



***“For an idea that does not at first seem insane, there is no hope.”***

**- Albert Einstein**

## Patentability Mountain (Utility Patent)



### Statutory Class - Process (Requirement #1)

- Process (including software), referred to as method, are ways of doing or fabricating things that involve more than purely mental manipulations. Process has one or more steps, each of which expresses some activity and manipulates or treats some physical thing. The method must attain a useful result.

Conventional Processes - chemical reactions heat treatments, ways of making products and chemicals



Software Process - Algorithms that just crunch numbers without a tangible useful result can't be patented. However, if software or an algorithm affects some hardware or process, or if it produces a concrete and tangible result, it can be considered a machine or process.

E.g. software that analyzes an EKG, recognizes patterns or voices, then it is considered to control hardware (statutory); if it crunches numbers, calculates the value of  $\pi$  (non-statutory)

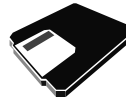
### Statutory Class - Machines (Requirement #1)

- Machines are devices that accomplish a task. Machines emphasize parts or hardware rather than the activity. A machine does the manipulation and the process. The manner of operation is secondary.

Conventional Machines - cigarette lighters, robots, clocks, electronic circuits, rockets, VCRs, printers, lasers, displays, many times two patents are filed on process (method) and machine



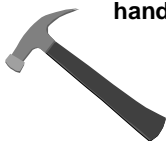
Software - most software, if patented, is considered a process, but it can in some instances provide a "means" to acquire a set of measurements, for example.



### Statutory Class - Article of Manufacture (Requirement #1)

**Items that have been made by human hands or by machines, excluding naturally occurring things such as rocks, gold, wood, shrimp.**

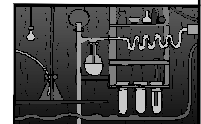
**Examples include desks, chairs transistors, floppy disks, knives and hand tools.**



### Statutory Class - Composition of Matter (Requirement #1)



- Remember naturally occurring things such as wood and rocks cannot be patented, but purified things from nature (e.g. medicines, herbs) can



- Compositions of matter include chemical compositions, conglomerates, aggregates, polymers, liquid crystals, composites, etc. usually supplied in bulk form (solid, liquid, liquid crystal, gas)

- Other examples include road building compositions, all chemicals, drugs, gasoline, fuel, paper, microbes, food additives

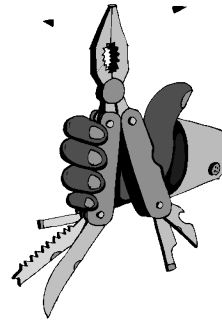
### New Use Invention - Processes, Machines, Articles of Manufacture, Compositions (Requirement #1)

A new use invention is actually a new and unobvious process or method of a known invention. An inventive act isn't the creation of a new "thing", rather a new use for something old.



E.g. You find out a way to use your vacuum cleaner as an automated seed planter. You can't patent the hardware for a vacuum cleaner, it's been done, but you can get a patent or seed planting (new use) of the hardware you invented.

### Utility (Requirement # 2)



- To be patentable, your invention must be useful. Problems are rarely encountered with the utility requirement. A problem can arise when a chemist tries to patent a chemical compound, but has not identified a use. Any usefulness will satisfy this utility requirement, provided the usefulness is functional, not aesthetic.

### Utility: Unsafe new Drugs (Requirement # 2)



- A new drug must not only be useful to treat a medical condition, but it must also be safe for its intended purpose
- PTO considers unsafe drugs useless
- Most drugs need FDA approval for test and efficacy before patent application will be reviewed
- Drugs that fall into the safe category do not need FDA approval to be patented

### Utility: Whimsical Inventions (Requirement # 2)

- Every so often (not common) the PTO rejects an application for a patent based on a whimsical argument, even though it may be useful in some bizarre sense
- We went over a number of silly patents, so utility is broadly defined

•Male chastity device (US Patent 587994, 1897)

•Device held in toes to prevent sunburn to your inner thighs

•Dentures with individual teeth shaped like the users head (US Patent 3712271, 1973)



•Goggles for chickens (US Patent 620832, 1902)

### Utility: Illegal Purpose (Requirement # 2)

- Useful is defined only for legal purposes.
- Some inventions are useful for some, but highly illegal so a patent will not be granted.
- Examples: disabling burglar alarms, safecracking, copying currency, defrauding the public

But, illegal things can be patented with a legal spin. Police radar detectors would qualify as illegal, but are patentable if described as a tester to see if radar is working or as a device to remind drivers they are speeding.



### Utility: Immoral Inventions (Requirement # 2)



- In the past, the PTO, on its own initiative, has instituted morality in its requirements
- In recent years, this requirement is virtually non-existent
- The PTO regularly issues patents on sexual aids, gags and stimulants

### Utility: Non-Operable Inventions (Requirement # 2)

- Inventions must be operable
- Invention must appear to be workable to the patent examiner

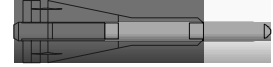
Examples: perpetual motion machine, metaphysical energy converter anti-gravity device } Esoteric and technically not possible

- If patent examiner questions operability, you bear the burden of proof
- Has to look like it works on paper

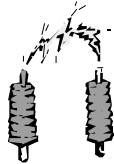


### Utility: Nuclear Weapons

Nuclear weapons are not patentable because of a special statute



### Utility: Theoretical Phenomena (Requirement # 2)



- Phenomenon like super conductivity or the transistor effect, are not patentable (law of nature)
- The claim describes and claims a practical hardware based version to be deemed useful

### Utility: Aesthetic Purpose (Requirement # 2)



- If the invention's novelty has only aesthetic value, it will be rejected as lacking utility
- may be more appropriate for design patent

Examples lacking utility - unusual vase design  
fancy computer box



but if vase is lighter or easier to handle or the computer box is lighter and cheaper to manufacture, then it could be argued as a utility patent

### Novelty: Requirement # 3

- There must be a new physical feature.
- A new combination of old features.
- A new use for an old feature.



### Novelty: Prior Art (Requirement # 3)

- State of knowledge existing or publicly available. Any published writing (journal, magazine, newspaper, patent, etc.) before your earliest date of invention or over one year before you can get your patent application on file.

- Patents that are not issued, but have an earlier filing date.

- Any public or commercial use, sale, or knowledge of the invention more than one year prior to your application filing date.



## Unobvious: (Requirement # 4)

- Unobviousness is the most important aspect of patent law, yet, by an objective opinion, this is a **FUZZY** area of the law.



Inventor

My invention is different from prior art, then I should get a patent.

No, under Section 103 of the patent laws, no matter how different your so called invention is, you're not entitled to a patent on it unless its differences over prior art can be considered unobvious to someone of ordinary skilled in the art.



## Unobvious: (Requirement # 4)

From the Supreme Court, take the following steps:



1. Determine scope and content of prior art.
2. Determine novelty of invention.
3. Determine the level of skill of artisans in pertinent art.
4. Against this background, determine the obviousness or unobviousness of the inventive subject matter.
5. Also consider secondary and objective factors such as commercial success, long felt but unsolved need and failure of others.

Not such a good invention, uses obvious and unobvious in the protocol.

## Unobvious to Whom?

- Under patent law, you cannot get a patent if a person having ordinary skill in the art in the field of your invention would consider the idea "obvious" at the time you discovered it.



- A person having ordinary skill in the art is a mythical worker in the field of the invention who has

- (1) ordinary skill
- (2) is totally and intimately familiar with all prior art in his/her field

## Unobviousness: Secondary Factors (Requirement # 4)

- If new and unexpected results of your invention are marginal, you may still be able to get a patent if you demonstrate that your invention possesses one or more secondary factors that establish the unobvious.

1. **Previous Failure of Others** - previous workers in the field could not make it work
2. **Solves an Unrecognized Problem** - invention is probably the recognition of the problem rather than the solution
3. **Solves an Insolvable Problem** - many others in the field have tried to solve the problem and published and patented unsuccessful or unsatisfactory solutions but the literature is full of publications.
4. **Commercial Success** - if your invention has attained commercial success by the time the patent decision is made
5. **Crowded Art** - in a crowded field with a lot of prior art, a small advance, tweak, can go further toward qualifying the invention for a patent than in a new burgeoning field.

## Unobviousness: Secondary Factors (con't)

6. **Omission of Element** - if you have omitted an element in a prior invention without loss of functionality, this counts heavily.
7. **Unsuggested Modification** - if you can modify a prior invention in a way that was not suggested or eluded to the prior art, this is patentable.
8. **Unappreciated Advantage** - if your invention provides an advantage that was never before appreciated
9. **Solves Prior Inoperability** - your invention provides an operable result to something that was previously inoperable.
10. **Successful Implementation of Ancient Idea** - implementation of an ancient idea that society desires
11. **Solution of Long Felt Need** - it is very powerful if you solve a problem that society feels it needs
12. **Contrary to Prior Art** - your invention teaches something that was explicitly stated as impossible or impractical in the literature. Your result is counterintuitive.

## Unobviousness: Secondary Factors (Combination Inventions)

Combining two or more elements in the prior art is patentable

1. **Synergism** ( $2 + 2 = 5$ ) - the combination is greater than the sum of its parts.
2. **Combination Unsuggested** - the prior art contains no suggestions either expressed or implied, that the references should be combined. The two components may be both patented, but the sum function, when used together, is not.
3. **Impossible to Combine** - prior art states that it is physically impossible to combine.
4. **Different Combination** - your combination is different than that in the art - A', B, C instead of A, B, C
5. **Incompatible Prior Art References** - some incompatibly suggested by prior art.
6. **>3 Prior Art References** - If it takes 3 or more prior art references to meet your inventive combination (not a strong position)

## Unobviousness: Secondary Factors (Combination Inventions) con't

7. References Teach Away from Combination - prior art teaches away from your combination
8. Awkward Combination - your combination in some sense is awkward to implement. Might have to modify one component to make it smaller to make it work in combination
9. References from Different Field - if references show that your invention or combination works in another field but has not been disclosed in yours, this militates patentability

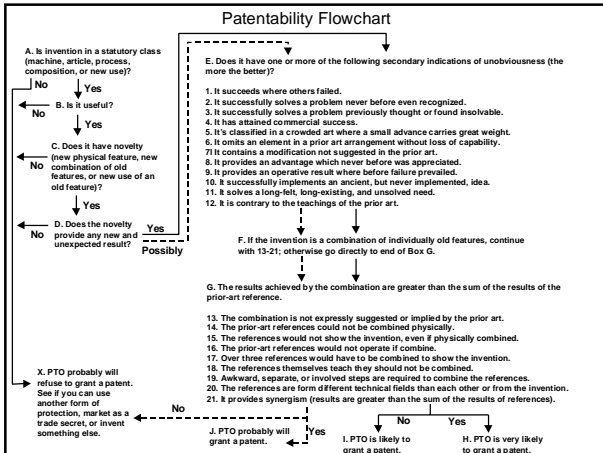
## Understanding the Patent Examiner and the Bureaucracy

Patent Examiner:

- Search prior art to see if your claims are truly novel
- Evaluate unobviousness
- Sometimes the patent examiner may just reject outright and leave burden of proof for you to respond



See The Patentability Flowchart



## Why Make a Patentability Search?

1. Can I get a patent?
2. Avoid needless expenditures
3. Provide background information on operability / design
4. Learn commercial information
5. Obtain proof of unobviousness
6. To define invention around prior art
7. The more you know, the faster you get a patent.
8. Facilitate licensing or sales or evaluate potential value of patent
9. Will you infringe, define breadth of patent



## Searching for Patents Web Sites

[US Patent and Trademark Office](#)

[IBM Patent Search](#)

Literature Search:



Library ([Link to Josiah](#))

Bookstore ([Link to Barnes and Noble](#))

Journal Sites

## Documentation, Documentation, Documentation

- Before filing a patent application, make sure your invention is well documented in a lab notebook or diary (internal)
- Prepare an invention disclosure document

**Why should I be anal about documentation?**

•In case of interference - counter claims that another person invented first who is in the patent evaluation with you

•Proof in case of theft - if somebody hears about your invention and tries to copy and 'steal' the idea

•Confusion of ownership - often many people work on projects that will eventually be patented and deciding inventorship can be a problem. Bosses or supervisors may also claim inventorship, so it should be documented who is the actual contributor on the intellectual level

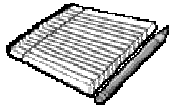
•Eliminate prior art references - the patent examiner may site references that post-date your recorded date in your notebook

•Supporting tax deductions - can deduct expenditures associated with your application

•Avoid ownership disputes - disputes can arise over company employee contracts. Did you invent something before joining the company? Did you invent it at your last company?

## How to Record Your Invention

- The most effective way to record an invention is with a notebook. Record conception, building and testing, marketing, etc.
- Rely on sketches and illustrations
- Record orally with tape recorder or video camera
- Take pictures of invention, if built, and testing on experimental apparatus used in developing your dimension



## Conception: What Should be Entered in Notebook

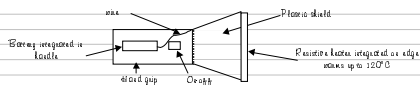
1. Title of invention
2. Purpose, who is it intended to serve
3. Description of function of invention
4. Sketch your invention
5. Ramifications of your invention
6. Novel Features of invention
7. Prior Art that you are aware of
8. Advantages of your invention
9. Sign and Date notebook everyday
10. Witness sign and date notebook



Title: Heated Windshield Scaper

Purpose: To help melt ice on windshield of automobile on cold and snowy days.

Description: The windshield scaper has a resistive heater on the edge of it or is powered by a battery. [etc, etc.] I conceived this on January 20, 2000 while I was scraping the ice off my car windows in a snowstorm.



Ramifications: Simplifies the removal of ice from windshields. Saves driver minutes each time. Can revolutionize the windshield scaper industry.

Novel Features: No one has ever combined a resistive heater with a windshield scaper. A combination of two devices.

Advantages: Easier removal of ice from windshield and saves the user time thereby getting them out of the cold.

Inventor: \_\_\_\_\_ Date: \_\_\_\_\_

The above confidential information was witnessed and understood by:

33

## Record Building and Testing of Invention

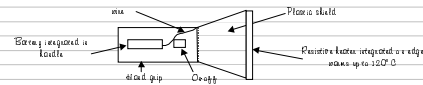
1. **Title and back reference.**
2. **Technical description**
3. **Photos and / or sketches**
4. **Ramifications**
5. **Test descriptions**
6. **Test results**
7. **Conclusions**



Title: Heated Windshield Scaper - Building & Testing

Reference: Conception recorded on page 44

Description: A working model of the above referenced invention. The model prototype was fabricated by Plastic Model, Inc., located in Podunk, Rhode Island on Main Street. Plastic Model, Inc. scanned the prototype on February 1, 2000, and was finished on February 20, 2000. It was made from polycarbonate plastic, and the resistive heater was integrated into the plastic in my basement on February 23, 2000. A photo is presented below.



Ramifications: We also tried nylon but it was not robust enough.

Test Description: We tested the device (constant operation of the heater) in a 20°F refrigerated environment.

Test Results: The device operated in 20°F snow for 128 minutes before the battery failed. This was repeated three times and was found reproducible.

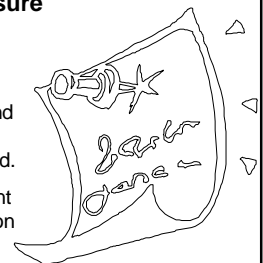
Inventor: \_\_\_\_\_ Date: \_\_\_\_\_

The above confidential information was witnessed and understood by:

## The Invention Disclosure

- This is usually a formal internal document (company specific) that describes your invention in detail and references specific pages of your notebook where it was first disclosed.

- Document is often the starting point for a patent attorney to advise you on patentability and it is then used to prepare the patent application.



Example is on Brown web page

## Provisional Patent Application (PPA)

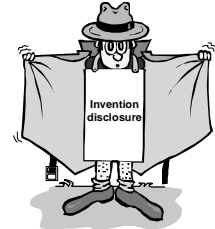


A substitute for Building and Testing

- Suppose you don't have the facilities, skill or time to build and test your invention
- You may file a PPA, a substitute for building and testing
- A PPA serves to establish a filing date for a later filed regular patent application (RPA)
- A short document with a description with a description of invention, drawings, and cover sheet does not require claims, abstract or summary

## Why PPA instead of RPA?

- not in a position to build and test your invention
- not in a position (maybe financial) to file an RPA
- establish early filing date
- public disclosure of the invention is going to be made



## Filing Abroad: Paris Connection



- Paris convention: majority of industrialized nations are parties to this international treaty (Paris, 1883)

If you file a patent application in any one member jurisdiction such as the US, you can file a corresponding application in any other member jurisdiction (UK, Japan, Europe, Australia) within one year of your filing date.



## Filing Abroad: Patent Cooperation Treaty (PCT)



- most industrial nations belong to the PCT which was entered into in 1978
- you can file in the US and then make a single international filing within the one year period, this can cover all jurisdictions under the PCT
- eventually, you must file separate or national applications in each PCT jurisdiction (within 20 months of US filing date)

## Filing Abroad



This can be expensive, and patent prosecution and practice is different in different countries

Before filing abroad, be

- market exists in other countries
- significant commercial production of your invention is likely to occur
- you have foreign licensure

## Is My Idea Worth Patenting?

- Assessing the commercial potential



Fact: Less than 10% of patents make money for owners

so before you invest in

1. Searching
2. Building and testing
3. Patent application



Check out potential salability which will reduce risk of patent failure



## Never Sure of Your Invention's Commercial Prospects

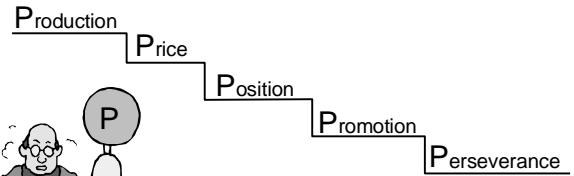
Start out small

- build and test invention cheaply
- research developments in same area (Web, free search sites)
- Find an expert or consultant who knows the field well before conducting interviews

If you are on your own or work in a small start-up, you simply cannot afford to patent everything and anything like some of the corporate giants.

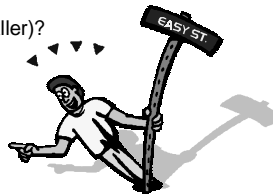


## Marketeer's Say You Need the Five P's



## A Few Factors Affecting Marketing Your Invention

- Is your invention cheaper? \$\$\$\$
- Is it more portable (lighter, smaller)?
- Is your invention safer?
- Is it *easier* to use?
- Is it *easier* to produce?
- Is it durable?
- Is it really novel?
- Does it offer any social benefit?



See Project # 1 for more details