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EARLY PATENT POLICY, 1390-1790

What is a patent? Essentially, it is a legal device to spoil someone else's pleasure! It gives its owner the right, for a period of time, to block others from developing or commercially exploiting what the owner claims (s)he can do.

Filippo Brunelleschi obtained a patent from the Florence City Council in 1421 for a hoist mounted on a barge to lift large marble slabs. With his patent he was granted, for three years, permission to fine his imitators 100 ducats and burn their imitations. How is that for spoiling their fun?

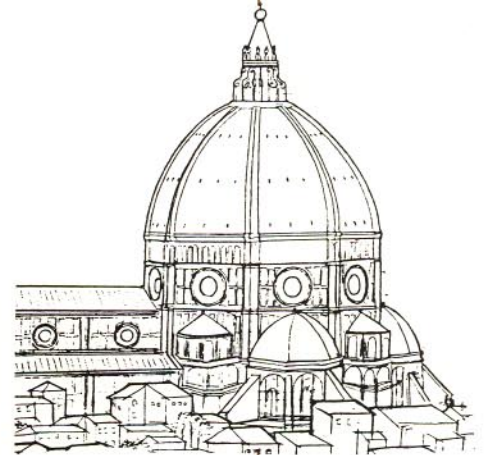
Similar monopolies were granted to guilds, craftsmen, and merchants by princes and principalities throughout the Middle Ages, but it is with Brunelleschi that the system takes on its modern guise. Soon after, in 1474, the Senate of the "Serenissima" Republic of Venice issued a statute whose spirit still informs modern patent statutes. France, England, and the U.S. each contributed to the development of patent policy at the beginning of the Industrial Revolution.

SCIENCE

Brunelleschi's perspective
1425

Copernicus Heliocentric theory
1530

Agricola *De Re Metallica*
1550



PATENT POLICY

First patent is issued to Brunelleschi in Florence
1421

First general patent law is established in Venice
1474

In England first patent given to Smyth for glass making, 1552

In England a patent request is made by Sir Antonio Eudotti
1537

1390

1490

Galileo's telescope
1610

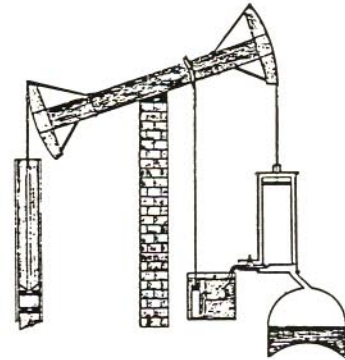
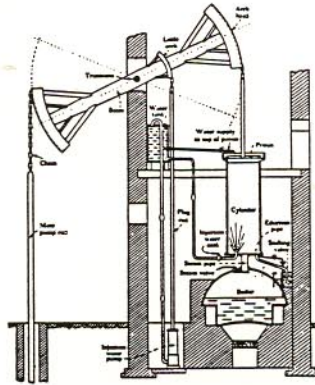
Descartes
Analytic geometry
1640

Newton's
Mechanics
1687

Newton's
Optics
1704

Bernouilli's
Hydrodynamics
1738

Lavoisier and Priestly
found modern chemistry
1772



In England
Statute of Monopolies
is put in place,
the Magna Carta of
inventors' rights, 1623

First American patent is
granted to Samuel Wilson
by General Court of
Massachusetts for salt
manufacture, 1623

Newcomen
engine
1712

Beginning of intense
Enclosure Acts in
England.
Beginning of Industrial
Revolution.
1760

James
Watt's
engine
1775

U.S.
Constitution
Article 1,
Section 8:
To promote
the progress
of science
and
useful arts
1787

1590

1690

1790

*To reward inventors
"by privilege leading to monopoly
positions cannot be regarded
as beneficial to the welfare
of the country."*

JOHANN HEINRICH VON JUSTI
Germany 1758

*"The temporary monopoly
granted to the inventor of a
new machine could be justified
as a means of rewarding
risk and expense."*

ADAM SMITH
Scotland 1776

U.S. PATENTS IN CONTEXT, 1790-1990

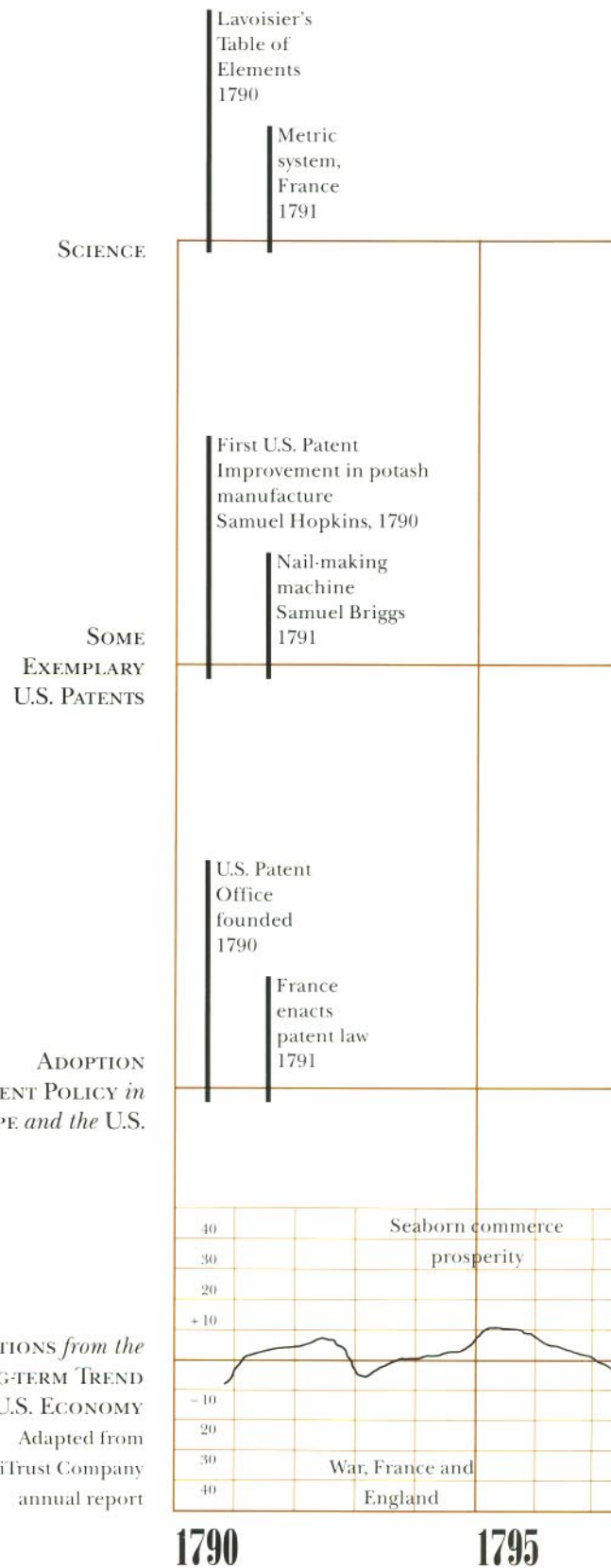
It has often been said that necessity is the mother of invention; some have turned the phrase around and called *invention* the mother of *necessity*. Perhaps it is more appropriate to say that science and the economy are the parents of invention, and that invention, in turn, primes the economy and stimulates science. As we move toward the contemporary period, invention becomes more scientific and science more inventive, while both become big businesses with tremendous effects not only on the economies of nations, but, consequently, on their policies, politics, and ideologies. The patent system is bound, contained, and informed by the dual track of the economy and scientific ideas.

As a legal system designed to “protect” the incubation and commercial exploitation of inventions for limited periods, the patent system has had detractors as well as supporters. Being monopolistic and protectionist in nature, the patent system has given rise to abuses when left unchecked. During the first hundred years, periods of economic expansion saw a general tendency—reflected in the number of articles, pamphlets, and speeches—to want to diminish the power of the patent system or to do away with it altogether, while periods of economic contraction saw a desire to strengthen it.

Frequency of arguments IN FAVOR OF PATENTS is represented by a bar extending ABOVE the line.

Frequency of arguments OPPOSED TO PATENTS is represented by a bar extending BELOW the line.

DEVIATIONS from the LONG-TERM TREND of the U.S. ECONOMY
Adapted from AmeriTrust Company annual report



1790

1795

Volta's
batteries
1800

Dalton's
atomic
theory
1803

La Place's
celestial
mechanics
1808-23

Laennec's
stethoscope
1816

Cast iron
plow, Charles
Newbold
1797

High-pressure
steam engine
Oliver Evan
1804

Steam boat
Robert Fulton
1811



Austria
1810

Russia
1812

Prussia
1815

Belgium
and Holland
1817

Carrying trade,
prosperity

Maritime commerce, prosperity

Restricted carrying trade,
prosperity

Post-war prosperity

French
hostilities

Peace of Amiens

War of 1812

1800

1805

1810

1815

1819

Ampere's electro-magnetic theory 1820

Fourier series; photoelasticity 1822

Carnot's principle 1824

Ohm's Law 1827

Thorium and silicon Berzelius 1828

Faraday's Law of Electrolysis
Lenz's Law of Induction
Babbage's analytical engine 1834

"To impugn the principle of patents... would make the men of brains still more than at present the needy retainers and dependents of the men of money bags."
JOHN STUART MILL 1848

Telegraph S. B. Morse No. 1,647, 1840

Collapsible tube, J. Rand No. 2,252, 1841

Washing machine Chester Stone 1827

Steam boiler Peter Cooper 1831

"An exclusive privilege is of all rewards the best proportioned, the most natural, and the least burdensome."
JEREMY BENTHAM 1822



Bavaria enacts patent policy 1825

Sardinia 1826

Vatican State 1832

Sweden 1833

10,000 patents filed in U.S., 1836

Portugal 1837

Era of Good Feelings

Bank credit land boom

Cotton boom

Panic of 1837

Great

1820

1825

1830

1835

1840

Doppler effect
1842

Joule's equivalence
heat work
1847

Absolute zero
temperature
(-273°C), Kelvin
1848

Bacteriology
Pasteur
1856

Darwin's
Origin of Species
1859

*"The patent system
added the fuel of interest
to the fire of genius."*
ABRAHAM LINCOLN 1859

Sewing machine
E. Howe
No. 4,750
1846

Steam
engine
Corliss
No. 6,162

Safety pin
W. Hunt
No. 6,281
1849

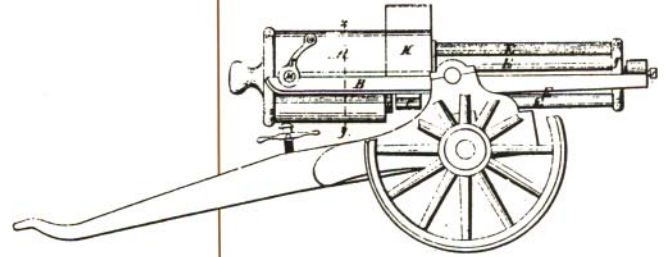
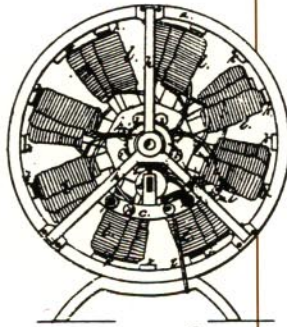
Ice machine
J. Gorrie
No. 8,080

Electromagnetic
engine, J. Neff
No. 7,889
1851

Sewing machine
J. Singer
No. 13,661
1855

Steel process
Bessemer
No. 16,082
1856

Machine gun
R. J. Gatling
No. 36,836
1862



Saxonia
1843

20,000 patents
filed in the U.S., 1856

German
economists
condemn
patents, 1863

Mexican War

California gold inflation
prosperity

Depression

Panic of 1857

1845

1850

1855

1860

1864

Mendel's
Law of
Heredity
1865

J. C. Maxwell's
Treatise on Electricity
1873

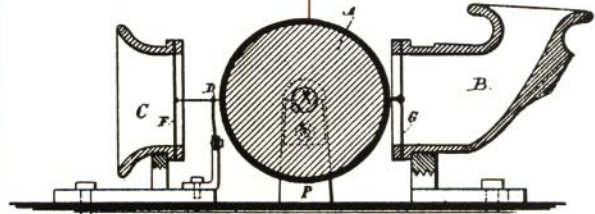
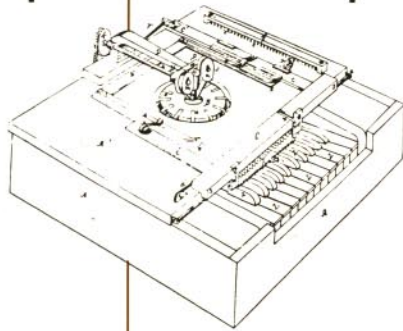
Typewriter
Sholes, Glidden and Soule
No. 79,265
1868

Pasteurization
L. Pasteur
No. 79,265
1873

J. F. Glidden
Barbed wire
No. 157,124
1874

Internal combustion
engine, N. Otto
No. 194,047
1877

Phonograph
T. Edison
No. 200,251
1878



Patent system repealed
in Holland, 1869

200,000 patents filed
in the U.S., 1874

Civil War

Industrial overexpansion
prosperity

Gold resumption
prosperity

Great Depression

1865

1870

1875

1880

1885

X-rays
Rontagens, 1895

Radioactivity
Becquerel
1896

Radium
Curies
1898

Quantum
Theory
Planck
1900

Relativity
Theory
Einstein
1905

*"What is it that makes the U.S. such a great nation?
We have investigated and found it was patents.
And now we will have patents."*

JAPANESE OFFICIAL IN THE UNITED STATES 1900

Record disk
E. Berliner
No. 372,786
1887

Roll film camera
G. Eastman
No. 388,850
1888

Zipper
W. Judson
No. 505,038
1893

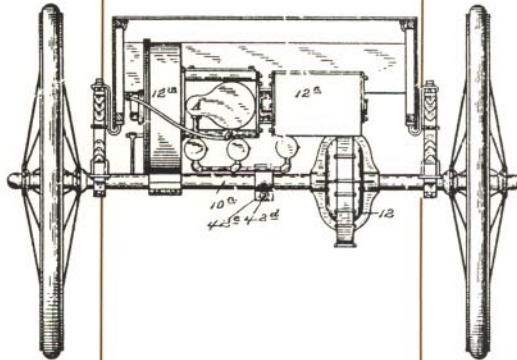
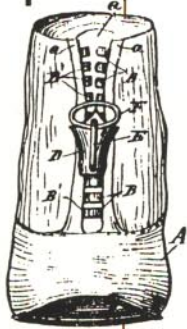
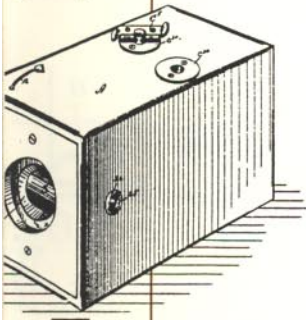
R. Diesels
engine
No. 608,845
1898

Aspirin
F. Hoffmann
No. 644,077
1900

Motor
carriage
H. Ford
No. 686,046
1901

Air conditioner
W. H. Carrier
No. 808,897
1906

Triode
L. DeForest
No. 879,532
1908

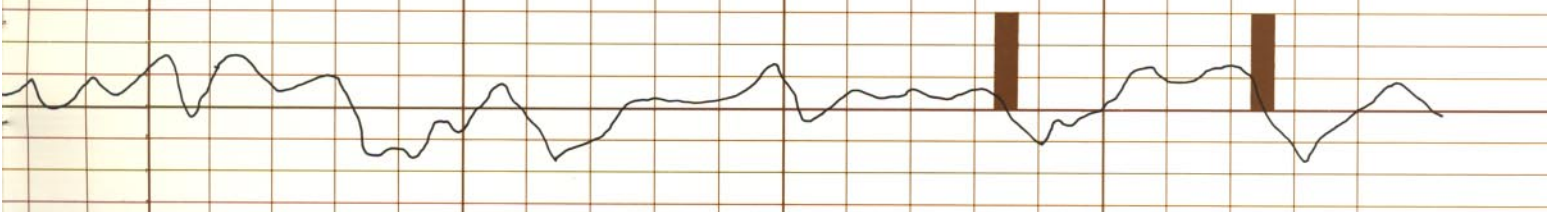


Switzerland
enacts patent policy
1891

Railroad prosperity

Recovery of 1895

Merger prosperity



Baring Crisis

Panic of 1893

Rich Man's Panic

Panic of 1907

1890

1895

1900

1905

1909

Theory of Atomic Structure
Rutherford
1911

General Theory of Relativity
Einstein
1915

Chromosome theory of heredity
T. H. Morgan, 1921
Disintegration of elements
Rutherford and Chadwick, 1921

Penicillin
Fleming
1928

Unified Field Theory
1929

"The object claimed and owned by the patentee is merely the expected behavior of other people to be obtained through expected restraint of competition and control of supply."

J. R. COMMONS 1924

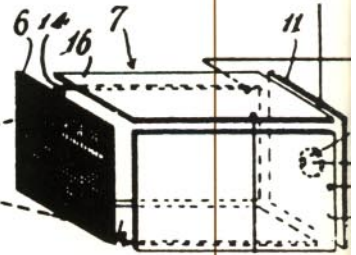
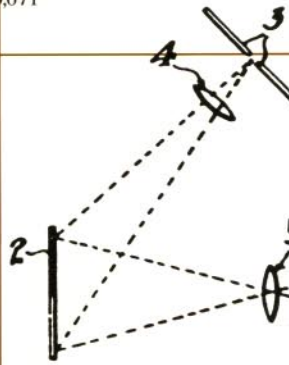
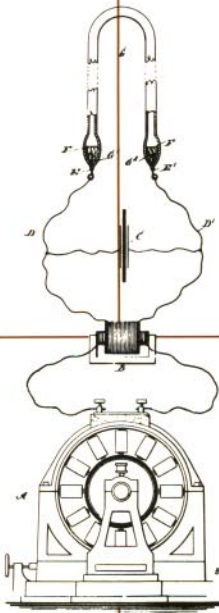
Mercury vapor lamp
Peter Cooper Hewitt
No. 1,030,178
1912

R. H. Goddard
Fire bomb
No. 1,103,503
1914

Gyrocompass
E. A. Sperry
No. 1,279,671
1918

High-vacuum radio tube
I. Langmuir
No. 1,558,436
1925

Television system
Farnsworth
No. 1,773,980
1930



1,000,000
U.S. patents
filed, 1911

Holland
enacts patent policy
1914

WWI

New Era prosperity

Bull market boom

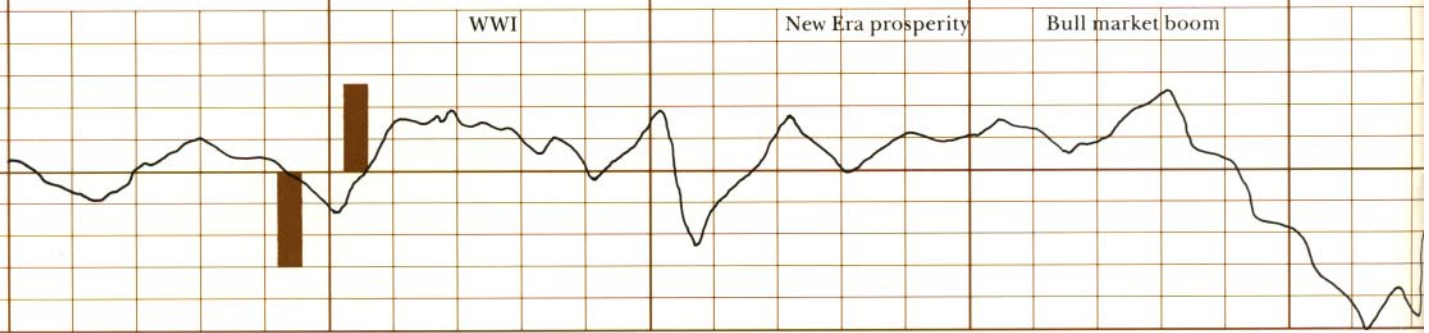
1910

1915

1920

1925

1930



On Computable Numbers
A. Turing
1937

Programming theory
Manhattan Project
Electronic digital computer
(ENIAC), 1941

Controlled nuclear reaction
1942

Nuclear bomb
1945

Information theory
Shannon
1949

General field theory
Einstein
1950

Hydrogen bomb
1952

DNA double helix
Watson, Crick, Wilkins, 1953

"I believe that patent law is essentially deficient because it aims at a purpose which cannot be rationally achieved. It tries to parcel up a stream of creative thought into a series of distinct claims, each of which is to constitute the basis of a separately owned monopoly."

M. POLANYI 1942

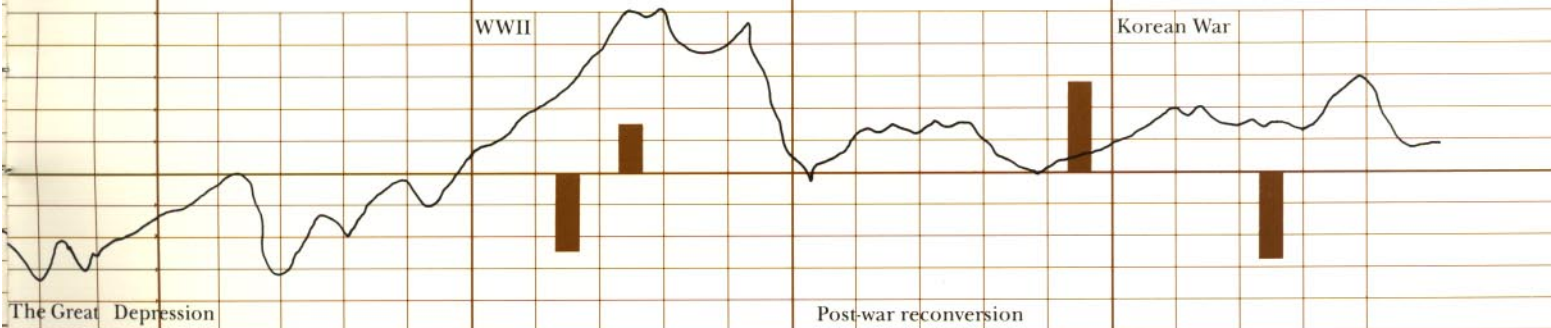
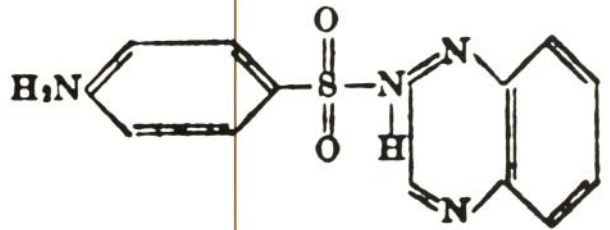
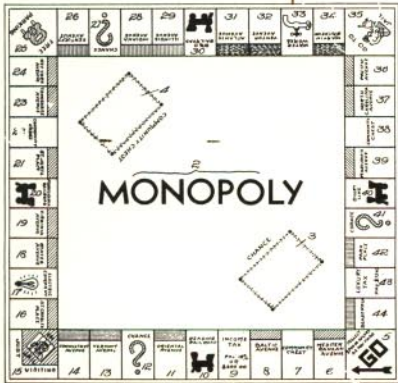
Monopoly game
C. B. Darrow
No. 2,026,082
1935

Cyclotron
E. O. Lawrence
No. 1,948,384
1934

Nylon
W. Carother
No. 2,071,251
1937

Electron photography
C. F. Carlson
No. 2,221,776
1940

Sulfa quinoxaline
Max Tishler
No. 2,404,199
1946



1935

1940

1945

1950

1954

First test-tube baby
1978

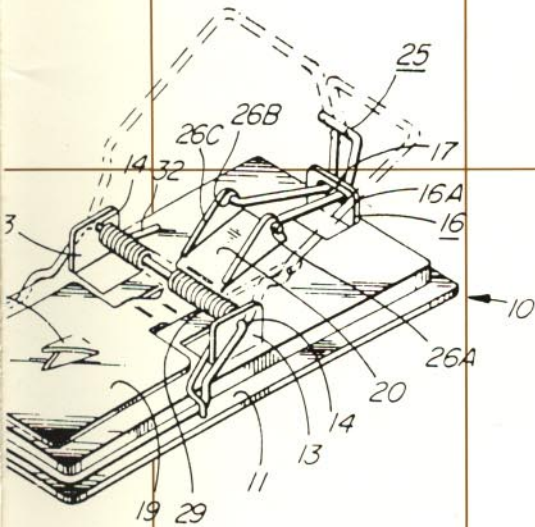
The Mandelbrot Set, fractals and chaos theory
1980

Top Quark discovered in Switzerland
1984

Scientists claim Greenhouse effect has come to pass
1988

"What builds a great company or a great nation is not the protection of what it used to do well, but the development of products and processes that have never before been seen on the face of the earth."

H. CLEVELAND 1989



Mousetrap
Variation on the classic "clap trap"
No. 4,574,519
1986

5,000,000
U.S. patents
filed, 1990

1980

1985

1990