Patents in the United States & Globally

CJ341 – Cyberlaw & Cybercrime
Lecture #10

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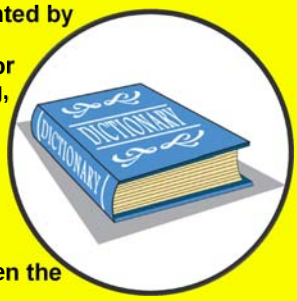
Topics

- Patents Defined
- US Constitution and Laws
- Utility
- Design
- Plants
- Infringement
- Exemption
- Remedies
- Reform Acts
- International Agreements

Patents Defined

- Word means "open" (14th century Latin)
- Defined: "a property right granted by the Government of the United States of America to an inventor 'to exclude others from making, using, offering for sale, or selling the invention throughout the United States or importing the invention into the United States' for a limited time in exchange for public disclosure of the invention when the patent is granted."
  (Source: http://www.uspto.gov)



- Patent Protection = reward for disclosing invention

High-Profile Patent Disputes

- NTP Inc. v. Research in Motion (RIM) – BlackBerry Communication devices
- Polaroid v. Eastman Kodak – violation of instant photography patents, resulted in $873M judgment against Kodak
- Pitney Bowes, Inc. v. Hewlett-Packard – alleged patent violation of printer light scanning system, case settled for $400M
- First USA v. PayPal, alleged violation of cardless payment systems

Now in the News (2011)

- Nintendo Sued Over WiiMote Patent Infringement… Again < http://tinyurl.com/448zohs >
- VIA Technologies sues Apple for patent infringement < http://tinyurl.com/4ycsdyx >
- Openwave accuses Apple and RIM of patent infringement < http://tinyurl.com/42sd2ld >

US Constitution and Laws

- US Constitution Article 1, §8, clause 8:
  - Progress of science and useful arts
  - Limited time of exclusive right to use
    - ✓Writings
    - ✓Discoveries

Most patents last 20 years

- 1st Patent Act: 1790
- Patent Act of 1793
- 35 USC: Patent Act of 1952, amended 1995
  - Utility patents
  - Design patents
  - Plant patents
- Patent Reform Act of 2005
  - Proposes significant changes to patent laws
  - Not yet passed, in bill format
  - See Burgunder p. 79-80, Exhibit 3.1

Utility

- US Patent Act - §101
  - Entitled to a patent for an invention if it is *novel, nonobvious, and a proper subject*
- §103 - New, useful and nonobvious
  - ✓Process
  - ✓Machine
  - ✓Manufacture
  - ✓Composition of
  - ✓matter
  - ✓Improvement

Novel

- US Patent Act §102 *excludes* patents if
  - ❑Previously known or used in US
  - ❑Patented or described in printed publication before filing
  - ❑In public use or for sale in US >1 year before filing
  - ❑Abandoned
  - ❑Someone else previously filed for patent on it
  - ❑Not invented by applicant
  - ❑Also invented by someone else
- §102 encourages rapid filing by inventors: 1 year to file

Useful

- Reject patent filing if
  - ❑Doesn't work
  - ❑Has no defined purpose
- Exceptions
  - ❑Cannot patent natural process or material
  - ❑Abstract mathematical equations or algorithms care not patentable
    - ✓However, *expressing* ideas mathematically or as computer algorithms *does NOT preclude* patent

Nonobvious

- Exclude patent filing if
  - ❑Obvious to person with
    - ✓Ordinary skill
    - ✓In art (meaning science, technique, technology)
- What defines "ordinary skill?"
  - ❑Awareness of all pertinent prior art
  - ❑Types of problems encountered
  - ❑Prior art solutions
  - ❑Speed of technology change
  - ❑Educational level

Amazon vs Barnesandnoble (2001)

- Amazon developed & patented "1-click" ordering
- B&N developed "Express Lane" single-click ordering and used on Web site
- Amazon sued B&N
- B&N protested that 1-click ordering was obvious and therefore patent was invalid
- District Court ruled that Amazon was likely to prove patent validity and ordered a preliminary injunction
  - ❑No one had *put together all ideas* in this way

amazon.com

bn.com BARNES&NOBLE

1-Click Case (cont'd)

- BN appealed to the Federal Circuit, claiming patent was invalid and no infringement, if valid
- Fed Circuit held: *Amazon carried its burden with respect to demonstrating likelihood of infringement, but BN raised substantial questions of patent validity. Therefore, no preliminary injunction.*
- Parties settled the dispute in March 2002.
- See Burgunder p. 197-99
- Case demonstrates difficulty of PTO to review Internet business methods & make decisions about novelty

July 2011: Amazon's 1-Click Patent Rejected By European Patent Office < http://patentaz.com/blog/?p=785 >

Design

EPSON EXCEED YOUR VISION

Nukote

- US Patent Act §171 defines patents for design
  - ❑New, original and ornamental design
  - ❑Any article of manufacture
  - ❑14 year protection
- Seiko Epson Corp v Nu-Kote Intl (1999)
  - ❑Patent infringement on *shape of ink cartridges*
  - ❑Trial court ruled against plaintiff because cartridges not visible to user, thus not patentable as "design"
  - ❑US Court of Appeals *reversed* lower court
    - ✓Patent was valid even if design not visible or obvious to user

Patent Duration

- Utility Patents: at least 20 years
  - Changed in 1995 to comply with international agreement obligations
- Legal protection starts when the PTO (Patent Trademark Office) issues the patent and lasts until expiration
  - Note: term begins when filed
    - ✓Invention can be used while PTO processes a patent application, even though patent term has not begun
    - ✓But once patent granted, patent holder can require royalties for previous use
  - Exceptions apply for new pharmaceutical products

Infringement

- Without permission of patent holder, to
  - Make
  - Use
  - Offer for sale
  - Sell
  - Import

Apparently, they not only infringed on your patent, they stuck out their tongues at it.

Exemptions

US Patent Act §273

- Good faith
- Used subject of patent at least 1 year before filing date of patent
- Holder of patent abandoned it for ~6 years or more

Enforcement Issues & Challenges

- Patent issued by PTO assumed valid
  - Challenger of patent must overcome presumption of validity
  - Must show patent invalidly granted by PTO
    - ✓Erred in determination that product or process was *novel* or *nonobvious*

Remedies

- Injunction to stop infringing
  - Likely most powerful weapon of patent holder
- Damages equivalent to royalty + interest + costs
  - Limited to 6 year period before filing of complaint
  - Examples:
    - ✓Profits from lost sales
- *Treble* damages at discretion of court
  - Awarded if *willful* infringement
- Attorney fees in exceptional cases
  - E.g., where willful infringement found

Reform

- Patent Reform Act of 2005 / 2007 / 2009
- Currently, US stands alone in *first-to-invent* approach
  - Focuses *novelty* inquiry on date of *invention* rather than date of *application* for patent
  - Likely to join international consensus with Reform Act passage
- Drawback to current approach
  - Increases litigation expenses
    - ✓Determining priority by invention is tough;
    - ✓Simple to determine who is the first to file
- Challenges to change
  - Fairness concerns
  - Produce a race to the patent office
    - ✓Less thoughtful patent applications?

Leahy-Smith America Invents Act of 2011

- Signed into law 2011-09-16
- "Most comprehensive overhaul to our nation's patent system since 1836." – USPTO
- "More certainty for patent applicants and owners"
- Changes to
  - Patent examination
  - Inter partes disputes
  - Fees & budgets
  - New programs

USPTO coverage & planning
< http://www.uspto.gov/aia_implementation/index.jsp >

VIDEO: QUESTIONS ABOUT THE AMERICA INVENTS ACT

http://tinyurl.com/44klako

International Agreements on Patents

- Paris Convention for Protection of Industrial Property (1883)
- TRIPS (1994)
  - Agreement on *Trade-Related Aspects of Intellectual Property Rights*
  - See http://www.wto.org/english/tratop_e/trips_e/tripfq_e.htm
- NAFTA (1992)
  - *North American Free Trade Agreement*
  - See http://www.ladas.com/BULLETINS/1994/NAFTAGATT.html
  - See also http://www.customs.ustreas.gov/nafta/docs/us/chap-17.html

The Patent Application Process

- Initial Considerations
- Elements of the Patent Application
- PTO Procedures & Appeals
- Loss of Patent Rights
- Infringement & Remedies
- International Patent Protection Issues

Burgunder Chapter 4: Obtaining and Defending Patent Rights in the United States and Globally. P. 105 ff.

Initial Considerations

- Exhibit 4.1 (p. 106) of Burgunder summarizes essentials
- Patent Ownership & Right to File Application
- Invention Assignment Agreements
- Important Steps Before Applying
- Expected Fees & Costs

Patent Ownership & the Right to File the Patent Application

- Inventor(s) must file with PTO
  - Even if rights transferred
  - Thus actual inventor(s) must be involved in filing
  - Even if no longer employed by former employer who wants to file for patent
- Patent Reform Act, if passed, would allow *owner* of patent rights to file
  - No longer need to "chase down inventor"

Invention-Assignment Agreements

- By default, inventor (e.g., employee) owns rights to an invention unless
  - Job explicitly assigns task of inventing process or solving problem
  - Employment contract stipulates ownership by employer
- Employment contracts generally demand all rights to employee inventions
  - Assume that employer resources relevant
  - Even if developed *outside* work
- But some state regulations (e.g., CA) may restrict clauses to *work-related* inventions
- Candidates should read employment contracts carefully
  - Especially if working on unrelated inventions
  - Involve attorney with experience in employment law to review contract before signing

Important Steps Before Applying

- Conduct prior-art search
  - Thoroughly research existing patents
  - Cheaper to abandon useless application
  - May improve patent application
  - May license prior art to improve application
  - Avoid later surprises that can cancel patent
- File in timely fashion
  - E.g., within 1 year of 1st publication or sale
  - 1st to file (if in competition) has advantage
- Provisional applications
  - Provide disclosure of intent
  - 1 year to provide details of claims

Expected Fees & Costs

- Load on PTO & delays in handling applications rising steadily over last decades
  - Numbers of applications skyrocketing
    - ✓1980:100,000, 1995:200,000, 2007:485,000
  - Time to receive decision growing
    - ✓1990:18mo, 2000:24 mo, 2008:32mo
    - ✓Hi-tech (e.g., computing) patents can take 48 mo for decision
- Fees rising

Fees for PTO			Size of business	
Data	Year	Number	Large	Small
Applications	1980	100,000		
	2007	485,000		
Review time	1990	18 months		
	2008	32 months		
Fee for filing a patent	1990		$ 370	$ 185
	2009		$ 850	$ 475
Fee for issuing a patent	2009		$ 1,480	$ 740
Cost to maintain patent	2009		$ 7,000	$ 3,500
Costs of attorneys		$ 50,000		
Fee for provisional application	2009		$ 170	$ 85
Burgunder 5th edition p. 111				

Elements of the Patent Application

- Enablement
- Best Mode
- Information Disclosure
- The Claims

Enablement

- Enough info in application to allow practice by one skilled in art
  - Objectivity: not inventors opinion – judged w/ reference to skilled practitioner
  - Withholding info
    - ✓Not all details of every step required
    - ✓May put some into separate patents
  - Breadth of claims
    - ✓Inventors often try for broadest reach possible
    - ✓But then have to show that info provided allows actual execution
    - ✓Can harm application
- Must not force *undue experimentation* in evaluation

White Consolidated Industries v. Vega Servo-Control Inc.

- Federal Circuit Court of Appeals, 1983
- Facts:
  - White Consolidated Industries granted patent '653 for machine-tool numerical control (NC) system
  - Used a *translator* program such as its secret SPLIT
  - White sued Vega for infringing '653 patent
  - Vega argued that patent was invalid because SPLIT was not included
  - White argued that example was good enough for enablement
- Courts ruled against White and invalidated patent

Enablement and Computer Programs

- Amount of work required to create or modify computer programs to fit needs of a patent varies
- Thus some patents omit all details of computer programs on grounds that any programmers can create equivalents without undue effort
  - Don't need internal details of source code
  - Sufficient to know required inputs and outputs
  - Black-box reverse engineering techniques
- Details of program structure may vary without affecting functionality

Best Mode

- Particular process inventions may have optimum conditions
- Inventor may not want to reveal details
  - Can benefit from secret even after patent expires
- But Patent Act requires inclusion of *best mode* for carrying out invention
- PTO does not normally probe for best mode before granting patent
- But challenges to patent may delve into details
- Patent Reform Act may reduce importance of best-mode component

Information Disclosure

- Applicants must provide all relevant material information
  - Pro or con
- Failure to be honest can be judged *inequitable conduct*
  - Must demonstrate intent to deceive
- Thus applicants usually provide wealth of information

The Claims

- Boundaries of legal monopoly
  - Expert assistance strongly recommended
  - Includes form and language
- Goals usually to maximize breadth of rights
  - Can lead to *overly broad* patents
  - Include more specific claims as well
- Form can focus on method or purpose
  - Lawn mower as parts/machine or method for cutting grass
  - Some experts argue that computer programs are best presented in form of machine
  - But can also draft as means-for/means-plus-function

PTO Procedures & Appeals

- Secrecy Orders
- Secrecy of Information Submitted to the PTO
- The Patent Examination Process
- Appeals

Secrecy Orders

- PTO can draft secrecy order if there are national-security ramifications of invention
  - E.g., DoD, NRC may evaluate
- US inventors may not file for patents overseas unless
  - Receive *foreign-filing license*
  - There is no secrecy order within 6 months of US filing
  - Violating such an order serious
    - ✓Loss of patent rights in US
    - ✓Criminal prosecution
- International patent conventions protect US inventors
  - Patent Cooperation Treaty (PCT)
  - Paris Convention

Secrecy of Information Submitted to the PTO

- Controversy over US PTO disclosure of patent details
  - Released only when patent is issued
  - In contrast, European Patent Convention (EPC) & PCT release info 18 mo after *filing*
- Opponents of secrecy (generally large corporations)
  - Don't like *submarine patents* which "surface" only at issuance
  - Prevent others from preparing for patent or avoiding useless R&D
- Proponents of secrecy (generally smaller businesses)
  - Argue that foreign competitors scan PTO records for unfair competitive advantage
  - Patent Reform Act dropped 18mo provision in 2009

The Patent Examination Process (1)

- Examiner expert in appropriate field
  - Searches existing patents
  - Uses online databases & scholarly publications
  - Careful analysis of details in application
- First Office Action
  - Usually lists objections
    - ✓Excessive breadth of claims
    - ✓Defects of drawings
    - ✓Attacks on novelty or nonobviousness
    - ✓3 mo to reply
  - Or may be Notice of Allowance

The Patent Examination Process (2)

- Applicant responds
  - Arguments
  - More information
  - Continued cycle of discussion
- Eventually reach Notice of Allowance or Final Rejection
  - Patent number if Allowance granted
- *Patent pending*
  - Used once application *filed*
  - Has no legal force
  - Just a warning to dissuade competitors

Appeals

- If Final Rejection issues
- 6 mo to file appeal
- Board of Patent Appeals and Interferences
  - Uphold decision (65%) or
  - Instruct examiner differently
- If Board upholds rejection
  - Applicant can appeal to Federal Circuit Board of Appeals
  - If they reject, can try to submit to SCOTUS (rarely accepted)
- Be aware of enormous legal costs

Loss of Patent Rights

- Reexamination
- Opposition Procedures
- Litigation

Reexamination

- PTO can spontaneously re-evaluate *granted* patents at any time
- Usually after public submits information
  - Or competitor…
- May be initiated when public or industry views a patent as *over-broad;* e.g.,
  - 1994: Compton patent for multimedia search & retrieval
  - 1994: Software Advertising Corp patent for computer screen saver for ads

Opposition Procedures

- In countries other than USA, *oppositions* are formal processes for challenging patents
- Generally allow 3rd parties to participate actively
- May even begin before patent granted
  - E.g., India
  - *Pre-grant oppositions*
  - Can delay patent applications for years
- Post-grant oppositions
  - Patents remain in force during proceedings

Litigation

- May choose to ignore patent and use ideas/invention w/out permission or fees
- May be sued by patent holder
  - Challenge validity of patent as defense
- May also sue patent holder first
  - Seek ruling overturning PTO grant of patent
  - Challenge completeness of information
  - Challenge novelty etc

Infringement & Remedies

- Literal Infringement
- Doctrine of Equivalence
- Prosecution History Estoppel
- Infringement of Process Patents
- Remedies for Patent Infringement

Literal Infringement

- Rule of Exactness
  - Making, using, selling item conforming exactly to claim in patent; e.g., 4 legged chair violates patent for 4 legged chair
- Rule of Addition
  - Making, using, selling item conforming to claim in patent plus additional features; e.g., 5 legged chair IS violation of patent
- Rule of Omissions
  - DO NOT INFRINGE patent if there is ANY omission of an element in the patent claim
  - E.g., if patent stipulates 4 legs on chair, 3 legged chair is not violation of patent

Doctrine of Equivalence

- Substituting an equivalent for an element of a patent led to abuse
  - Graver Tank & Mfr Co v. Linde Air Products
  - Patent holder defined electrical welding compound including Mg
  - Infringer substituted Mn
  - SCOTUS rule in favor of patent holder
- Doctrine of equivalence permits litigation against infringement
  - Same function
  - Same way
  - Same results

Prosecution History Estoppel

- Suppose inventor patents chair explicitly made of oak wood & not cherry wood
  - Cherry chairs ruled obvious
- Then competitor makes chair of cherry wood
- Patent holder claims infringement
  - But patent explicitly *excluded* cherry wood
  - Would be unfair to reverse terms of patent
- Doctrine of prosecution history estoppel *prevents reversing narrowing of patent* when charging infringement

Infringement of Process Patents

- Patents on articles apply to manufacture/use/sale in US only
  - Outside US do not infringe
  - But infringing fabrication outside US precludes sale in US without agreement of patent holder
- Process patents more complex
  - Any foreign infringement of process patent precludes legal import of results
  - Retailers and noncommercial users also precluded from selling or using infringing products

Remedies for Patent Infringement

- Ordering payment of damages
  - May be huge (e.g., $B) – can bankrupt infringers
  - Based on
    - ✓Lost profits
    - ✓Reasonable royalty
    - ✓Penalty for willful infringement
- Permanent injunction stopping infringement; patent holder must prove
  - Infringer acted despite objectively high likelihood of infringement
  - Infringer knew or should have known of risk of infringement

International Patent Protection Issues

- Inconsistent patent policies lead to hardship for international companies
  - Complex, conflicting rules
  - Extra legal costs
  - Time
- Major categories
  - Substantive Patent Policy Issues: what and how?
  - Procedural Patent Policy Issues: how much time and money?

Substantive Patent Policy Issues

- Patent Terms – generally 20 years now
- Patentable Subject Matter
- First-to-File Priority
- Grace Periods
- Secrecy of Patent Applications
- Prior-Use Rights
- Oppositions & Delays
- National Emergencies & Public Health
- Other Substantive Issues

Patentable Subject Matter

- Many countries still don't permit patents on
  - Medical processes
  - Animals (except microorganisms)
    - ✓Significant problems for biotechnology industry
  - Inventions "contrary to public order or morality"
- Computer programs not protected under patent law in many nations

First-to-File Priority

- US "first-to-invent" standard for patent priority unique in world
- Every other nation uses "first-to-file" standard
- Patent reform in US almost certain to move towards conformity to international standards

Grace Periods

- US has 1 year grace period for filing
  - After 1st sale or 1st publication
- Other nations forbid patent if *any* prior use or publication before application
- Different definitions of *sale* and of *public use*
  - E.g., US includes test marketing
  - Other countries don't

Secrecy of Patent Applications

- Many nations maintain secrecy of patent application for only 18 months after *filing*
- US preserves secrecy until patent *granted*
- Thus inventors relying on secrecy of US patent application must be wary about foreign patent applications

Prior-Use Rights

- US recognizes prior-use rights for business methods, not for other patents
- Many countries allow prior-use to interfere with patent rights
- Patent holders may face increased legal hurdles when trying to fight perceived

Oppositions & Delays

- Outside US, public may bring formal opposition to patent applications
- Delays can last years
- Japan in particular has been trying to reduce such delays

National Emergencies & Public Health

- HIV/AIDS epidemic example of conflict between profit and need in public health
- Expensive drugs impossible to pay for in poorer parts of world
- TRIPS (Agreement on Trade Related Aspects of Intellectual Property Rights)
  - Includes language allowing exclusion of patent protection for inventions "necessary to protect public order"
  - Strong disagreement over export of Indian generic copies of expensive drugs
  - Also includes possibility of *compulsory licenses*

Other Substantive Issues

- Breadth of claims
  - US quite broad
  - Other nations narrower
- Limitations on costs of licensing
- Best mode
  - Must be disclosed in US
  - May be secret elsewhere

Procedural Patent Policy Issues

- Signatories of Paris Convention include
  - Almost all industrialized countries
  - Many developing nations
  - Agree to respect earlier filing date of application in other signatory country
    - ✓Within 1 year of initial signing
- European Patent Convention (EPC)
  - Established European Patent Office (EPO)
  - Allows English-language applications & correspondence
  - But judicial enforcement lies within national courts
- Patent Cooperation Treaty (PCT)
  - World Intellectual Property Organization (WIPO)
  - 138 member countries in 2009 (148 in 2013)
  - Details of application published at 18 months

Now go and study