simplified patent application that reserves the right of its inventor to file a utility application for one year.
- protects an invention temporarily for one year.

**Plant Patent**
- covers the creation by a human a new variety of plant if it can reproduce asexually.

**International (PCT) Protection**
Under the Patent Cooperation Treaty (PCT), inventors can often obtain patent protection in foreign countries if a PCT application is filed with an international receiving office within one year of the first domestic patent filing.
Criteria

- must not have been described in a prior publication and must not have been publicly used or sold.

- If it is a machine, it must function according to its intended purpose; if it is a novel chemical, it must exhibit an activity or have some utility.

- the invention must not be a logical extension of that which has been done before, i.e., it .. to one who is skilled in the particular art to which the invention pertains.
America Invents Act and Prior Art

Pre March 17, 2013
“First to Invent”

- Pre Invention Date
- Disclosure Within US (Public use or placing invention on sale)

Post March 17, 2013
“First to File”

- Pre Filing Date
- Disclosure Anywhere in the World (Public use or placing invention on sale)

America Invents Act (AIA)
What is Patentable?

“. . . Anything under the sun that is made by man.”

*Diamond v. Chakrabarty*, USPQ 193, 196 (US 1980)

“Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor,” subject to certain conditions.

35 USC § 101
What is NOT Patentable?

• Only a few limitations:
  • An algorithm
  • A theory or scientific principle, e.g. the Theory of Relativity
  • A human being
Can genes be patented?

A gene patent is the exclusive rights to a specific sequence of DNA (a gene) to the individual, organization, or corporation who claims to have first identified the gene.

On June 13, 2013, in the case of the Association for Molecular Pathology v. Myriad Genetics, Inc., the Supreme Court of the United States ruled that human genes cannot be patented in the U.S. because DNA is a "product of nature."

>4,300 human genes were patented before 2013. The Supreme Court's decision invalidated those gene patents, making the genes accessible for research and for commercial genetic testing.

Synthetic DNA is still patentable
What is the process?

1) Identify Innovation
2) Evaluate Research, Product Development
3) Invention Disclosure Form
4) Interact with Tech Transfer Office
5) Prepare disclosure
6) Patent application prepared
First Page of a Patent

1. **Patent Number** – The patent number is assigned when the patent is granted.
2. **Date of Patent** – The date of the patent is the date that the patent was issued, not the date that the patent application was filed. Before 1995, a patent term was 17 years from the date of the patent. In 1995, the law changed so that the patent term was 20 years from the filing date (#7).
3. **First Named Inventor**
4. **Title**
5. **Assignee** – The assignee is the owner of the patent.
6. **Application Number** – When a patent application is filed, the patent office assigns a serial number to the application.
7. **Filing Date** – This is the date that the patent application was filed. The filing date is usually also the priority date. During examination, the patent examiner cannot use any reference that discloses similar technology to the claimed invention after the filing date.
8. **Search Fields** – The patent office uses a classification system to categorize technologies. The examiner will typically search U.S. classes and international classes related to the invention.
9. **Cited References**
10. **Credits**
11. **Abstract**
Other Important Parts of a Patent

• Application specification
  • the description must provide sufficient information to allow one skilled in this area to reproduce the invention

• Claims
  • defines the invention being protected
Other Important Parts of a Patent

- Provisional Application
  - Non-Provisional Application (Not later than 1 year after the provisional filing date)
  - Published Patent Application (18 months after filing the non-provisional application)
  - Patent Cooperation Treaty (Not later than 1 year after filing the first application)
    - National Stage Filing in Individual Countries (approximately 30 months after the first application is filed)
Provisional Patent Application

- Establishes a filing date (earliest priority date)
- Examination process does not begin
- Clock does not start running on lifetime of patent
- Has simpler filing requirements
- Lower filing fees
- Claims are not required
Background Literature Search

• Define your question (what are you trying to design?; Any previous attempt?; At what level....)
• Define your scope (broad, narrow?; composition, method.....)
• Select databases (patents, journal articles, conference proceedings....)
• Conduct searches and find the literatures (right database, keywords, Boolean searches, examples)
• Keep track! (endnote, freeware....)
• Review the literature and analyze
Systematic Approaches

Minimum activity
- Set the research question
- Identify where to search (on-line)
- Write lists of keywords
- Construct search with Boolean logic
- Run the search
- Download the results for analysis
- Data analysis - quantitative or qualitative or both?
- Identify themes and conclusions

Full systematic review
- Define the protocol e.g. study selection criteria, data extraction tables and methods, statistical methods
- Would include off-line searches of books and literature; contacting experts in the subject
- Refine and retest search strategy
- Apply inclusion / exclusion criteria; evaluate methodological quality
- Extract data for analysis e.g. pool data for meta-analysis
- A panel of 2 or 3 independent reviewers

CC BY SA
From: http://vivrolfe.com/uncategorized/methods-for-conducting-effective-desk-top-research/
Importance of Asking the Right Questions

Robin Featherstone, Research Librarian at Alberta Research Centre for Health Evidence
Where to Look?

• Online public databases (google...)
• Online public bibliographic databases (google scholar)
• Specialized bibliographic databases (SciFinder, Scopus, Pubmed, Web of Science...)
• Manual or “hand searches” of references
• Web reports
• Patent databases (ESPTO, WIPO, USPTO, Google patent)
• Paid patent databases (Micropatent....)
• Discussing with experts
Client, Inventor Interview

How well does the client know the state-of-the-art?
- Has any searching been done?
- Any prior art?
- Patents/Publications?
- Any similar products – Client’s or Others
- Disclosures by client to a third party
- Third party information received – With confidentiality agreement – Without confidentiality agreement
- Pending applications
Client, Inventor Interview

- Client expectation (realistic vs. optimistic)
- How well does the client know the state-of-the-art?
- Has any searching been done?
- Any prior art?
- Patents/Publications?
- Any similar products – Client’s or Others
- Competitors
- Disclosures by client to a third party
- Third party information received – With confidentiality agreement – Without confidentiality agreement
Specific Examples
Questions?