Patent Law Basics

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SI 519 / PubPol 688
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Why do we have patent laws?
Why?

“The Congress shall have the power... To Promote the Progress of Science and the useful Arts by securing for limited times to Authors and Inventors the exclusive right to their respective writings and discoveries.”
Rationale

• “The exclusive right to invention is given not of natural right but for the benefit of society.”
  – Thomas Jefferson, 1813
Rationale

- To advance the state of technology available to the public.
- Supreme Court:
  - 1) To foster and reward invention;
  - 2) To promote disclosure of inventions, to stimulate further innovation and to permit the public to practice the invention once the patent expires; and
  - 3) Stringent requirements for patent protection seek to assure that ideas in the public domain remain there for the free use of the public.
What can be patented?
What Can Be Patented?

Sec. 101 “Process, machine, manufacture, or composition of matter (or any new and useful improvement thereof)”

Source: U.S. Constitution, Section 101
What Can Be Patented?

• “everything under the sun that is made by man”

NOT: abstract ideas, laws of nature, and natural phenomena
Controversial patentable subject matter

• DNA
  – PTO: because a scientist isolates, purifies and sequences a piece of DNA, it has been manipulated by man from its natural state

• Software / Business Methods
  – 1998: no more business method exception
  – Now: must be tied to more than just a general purpose computer; or physically transform something
  – Bilski case coming soon
Requirements?

• 1) Useful – low threshold

• 2) Novel – your invention must differ from existing public information disclosing the state of the art (e.g., publications, presentation, products on market))

• 3) Nonobvious – invention must be beyond the ordinary abilities of a skilled artisan knowledgeable in the relevant field.

• 4) Described in a way that enables of person in the field to practice the invention without undue experimentation.
When does one seek/obtain patent protection?
When?

- **First-to-invent (U.S. now) v. First-to-file (non-U.S.)**

  - First-to-invent:
    - **A** conceives
    - **A** files
    - **B** conceives
    - **B** files
    - **B** could obtain priority through “interference”

  - First-to-file:
    - **A** has priority (assuming **A** is a true inventor)
When?

• Must be able to reduce idea to practice

• Don’t have to have actually built it

• Must be able to explain it in a way to enable a person in the field to practice the invention without undue experimentation
When?

• Monopoly lasts for 20 years from date of filing
How does one get a patent?
How?

Delphi: Fire Resistant Mat. –U.S. 6,809,129

Issued

Allowed

Response

Rejected

Prior Art Submissions

Application On File
How?

• Average time from filing to first response from PTO: 1.5-3 years

• Average time to obtain patent: 3-5 years

• Average cost of U.S. patent: 20-40k
How?

Can file “continuations”
PTO Backlog

• Problem:
  – End of 2006, over 700k applications awaiting first action
  – 1200 new examiners hired in last 2 years, but backlog is still growing
  – Patent pendency in section 2100 is 44 mos.
## PTO Backlog

<table>
<thead>
<tr>
<th>Technology Center</th>
<th>Average 1&lt;sup&gt;st&lt;/sup&gt; Action Pendency (months)&lt;sup&gt;1&lt;/sup&gt;</th>
<th>Average Total Pendency (months)&lt;sup&gt;2&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>1600 - Biotechnology and Organic Chemistry</td>
<td>23.3</td>
<td>33.5</td>
</tr>
<tr>
<td>1700 - Chemical and Materials Engineering</td>
<td>20.6</td>
<td>29.8</td>
</tr>
<tr>
<td>2100 - Computer Architecture Software and Information Security</td>
<td>33.1</td>
<td>44.8</td>
</tr>
<tr>
<td>2600 - Communications</td>
<td>31.2</td>
<td>43.9</td>
</tr>
<tr>
<td>2800 - Semiconductor, Electrical, Optical Systems</td>
<td>15.0</td>
<td>25.0</td>
</tr>
<tr>
<td>3600 - Transportation, Construction, Electronic Commerce</td>
<td>19.8</td>
<td>27.5</td>
</tr>
<tr>
<td>3700 - Mechanical Engineering, Manufacturing and Products</td>
<td>18.6</td>
<td>26.6</td>
</tr>
<tr>
<td><strong>UPR Total (as of 10/1/2005)</strong></td>
<td><strong>21.8</strong></td>
<td><strong>30.6</strong></td>
</tr>
</tbody>
</table>

<sup>1</sup> “Average 1<sup>st</sup> action pendency” is the average age from filing to first action for a newly filed application, completed during October-December 2005.

<sup>2</sup> “Average total pendency” is the average age from filing to issue or abandonment of a newly filed application, completed during October-December 2005.

Source: U.S. Patent and Trademark Office
Where does the patent monopoly extend?
Where?

• U.S. territory
  – Making, using, selling, offering for sale in U.S.
  – Some exporting of substantial part of invention

• PCT allows for starting to pursue patents in multiple countries with a single application
  – Ex) Monitoring system for welding – WO/2008/070784
What does one get with a patent?
What Do You Get?

• True or False: A patent gives you the right to practice a particular invention. (ex., lightweight armor group)
  False

• A patent is a “negative right” – it gives the right to EXCLUDE others from practicing your invention
  – Making, using, selling, offering for sale, importing

• You may not be able to practice the invention
  – E.g. someone else may have a broader patent
What Do You Get?

• Patent has (a) written disclosure (drawings & description); and (b) claims;

• Claims – word descriptions of the fundamental elements of your invention
  – Define the boundaries of your right to exclude
  – Most important part of patent
What Do You Get?

**Prior Art**
A vehicle with:
- A wheel,
- Two pedals, and
- A seat

**Your Claim:**
A bicycle comprising:
- Two wheels,
- Two pedals,
- A seat, and
- Handlebars.

**Competitor A:**
A bicycle with:
- Two wheels,
- Two pedals,
- A seat,
- Handlebars, and
- A horn.

**Competitor B:**
A bicycle with:
- Two wheels,
- Two pedals,
- A seat, and
- A steering wheel.

Q1: Can you get a patent on your claimed invention?
Yes – at least the handlebars are novel and probably non-obvious.

Q2: Does Competitor A infringe your patent?
Yes – Competitor A’s bike includes each element of your patent claim (additional elements do not avoid infringement).

Q3: Does Competitor B infringe your patent?
Probably Not – depends on whether the steering wheel would meet your “handlebars” requirement.

Issue: Will you obtain claims with commercially significant coverage?
What Do You Get?

• If someone infringes your patent?
  – At least a reasonable royalty (what a court believes you would have agreed to); maybe lost profits
  – Up to 3x enhanced damages if infringement is willful
  – Injunction (if you practice your invention)

• Litigation: 1-4 years; average of $6M in expenses

• Can license your patent rights for money or as a cross-license for rights under other’s patents
Consistent Legal Regime

**Pre Fed.Cir.**

- Sup. Ct.
  - 1st
  - 2nd
  - 3rd
  - ...
  - 11th
  - District Courts

**Post Fed.Cir.**

- Sup. Ct.
  - Fed.Cir.
  - District Courts
Who owns a patent?
Who?

- Inventor initially
- Anyone contractually granted the rights
- No “work-for-hire” doctrine in patent law
  - Employers generally must have written assignments from employees
- Cases and funding can be lost due to failure to prove title to an asserted patent
  - E.g., Lucent’s $1.5B verdict set aside because of failure to prove ownership of asserted patent.
  - Investors will look for “clean title.”
Who?

• IP is changing hands more often
  – Terms / restrictions attached to IP are important

• Chain of title: A-B-C-D
  – Check rights passed on at each stage (right to practice, sublicense, field of use, exclusive v. non-exclusive, rights retained, obligations, etc.)
  – Must be in writing

• Rights can be retain by others who were involved in development
  – Employers
  – Corporate sponsors
  – Governmental rights

• Open source software?
  – Places severe restrictions on ability to license downstream
Avoiding others patents
Freedom to Operate

• Remember: Your patent gives you no rights to actually use your invention

• Analysis: does your technology infringe a claim of another’s valid patent
  – Degrees of risk
Freedom to Operate

• Options for dealing with risky patents:
  – Design around (modify your technology so that it does not meet each element of any claim)
  – Determine risky patent is invalid (prior art search / opinion?)
  – See if your invention pre-dates that of the risky patent
  – Live with some risk
  – Cross license
  – Consider formal opinion of counsel (investors may value)
  – Challenge (reexamination or other opposition)
Research Exception?

- **Duke v. Madey** (Fed. Cir. 2002)
  - Dr. Madey held two patents on laser; left Duke
  - Duke continued to use lasers
  - Madey sued for infringement; Duke claimed experimental research exception

- Court – exception exists only for acts solely for amusement, to satisfy idle curiosity, or for strictly philosophical inquiry
  - No exception for acts in furtherance of alleged infringer’s legitimate business (whether or not business is commercial)
  - Duke’s use of lasers was in furtherance of its business: promoted school’s reputation, attracted grants, created patents, attracted students, etc.

- Sovereign Immunity might be available for a public university, but that is unclear
Patent v. Copyright
<table>
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<th>Copyright</th>
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<tbody>
<tr>
<td>Protects expression not ideas</td>
<td>Protects ideas that have been reduced to practice</td>
</tr>
<tr>
<td>Life of author + 70 years</td>
<td>20 years from filing</td>
</tr>
<tr>
<td>Fair Use</td>
<td>No Fair Use</td>
</tr>
<tr>
<td></td>
<td>No Research Exemption</td>
</tr>
<tr>
<td>Works for hire</td>
<td>Employee inventor owns</td>
</tr>
<tr>
<td>Protects against copying</td>
<td>Innocent infringement not a defense</td>
</tr>
<tr>
<td>Protection is automatic (registration is relatively simple)</td>
<td>Extensive examination process before any rights granted</td>
</tr>
<tr>
<td>Originality (low bars)</td>
<td>Novelty and Nonobvious (high bars)</td>
</tr>
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</table>
Software Considerations

• Copyright (automatic; covers the authorship in the source code) may be sufficient if:
  – Commercial life of software is less than time to get patent
  – Value is in the source code rather than in the method it performs
  – Method may not be patentable
  – Open source used

• Patentability standard for software patents is strict and uncertain (*Bilski* case pending)
  – Must be tied to a machine (possibly more than a general use computer) or result in a physical transformation