Patent Law

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Wednesday, March 25, 2015
Class 17 – Patentable subject matter I: introduction; products of nature

Announcement

Announcement

- → The reading excerpts for next class will be on the website sometime tomorrow
- → Sorry for the delay

Recap

Recap

- → Utility overview
- → Operability
- → Beneficial utility
- → Practical or specific utility

Today's agenda

Today's agenda

→ Overview of patentable subject matter

→ Products of nature

PSM overview

PSM overview

→ 3+1 core requirements for patentability

- Useful (§ 101)
- Novel (§ 102)
- Nonobvious (§ 103)
- Patentable subject matter § 101)

(Post-AIA) 35 U.S.C. § 101 — Inventions patentable

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 the conditions and requirements of this title.

PSM overview

→ Like utility, not usually disputed

- Most things clearly fall within "process, machine, manufacture, or composition of matter"
- The difficult issues arise in a few specific areas

→ But important in several areas

PSM overview

→ The practical inquiry

- Step 1: Is it a process, machine, manufacture, or composition of matter?
- Step 2: If so, does it fall within an implicit exception as a law of nature, physical phenomenon, or abstract idea?

PSM overview

→ Step 1: Is it a process, machine, manufacture, or composition of matter?

- Usually this is pretty simple
- Few things cannot be conceived as either a physical thing or a process

PSM overview

→ Step 1: Is it a process, machine, manufacture, or composition of matter?

- Law of gravity?
- Law of continental drift?
- Idea of strict liability?
- New mineral I find in the earth?
- New plant I find in the rainforest?

PSM overview

→ Step 2: If so, does it fall within an implicit exception as a law of nature, physical phenomenon, or abstract idea?

- This is where all the interesting cases are

PSM overview

→ Federal Circuit's history:

- Over time, the exceptions (laws of nature, physical phenomena, abstract ideas) were read more and more narrowly
- Federal Circuit adopted a test for PSM: whether a patent claimed something with a "useful, concrete, and tangible result"
- Then, Federal Circuit adopted the "machine or transformation" test: whether the patent claim is implemented by a machine or transforms an article

PSM overview

→ Starting in 2010, four important Supreme Court cases:

- *Bilski v. Kappos* (2010) – method of hedging risk in a commodities transaction
- *Mayo v. Prometheus* (2012) – method of determining the correct dose of a drug
- *Ass'n for Molecular Pathology v. Myriad Genetics* (2013) – isolated DNA and complementary DNA
- *Alice Corp. v. CLS Bank* (2014) – computerized system for mitigating settlement risk

PSM overview

→ These cases have had a transformative effect on patentable subject matter

- *Mayo* and *Myriad*: biotech, medicine, pharmaceuticals
- *Bilski* and (especially) *Alice*: business methods and computer software

PSM overview

→ The policy question:

- Do these cases add anything valuable that the "new and useful" limitations do not?
- This is one of the big debates in patent law

Products of nature

Diamond v. Chakrabarty

→ Technology?

Diamond v. Chakrabarty

→ Technology?

- New bacteria that can break down crude oil
- Takes an existing bacteria and modifies it to insert two existing plasmids that break down hydrocarbons
- Never existed before in nature

Diamond v. Chakrabarty

→ Three kinds of claims:

- Process of making bacteria
- Inoculum of straw, water, and bacteria
- Bacteria itself

→ Why are the first two not good enough?

Diamond v. Chakrabarty

→ Step 1: is this a manufacture?

Diamond v. Chakrabarty

→ Step 1: is this a manufacture?

- Court (page 72): "production of articles for use from raw materials or prepared materials by giving to those materials new forms, qualities, properties, or combinations, whether by hand-labor or by machinery"

Diamond v. Chakrabarty

→ Step 1: is this a composition of matter?

Diamond v. Chakrabarty

→ Step 1: is this a composition of matter?

- Court (page 72): "composition[ ] of two or more substances and … all composite articles, whether they be the result of chemical union, or of mechanical mixture, or whether they be gases, fluids, powders or solids"

Diamond v. Chakrabarty

→ "His claim is not to a hitherto unknown natural phenomenon, but to a nonnaturally occurring manufacture or composition of matter – a product of human ingenuity 'having a distinctive name, character [and] use.'" (bottom page 72)

Diamond v. Chakrabarty

→ Is there anything physical that doesn't qualify as a "composition of matter"?

Diamond v. Chakrabarty

→ Is there anything physical that doesn't qualify as a "composition of matter"?

- Maybe an element?
- But, a mixture of quarks?

Diamond v. Chakrabarty

→ The statutory-interpretation question: what to make of plant patents?

- Three kinds of patents: utility patents; design patents; plant patents
- Why would plant patents tell us anything about bacteria?

Diamond v. Chakrabarty

→ The statutory-interpretation question: what to make of plant patents?

- Two ways to read the three kinds of patents: designed to be wholly separate, or designed to cover specific domains, but can overlap when appropriate

Diamond v. Chakrabarty

→ The statutory-interpretation question: what to make of plant patents?

- Court: plant patents do not implicitly limit § 101
- So the basic rule of this case: everything made by man is patentable
- This is the general rule pre-2010

Diamond v. Chakrabarty

→ The statutory-interpretation question: what to make of plant patents?

- Court: plant patents do not implicitly limit § 101
- So the basic rule of this case: everything made by man is patentable
- This is the general rule pre-2010

Funk Brothers

→ Technology?

Funk Brothers

→ Technology?

- Leguminous plants (peanuts, peas, soybeans, &c) can absorb nitrogen from the air, but only if certain bacteria is present
- Each plant needs a different bacteria, but you can't combine them because they inhibit each other
- Bond discovered which bacteria don't inhibit each other and figured out how to combine them

Funk Brothers

→ What was a natural phenomenon?

Funk Brothers

→ What was a natural phenomenon?

- Bacteria existed
- Bacteria inhibit each other
- Specific combinations of bacteria wouldn't inhibit each other

Funk Brothers

→ What did Bond invent?

Funk Brothers

→ What did Bond invent?

- He discovered these properties
- Put together the bacteria that wouldn't inhibit each other

Funk Brothers

→ So the patent covers a natural phenomenon, plus a trivial application of that phenomenon

- Thus, it is a discovery, not an invention
- Carved out of § 101 as a natural phenomenon
- We will see this reasoning again

Funk Brothers

→ What's the difference between *Chakrabarty* and *Funk Brothers?*

- Chakrabarty made something that had never existed before
- But: Chakrabarty just combined existing plasmids with existing bacteria
- But: Bond invented a new combination
- Can we reconcile them?

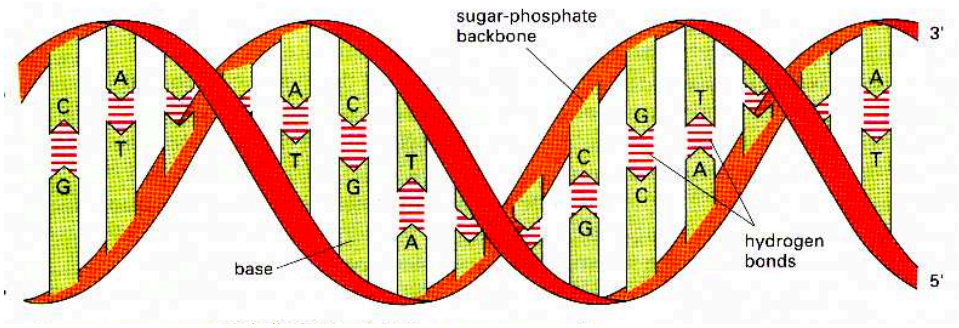
Myriad

→ Technology?

Myriad

→ Technology?

- Isolated DNA
- Complementary DNA

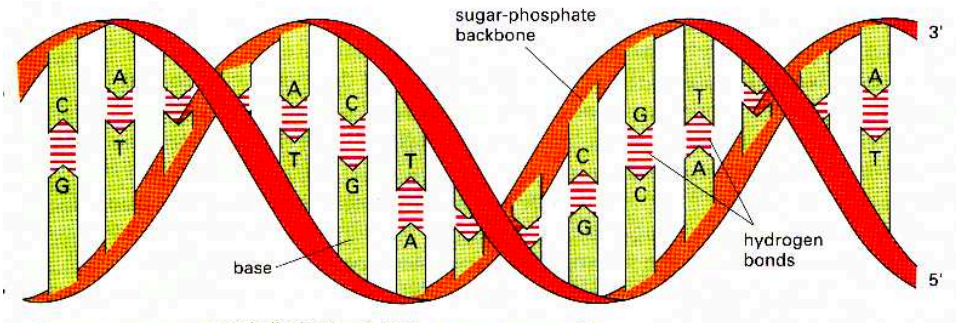


Myriad

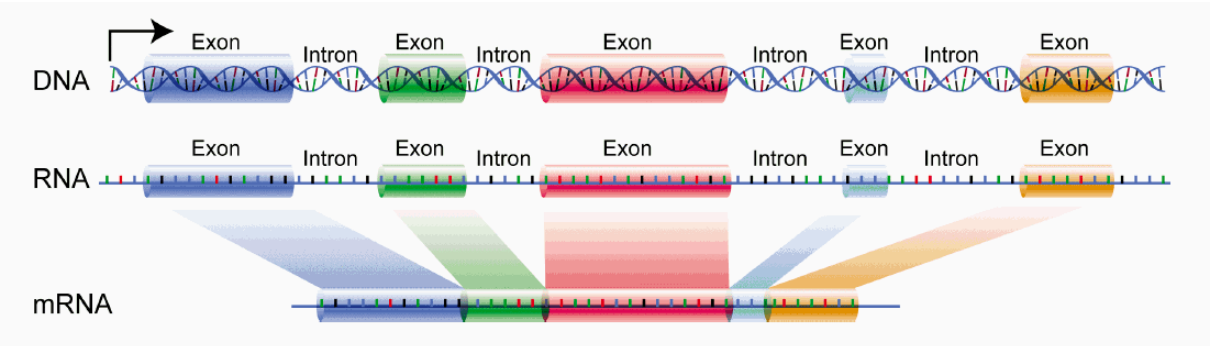
→ Chromosome: 80–110,000,000 base pairs

→ Isolated DNA: 80,000 base pairs

→ cDNA: 5,000–10,000 base pairs



Myriad



Myriad

→ *Parke-Davis & Co. v. HK Mulford & Co.*, S.D.N.Y. 1911 (L. Hand, J.)

- Isolated adrenaline is patentable
- "Takamine was the first to make it available for any use by removing it from the other gland-tissue in which it was found, and, while it is of course possible logically to call this a purification of the principle, it became for every practical purpose a new thing commercially and therapeutically."

Myriad

→ *Parke-Davis & Co. v. HK Mulford & Co.*, S.D.N.Y. 1911 (L. Hand, J.)

- This was considered good law for 100+ years
- PTO guidelines, Federal Circuit cases, &c
- E.g., purified insulin was patented

Myriad

→ Unanimous court: isolated DNA is not patentable; cDNA is patentable
  - isolated DNA appears in nature
  - cDNA does not

→ Are you persuaded?

Myriad

→ What steps are taken to make isolated DNA?

→ What steps are taken to make cDNA?

Myriad

→ What do you make of settled expectations? People had relied on these patents for 100 years…

- Court brushes by it because the government now argued it was wrong to do so
- Also, reliance interests are best addressed to Congress
- But, are they?

Bottom line (for now)

→ If you create something that didn't exist in nature, it's patentable

- Bacteria in *Chakrabarty*
- cDNA in *Myriad*

→ But if you purify something, or separate pieces, or bundle pieces, that previously existed, probably not patentable

- Bacteria combination in *Funk Brothers*
- Isolated DNA in *Myriad*

Next time

Next time

→ Patentable subject matter: business methods, software, and abstract ideas