Inventing Merit Badge

Troop One

October 15, 22, & 29, 2013

Leader: Mandy Phillips

Inventing, defined

To invent is to create something new or improved *that is* <u>*useful*</u> *or* <u>*helpful*</u>*, by means of your own investigation, experimentation, and thinking.*

Inventing

Badge History

- "Invention" Badge first offered 1911 – 1915
  - How long had Boy Scouts been around?
  - What period was America in?
  - Discontinued due to lack of participation
    - *Only 10 boys earned badge—why?*
- Re-launched as "Inventing" Badge in 2010 through partnership between MIT and BSA

Inventing

Notable Inventions--Period of Invention Badge

- 1911 – Electricity still considered “new”
  (Most US homes were not wired)
- 1913 – Henry Ford - Auto Assembly Line
- 1914 – Coleman Lantern

Inventing

Innovation

"Developing and introducing new ideas into use"

Inventing

Innovation in U.S. Economy

- Create new products to sell
- More efficient ways to do things
- Extend & improve life of citizens
- Provide more leisure time
- ***Macroinventions*** lead new industries and to ***Microinventions***

Inventing

Macro vs. Micro

- **Macro**invention – broad scope, can pave the way for industry
  - Microchip
- **Micro**invention – narrower scope, application of macro invention
  - Pocket calculator

Intellectual Property

What does it mean??

Inventing

Intellectual Property

- Legal Term: "Creation of the Mind"
  - Idea, Invention, or Process
- Concept used for centuries, not officially termed until 1800s
- Considered a tangible thing with value; can be transferred just like land or other property
- Creator eligible for **protection** through official agencies ("limited exclusive rights")

Inventing

Types of IP Protection

- Copyright
- Trademark
- Patent
- Trade Secret

Copyright ©

- Applies to musical, literary, and artistic works *fixed in tangible form*
- Automatic in the United States, but requires registration to litigate
- Individual works: 70 years after the death of the creator
- Works for hire: 120 years after creation or 95 years after publication (whichever is shorter)

Trademark

- Applies to distinctive words, phrases, symbols, and designs
- Used by an individual or business organization to identify that the products or services originate from a unique source.
- ™ - Unregistered Trademark (free)
- ® - Registered Trademark (requires registration/fee)
- Must register to litigate
- Perpetual rights if maintained - used and defended

Patent

- Applies to discoveries, inventions and improvements (not just “ideas”)
- Must be novel, useful and non-obvious
- Requires full disclosure and registration (enough to enable reproduction)
- Lengthy and expensive registration process
- Good for 40 years, subject to limited renewals
- Protects against others independently discovering

Inventing

Components of a Patent

- Number
- Title
- Inventors
- Assignee
- Abstract
- Drawings
- Description
- Claims

Inventing

About Patents

- Every country has own rules & statutes
  - What is patentable
  - Type of protection and how long offered
  - Must apply for patent in each country protection is desired
- Infringement
  - Civil lawsuit in US
  - Criminal in other countries

Type of Patents

- **Utility*** – New and useful process, machine, article of manufacture, composition of matter, or improvement thereof
- **Design** – Ornamental design of functional item
- **Plant** – Discovery/creation of new variety of plant
- **Business Method** – new way of doing business

**most common type*

Inventing

Patent Firsts

- **First US Patent**
  - 1790 to Samuel Hopkins of Philadelphia for "making pot and pearl ashes"-a cleaning formula used in soapmaking.
  - This patent is referred to as Patent X1. Patent numbers were not assigned to patents until 1836.
- **First Patent Granted after Numbering Starts**
  - Patent numbering started on July 13, 1836. Patent No. 1 was issued to Senator John Ruggles of Thompson, Maine, for a locomotive steam engine for rail and other roads.
  - "A new and useful improvement or improvements on locomotive-engines used on railroads and common roads by which inclined planes and hills may be ascended and heavy loads drawn up the same with more facility and economy than heretofore…"

Inventing

Patent Firsts, cont.

- **First *Design* Patent**
  - The first design patent was granted in 1842 to George Bruce of New York City for a typeface.

- **First *Plant* Patent**
  - Plant Patent #1 was issued in 1931 to Henry Bosenberg of New Brunswick, NJ for a climbing or trailing rose. Said Mr. Bosenberg of his invention, "My invention now gives the true everblooming character to climbing roses."

Inventing

Trade Secret

- Similar to patents, but kept a total secret instead of fully disclosed
- Only protected as long as kept a secret
- Must have economic value and be used commercially
- Illegal to disclose trade secrets protected under non-disclosure agreement
- Lost if discovered independently by someone else

Inventing

Intellectual Property
Goals

- Stated goal of Intellectual Property law is "Promoting Progress"
  - Idea owner provides full disclosure of idea
  - Limited protection of idea offered in return
  - Idea owner gets to reap financial benefits of idea
  - World benefits from improved technology, better products & processes, etc.

Intellectual Property

Benefits

- US Patent & Trademark office estimates Intellectual Property:
  - Is worth $5 TRILLION to US Economy
  - Is responsible for employment of 18 million people in US

Inventing

US Copyright Office

- http://www.copyright.gov/
- Part of Library of Congress
- No International or Global jurisdiction

Inventing

US Patent & Trademark

- http://www.uspto.gov/
- Part of Department of Commerce
- No International or Global jurisdiction

Patents & Trademarks

Test Yourself – True or False?

- Patents make people rich
- US Patents are enforceable only in the US
- Patents can be issued for really good ideas
- You must patent your invention
- A patent means the invention works
- A trademark can be renewed forever
- The first person to use a trademark acquires the rights

Inventing

So you want to invent?

- All ideas start with???
- Get a Journal. Log your ideas as soon as you think of them; make sure to record date
- “Genius is 1% inspiration & 99% perspiration”
- Be prepared to work! Obtaining patent isn’t easy or fast
- Trade-off between owning everything and getting product to market quickly (Shark Tank)

Inventing

Resources

- Inventor's Handbook (MIT)

  http://web.mit.edu/invent/h-main.html

- US Patent Office

  http://www.uspto.gov/

- American Society of Inventors

  http://www.americansocietyofinventors.org/

- National Society of Inventors

  http://nationalinventors.com/

Inventing

Non-Patented Inventions

- For the “common good” – often things useful in undeveloped nations
  - Landmine removal pick, Corn sheller
- Open source computer software
  - Linux, OpenOffice
- Non-copyrighted books
  - Project Gutenberg
- Creative commons
  - Wikipedia

Inventing

Famous Inventors

- Thomas Edison
- Albert Einstein
- Nikola Tesla
- Madam Curie
- Galileo Galilee
- Alexander Fleming
- Alexander Graham Bell

Inventing

Homework for 10/22

Inventing Merit Badge Workbook

2b. Read (learn) about 3 inventors. Select the one you find most interesting and tell your counselor what you learned.

6. Think of an item you would like to invent that would solve a problem for your family, troop, chartered organization, community, or a special interest group. Then do the following, while keeping a notebook to record your progress:

   a. Talk to potential users of your invention and determine their needs. Then, based on what you have learned, write a statement describing the invention and how it would help solve a problem. This statement should include a detailed sketch of the invention.

Inventing

Inventor Research

Recommended videos

Einstein

http://www.youtube.com/watch?v=YgpD4XZP0uM (1 hr 52 min)

Madam Curie

http://www.youtube.com/watch?v=P9MxLAvzEAg (2 hrs 3 min)

Edison

http://www.youtube.com/watch?v=_EZ3TL3ZnCI (1 hr 46 min)

Tesla

http://www.youtube.com/watch?v=g2n0RcVfHWk (15 min)

http://www.youtube.com/watch?v=eoY_7mbm5ng (42 min)

Inventing