

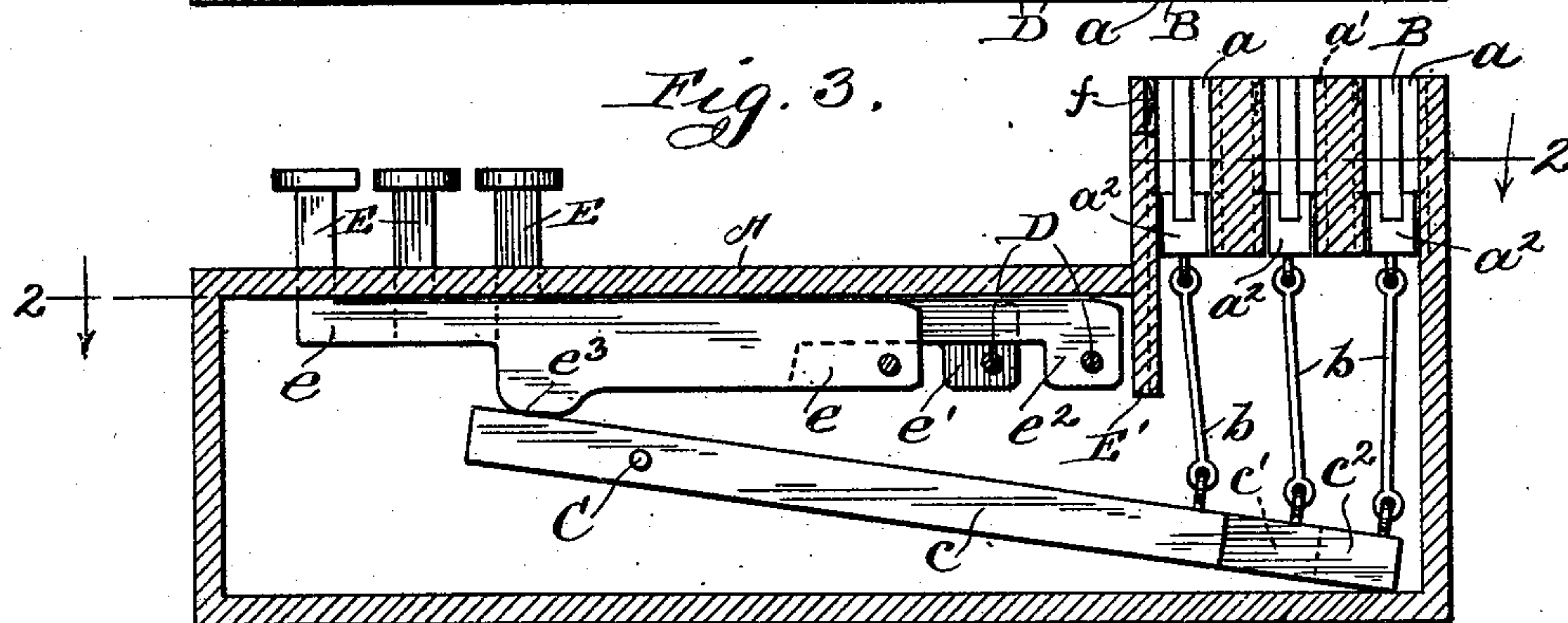
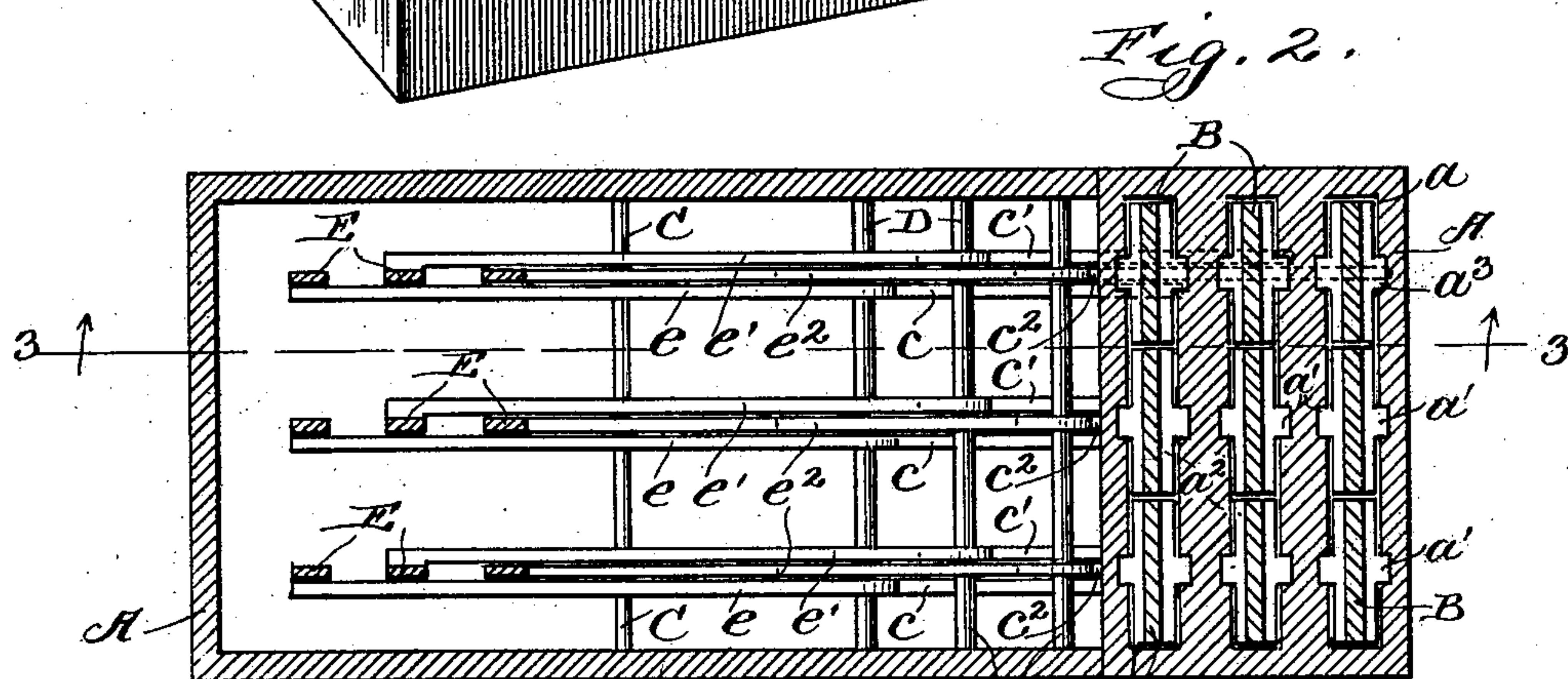
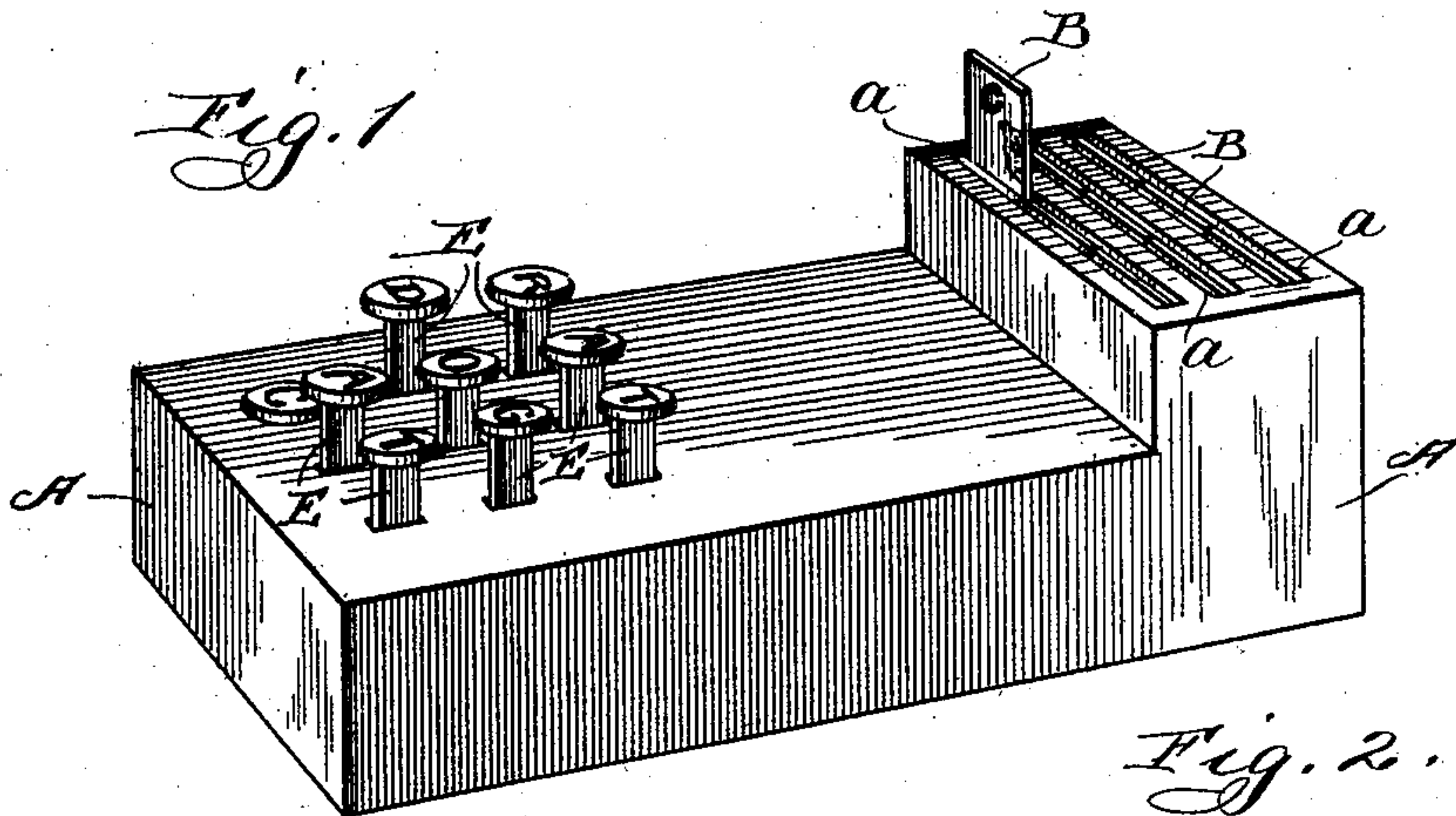
No. 713,085.

Patented Nov. 11, 1902.

J. FLINDALL.  
EDUCATIONAL APPLIANCE.

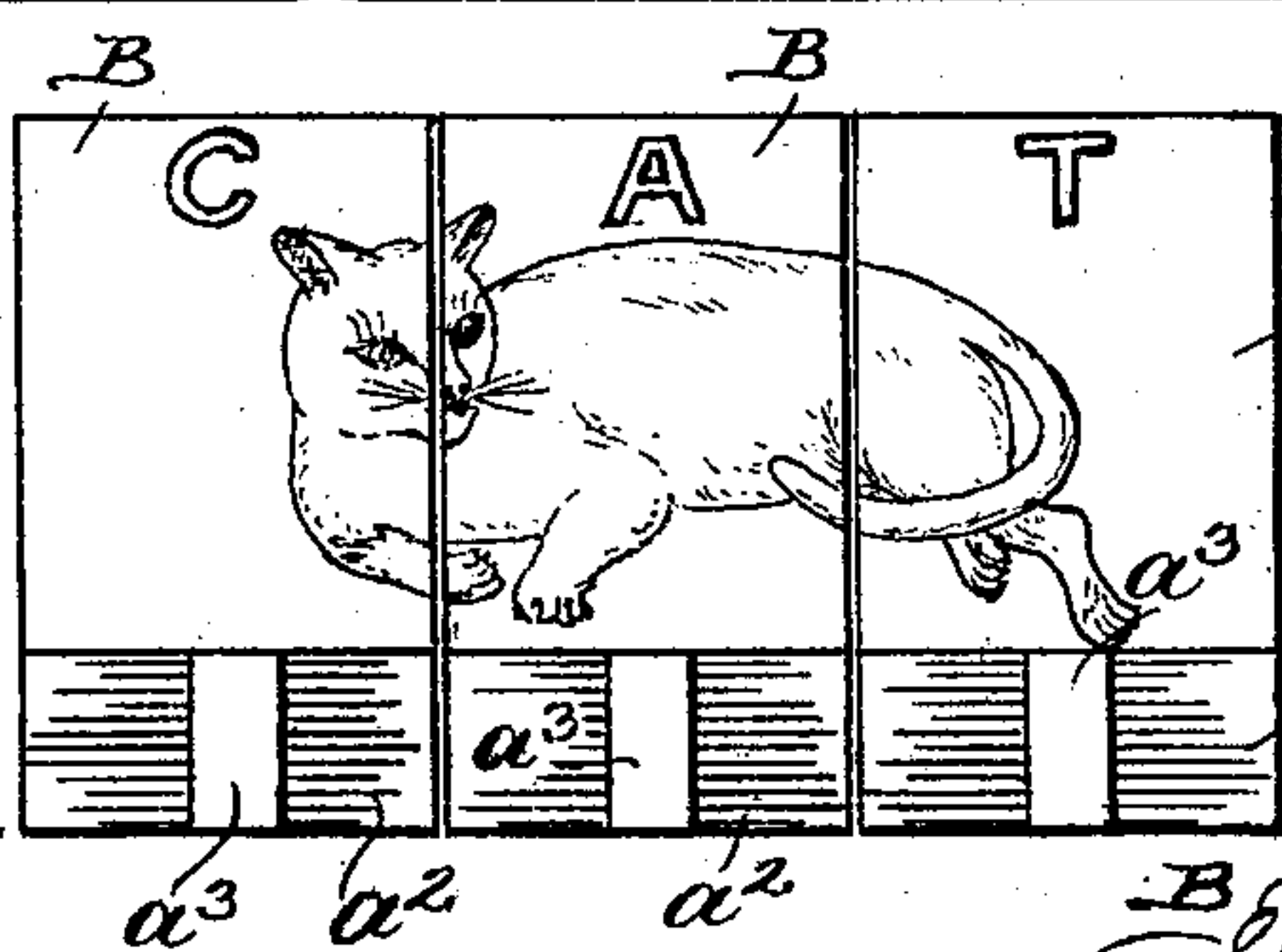
(Application filed Oct. 28, 1901.)

(No Model.)



*Fig. 4.*

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# UNITED STATES PATENT OFFICE.

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## EDUCATIONAL APPLIANCE.

SPECIFICATION forming part of Letters Patent No. 713,085, dated November 11, 1902.

Application filed October 28, 1901. Serial No. 80,211. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN FLINDALL, of Chicago, in the State of Illinois, have invented certain new and useful Improvements in Educational Appliances, of which the following is a specification.

My invention relates to educational appliances. Such appliances heretofore have been provided with parts and features adapted to display individual objects by single or distinct operations of individual parts of the apparatus, the parts also being designed and arranged to present the objects to others than the operator; but my invention is distinguished from such prior constructions in being provided with parts adapted to display separately by individual operations the factors of an object and ultimately by the combined individual operations the complete object and in having the parts designed and relatively arranged so as to present the factors and the complete object to the view of the operator.

To these ends my construction consists, first, in a slotted case provided with one or more sets of plates, the members of each set being placed in a plane opposite to a slot in the case with edges together and fitted to slide on one another, so that each set will form a smooth area or continuous field, and a series of levers severally connected at one end with the plates and provided at the other end with finger-keys, by the operation of which the plates may be severally projected out of the case through the slot, and, secondly, in severally lettering that side of the set of plates facing toward the finger-keys at each slot in succession to spell words and also providing the same side of each of said plates with a representation of an appropriate part of an animal or other object, so that the orderly operation of the finger-keys will separately present the individual letters of the name and the several parts of the picture, thus spelling the name and forming the complete picture of the object by the combined operation and ultimately displaying the same over or across the area of that side of the set of plates which faces toward the finger-keys. I have attained these objects in the apparatus constructed as illustrated in the accompanying drawings, in which—

Figure 1 is a perspective view of such apparatus. Fig. 2 is a horizontal section on the plane 2 2 of Fig. 3. Fig. 3 is a vertical section on the plane 3 3 of Fig. 2. Fig. 4 is a detail showing a set of movable plates in elevation.

In the drawings, A designates a case or box, which is preferably made with a part at one end higher than the main portion. The higher portion is provided with openings or slots  $a$  at the top, between which are partitions extending downward and provided with grooves  $a'$ . Between the partitions are placed sliding pieces  $a^2$ , having tongues  $a^3$ , adapted to fit and slide in the grooves  $a'$ . B designates a series of plates, one of which has its lower edge set and secured in each of the parts  $a^2$ . The side edges of each set of plates at each slot are fitted together and adapted to slide upon one another with their surfaces in the same plane, so that the set of plates at any slot forms a continuous surface, upon which figures or characters may be drawn with lines extending over or across the lines between the plates.

C is a rod or wire secured at its ends to the sides of the case and adapted to serve as a fulcrum for a series of levers  $c c' c^2$ , which are connected by means of links  $b$  with the sliding pieces  $a^2$ .

D D are rods or wires secured to the sides of the case, and upon these the key-levers  $e e' e^2$  are pivoted, so as to rest upon the ends, respectively, of the levers  $c c' c^2$ , as shown at  $e^3$ , Fig. 3.

Each of the key-levers has a bar E projecting upwardly through a hole in the top of the case and is provided with a finger-piece at the top, whereby the key-levers may be worked in order to raise the levers  $c c' c^2$  until stopped by striking against a stop at  $E'$ . The upward or return movement of the key-lever is stopped by the top of the case, as shown in Fig. 3.

By depressing the finger-pieces the sliding pieces are forced up so as to come up to the top of the higher portion of the case and project the plates up through the slots therein, as illustrated in Fig. 1, and when thus raised the sliding pieces strike springs  $f$  in the grooves near the top, which operate to hold the parts in elevated position.



It will be seen that the several levers  $e\ c$  connect with the front set of plates B, on which the letters spelling the word "cat" are placed, levers  $e'\ c'$  connect with the second set, and levers  $e^2\ c^2$  with the third or rear set, which second and third sets have letters representing other words.

The view shown at Fig. 4 represents an elevation of the front set of plates, of which but a single one is shown in Fig. 1 as elevated. When so elevated in use, the plates will remain up as long as desired, and a gentle touch on the top will cause them to drop back within the case.

It should be observed that the face of the plates, on which the lettering and drawing are done, is directed toward the finger-pieces, so that the lettering and picture exposed by the operation are presented to the operator when the apparatus is placed before him in position where he can work it himself.

It is contemplated that the number of the plates B comprised in the sets may be greatly increased with longer slots, and the operating-levers multiplied so as to correspond with words having more than three letters, or they may be varied so as to represent other objects than those shown or indicated in the drawings without departing from the principle of the invention.

What I claim is—

1. An apparatus of the class described comprising a case provided with a slot, a set of separately-movable plates arranged in a plane within the case opposite to the slot with their

adjacent edges fitted together and adapted to slide on one another in their plane, the set together forming a continuous smooth area on one side which is lettered to spell the name of an object, and provided with a drawing of the same object extended over the lines between the plates; a series of levers severally connected at one end with the plates and being provided with the finger-pieces at the other end adapted to successively project the plates out through the slot, that side of the plates containing the name and drawing being faced toward the finger-pieces; and means for holding the plates when projected out as specified.

2. An apparatus of the class described comprising a case provided with a plurality of slots, sets of separately-movable plates respectively arranged within the case opposite to the slots, the adjacent edges of the members of each set being fitted together and the faces of the separate plates of the sets being lettered to spell with each set the name of a different object and provided with a drawing of the object extended over the lines between the plates, key-lever mechanism severally connected with the sets of plates and provided with finger-pieces arranged in front of the plates, and means for holding the plates extended when projected out as specified.

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