Patent Protection of Intellectual Property Rights, the Claims and International Protection

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Intellectual Property

- Copyrights - Federal Statute 17 U.S.C.
- Patents - Federal Statute 35 U.S.C.
- Trademarks - State Law and Registered under Federal Statute 15 U.S.C. - name or other symbol used to identify the goods produced by a particular manufacturer or distributed by a particular dealer and to distinguish them from products associated with competing manufacturers or dealers
- Trade Secrets - State Law - any formula, pattern, device or compilation of information which is used in one's business, and which gives him an opportunity to obtain an advantage over competitors who do not know or use it

United States Constitution

- Article 1, Section 8: "Congress shall have power …"
- Clause 8: "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."

Copyrights

- Copyright subsists in “original works of authorship fixed in any tangible medium of expression.”
- Types of works - (1) literary works, including software, (2) musical works, including any accompanying words, (3) dramatic works, including any accompanying music, (4) pantomimes and choreographic works, (5) pictorial, graphic, and sculptural works, (6) motion pictures and other audiovisual works, (7) sound recordings, and (8) architectural works.
- Mask Works - Semiconductor Chip Protection Act, 17 U.S.C. 900
- “Works For Hire”
- Digital Millennium Copyright Act
- Compilation Works (see Feist v Rural Electric) “Sweat of the Brow”
- MAI v Peak
- Derivative Works (Sega v Accolade)

Copyright Registration

- Registration Requirements
  - Simple form (from Copyright Office) accessible by public
  - 4 deposit samples – accessible by court order
- Deposit samples are not publicly accessible, and
  - The sample depends on the type of work: (1) literary works, including software, (2) musical works, including any accompanying words, (3) dramatic works, including any accompanying music, (4) pantomimes and choreographic works, (5) pictorial, graphic, and sculptural works, (6) motion pictures and other audiovisual works, (7) sound recordings, and (8) architectural works.
  - Semiconductor Chip Protection Act – physical chips and human readable mask works
- some parts of the deposit sample may be redacted

Statutory Patent Subject Matter

- Subject matter that can be patented:
  - Machines (devices, circuits, etc.)
  - Manufactured Articles
  - Processes (also called methods)
  - Composition of Matter (e.g., pharmaceuticals)
- See 35 U.S.C. 101

Parts of a Patent Application

Provisional Application

- Specification, Drawings, Abstract (<150 words)
- Provisional Application Cover Sheet
- Fee (currently $220)

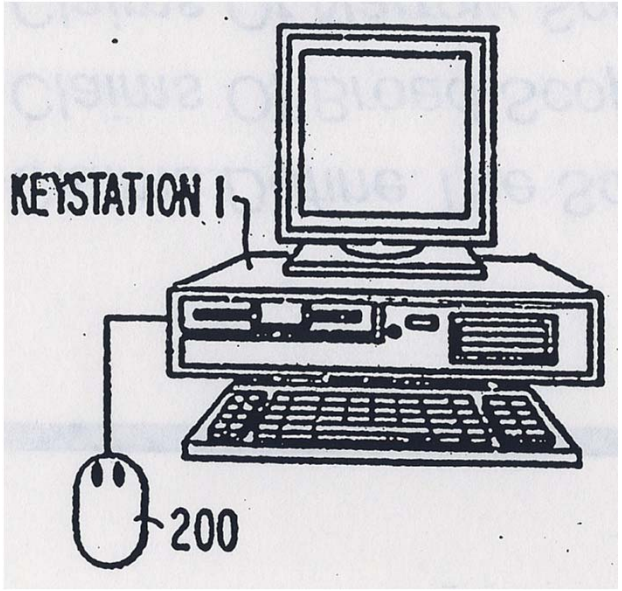
Regular Application

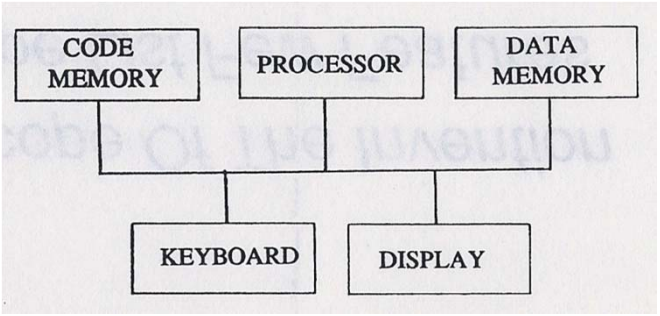
- Specification, Drawings, Abstract (<150 words)
- Claims
- Oath or Declaration
- Fee (currently $1,080)

Claims

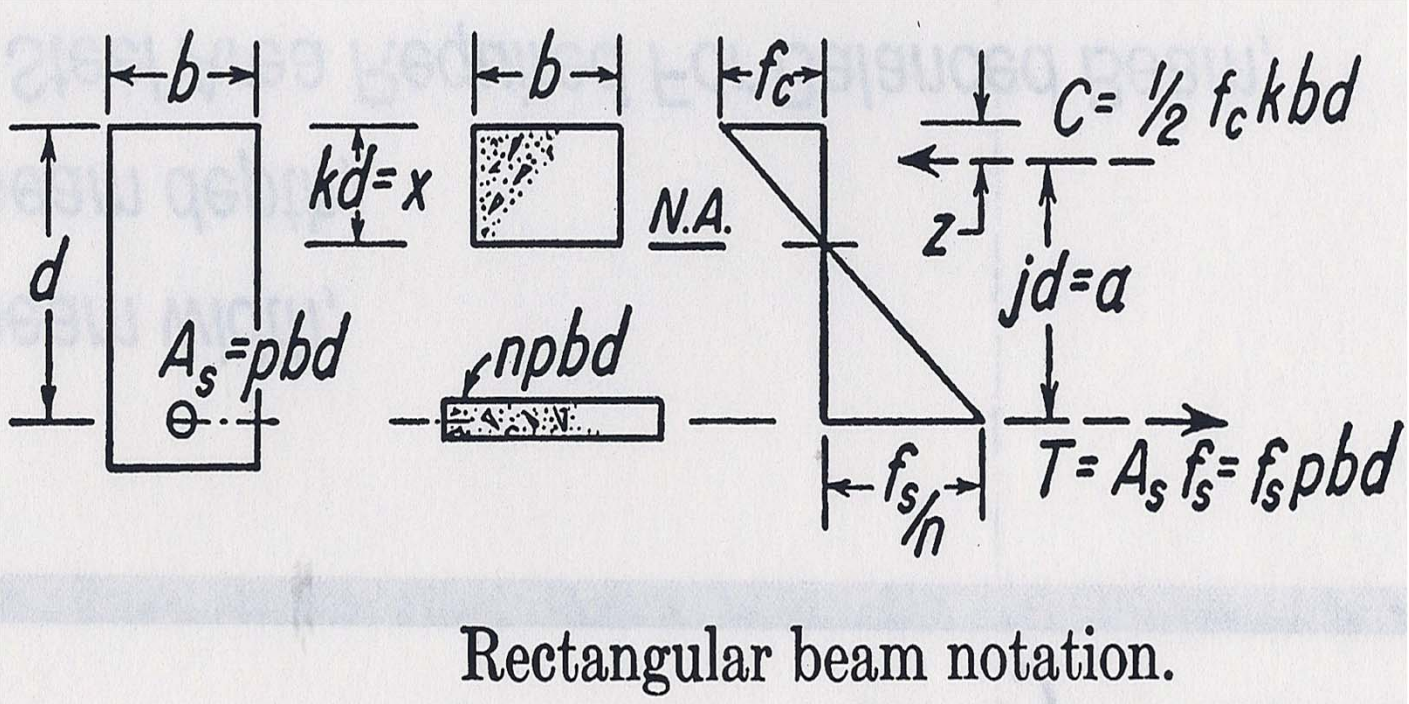
- Claims define the scope of the invention
- Broad scope claims specify few limitations
- Narrow scope claims specify many limitations
- An inventor is a person who conceived of at least one limitation of the invention defined by the claim

“I Claim A Machine …”





Steel Reinforced Concrete Beam



Rectangular beam notation.

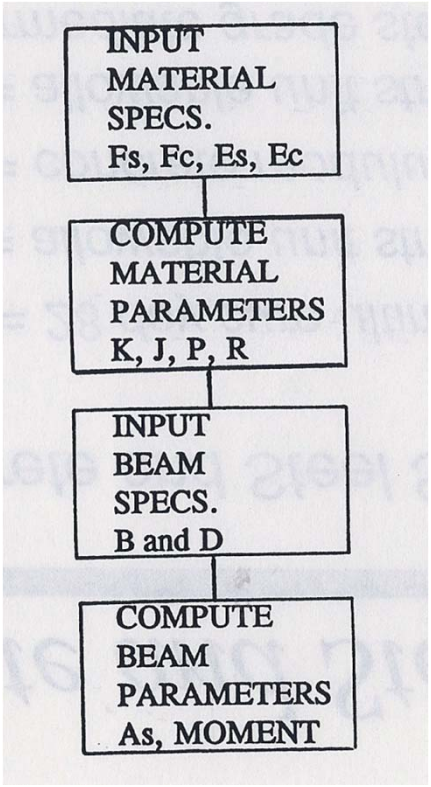
Definitions for Binary Beams

- b = beam width,
- d = beam depth,
- A_s = Steel Area Required for Balanced Beam,
- k = Compression Depth Ratio,
- j = Lever Arm Ratio,
- p = Steel Ratio, and
- r = Coefficient of Resistance.

Concrete and Steel Specifications

- Fc’ = 28 day cure ultimate strength (e.g., 3,000 psi),
- Fc = allowable unit stress in concrete (=0.45Fc’),
- Ec = concrete modulus of elasticity (=1,000Fc’),
- Fs = allowable unit stress in steel (20,000 psi for intermediate grade steel), and
- Es = steel modulus of elasticity.

Flow Chart and Equations



$$N=\frac{E_s}{E_c}$$

$$\frac{1}{K}=[1+\frac{F_s}{NF_c}]$$

$$J=1-\frac{K}{3}$$

$$P=[\tfrac{1}{2}]\frac{F_c}{F_s}K$$

$$R=\frac{MOMENT}{BD^2}=F_sPJ=[\tfrac{1}{2}]F_cKJ$$

Examples of Method Claims

1. A method to compute a cross-sectional area of steel required for a balanced steel reinforced concrete beam, the method comprising:

   inputting material specifications;

   computing material parameters;

   inputting beam specifications; and

   computing the required cross-sectional area.

2. The method of clam 1, wherein:

   the computing of the material parameters computes a steel ratio;

   the inputting of the beam parameters inputs a beam width and a beam depth; and

   the computing of the required cross-sectional area includes forming a product of the steel ratio, the beam width and the beam depth.

Example of a Machine Claim

3. A computing machine comprising:

   a processor;

   a first module to control the processor to input material specifications;

   a second module to control the processor to compute material parameters;

   a third module to control the processor to input beam specifications; and

   a fourth module to control the processor to compute a cross-sectional area of steel required for a balanced steel reinforced concrete beam.

Example of a Computer Readable Medium Claim

4. A computer readable medium having stored thereon a plurality of modules for controlling a computer, the plurality of modules comprising:

   a first module to control the computer to input material specifications;

   a second module to control the computer to computer material parameters;

   a third module to control the computer to input beam specifications; and

   a fourth module to control the computer to compute a cross-sectional area of steel required for a balanced steel reinforced concrete beam.

Vacuum Tube Diode

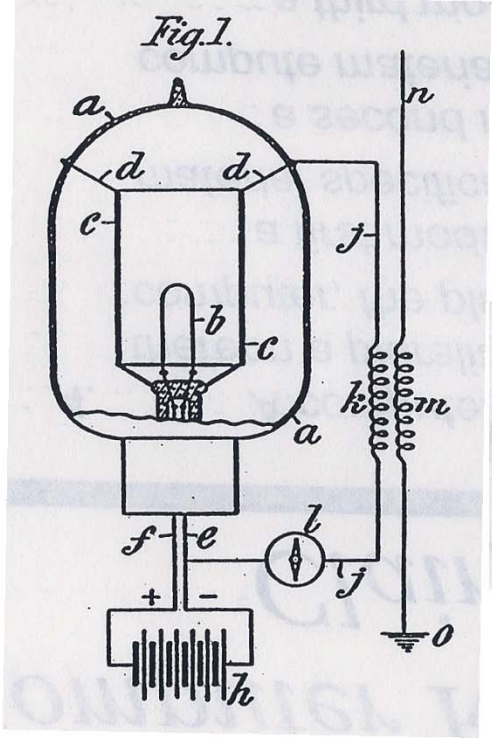
No. 803,684. PATENTED NOV. 7, 1905.

J. A. FLEMING.

INSTRUMENT FOR CONVERTING ALTERNATING ELECTRIC CURRENTS INTO CONTINUOUS CURRENTS.

APPLICATION FILED APR. 19, 1905.

Fig. 1.



What I claim is—

1. The combination of a vacuous vessel, two conductors adjacent to but not touching each other in the vessel, means for heating one of the conductors, and a circuit outside the vessel connecting the two conductors.

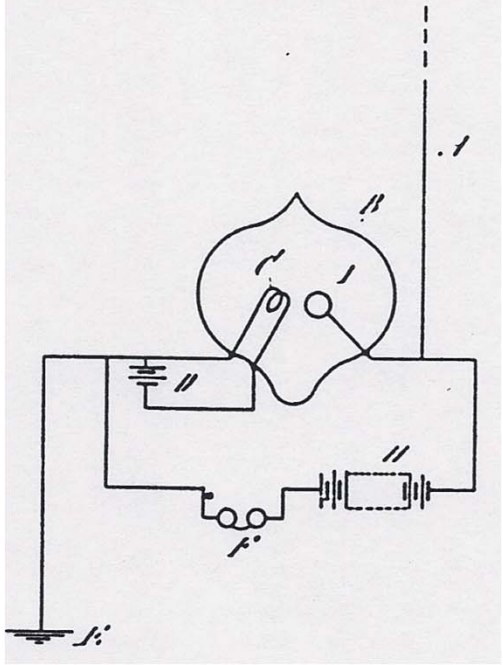
De Forest's Audion Vacuum Tube

No. 836,070. PATENTED NOV. 13, 1906.

L. DE FOREST.

OSCILLATION RESPONSIVE DEVICE.

APPLICATION FILED MAY 19, 1906.



I claim—

1. An oscillation-responsive device comprising a partially-exhausted receptacle, two separated electrodes sealed in said receptacle, means for heating one only of said electrodes, means whereby electrical oscillations may be impressed upon the gaseous medium intervening between said electrodes, and a local circuit including a source of electrical energy and a signal-indicating device electrically connected with said electrodes.

Marconi Wireless Telegraph Co. of America v. De Forest Radio Telephone & Telegraph Co.

- Marconi sued De Forest for Infringement of Patent No. 803,684 to Fleming.
- De Forest countersued Marconi for Infringement of Audion Patent No. 836,070 to De Forest .
- Judge Hough wrote for the court "Among the curiosities of evidence in this record are numerous extracts from technical periodicals giving the opinions of the authors on the subject-matter of this suit. One from The Electrician, of November 21, 1913, is just a comment on the cause: 'We think that Dr. De Forest might be more generous in his acknowledgement of the work of Dr. J. A. Fleming.'", 243 F. 560 (2nd Circuit, 1917).

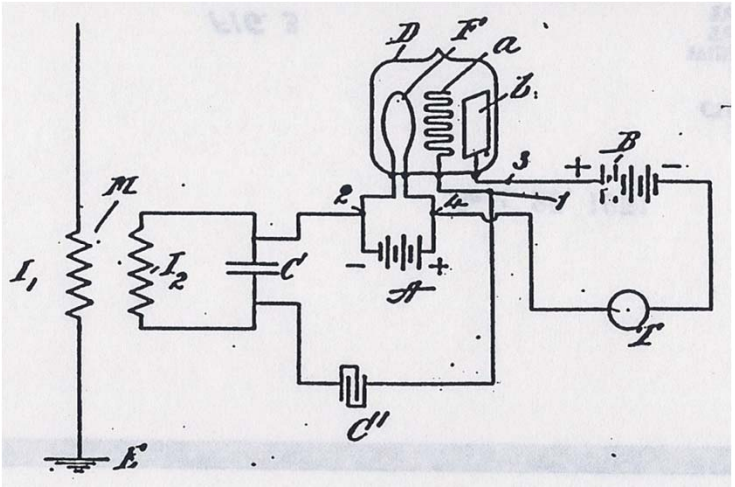
Vacuum Tube Triode

No. 879,532. PATENTED FEB. 18, 1908.

L. DE FOREST.

SPACE TELEGRAPHY.

APPLICATION FILED JAN. 29, 1907.



I claim:

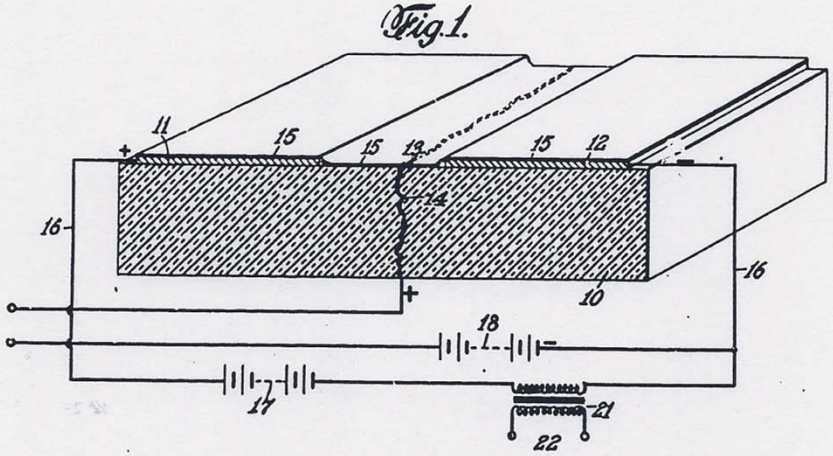
1. An oscillation detector comprising an evacuated vessel, an electrode inclosed therein, means for heating said electrode, a second electrode inclosed within said vessel, a local circuit having its terminals electrically connected to said electrodes, a conducting member inclosed within said vessel and located between said electrodes, and means for conveying the oscillations to be detected to the first mentioned electrode and said conducting member.

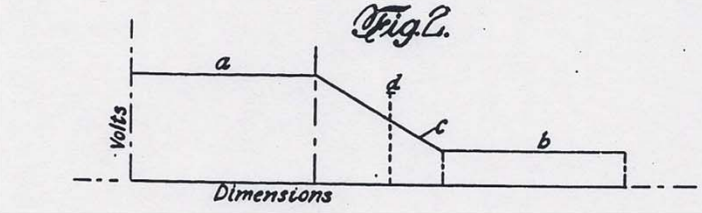
Field Effect Transistor

Jan. 28, 1930. J. E. LILIENFELD 1,745,175

METHOD AND APPARATUS FOR CONTROLLING ELECTRIC CURRENTS

Filed Oct. 8, 1926





I claim:—

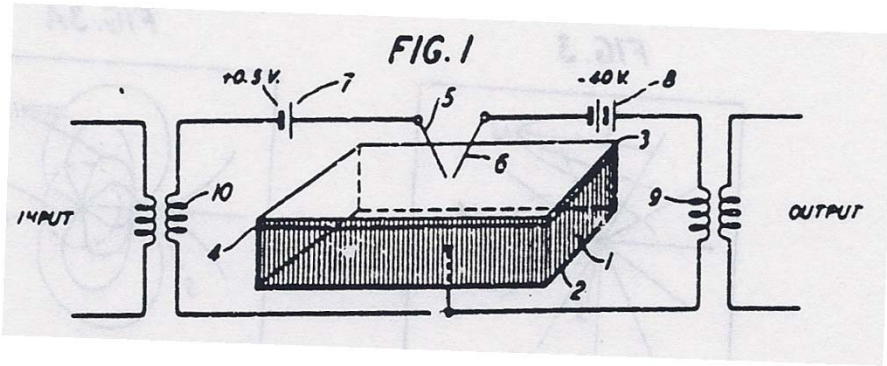
1. The method of controlling the flow of an electric current in an electrically conducting medium of minute thickness, which comprises subjecting the same to an electrostatic influence to impede the flow of said current by maintaining at an intermediate point in proximity thereto a potential in excess of the particular potential prevailing at that point.

Point Contact Transistor - Bardeen

Oct. 3, 1950 J. BARDEEN ET AL 2,524,035

THREE-ELECTRODE CIRCUIT ELEMENT UTILIZING SEMICONDUCTIVE MATERIALS

Filed June 17, 1948 3 Sheets-Sheet 1



What is claimed is:

1. A circuit element which comprises a block of semiconductive material of which the body is of one conductivity type and a thin surface layer is of the opposite conductivity type, an emitter electrode making contact with said layer, a collector electrode making contact with said layer disposed to collect current spreading from said emitter electrode, and a base electrode making contact with the body of the block.

Bipolar Transistor - Shockley

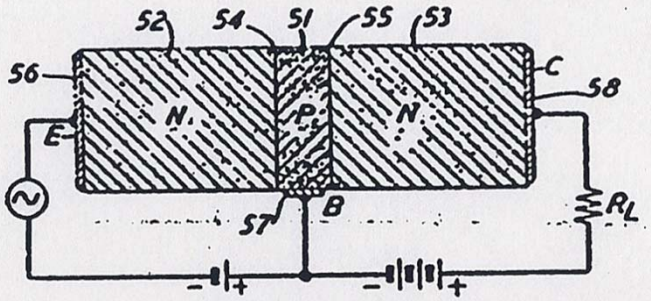
Sept. 25, 1951 W. SHOCKLEY 2,569,347

CIRCUIT ELEMENT UTILIZING SEMICONDUCTIVE MATERIAL

William Shockley, Madison, N. J., assignor to Bell Telephone Laboratories, Incorporated, New York, N. Y., a corporation of New York

Application June 26, 1948, Serial No. 35,423

FIG. 3



What is claimed is:

1. A solid conductive device for controlling electrical energy that comprises a body of semiconductive material having two zones of one conductivity type separated by a zone of the opposite conductivity type, said two zones being contiguous with opposite faces of said zone of opposite conductivity type, and means for making electrical connection to each zone.

35 U.S.C. 112, Paragraph 1

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same, and shall set forth the best mode contemplated by the inventor of carrying out his invention.

35 U.S.C. 112, Paragraph 2

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Novelty – 35 U.S.C. 102

A person shall be entitled to a patent unless —

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for patent, or

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of the application for patent in the United States, or …

Obviousness – 35 U.S.C. 103

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Patentability Criteria

- Statutory Subject Matter - 35 U.S.C. 101
- Must be Novel - 35 U.S.C. 102
- Must be Unobvious - 35 U.S.C. 103
- Application must particularly point out and distinctly claim the subject matter to be patented - 35 U.S.C. 112, Paragraph 2
- Written description must be in such full terms as to enable a person of ordinary skill to make and use the invention - 35 U.S.C. 112, Paragraph 1

Patent Resources

- www.uspto.gov
- www.invent.org
- www.lib.purdue.edu/engr/patentresources.php
- libguides.tulane.edu/patents
- lib.law.washington.edu/ref/patents.html
- www.lib.ucdavis.edu/dept/pse/resources/guides/patents.php
- worldwide.espacenet.com
- www.lib.vt.edu/subjects/engr/PatHandout.html
- www.library.umaine.edu/patents/

Patents to Look Up

- 6,469 (1849) Abraham Lincoln – Deployable boat pontoons
- 19,783 (1858) Lipman – Pencil & Eraser
- 119,413 (1871) Saylor – Manufacture of Cement
- 206,112 (1878) Thaddeus Hyatt – Reinforced Concrete
- 307,031 (1884) Edison – Electric Meter
- 381,968 (1888) Tesla – Synchronous Electric Motor
- 821,393 (1906) O.&W. Wright – Airplane
- 1,219,92 (1871) Mark Twain –adjustable, detachable garment straps
- 1,773,980 (1927) Farnsworth – Television System
- 2,292,387 (1942) Kiesler & Antheil - secret communication system
- 2,708,656 (1955) Fermi – Neutronic Reactor

International Patent Protection

- Paris Convention for the protection of Industrial Property
- Patent Cooperation Treaty of the World Intellectual Property Organization, an agency of the United Nations
- European Patent Office
- African Regional Intellectual Property Organization
- African Intellectual Property Organization
- Some bi-lateral treaties with other countries

S.23 and HR.1249

- First to Invent becomes First Inventor to File
- One year grace period will be modified
- Definition of Prior Art will change
- “Best Mode” requirement is eliminated
- Business method patents to be re-examined
- Patent Office funding in flux