Inventions, patents, and licensing: The process at Caltech

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A few preliminary notes...

What is a patent?

How do I get a patent?

Prior art and publication bars

Inventorship, ownership, licensing, and Caltech’s role
OTTC can help you

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Please talk to us for specific advice!
• A few preliminary notes…

• What is a patent?

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What is a patent?

“Person of Ordinary Skill in the Art” (POSITA)
CLAMS

1. An imaging device including a monolithic semiconductor integrated circuit substrate, said imaging device comprising a focal plane array of pixel cells, each one of said cells comprising:

   a photogate overlying said substrate for accumulating photo-generated charge in an underlying portion of said substrate;

   a readout circuit comprising at least an output transistor formed in said substrate;

   a charge coupled device section formed on said substrate adjacent said photogate having a sensing node connected to said output transistor and at least one charge coupled device stage for transferring charge from said underlying portion of said substrate to said sensing node; and

   wherein said readout circuit is a complementary metal oxide semiconductor (CMOS) circuit formed on said substrate, said substrate being of a first conductivity type, said CMOS circuit comprising plural metal oxide field effect transistors of a first conductivity type, a well region of a second conductivity type in said substrate and plural metal oxide semiconductor transistors of a second conductivity type formed in said well region.
With an issued patent...

Patentee can **exclude** (for a certain period of time*) others (in the US) from:

- Making
- Using
- Selling, or offering to sell, or
- Importing into the US

the patented (claimed) invention.

*Patent infringement = doing this without a license

*20 years from first non-provisional priority date
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Disclosure should include:
- Thorough description of invention – often a manuscript in preparation
- Names, contact information, citizenship, signatures of inventors
- ALL funding sources
- Past disclosures/publications of the subject matter
Provisional patent application:

• “Coversheet” filed by OTTCP
• Inexpensive
• Quick (same day if received by noon, next business day otherwise)
• Remains confidential, if not converted
• Does not need to have claims
Conversion to non-provisional application:

- Outside attorneys engaged for non-provisional filing
- Expensive (~$10k US, + ~$5k PCT)
- Several weeks’ prep time (attorneys working with inventors)
- Published 18 months from priority date (typically, provisional filing date)
- Must have claims
- US and/or PCT?
The examination process at the USPTO

Application submitted to USPTO

“Notice of Missing Parts”
(fees, inventor oaths and declarations)

---publication of application typically somewhere in here, 18 months from priority date, always on a Thursday---

Restriction Requirement
(sometimes)

Non-final Office action
“on the merits”
(patentability)

“Final” Office action
“on the merits”
What the USPTO is looking for:

“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.”

Patentable subject matter (35 USC § 101)

Novelty (35 USC § 102)

Non-obviousness (35 USC § 103)

Written description, enablement (35 USC § 112)
You’re almost there…

Notice of allowance!
• Pay issue fee, and patent issues (always on a Tuesday)

BUT you’re not done yet…

• Maintenance fees due after issuance at:
  • 3.5 years
  • 7.5 years
  • 11.5 years
    (in US; typically annually, elsewhere)

• Patent challenges (PGR, IPR)
How long does it all take?

Invention disclosure → US provisional patent app. filed → Provisional expires → 12 months → "Conversion" Non-provisional US patent app. → PCT ("international") app. → 30 months → National phase entry?

Publication 18 months from priority date

Related new invention disclosure → Continuation -in-part (CIP) application → Continuation or divisional application → Allowance!

Office action → Response → 2+ years

PCT expires → ~18 months

Issued foreign patent(s)

Time (not to scale)
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Prior art timeline

- **June 8, 2015**: Prov. app. A, B
- **June 8, 2016**: Prov. app. A, A', B, B', C
- **June 8, 2017**: Non-prov. app.

Nothing in here is prior art

Prior art (UNLESS inventors’ own disclosure of A or B)

Prior art (with respect to C, possibly A' and B'; unless inventors’ own disclosure)
What could be a barring disclosure?

- Prior publication?
- Earlier patent application?
- Talk or presentation?
- Thesis? Thesis defense?
- Grant proposal?
- Just telling someone else your idea?
When should I disclose/file?

Conception

Reduction to practice

Less prior art

Timing of filing

Better data
Topics

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Who is an inventor?

Inventor = One who conceived the *claimed* invention

- Not one who merely reduces the invention to practice
- Legal determination made by outside lawyers if necessary

**INVENTORSHIP ≠ AUTHORSHIP**

*Note: Inventor order DOES NOT matter!*
Who owns an invention/patent?

• Inventor starts by owning her/his inventions

• However, under employee Patent Agreements, agree to assign inventions to employer

• Employer (Caltech) then owns the patent

• Royalties shared with inventors (25%, after cost recovery and 3rd party obligations)
Sponsor rights

Government
- Bayh-Dole Act (federal)
- Reporting/compliance obligations
- Government rights

Foundations
- May include IP provisions, such as royalty-sharing or licensing requirements

Industry
- Research sponsors from industry typically have first right to IP developed through their funding (patenting decisions, option to license, internal-use NERF)
Collaborations

Inventors assign to UC Regents

Caltech and UCLA work out an IIA*

Inventor assigns to Caltech

Jointly-owned patent (UC and Caltech)

* IIA = Inter-Institutional Agreement
What does Caltech do with its patents?

OTTCP mission:

...to drive the transfer of scientific and engineering knowledge created by our researchers to maximize societal impact by developing partnerships with industry through the creation of new ventures, collaborations with corporations, and transfer of intellectual property while nurturing an entrepreneurial environment.

How?

Licensing IP (patents) to startups or established companies, who develop and sell products/services
Typically NOT a money-maker...

Stanford's innovation record since 1970

- 10,000 Invention disclosures, by faculty and students
- 5,000 Patents issued
- 2,500 License agreements made with companies
- 77 License agreements generating $1M
- 3 Generating $100M

After 45 years and 10,000 discoveries at Stanford, just three have generated multimillion dollar licenses.

Source: http://www.bloomberg.com/graphics/2016-university-patents/
Licensing overview

**START-UP**

- 12 month option, low fee
- Full license upon exercise
- Modest/no upfronts, patent cost deferment
- Caltech takes equity
- Running royalties
- Diligence requirements

**A BIG COMPANY**

- Typically go straight to a license
- Upfront license fee, immediate patent cost reimbursement
- No equity
- Running royalties
- Diligence requirements
Thank you for your time and attention!

Any questions?