



Cornell University
Computer Systems Laboratory

PATENTING IN ACADEMIA AND INDUSTRY

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■ Many possible reasons...

- To altruistically expand human knowledge
- To support engineering industry
- To solve interesting puzzles
- As an excuse to travel to exotic conference destinations
- Always thought our name would sound cool with “Dr” in front



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- **Useful but intangible ideas are “Intellectual Property” (IP)**
 - *Trademark* – recognizable sign, design, or expression
 - *Trade secret* – secret information which gives economic advantage over competitors or customers
 - *Copyright* – exclusive rights to an “original work of authorship”
 - *Patent* – exclusive rights to a solution to a specific technological problem



- **A patent on a specific invention gives exclusive usage rights of that idea to whoever holds the patent.**
 - Inventor(s): Person or people who conceived of the patented invention
 - Assignee: Person or company who owns the patent
- **You can make money by...**
 - Making and selling products or services with the patented invention
 - Selling the patent to another organization
 - Licensing out the patent in exchange for a percentage of sales
 - Suing for the profits made by an organization who used the patented invention without your permission



- **A patentable idea must have all of the following properties:**
 - Non-abstract
 - Man-made
 - Novel
 - Non-obvious
 - Useful



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$$a = \sqrt{b^2 + c^2}$$



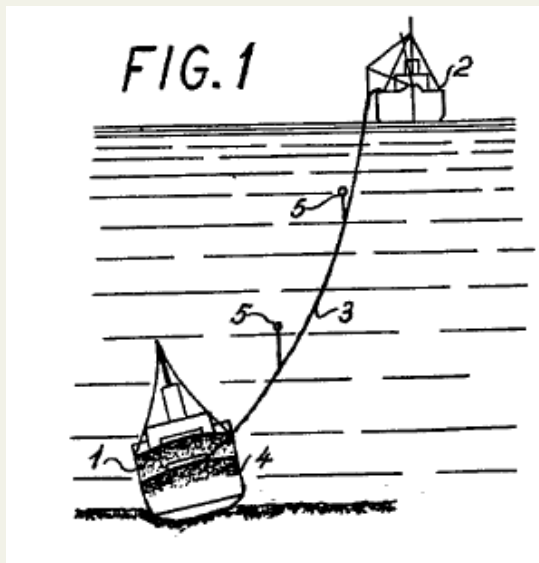
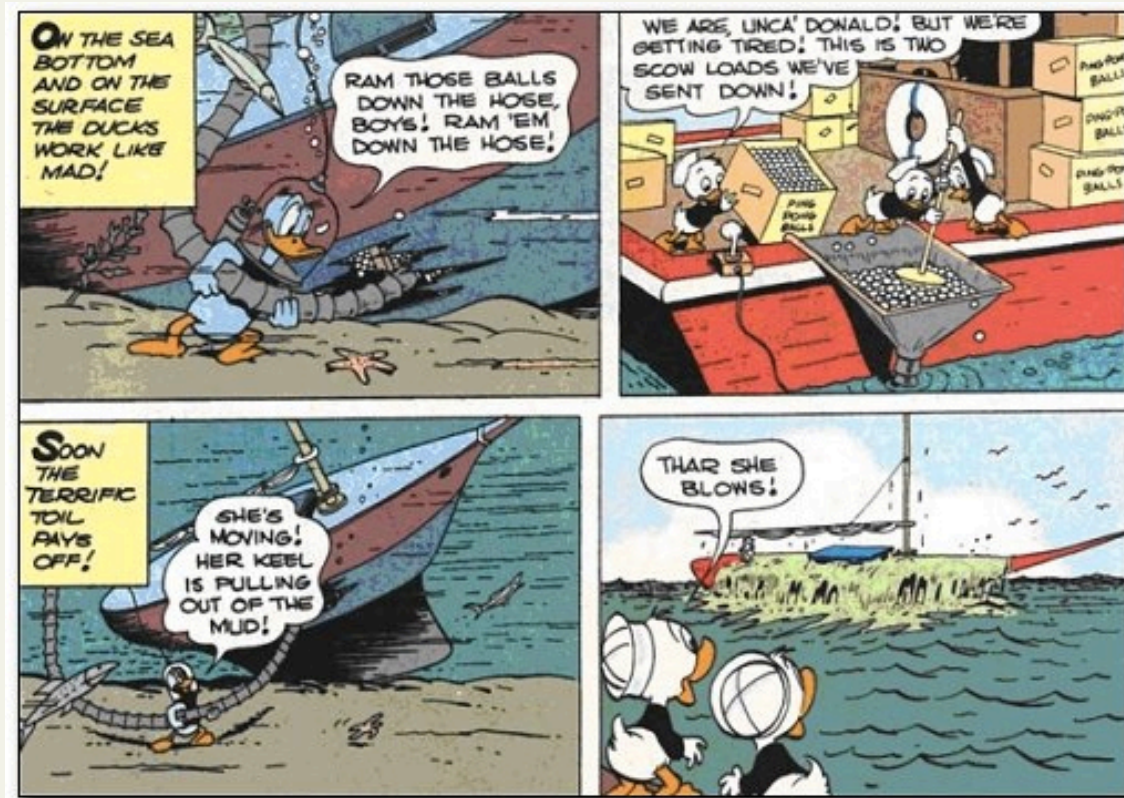
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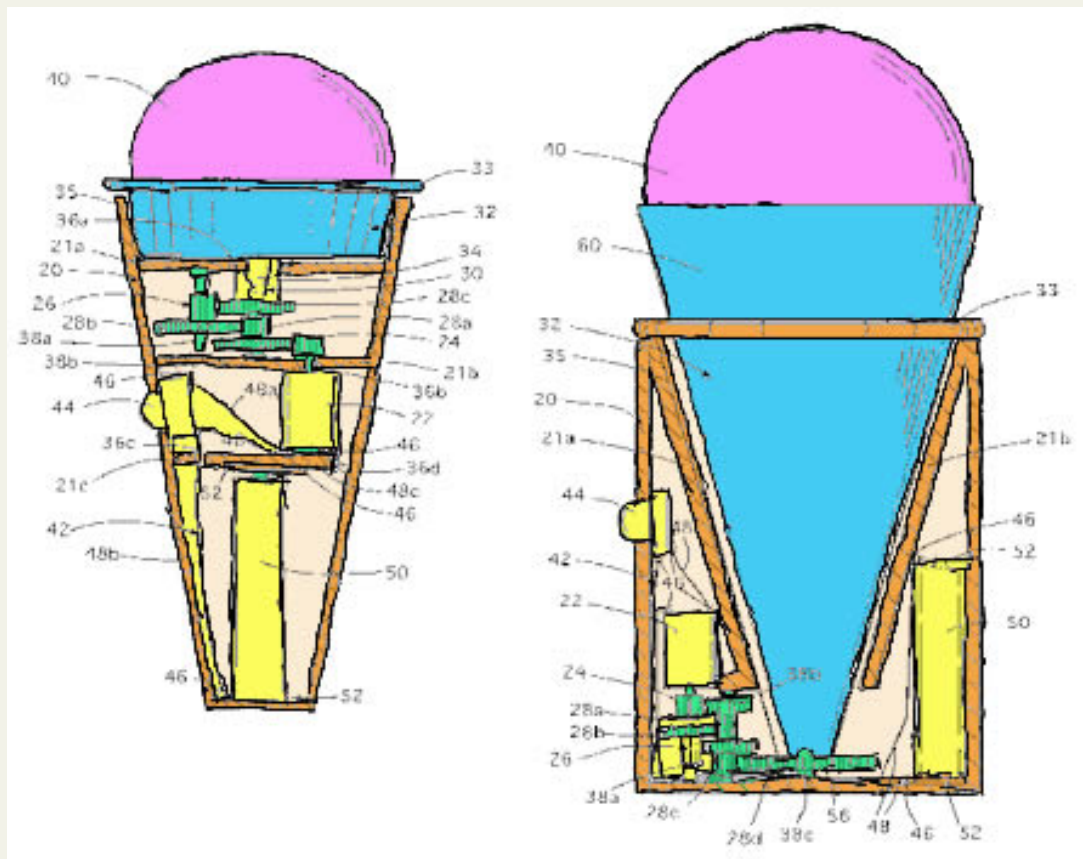
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- **In either a company or a university, they NEED you**

- **Industry**
 - Patents can be a replacement for publishing (useful for visa)
 - Cash bonuses for having an IDF approved and eventual issued patent

- **Academia**
 - Possible influence over who uses the patent
 - Personal share of licensing fees
 - » Cornell: 1/3 Inventor(s), 1/3 CTL, 1/3 Department



- **Provisional applications are inexpensive, free-form, and last for a year**
- **Personal:**
 - If you aren't under a Confidential Information and Inventions Assignment Agreement (CIIAA) then its probably worth it!
- **In an organization:**
 - Gets the filing date started before making claims



- **ASAP! A good choice is right after conference submission**

- **The US**
 - A “first-inventor-to-file” country as of 2013
 - One year grace period after publishing

- **Other countries**
 - No such thing as an international patent (IPCU)
 - Some are “first-to-invent” and others “first-to-file”
 - Most others have no grace period



■ **The Invention Disclosure Form (IDF)**

1. Who are the inventors?
2. What problem does the invention solve?
3. What prior art are you aware of?
4. What competitors are you aware of?
5. What are the unique features of the invention?
6. How does the invention work?
7. Are there any alternative versions of the invention?
8. How could the invention be used?
9. How can the use of this invention be detected?
10. Who might want to purchase or license the potential patent?



- ***Author:*** Person who made important contributions (building prototypes, testing, writing)
- ***Inventor:*** Person who conceives of an original, useful, and non-obvious idea
- Use best judgement to consider if any of your collaborators co-conceived the idea with you
- Be careful! Patents have been invalidated before for incorrect inventor lists.

- Think about this like the *Motivation + Background* sections of a paper
- **Background:** Set the stage. What is the state of your field like?
- **Motivation:** Why was the invention created? Why are people worse off without your invention?



- Think about this like the *Related Work* section of a paper
- Prior art includes any patents, papers, documentation, or other published information

- **Who else (people, research groups, companies, universities) is working on the same problems that you are?**
- **What competing inventions or full products are you aware of?**
- **What flaws do these competitors have that necessitate a better solution?**



- Think about this like the *Contributions* section of a paper
- This is where you put the big sales pitch for your invention. Stress why your differences represent a competitive advantage

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- **The most complex section of the IDF... Try to focus on clarity for a non-expert reader**
- **Use pictures whenever possible**
- **Consider adding in a jargon glossary**



- **Your prototype represents only one possible choice for each design decision**
- **Explain the entire design space to ensure broad claims**
- **Include versions which you consider inferior!**

- Part of a patent's value is how easy the invention can be detected
- Consider general forensic methods in your field
- If its too hard to detect use, your organization may prefer to protect your invention as a Trade Secret

- **If you are in a company, this likely won't even be asked since it is assumed the company will use the patent**

- **Otherwise, consider:**
 - Large companies
 - Startup companies
 - ~~Non-practicing entities~~

- **If you want to use the patent in a startup of your own, be very clear about this!**





- CTL hosts workshops pretty frequently, have been helpful



- CAPRA has filed 5 IDF's so far, repo with template available!

