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Invention to Patent:

Parlaying Research into Patent Rights

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Notice: This discussion is intended to introduce researchers in general terms to patents and inventions. No representation is made as to how IP is handled by, or outside of, NRC. IP laws vary between jurisdictions. Some effort has been made here to generalize concepts but these statements may not be universal, or ideal statements in any particular jurisdiction. Opinions and observations are those of the presenter, offered voluntarily, and provides no specific advice in relation to any invention or matter.

Topics

What Makes an Invention – Patent System View

Theory (Barter)

In exchange for a disclosure of an invention and how to use it, the patentee is awarded exclusivity for a term. Not a civic award or accolade: the grant is offered to coax creative solutions to practical problems into the public domain.

- Monopoly on the claimed invented subject matter, for the term (subject to limits: prior acquisition rights, gov't use, compulsory licensing, experimental exemption, etc.)
- Right to exclude others from making, using, selling, importing, and to sue.
- Not a forum for contesting better science. Practical problems of commercial interest. Invent vs. discover, apply vs. preempt
- A disclosure to those with a practical interest in the field.

What Makes an Invention – Patent System View (cont'd)

Practice

- Historically patents have been used as "sword" or "shield".

SWORD

- Extreme case of sword is "troll" or NPE.
- Cost money to obtain or enforce. Levers in industry and commerce.
- A property right that can be bought, sold (assigned or transferred) or licensed, and divided by field of use, geographic region, etc.
- A tangible product of employee creativity owned by employer: duty even after employment ends.
- An asset of the company important for valuation.

SHIELD

What Makes an Invention – Inventor's View

- **Novelty / Anticipation**: No single document teaches and enables an embodiment of the claimed invention, and no embodiment is made public prior to relevant date.
- **Inventive step / Obviousness**: The person of ordinary skill in the art (POSITA) aware of the prior art as a whole on the relevant date, would make this invention without any creativity. Inventive step provided by a surprising/unexpected result.
- **Utility**: The invention solves a problem: industrially applicable.

What Makes an Invention – Inventor's View (cont'd)

- **Reduced to practice or definite form**: Patent test of enablement: POSITA can make and use the invention from the disclosure using the prior art knowledge. Does not need a theory of why it works, and supplying such alone will not get a patent. A mere flash of insight is not making an invention.
- **Subject-matter excluded**: Laws of nature/scientific principles, natural phenomena, abstract ideas / theorems, methods of medical treatment, higher life forms, software. Preemption vs. application.

What Is Prior Art: Search

- Most jurisdictions consider prior art to include at least all publications and unconditional sales of embodiments of the invention, as long as the embodiments can be reverse engineered or the invention is enabled. A formal, or informal expectation of confidentiality will make a disclosure not “public”.
- White paper literature and even gray literature and websites can be relevant sources of prior art.

What Is Prior Art: Search (cont'd)

- All patent filings are classified to route the filings to examiners competent in the field. The searches using keywords and classifications are best. Public databases such as **USPTO**, **Espacenet**, and **GooglePatents**.
- Patents have two distinct parts: **what they claim** and **what they teach**. It is a mistake to say that the patent claims XYZ and so the teachings don't apply to my invention.
- Teachings of <u>all prior art</u> are citable against your invention: except where grace periods apply (Canada, US, Australia where a 1 year, possibly other shorter grace periods India, Japan etc.) <u>if</u> your publication predates the disclosure or the disclosure derived directly or indirectly from you.

IPR Options: Trade Secret, Patent, or Publication

- A strategy for maximizing utility of an invention depends on a number of properties of the invention. All of the following might be considered good strategies for some inventions:

Know-how: knowledge pertinent to commercial activities that are believed to be known by some competitors, but not by all, and not readily obtained public information.

Trade Secret: information, inventions, and know-how pertinent to a commercial activity about which exclusivity is claimed by employer: notice to all who share in the TS; and suitable efforts to maintain secrecy.

Publications attract partners and clients. Spreads knowledge of how to use product and service offerings; and have marketing functions. Can increase utility of already-protected IP.

Registered IP rights: Patents, Copyright in software, Industrial designs, IC Topographies.

IPR Options: Relevant Properties

- State of Development:
  - Technology Readiness Level
  - development plans
  - cost to bring to market
  - partners interested in bearing some of these costs
- Patentability:
  - absolute novelty vs. not generally known
  - breadth of claim / cost to avoid infringing
  - subject matter issues
- Cost to reverse engineer and reproduce commercially viable competitive products/services. Policeability of claims.
- Availability of alternative protection (copyright in software and TS in source code)
- Size of addressable market

Invention Review Process

- Usually starts with an invention disclosure. Sometimes IP mining exercises prompt the disclosure.
- Decision makers review patentability, commercialization plans and timing to decide on how to handle. Decision makers may include patent agents or lawyers, product developers, research directors, and market analysts.
- You can help by knowing the business plans regarding the research you're doing. If commercialization is not a priority for the research, consider doing some homework on the addressable market, the opportunity, the evidence that the solution you're offering addresses a real problem in the art, who needs the solution, and how easy to police and enforce.

Reading Patents

- Title (non-descript)
- Field (classification)
- Background (prior art, problem to be solved)
- Summary aspects/objects, restate claims
- Drawings required if invention admits illustration
- Detailed description of preferred embodiments
- Examples (prophetic, simulated, lab, mass prod.)
- Claims (define monopoly)
- Abstract (used for searching)
- Purposes: what the document teaches vs. claims

Patent Drafting Process: Claims

- Industrial Language Arts: each claim is a noun clause that lists the structural features of the invention, and the functional (inter)operation of the features, ideally that are: 1) necessary and 2) sufficient, for obtaining the advantages of the invention.
- If not 1), others can take the advantages of your invention without infringing. If not 2), your claims risk not being valid. It is fairly rare that you approximate perfection. The challenge is to simply state what was invented. Too broad $\Rightarrow$ invalid, too narrow $\Rightarrow$ avoided
- Fallback positions of valuable ambit: prior art is citable even if published after your filing (unavoidable uncertainty). Venn Diagram view of claims and dependencies.

Patent Drafting Process: Claims (cont'd)

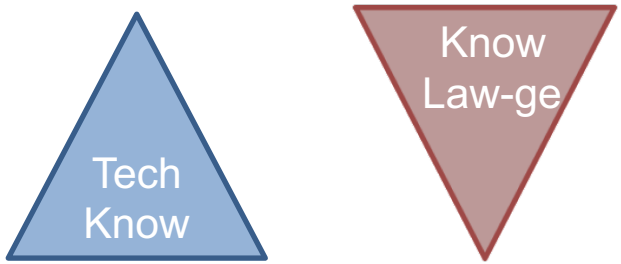
- 2 reasons for dependent claims: invalidity of broadest claim does not imply invalidity of narrower claims; and forces a broad interpretation of the independent claim.
- Ambit of claims commensurate with examples of invention.
- Invention disclosure document
  - Attempts to elicit a characterization of an invention
  - Closest known prior art (search?)
  - Assessing likelihood of issuance
- Identify: commercially important applications / the context agnostic problem and solution / the practical simplifications and costs regarding claim scope

Patent Drafting Process: The Rest

- Drawings: wireline drawings with no colour or shading and graphs if available.
- Detailed description of preferred embodiments. Recite exactly what is claimed in as many variations as is reasonable. Anything not covered in the drawings and description risks being not covered by the claims, regardless of the wording of the claims. Consider all alternatives. Assess evidence of operability / utility.
- Examples are useful for defending against attacks regarding utility, sufficiency of disclosure, and enablement (TRL scale prophetic, simulated, lab, in situ)
- Abstract (used for searching)

What to Expect Post Filing

- Formal documents: assignment, Declarations, Powers of Attorney
- Provisional
- PCT (WO vs. WO)
- National formal filings vs National Phase Entries
- Office Actions: pyramids of knowledge in patent law
- Called to explain differences in prior art re: <u>teachings</u> more often about claim breadth than invention
- Allowance, Issue, licensing, enforcement,



Judge

Trial Lawyer

Agent / Examiner

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Thank you

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