

# ME 370: The Mechanical Engineering Profession

Lecture 04: Introduction to Intellectual Property

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# Purpose

Define intellectual property (IP), distinguish the four types of intellectual property, and give examples of each type.

# Video Segments

1. Introduction to Intellectual Property
2. Introduction to Patents
3. Utility Patents
4. Copyright
5. Trademarks and Trade Secrets

# References

1. United States Patent and Trademark Office  
[www.uspto.gov](http://www.uspto.gov)  
<http://www.uspto.gov/trademarks/basics/definitions.jsp>
2. David Douglas and Greg Papadopolous, *Citizen Engineer*, 2010, Prentice Hall, Chapter 12
3. <http://www.copyright.gov>
4. Copyright Term and the Public Domain in the United States  
<http://copyright.cornell.edu/resources/publicdomain.cfm>
5. Creative Commons alternative to copyright  
<http://creativecommons.org/>
6. Trademark Basics  
<http://www.uspto.gov/trademarks/basics/>
7. Trade Secrets Basic FAQ:  
<http://www.nolo.com/legal-encyclopedia/trade-secret-basics-faq-29099.html>

The concept of intellectual property requires the belief that you can own the right to use ideas or to prohibit others from using those ideas.

MAY 21, 2014 | BY ADI KAMDAR (/ABOUT/STAFF/ADI-KAMDAR) AND DANIEL NAZER (/ABOUT/STAFF/DANIEL-NAZER)  
AND VERA RANIERI (/ABOUT/STAFF/VERA-RANIERI)

## Senator Leahy Kills Patent Reform (For Now)

Patent reform suffered a massive setback today when Senator Patrick Leahy, as chair of the Judiciary Committee, [announced](http://www.leahy.senate.gov/press/comment-of-senator-patrick-leahy-d-vt-chairman-senate-judiciary-committee-on-patent-legis) (<http://www.leahy.senate.gov/press/comment-of-senator-patrick-leahy-d-vt-chairman-senate-judiciary-committee-on-patent-legis>) taking patent reform “off the agenda.” We understand that other senators—Chuck Schumer and John Cornyn—were still working hard to reach a biparti they were ready to release a new bill, Leahy stepped in to kill the process.

BUSINESS COPYRIGHT



# This Is How the Patent Trolls and Trial Lawyers Won

Sam Gustin @samgustin | May 24, 2014

For over a year, intellectual property reform advocates and their allies in Congress have been trying to [advance legislation](#) designed to crack down on so-called patent trolls, which are firms that don't build products, but rather seek to extract license fees or legal judgments from other companies. Until recently, prospects for reform appeared good, as lawmakers honed legislation that would curb the worst kind of patent troll abuse.



The early morning sun rises behind the US Capitol Building in Washington, DC.

Mark Wilson—Getty Images

# Four Types of IP

1. Patents
2. Copyrights
3. Trademarks
4. Trade secrets

# Introduction to Patents

ME 370: Intellectual Property Notes



Question:

Where are patents first mentioned in U.S. Law?

Question:

Where are patents first mentioned in U.S. Law?

Hint:

Question:

Where are patents first mentioned in U.S. Law?

Hint:



# Article 1 of the US Constitution

We the People of the United States, in Order to form a more perfect Union, ... establish this Constitution for the United States of America.

**“Section 8, The Congress Shall have the Power ...**

**To promote the Progress of Science and useful Arts, by securing for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries”**

# Definition

“A patent is an intellectual 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.”

# Definition

“A patent is **an intellectual 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.”

# Owning a patent does not give you the right to use your invention

From USPTO.gov

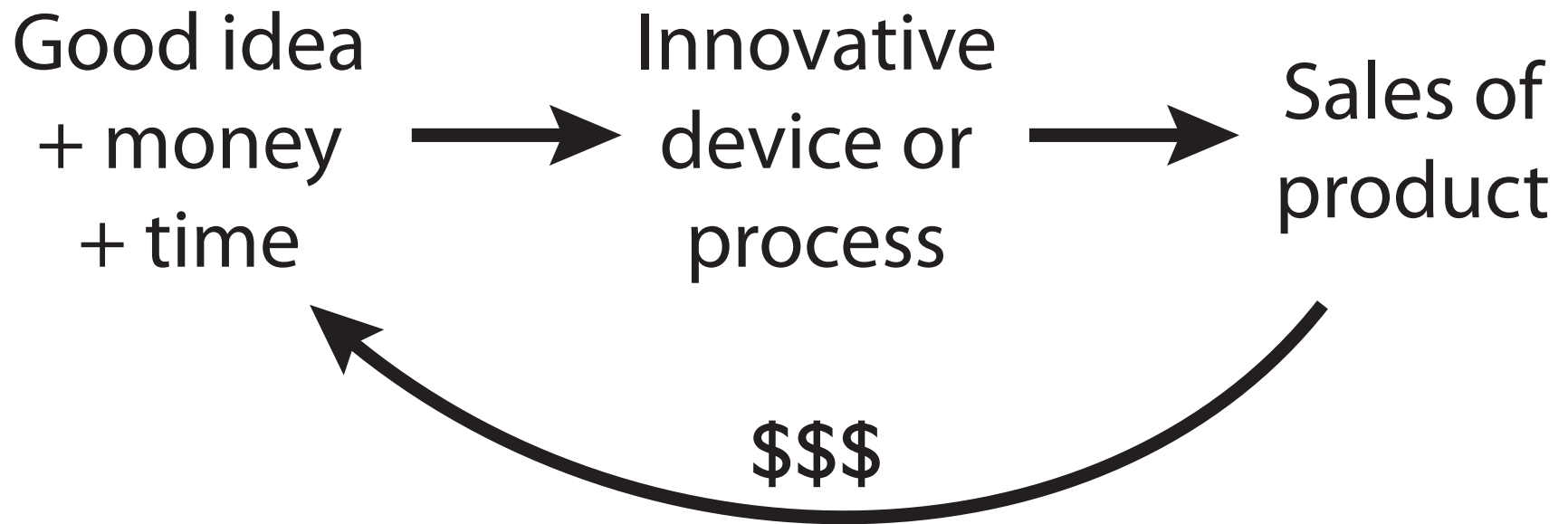
“What is granted is not the right to make, use, offer for sale, sell or import, but the right to exclude others from making, using, offering for sale, selling or importing the invention. Once a patent is issued, the patentee must enforce the patent without aid of the USPTO.”

# Patent theory

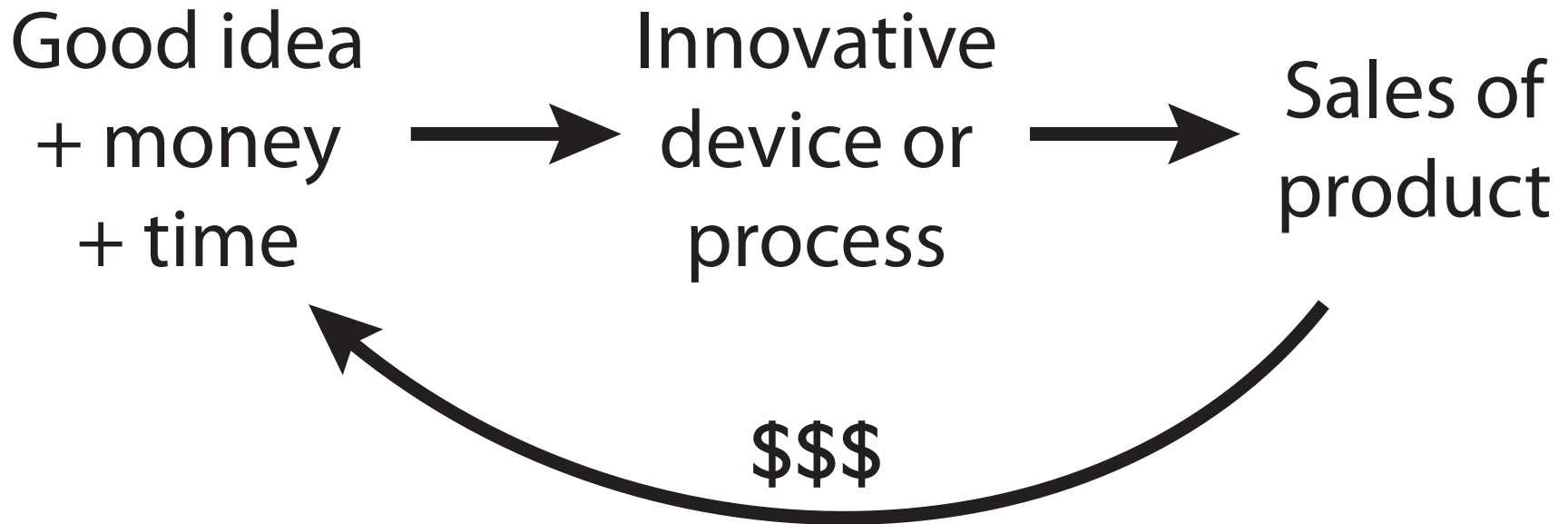




# Patent theory



# Patent theory



Patents are designed to  
protect this feedback

# Types of Patents

1. Utility patents

provisional and non-provisional

2. Design patents

3. Plant patents

Provisional and non-provisional

# Types of Patents

## 1. Utility patents

provisional and non-provisional

## 2. Design patents

## 3. Plant patents

Provisional and non-provisional

In 2013, USPTO received about 609,052 patent applications (all types). 571k of those were utility patent applications.

609k/year = 11712/week = 2343/day (5 days/wk)

<http://www.uspto.gov/about/stats/>

[http://www.uspto.gov/web/offices/ac/ido/oeip/taf/us\\_stat.htm](http://www.uspto.gov/web/offices/ac/ido/oeip/taf/us_stat.htm)

# Utility Patents

## Provisional

- ▶ Establishes a starting date for a one-year period to complete the filing
- ▶ Allows you to claim “Patent Pending”
- ▶ Is cheaper than non-provisional, at least initially

## Non-provisional

- ▶ Requires a complete application
- ▶ Filing date marks the date of your disclosure, and begins the examination process by USPTO

# Utility Patents

ME 370: Intellectual Property Notes

# Utility Patents

“**Utility patents** may be granted to anyone who invents or discovers any new and useful process, machine, article of manufacture, or composition of matter, or any new and useful improvement thereof;”

Source: <http://www.uspto.gov/patents/>

# Design and Plant Patents

“**Design patents** may be granted to anyone who invents a new, original, and ornamental design for an article of manufacture; and

**Plant patents** may be granted to anyone who invents or discovers and asexually reproduces any distinct and new variety of plant.”



# What can be patented?

A utility patent can be granted for something that may be

- ▶ A process
- ▶ A machine
- ▶ An article of manufacture
- ▶ A composition of matter (e.g. a material)
- ▶ An improvement in any of the above

These criteria do not apply to design and plant patents.

# What's Patentable?

Methods, devices, systems, business procedures, software, and improvements to existing technologies can all be patented.

## Requirements:

- ▶ Novel: invented by you, and not known by others.
- ▶ Must be non-obvious.
- ▶ Must be useful.

# What cannot be patented?

The following are not patentable

- ▶ Laws of nature
- ▶ Physical phenomena
- ▶ Abstract ideas
- ▶ Literary, dramatic, musical and artistic works  
(these can be protected by copyright)
- ▶ Inventions which are
  - ◆ not useful (e.g. perpetual motion machines)
  - ◆ offensive to public morality

# Requirement of Novelty

The “newness” or novelty and non-obviousness of a patent is lost if the idea is revealed to the public before it is disclosed in a patent application.

“In order for an invention to be patentable it must be new as defined in the patent law, which provides that **an invention cannot be patented if:**

- ‘(1) **the claimed invention was patented, described in a printed publication, or in public use, on sale, or otherwise available to the public before the effective filing date of the claimed invention**’ or
- ‘(2) **the claimed invention was described in a patent issued [by the U.S.] or in an application for patent published or deemed published [by the U.S.], in which the patent or application, as the case may be, names another inventor and was effectively filed before the effective filing date of the claimed invention.**’ ”

# Requirement of Novelty

The “newness” or novelty and non-obviousness of a patent is lost if the idea is revealed to the public before it is disclosed in a patent application.

“In order for an invention to be patentable under the patent law, which provides that

‘(1) the claimed invention was not known to the public before the effective filing date of the claimed invention’ or

‘(2) the claimed invention was described in a patent issued [by the U.S.] or in an application for patent published or deemed published [by the U.S.], in which the patent or application, as the case may be,

was known to the public before the effective filing date of the claimed invention.’ ”

(1) Prior disclosure or sale means the invention is no longer novel or non-obvious

(2) First to file gets to claim the invention

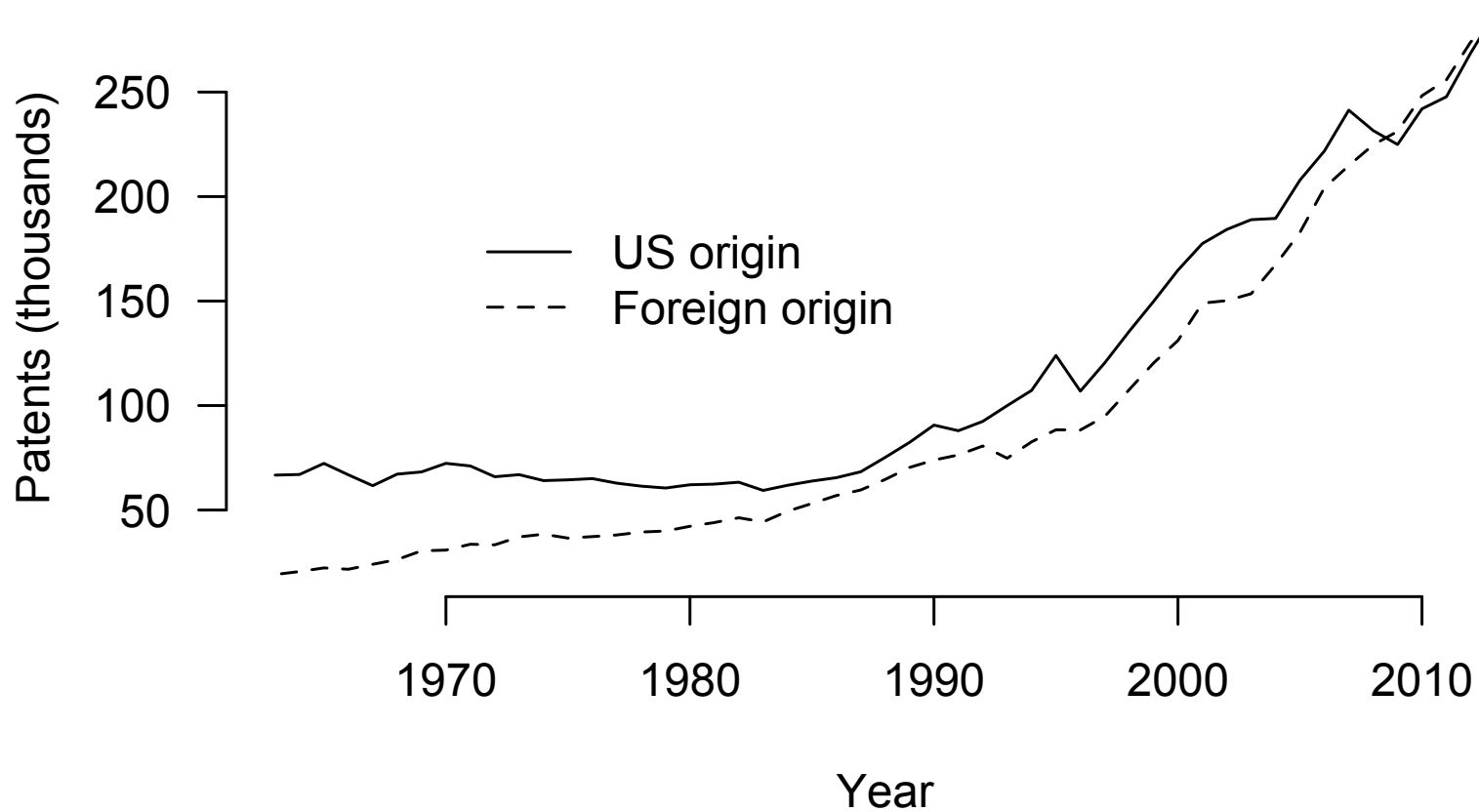
# Patent Facts

- Patents protect inventions – things or processes that are both new and useful.
- Patents give legal holder the right to exclude others from making, using, selling, or offering.
- Patents are valid for 20 years.

# Patent statistics

The number of utility patent applications have grown continuously

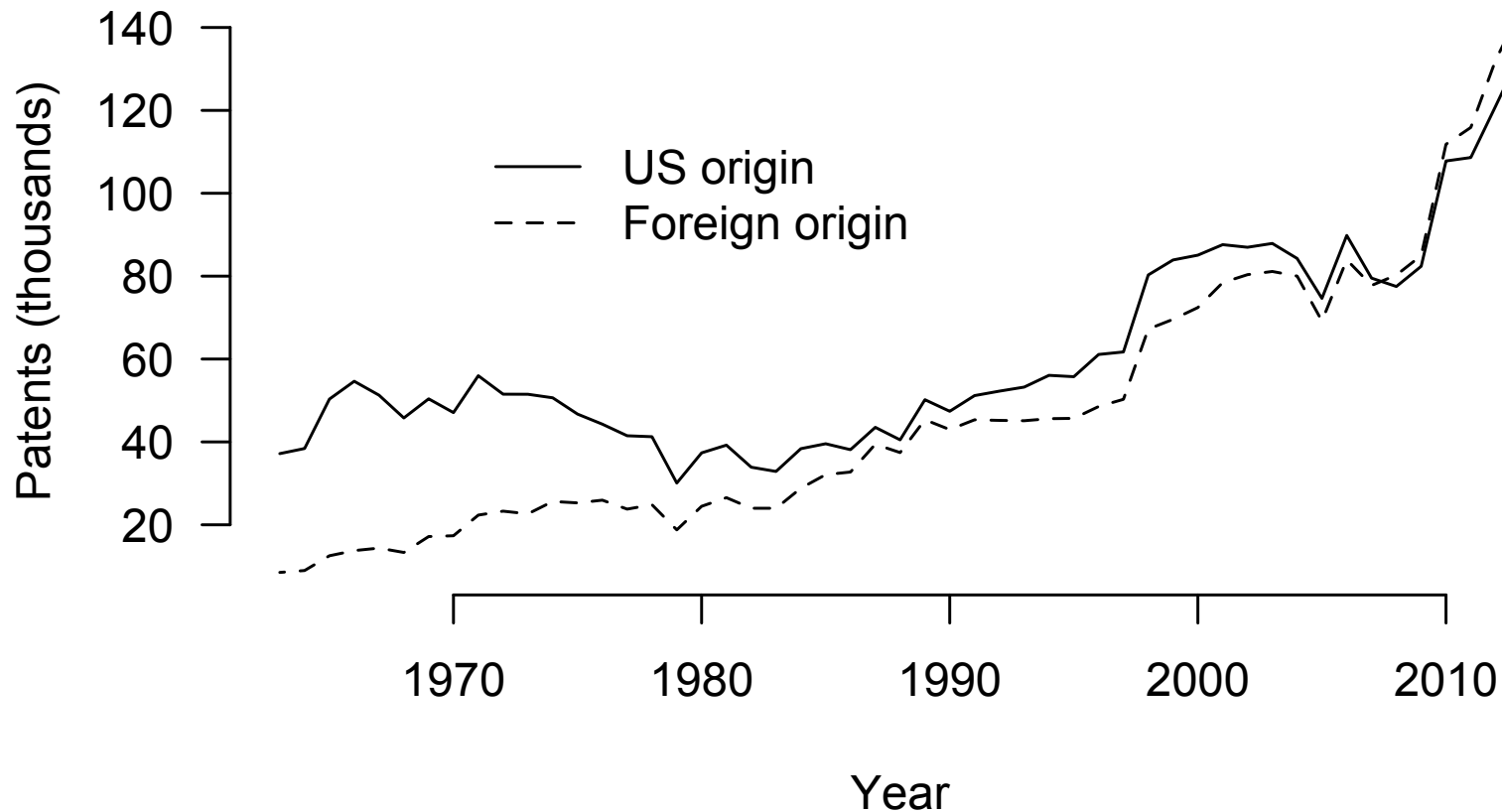
### Utility Patent Applications





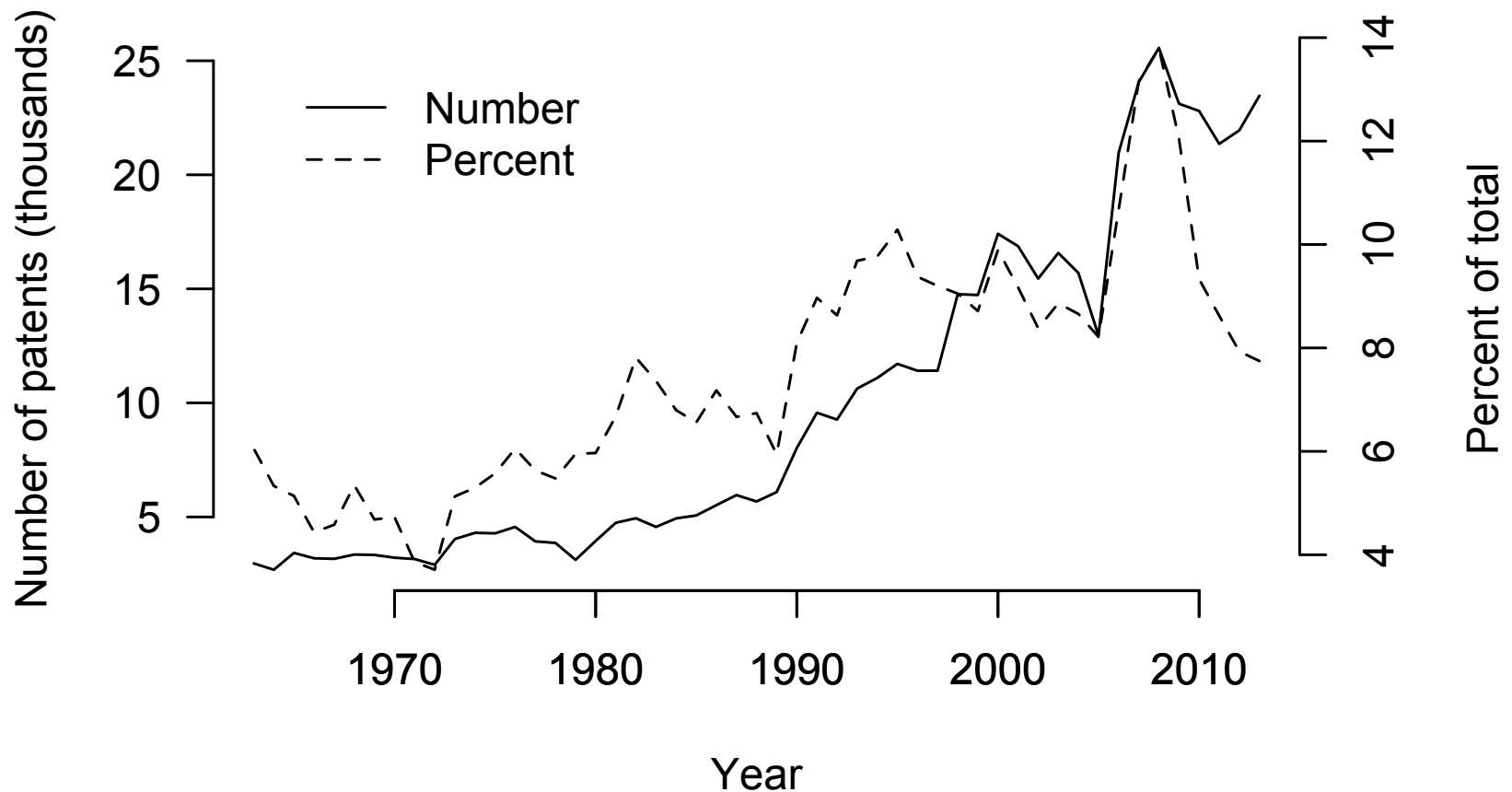
The number of utility patents granted has also increased, and recently surged

### Utility Patents Granted



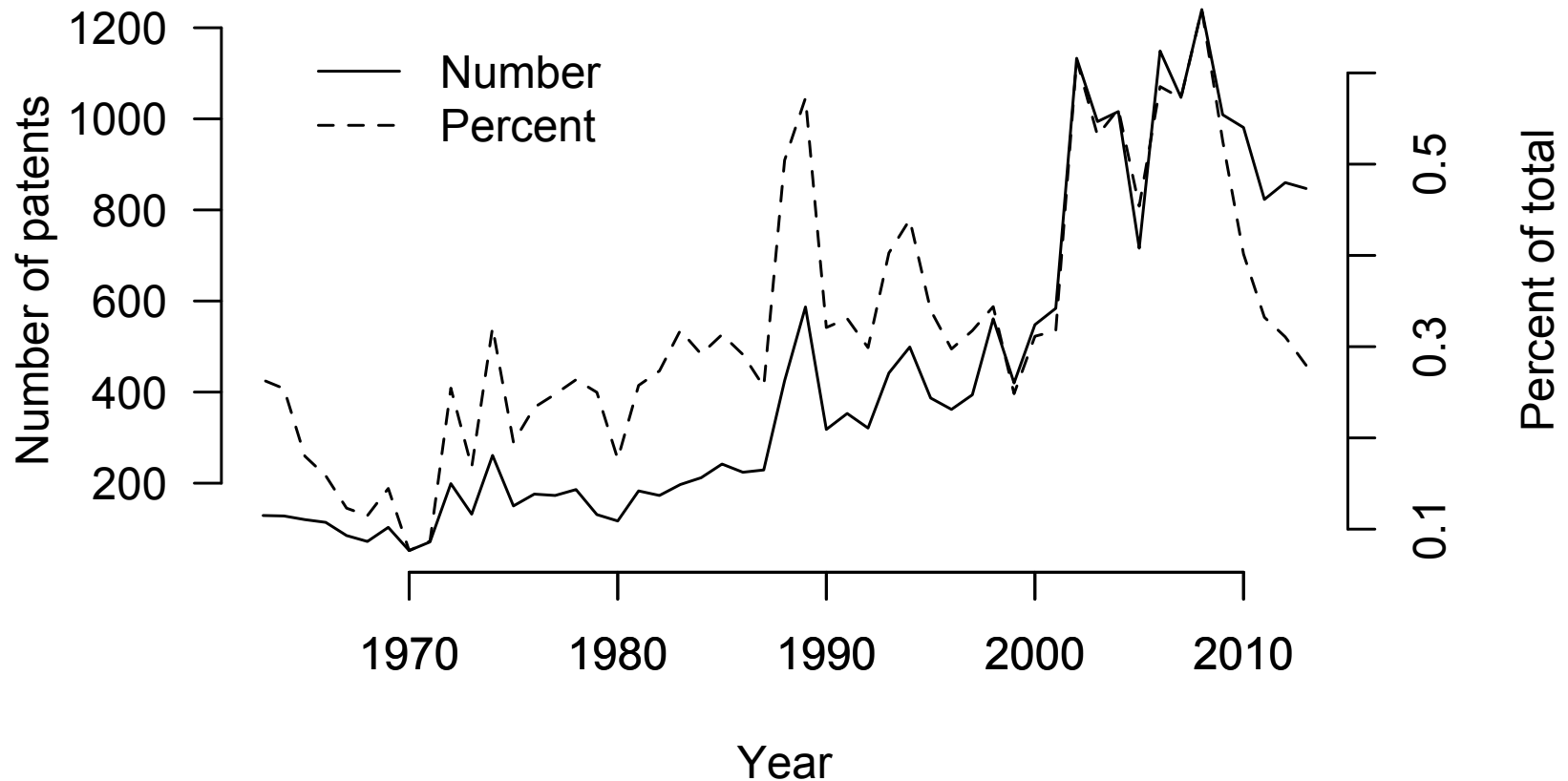
The number of design patents is a small fraction of the number of utility patents

### Design patents granted



The number of plant patents is an even smaller fraction of the number of utility patents

### Plant patents granted



# Top 3 and representative patents counts granted to organizations in 2013

1	IBM	6788
2	Samsung Electronics*	4652
3	Canon Kabushiki Kaisha	3820
<hr/>		
5	Microsoft	2659
10	Google	1851
12	Apple, Inc.	1775
43	Boeing	788
80	University of California	397

\*Other divisions of Samsung are counted separately

Source: All Technologies (Utility Patents) Report, Part B,  
[http://www.uspto.gov/web/offices/ac/ido/oeip/taf/topo\\_13.htm](http://www.uspto.gov/web/offices/ac/ido/oeip/taf/topo_13.htm)

# Top 3 and representative patents counts granted to organizations in 2013

1	IBM	6788	← 26.1 per work day, 3.3 per hour
2	Samsung Electronics*	4652	
3	Canon Kabushiki Kaisha	3820	
<hr/>			
5	Microsoft	2659	
10	Google	1851	
12	Apple, Inc.	1775	
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\*Other divisions of Samsung are counted separately

Source: All Technologies (Utility Patents) Report, Part B,  
[http://www.uspto.gov/web/offices/ac/ido/oeip/taf/topo\\_13.htm](http://www.uspto.gov/web/offices/ac/ido/oeip/taf/topo_13.htm)



US007905946B1

(12) **United States Patent**  
**Weislogel et al.**

(10) **Patent No.:** **US 7,905,946 B1**  
(45) **Date of Patent:** **Mar. 15, 2011**

(54) <b>SYSTEMS AND METHODS FOR SEPARATING A MULTIPHASE FLUID</b>	3,992,177 A * 11/1976 Welteroth .....	55/288
	4,430,100 A * 2/1984 Cardo .....	55/344
	5,004,552 A * 4/1991 Al-Yazdi .....	210/789
	5,248,421 A * 9/1993 Robertson .....	210/512.1
(75) Inventors: <b>Mark M. Weislogel</b> , Tigard, OR (US); <b>Evan A. Thomas</b> , Boulder, CO (US); <b>John C. Graf</b> , Seabrook, TX (US)	5,378,354 A * 1/1995 Poor .....	210/188
	6,080,217 A * 6/2000 Gobl et al. ....	55/283
	6,364,940 B1 4/2002 Prueter et al. ....	
(73) Assignee: <b>The United States of America as represented by the Administrator of the National Aeronautics and Space Administration</b> , Washington, DC (US)	6,569,323 B1 * 5/2003 Pribytkov .....	210/181
	6,925,680 B2 * 8/2005 Oh .....	15/350
	RE39,292 E 9/2006 Latos et al. ....	
	7,125,711 B2 10/2006 Puglia et al. ....	
	7,314,559 B2 1/2008 Hopper .....	
	7,341,663 B2 3/2008 Offeman et al. ....	
	7,473,289 B2 * 1/2009 Oh et al. ....	55/318
(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 324 days.	7,547,351 B2 * 6/2009 Oh et al. ....	95/271
	7,556,662 B2 * 7/2009 Lee et al. ....	55/345
	7,594,944 B2 * 9/2009 Oh .....	55/345
	7,637,973 B2 * 12/2009 Oh et al. ....	55/337
	7,662,199 B2 * 2/2010 Wellens et al. ....	55/337
(21) Appl. No.: <b>12/190,364</b>	7,678,166 B2 * 3/2010 Yoo et al. ....	55/345
	7,736,422 B2 * 6/2010 Osborne .....	95/271
(22) Filed: <b>Aug. 12, 2008</b>		(Continued)

(51) **Int. Cl.**  
**B01D 45/00** (2006.01)

(52) **U.S. Cl.** ..... **95/272; 55/447; 55/461; 55/465; 55/529; 55/428; 55/429; 55/DIG. 14; 95/271; 95/261; 96/208; 96/209; 96/216**

(58) **Field of Classification Search** ..... 96/208, 96/209, 216; 95/272, 271, 261; 55/447, 55/461-465, 529, 459, 428, 429, DIG. 14  
See application file for complete search history.

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JP 60137412 A \* 7/1985

Primary Examiner — Jason M Greene  
Assistant Examiner — Dung Bui  
(74) Attorney, Agent, or Firm — Theodore U. Ro

(57) **ABSTRACT**

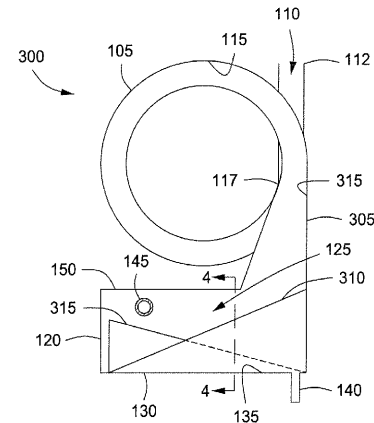
Apparatus and methods for separating a fluid are provided. The apparatus can include a separator and a collector having an internal volume defined at least in part by one or more surfaces narrowing toward a bottom portion of the volume. The separator can include an exit port oriented toward the bottom portion of the volume. The internal volume can receive a fluid expelled from the separator into a flow path in the collector and the flow path can include at least two directional transitions within the collector.

**28 Claims, 4 Drawing Sheets**

# Weislogel, Thomas and Graf

## US # 7,905,946

### March 15, 2011





US 20120222538A1

(19) **United States**  
 (12) **Patent Application Publication Booth** (10) **Pub. No.: US 2012/0222538 A1**  
 (43) **Pub. Date: Sep. 6, 2012**

(54) **MULTIPLE STRING TUNING PEG ASSEMBLY** (52) **U.S. Cl. .... 84/304**

(76) **Inventor: Isaiah-John Makana Booth, Portland, OR (US)**

(57) **ABSTRACT**

(21) **Appl. No.: 13/039,250**

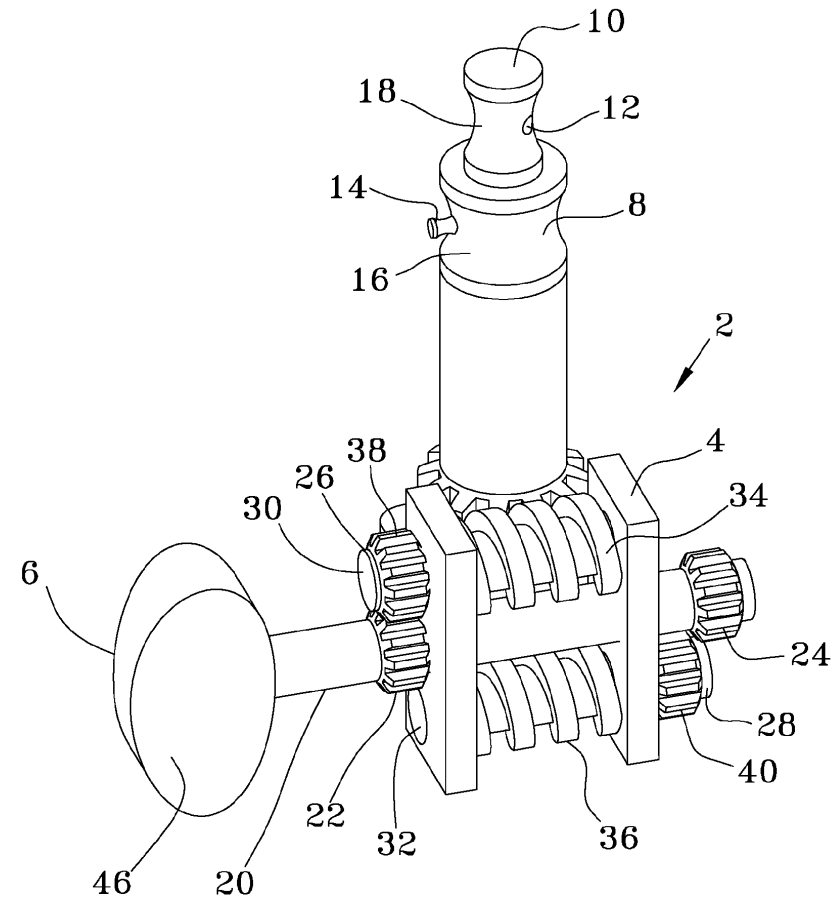
(22) **Filed: Mar. 2, 2011**

A multiple string tuning peg for a stringed musical instrument capable of independently tuning at least two strings. It minimizes the amount of clutter at the top end of a stringed instrument and maximizes the use of the mechanical gearing assemblies by sharing mechanical components. A single thumb twist can be physically manipulated to operated the multiple string winding mechanisms.

**Publication Classification**

(51) **Int. Cl. G10D 3/14 (2006.01)**

Isaiah-John Booth  
 US # 2012022538A1  
 Sept 6, 2012



# Copyright

ME 370: Intellectual Property Notes



Copyright is ownership of the *expression of an idea*. It does not extend to the idea itself or the factual information contained in the expression.

Copyright is the right to reproduce, distribute (and sell), display, and perform the expression.

# Copyright vs. Patent

## A Utility Patent

- ▶ gives you the right to prevent someone else from using your invention
- ▶ expires in 20 years

# Copyright vs. Patent

## A Utility Patent

- ▶ gives you the **right to prevent** someone else from using your invention
- ▶ expires in 20 years

## A copyright

- ▶ gives you the **right to perform or sell** the creative work
- ▶ expires in 70 years after the death of the author, or 120 after creation of the work. Can be renewed
- ▶ does not prevent someone else from creating a different expression of the same idea

# Registration

When you write something, it is *automatically copyrighted*.

You can declare your copyright and use the © sign without registering your document.

<http://www.copyright.gov/>

<http://www.copyright.gov/document.html>

<http://www.copyright.gov/fls/sl4d.pdf>

# Registration

When you write something, it is *automatically copyrighted*.

You can declare your copyright and use the © sign without registering your document.

To *register* a copyrighted work, submit a copy of the work to the Library of Congress. Pay \$105 for an electronic filing.

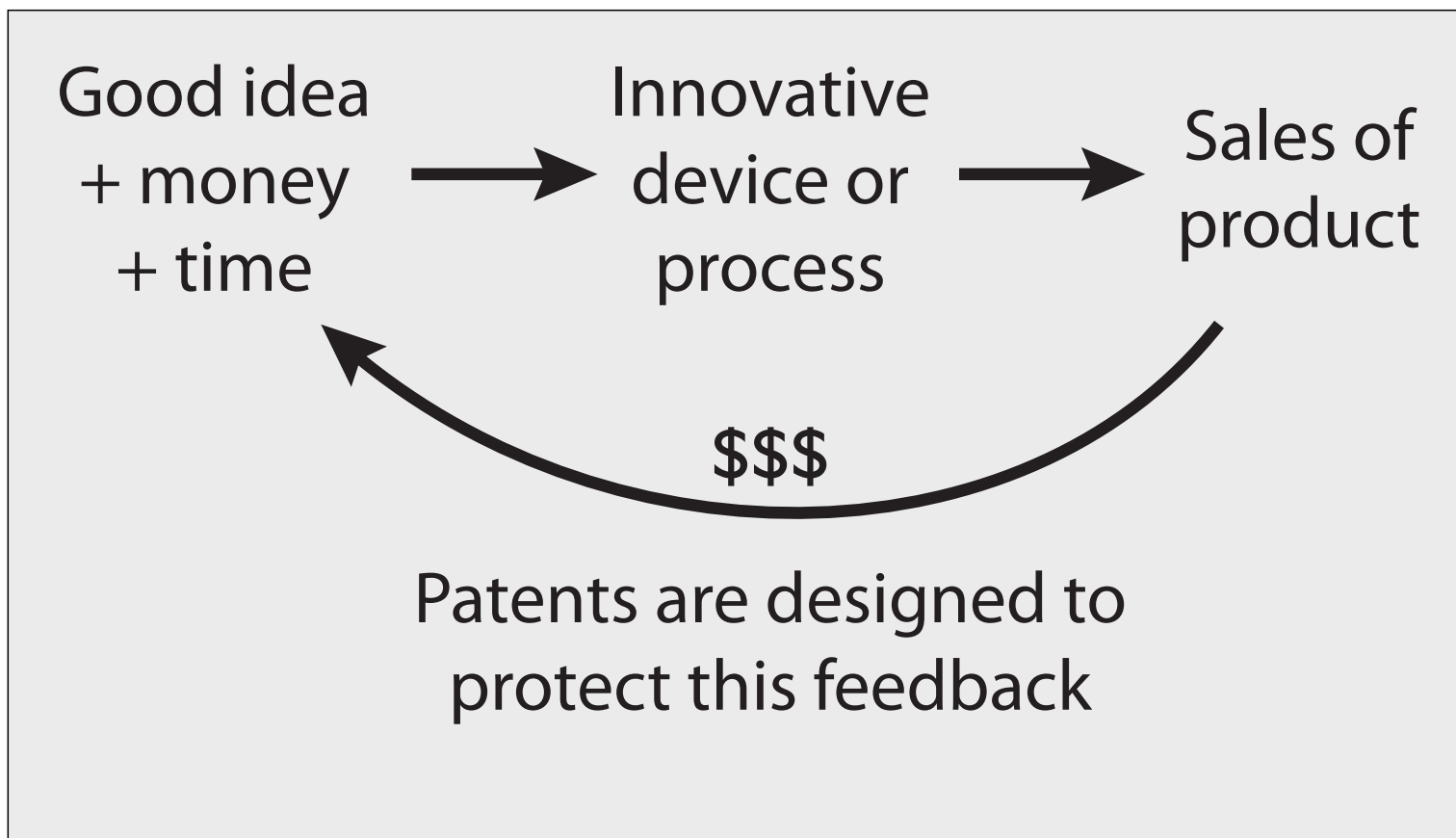
<http://www.copyright.gov/>

<http://www.copyright.gov/document.html>

<http://www.copyright.gov/fls/sl4d.pdf>

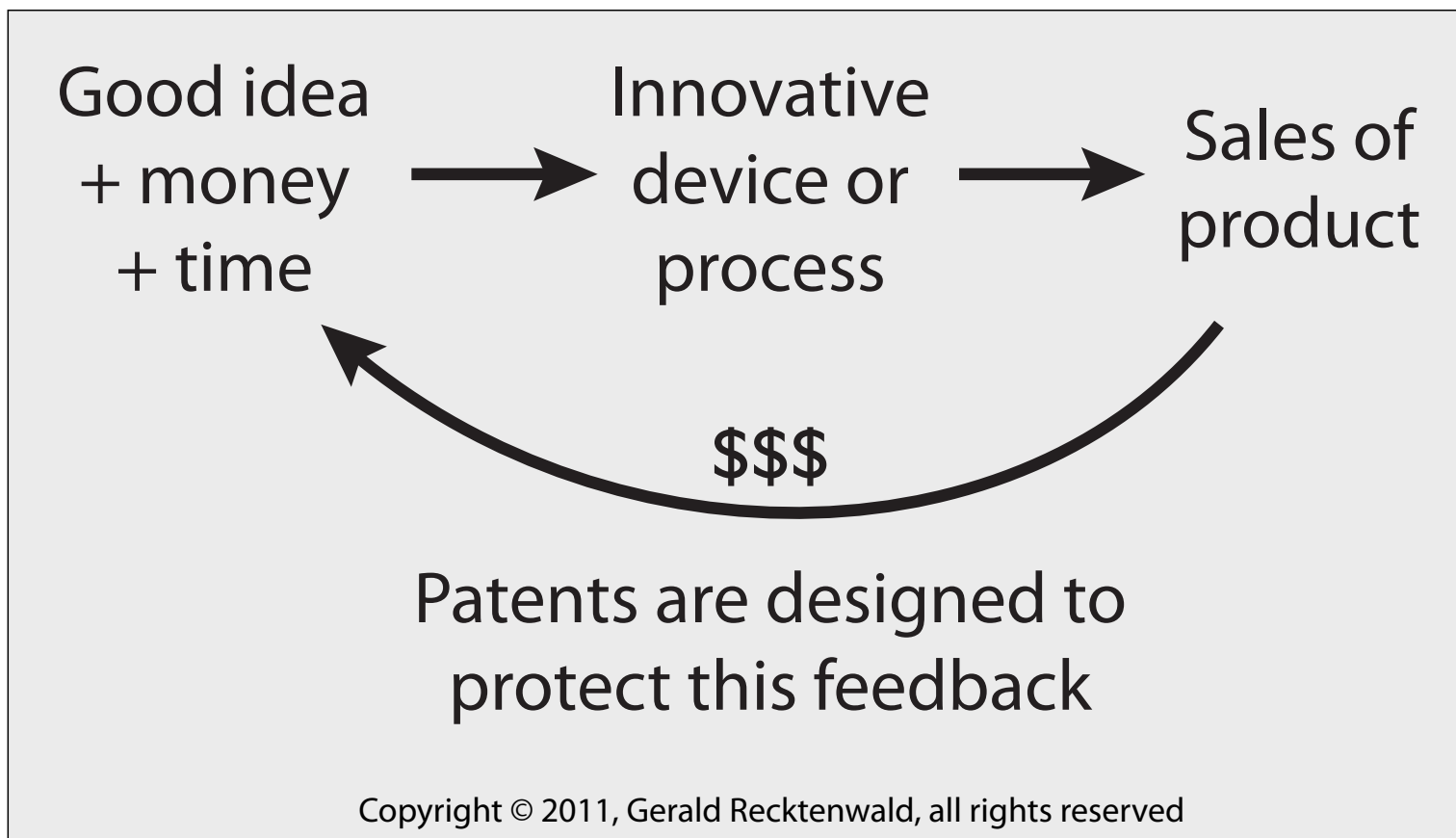
# Example

From an earlier slide in this presentation:



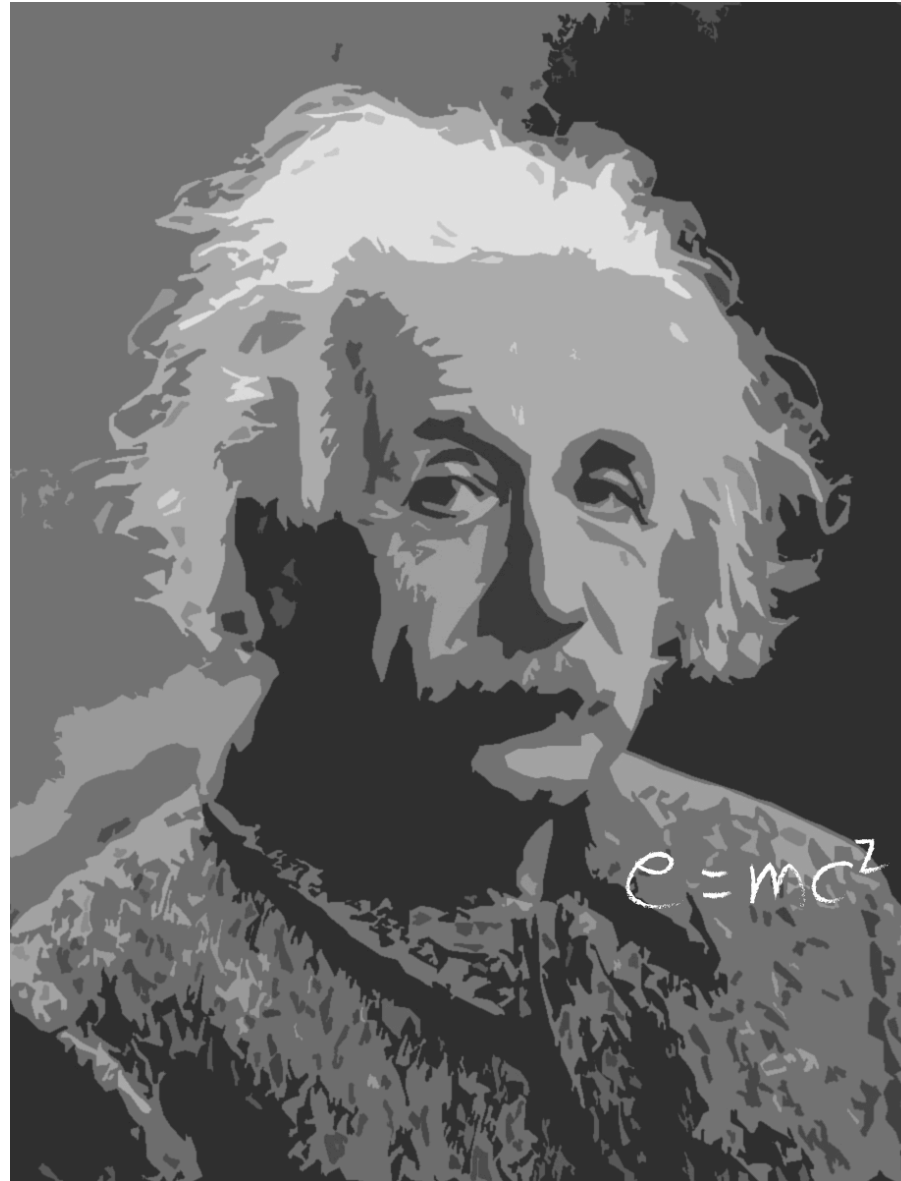
# Example

From an earlier slide in this presentation:



# Example

1. Download public domain image from Library of Congress
2. Apply Photoshop “cutout” filter
3. Use Adobe Illustrator to add  $e = mc^2$  with chalk brush font
4. Save as JPEG file
5. Copyright as art
6. Make posters for sale
7. Profit!?





## Patents

## Copyrights

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Duration	20 years from date of filing	Life of author + 70 years; or 120 years from creation, and may be renewed
Scope	Implementation of an idea	Expression of an idea
Registration	Filing costs \$400. Legal fees >> \$400	Automatic, but © is recommended
Independent invention	Not an exemption	Can be used for related expression

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[http://www.uspto.gov/patents/resources/general\\_info\\_concerning\\_patents.jsp](http://www.uspto.gov/patents/resources/general_info_concerning_patents.jsp)

<http://copyright.gov/help/faq/>

# Fair Use

The copyright owner has exclusive rights subject to “fair use” limitations.

The following are considered “fair use”

Criticism

Comment

News reporting

Teaching

Scholarship

Research

See: <http://www.copyright.gov/fls/fl102.html>

# Fair Use

Boundaries on fair use are defined by case law.

“The distinction between fair use and infringement may be unclear and not easily defined. There is no specific number of words, lines, or notes that may safely be taken without permission. *Acknowledging the source of the copyrighted material does not substitute for obtaining permission.*”

(emphasis added)

See: <http://www.copyright.gov/fls/fl102.html>

# Public Domain

A work is in the public domain if it does not have a claim of copyright.

Examples:

- ▶ Francis Scott Key's poem, *The Star Spangled Banner*
- ▶ The words in the poems, sonnets, and plays of William Shakespeare

# Creative Commons

## An alternative to Copyright

- ▶ Attempt to balance ownership with reuse
- ▶ Owners designate the degree of restriction
- ▶ Six types of licenses
- ▶ See <http://creativecommons.org/>

# Creative Commons

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Attribution



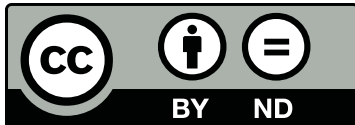
Most liberal: maximize sharing

Claim authorship

Allow remix and reuse

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Attribution-noDerivs



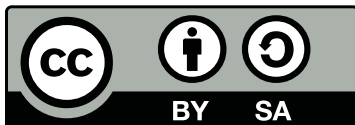
Claim authorship

Allow redistribution but no changes

No remix

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Attribution-ShareAlike



Claim authorship

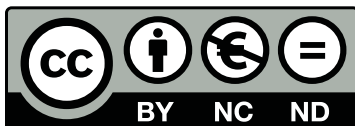
Others may remix and reuse

Allow commercial use of remix

New work inherits the license!

---

Attribution-NonCommercial-  
NoDerivs



Most restrictive

Claim authorship

Allow use and sharing with credit given

No remix or commercial use

# Trademarks and Trade Secrets

ME 370: Intellectual Property Notes

# What is a trademark

According to uspto.gov:

“A trademark is a brand name. A trademark or service mark includes any word, name, symbol, device, or any combination, used or intended to be used to identify and distinguish the goods/services of one seller or provider from those of others, and to indicate the source of the goods/services. Although federal registration of a mark is not mandatory, it has several advantages, including notice to the public of the registrant's claim of ownership of the mark, legal presumption of ownership nationwide, and exclusive right to use the mark on or in connection with the goods/services listed in the registration.”

<http://www.uspto.gov/trademarks/>



# Trademark Indicators



Registered Trademark

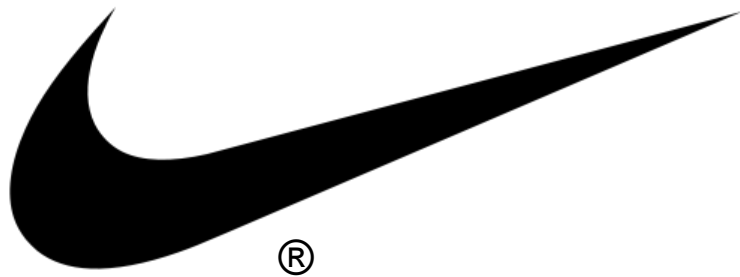
TM

Unregistered Trademark

SM

Unregistered Servicemark

# Trademark Examples



iPhone®



IBM®



# Nike Swoosh



Created in 1971 by Carolyn Davidson, a graphic design student at PSU.

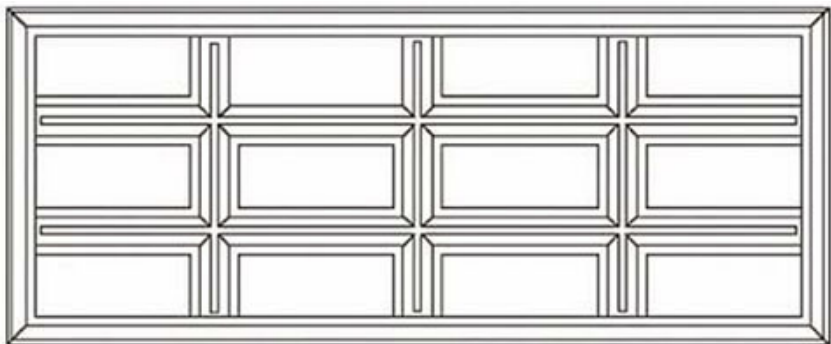
She was paid \$35, but later, in 1983 was given a diamond swoosh ring and an envelope filled with Nike stock certificates.

Source: <http://en.wikipedia.org/wiki/Swoosh>  
[http://www.nikebiz.com/company\\_overview/history/1970s.html](http://www.nikebiz.com/company_overview/history/1970s.html)

# Trademark on Hershey Bar Design

In June 2012, the USPTO's Trademark Trial and Appeal Board (TTAB) rule that the Hershey Chocolate and Confectionary Company had a trademark on the appearance of the Hershey Bar

<http://ttabvue.uspto.gov/ttabvue/ttabvue-77809223-EXA-15.pdf>

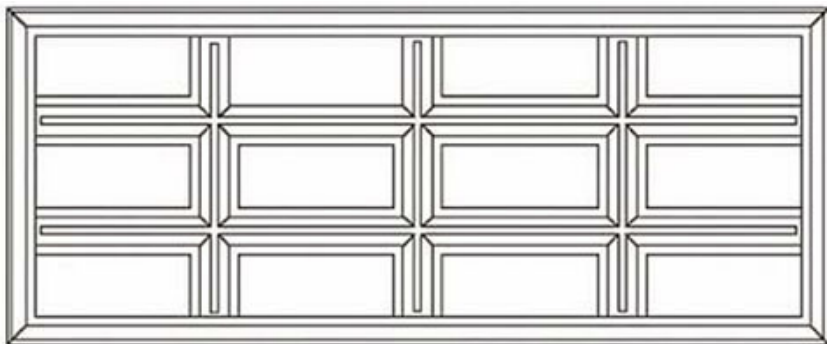


<http://blogs.smithsonianmag.com/design/2012/10/copyright-confection-the-distinctive-topography-of-the-hershey-bar/>

# TTAB ruling on Hershey Bar Design

The description of the mark reads as follows: "The mark is a configuration of a candy bar that consists of twelve (12) equally-sized recessed rectangular panels arranged in a four panel by three panel format with each panel having its own raised border within a large rectangle."

<http://ttabvue.uspto.gov/ttabvue/ttabvue-77809223-EXA-15.pdf>



<http://blogs.smithsonianmag.com/design/2012/10/copyright-confection-the-distinctive-topography-of-the-hershey-bar/>

# Trade Secrets

ME 370: Intellectual Property Notes

# You can try to protect your IP by keeping it secret

Example: Recipe for Coca Cola

## Benefits:

- ▶ No disclosure of the idea, as in a patent
- ▶ Protection can be indefinite, i.e. longer than 20 years of a patent lifetime

## Costs

- ▶ Maintain vigilance to prevent disclosure
- ▶ Can allege theft only after secret has been stolen

# Requirements for a Trade Secret are codified in the US legal code

## To claim IP as a Trade Secret

- ▶ The owner has to demonstrably take measures to keep it secret
- ▶ The secret information provides economical benefits.



# In 2006, three Coca Cola employees tried to sell the secret recipe to Pepsico

Pepsico turned in the thieves.

**The New York Times** **Business**

WORLD	U.S.	N.Y. / REGION	BUSINESS	TECHNOLOGY	SCIENCE	HEALTH	SPORTS	C
MEDIA & ADVERTISING		WORLD BUSINESS		YOUR MONEY		DEALBOOK	MARKETS	COMPANY

## Agents Arrest 3 in Plot to Sell Coca-Cola Secrets to PepsiCo

By BRENDA GOODMAN  
Published: July 6, 2006

ATLANTA, July 5 — Federal agents have arrested and charged an employee of the [Coca-Cola Company](#) and two others with stealing trade secrets and wire fraud, saying they tried to sell "highly classified" information to that company's competitor [PepsiCo](#) for \$1.5 million.

The recipe for Coca-Cola Classic, perhaps the company's most closely guarded secret, was never in jeopardy, said Ben Deutsch, a spokesman for Coca-Cola.

E-MAIL  
PRINT  
REPRI  
SAVE



# Four Types of IP

1. Patents
2. Copyrights
3. Trademarks
4. Trade secrets