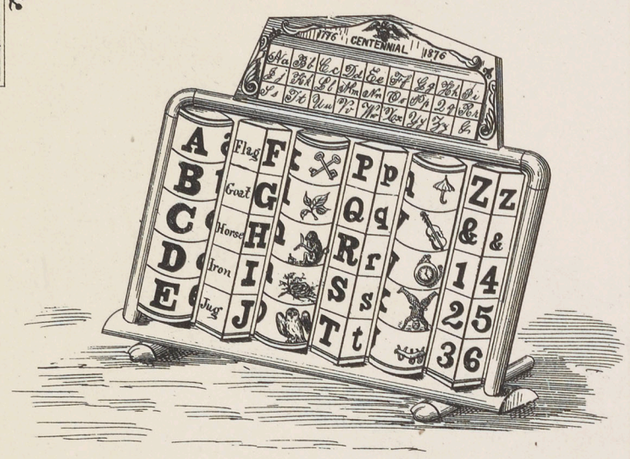

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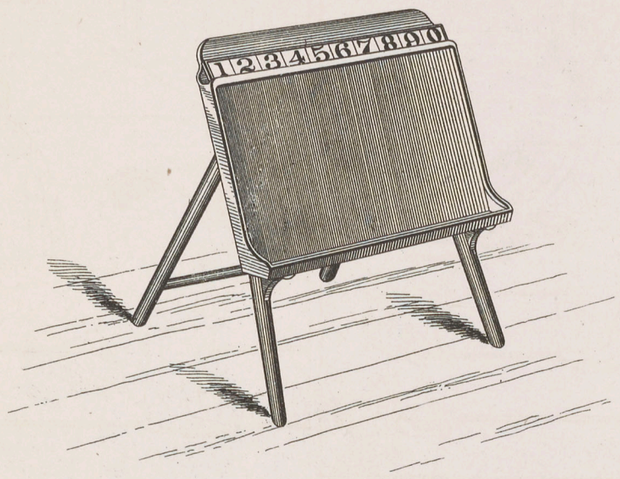

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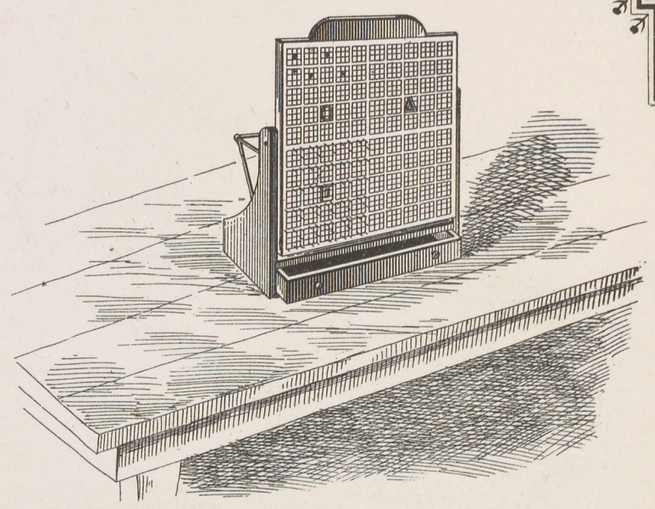

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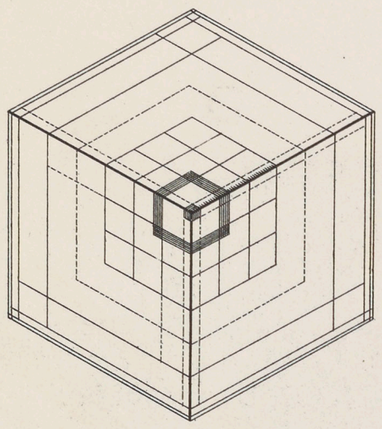

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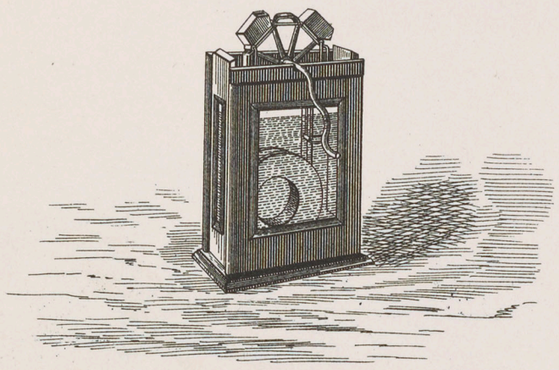

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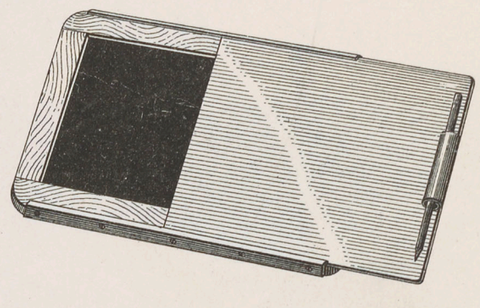

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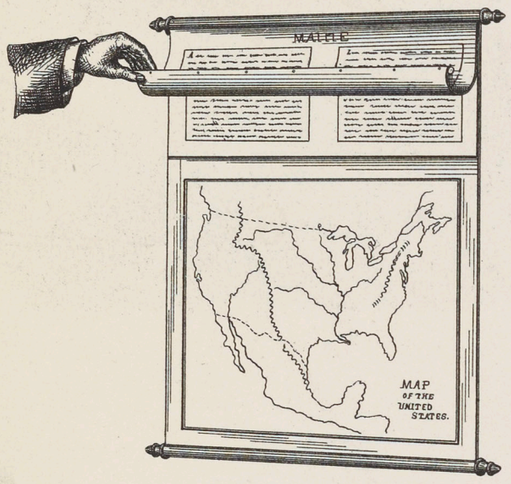

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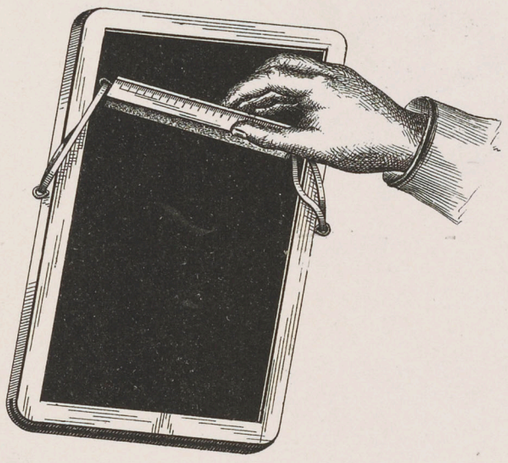

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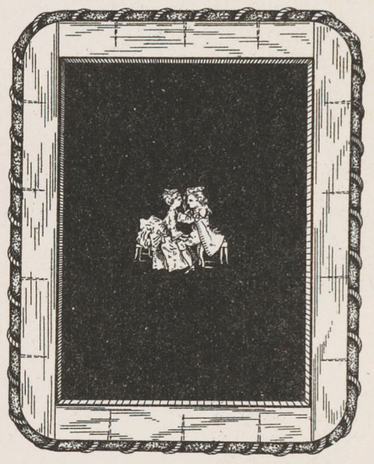

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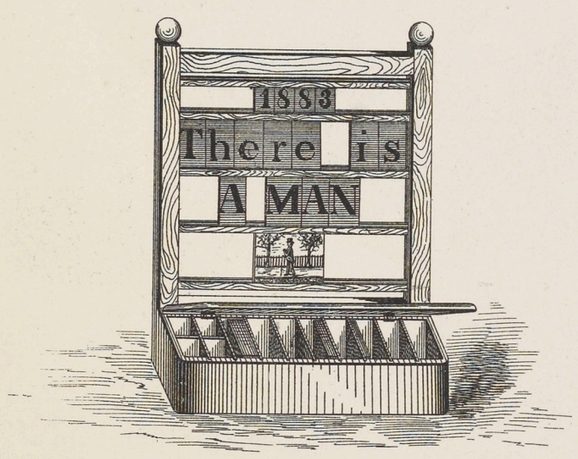

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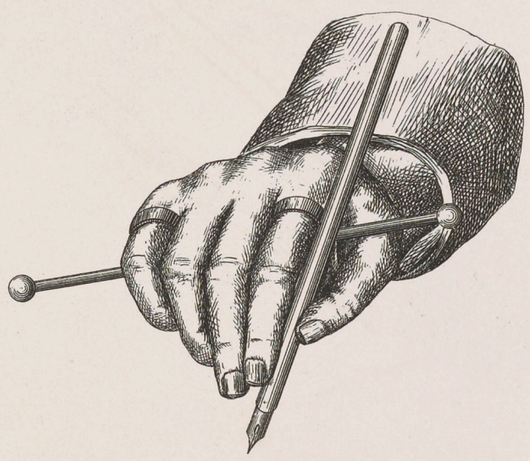

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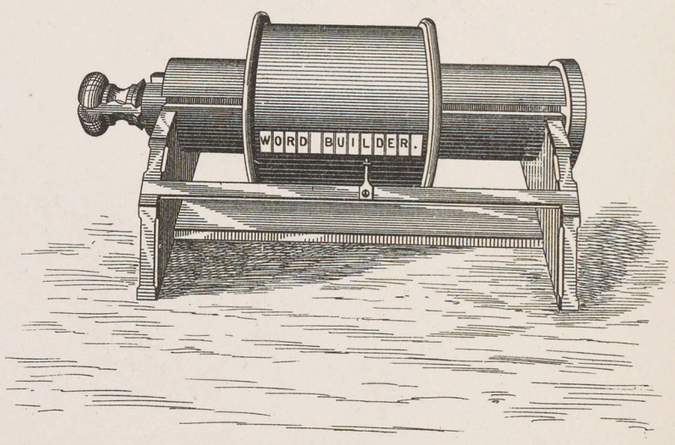

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EDUCATIONAL APPLIANCES.

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1. U. S. Patent, Letter Block Apparatus—A. D. 1875.
2. " " Blackboard—A. D. 1877.
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Teaching, like everything else, came from the East, descending from the Hindoo Kosh with the migratory waves of population, which spread from those periods of time commencing so far back that history loses itself in tradition.

The Egyptians, even before the time of the Shepherd Kings, had regular school houses and school appliances, such as their advancement in civilization required. A celestial globe was taken from Egypt to Greece by the returning legions of Alexander the Great, made, possibly, by the men who constructed the pyramids of Cheops.

The Moors and Arabs were teaching geography from globes in their schools at the time the Romans and the descendants of their conquering legions were holding that the earth was flat, and it is possible that Columbus obtained the ideas from their schools that caused him to venture forth westward in search of the "Eastern Indies and Cathay," or he might have visited the school at Rheims, where Pope Sylvester II, in the year 1000 A. D., taught geography from a globe brought from the Moorish school at Cordova.

The primitive log cabin, with dirt floor, wooden benches, and common blackboard, has given way to the well constructed school house built after the best rules of architectural science, well lighted and heated. The benches are gone, the blackboard is a work of art, and covers one entire side of the school room, and the only other appliances of the old log school house, the master's formula and a bundle of willow, hickory or birch switches, are nowhere to be seen, but in their place we find many modern appliances.

Opposite the Principal is a school thermometer. A glance from teacher or scholar across the room will tell the temperature—whether it has risen or fallen from the proper degree. Upon the wall near it are raised maps, showing the countries of the world, with their mountain ranges, &c. Instead of the old smooth ball, with clumsily defined lines upon it, there stands a globe, with each section of the world raised up out of the waters that surround it. Near it is another globe made of slate, on which the student can draw with a slate pencil any portion of the earth's surface.

A cabinet near by, with doors which fold in and are fitted with shelves, contains specimens of various minerals, whilst the doors and shelves show varieties of woods. The walls of the building are covered with maps, on which are raised figures of animals, birds and fishes, all in proportion.

Another cabinet contains the figures and demonstrations of mathematical problems, and still another, anatomical specimens.

Modern globes are made of paper or plaster, neither of which is affected by changes of temperature, also of gutta-percha and paper pulp.

Even the blind are provided for, in these modern appliances, with raised type, and maps and globes with raised figures.

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479 Patents Granted by the United States.

Sackett & Wilhelms Litho Co New York

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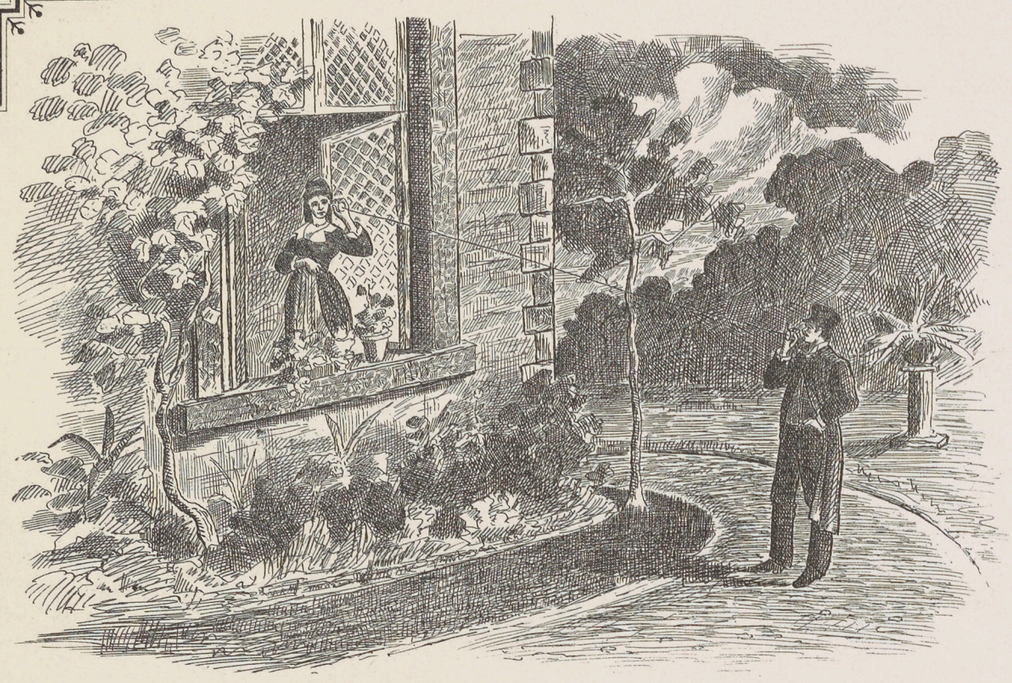

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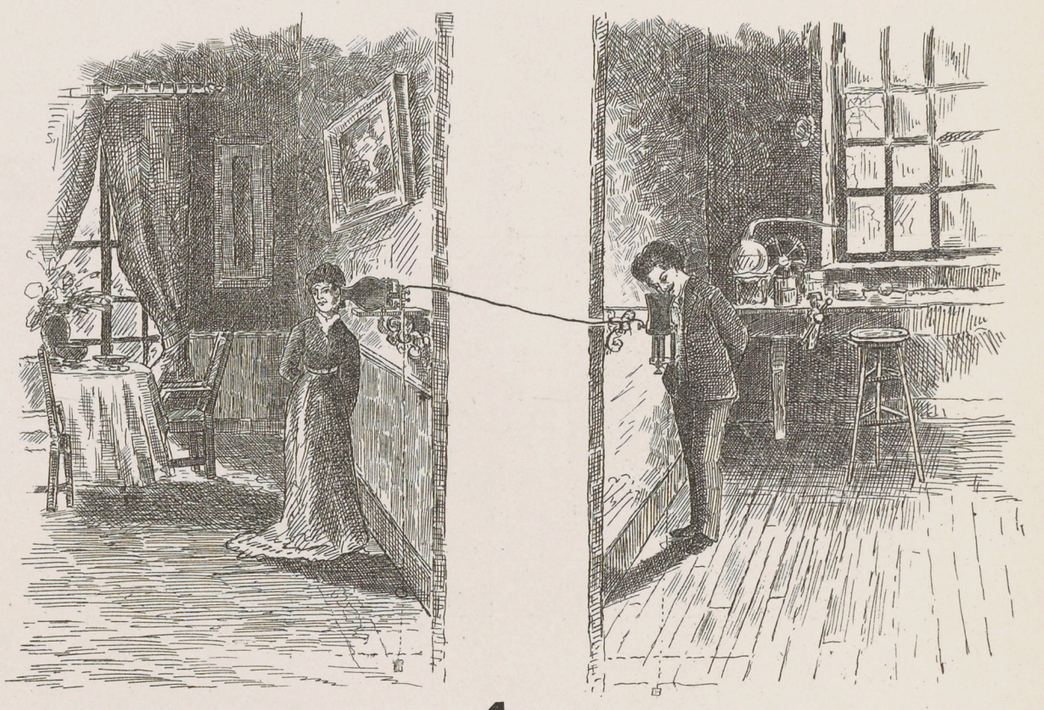

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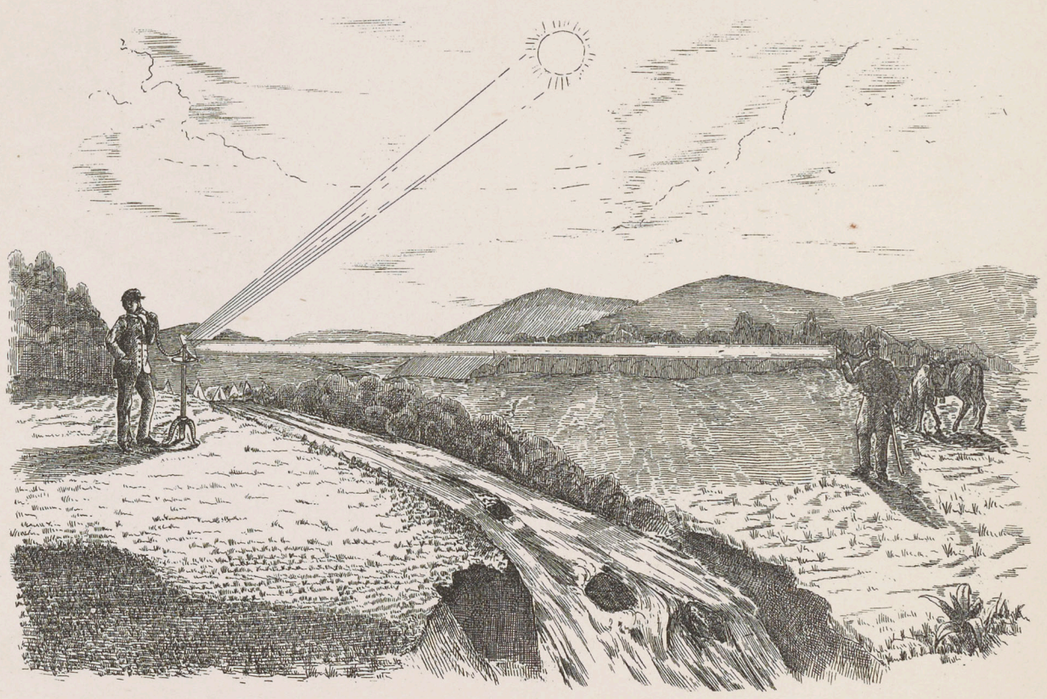

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TELEPHONES.

TELEPHONES.

No. 1. Primitive.
2. Musical.
3. U. S. Patent, Magneto—A. D. 1876.
4. " " Electrical Contact—A. D. 1876.
5. " " Electrical Exchange System—A. D. 1879.
6. " " Radiophone—A. D. 1880.

This is from two Greek words—*telos*, far distant, and *phones*, sound.

The instruments by which articulate sound is now conveyed were invented by Alexander Graham Bell, of Boston, to whom a patent was granted March 7, 1876, for a speaking telephone. This gentleman had been studying the subject of conveying sound over an electric wire since 1867. His experiments were patiently conducted for nine years, often under discouraging circumstances; but he was rewarded in the end, and is one of the few inventors who has reaped large pecuniary returns from his invention.

The first public exhibition of the telephone was at the Centennial Exhibition in Philadelphia in July, 1876. The first lines for general use were erected in the early part of 1877.

The telephone was found to be incomplete without some means of calling the person at the other end of a distant line. Various kinds of call bells were tried and failed, and many inventions made before the magneto-bell, which is now in general use, was devised.

Patents were granted for transmitters to E. Berliner, Thomas A. Edison, and Francis Blake. All these were on the same general principle, but the Blake transmitter is the one generally used.

Single lines connecting two or three persons were soon found to be of limited value, and exchanges were organized, composed of subscribers, all of whom had lines running to a central office, so that any subscriber could communicate with any other subscriber to the exchange through the central office.

The first exchanges were started early in the year 1878, and at about the same time, in Chicago and New Haven.

Many inventions of great value have been made in switch boards and other machinery for the central office.

The telephone was early introduced into England and on the continent of Europe, and is now in use in every part of the civilized world.

No invention was ever made which came into such general and universal use so rapidly as the telephone.

TELEPHONES.

Number in use in the United States,	376,691
" Manufactured,	584,104
" Exported,	98,015
Total Number in Use,	477.344

1,472 Patents Granted by the United States.

Sackett & Wilhelms Litho Co New York

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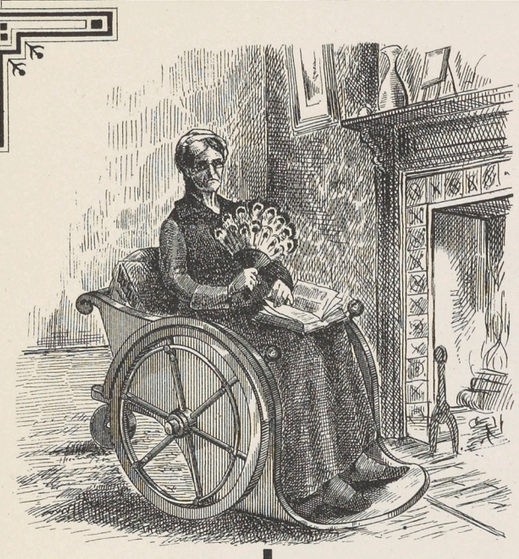

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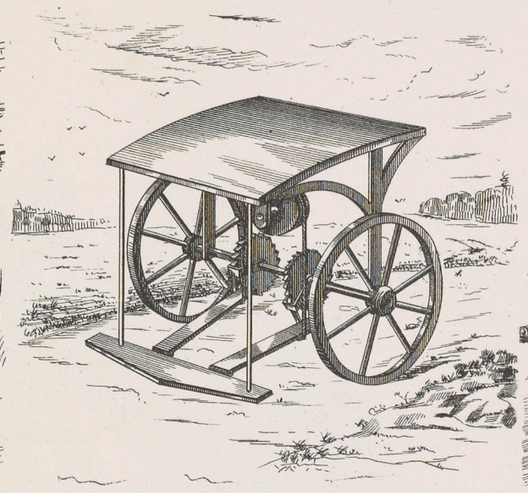

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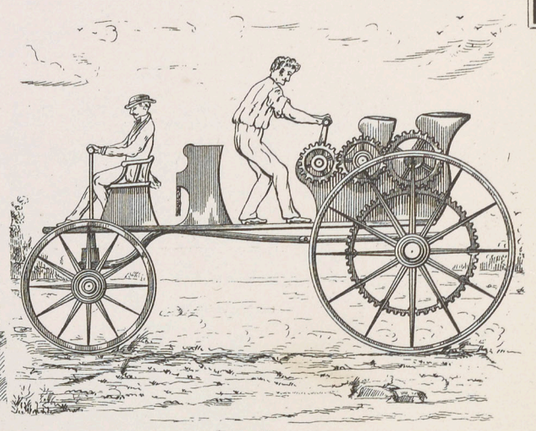

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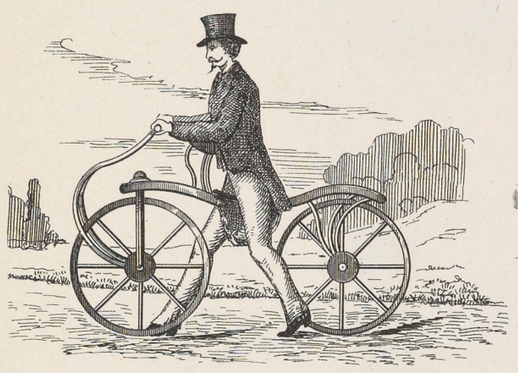

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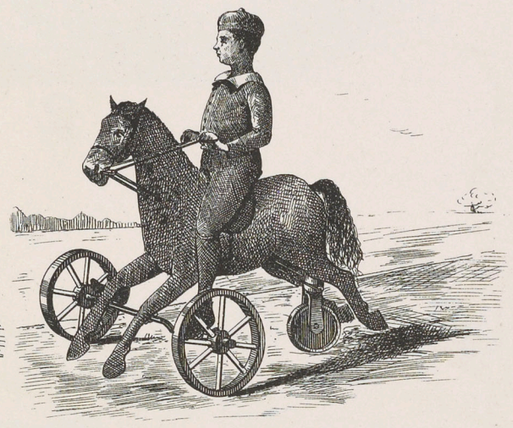

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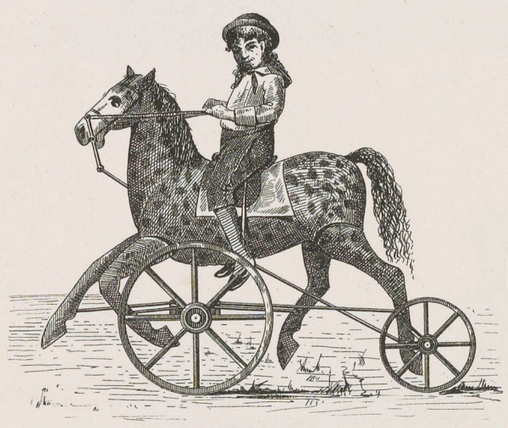

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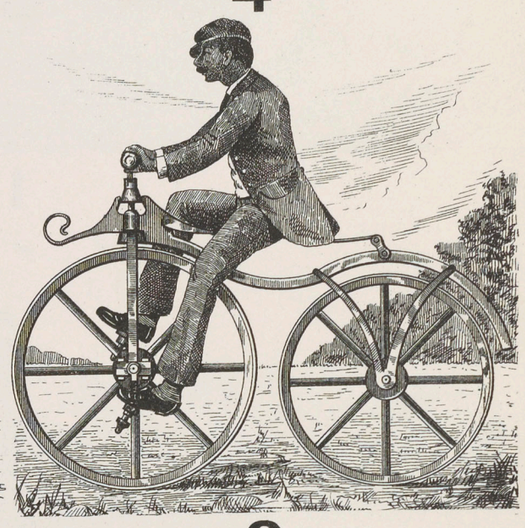

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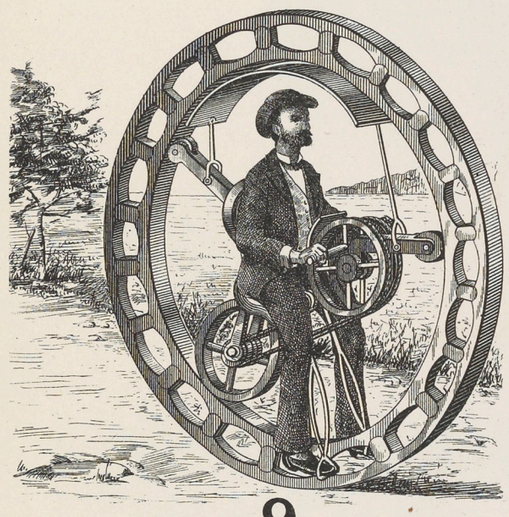

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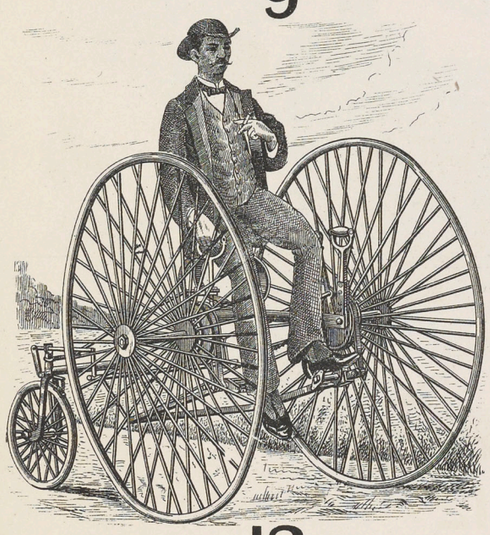

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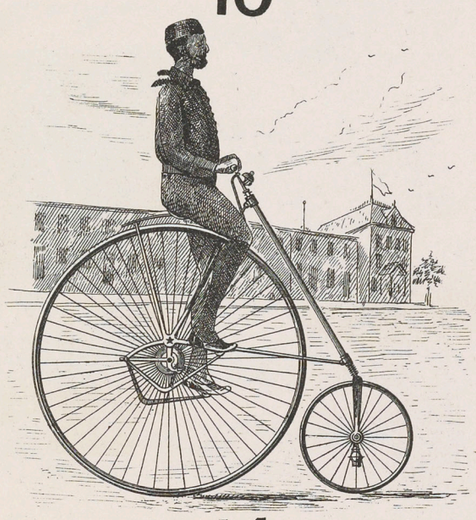

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VELOCIPEDES.

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No. 1. Hand Propeller—A. D. 1700.
2. French Pedal—A. D. 1750.
3. " Hand Propeller—A. D. 1770.
4. American Hand Propeller—A. D. 1804.
5. English Dandy Horse—A. D. 1818.
6. U. S. Patent, Tricycle—A. D. 1864.
7. " " " —A. D. 1865.
8. " " Bicycle—A. D. 1866.
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In the early part of the year 1816 a very curious machine was constructed and used near Rochelle, France. It consisted of two wheels of equal size, placed one in front of the other, connected by a bar on which was a small seat. It was operated by the rider striking his feet against the ground.

This appears to have been the progenitor of the bicycle.

In the early part of the present century a machine called the celeripede was invented. The English "Dandy Horse" came into use about sixty years ago.

The first application of the wrench axle was patented in the United States, by P. W. Mackenzie, in 1862.

In the years 1868 and 1869 the velocipede came into sudden popularity, but was superseded by the bicycle, which was imported from England.

The first approved bicycle was exhibited at the Centennial Exhibition, in 1876.

The first American company for the manufacture of bicycles was organized in 1878.

It is estimated that 6,000 were manufactured and sold in the United States in 1884, and that 30,000 were in use in the United States in 1885.

VELOCIPEDES.

	1878	1884
Number Manufactories,	1	8
" in use in the United States,	25	30,000
" Manufactured,	150	9,000

700 Patents Granted by the United States.

Sackett & Wilhelms Litho Co New York

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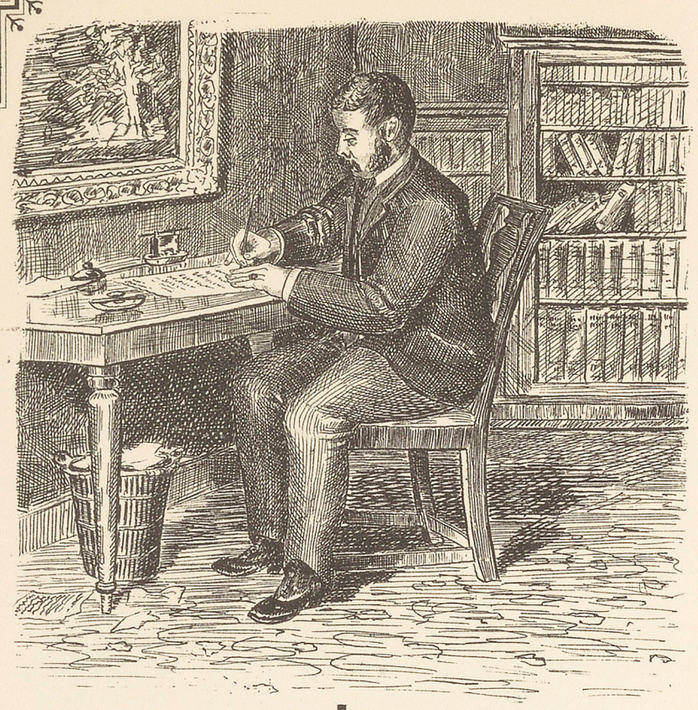

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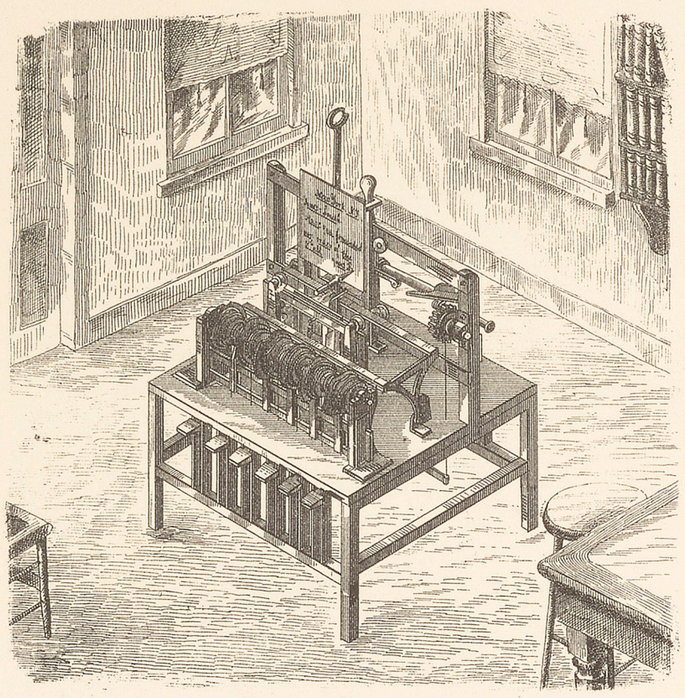

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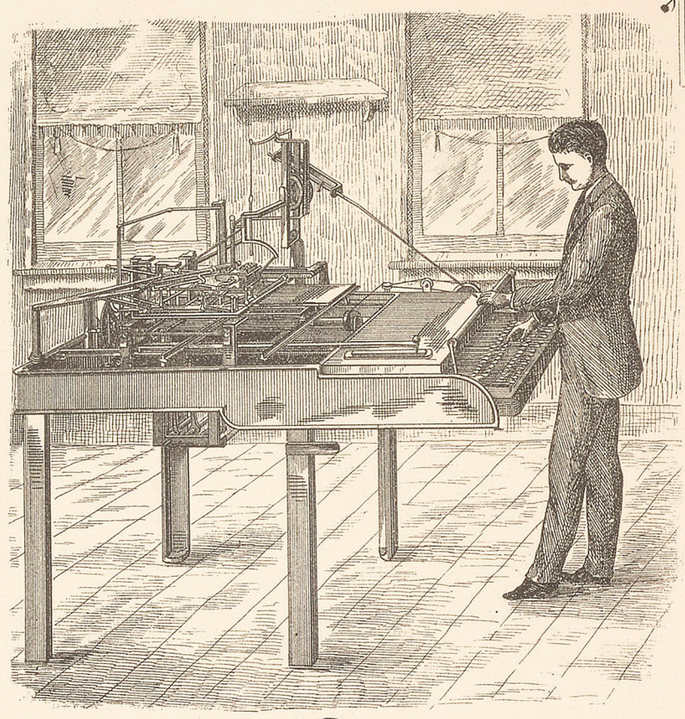

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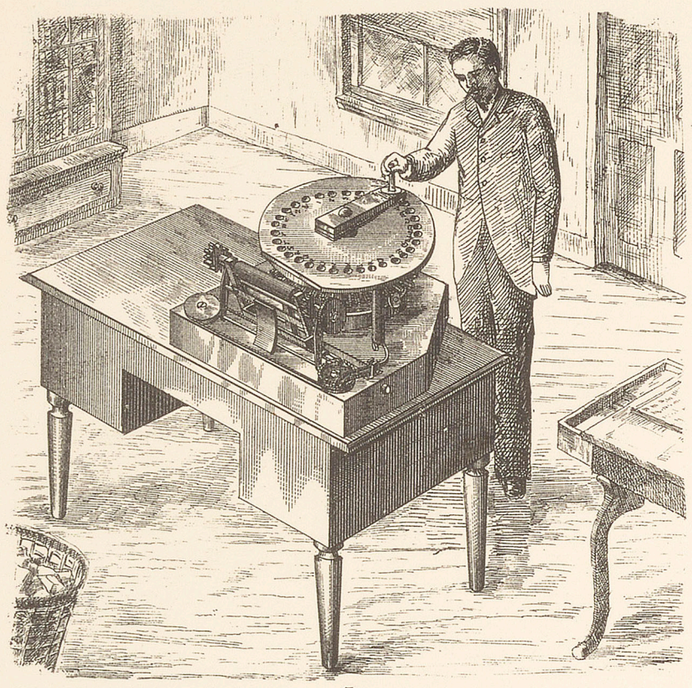

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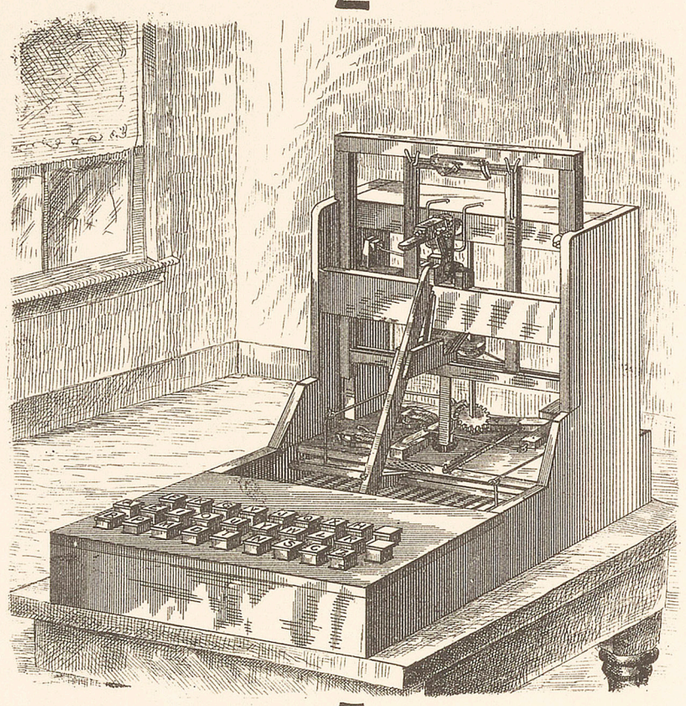

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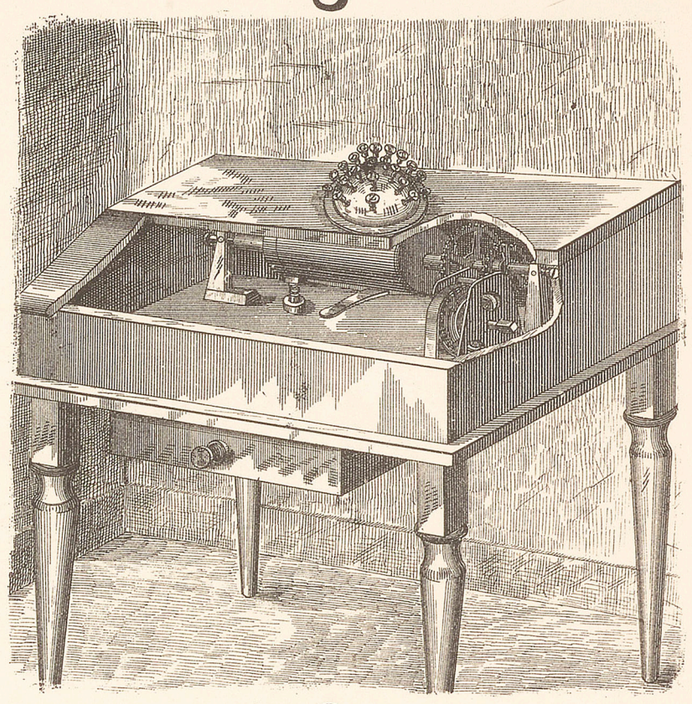

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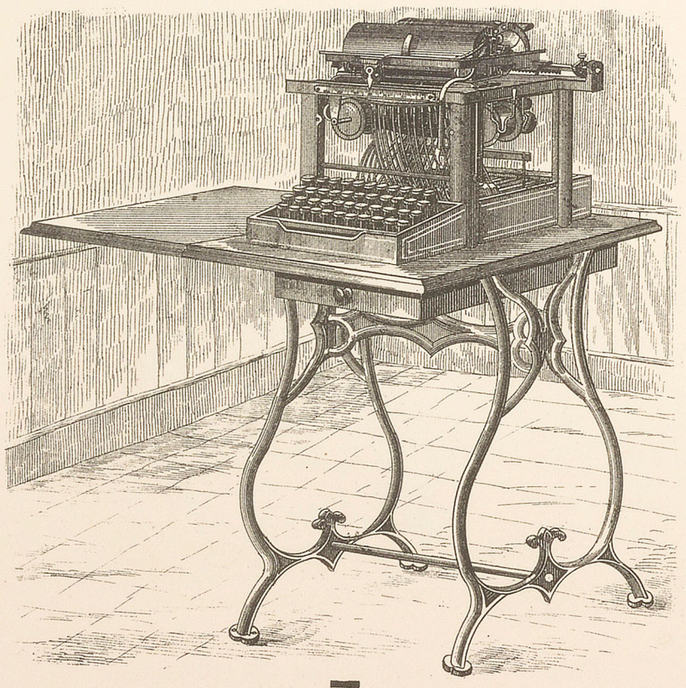

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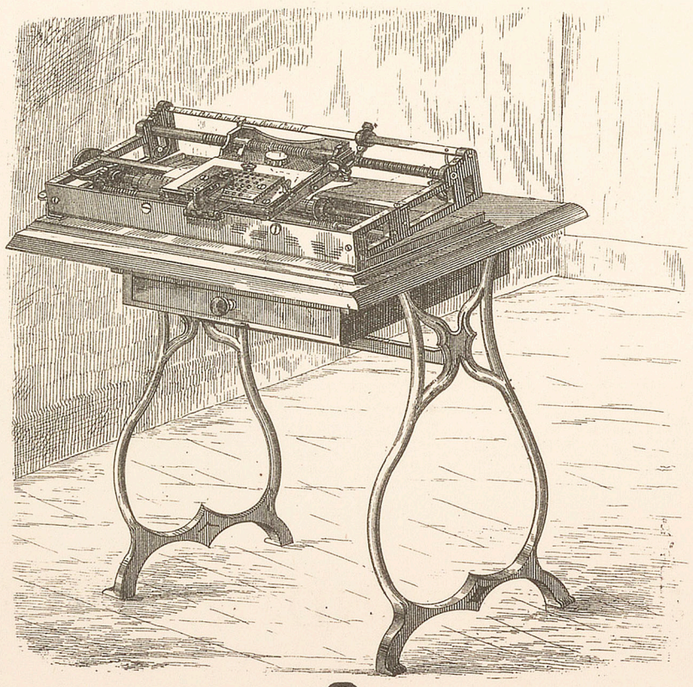

8

9

TYPE WRITERS.

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No. 1. Hand Writer.
2. U. S. Patent, Connected Pencil, Traces Letters—A. D. 1845.
3. " " Double Hand Impression Machine—A. D. 1850.
4. " " Type Wheel Machine—A. D. 1856.
5. " " Movable Type Plate and Hammer—A. D. 1868.
6. " " Spring Seated Keys Carry Type—A. D. 1872.
7. " " Type on ends Lever—A. D. 1878.
8. " " Elastic Type Plate—A. D. 1881.
9. " " Oscillating Type Segment & Hammer—A. D. 1884.

The type-writer is generally supposed to be a machine of recent invention, but it really dates as far back as 1714.

The archives of the British Patent Office show the issue of a paper on January 7, 1714, No. 395, to Henry Mill, of England, for "an artificial machine or method for the impressing or transcribing of letters, singly or progressively, one after another, as in writing, whereby all writings whatsoever may be engrossed on paper or parchment so neat and exact as not to be distinguished from print; that the said machine, or method, may be of great use in settlements and public records, the impression being deeper and more lasting than any other writing, and not to be erased or counterfeited without manifest discovery, &c."

The records of the U. S. Patent Office show that letters patent were granted William A. Burt, of Detroit, Michigan, for a machine for printing, styled by himself the "typographer," July 23, 1829.

This patent is said to be still in existence, but the records, other than above, were destroyed in the fire of 1836.

In the year 1843 Charles Thurber, of Worcester, Mass., secured letters patent for a type-writing machine, but his invention did not possess the merits to recommend it, and was soon put aside.

One of the earliest patents granted was that of A. E. Beach, June 24, 1856, for printing instruments.

Among the earliest forms was the invention of S. W. Francis, who received letters patent October 27, 1857, for a writing machine which contained nearly all the features of subsequent devices in this line of inventions. "The Francis" was a complicated machine which has been much simplified by later inventions.

Amongst the best known type-writers now in general use are the Remington, Caligraph, and Hammond.

To such perfection has the machine been brought that even the most detailed and intricate statement, containing column after column of figures, can be readily made with it, and in a neat and business like form that is impossible with the pen of an average writer. Its use has opened a field for women who have to earn their living that never existed before. They are naturally expert and skillful in using the fingers, and they readily learn to use the type-writer with great speed. A number of schools have added it to their regular course, and young men who learn to use it find it far easier to obtain situations.

TYPE WRITERS.

23,000 Manufactured Annually.

Capacity—	Primitive Mode.	Present Machine.
Words per minute, . . .	50	100
Hands Employed per day, . .	1	1

152 Patents Granted by the United States.

Sackett & Wilhelms Litho Co New York

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