

(No Model.)

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ABACUS.

No. 580,516.

Fig. 1. Patented Apr. 13, 1897.

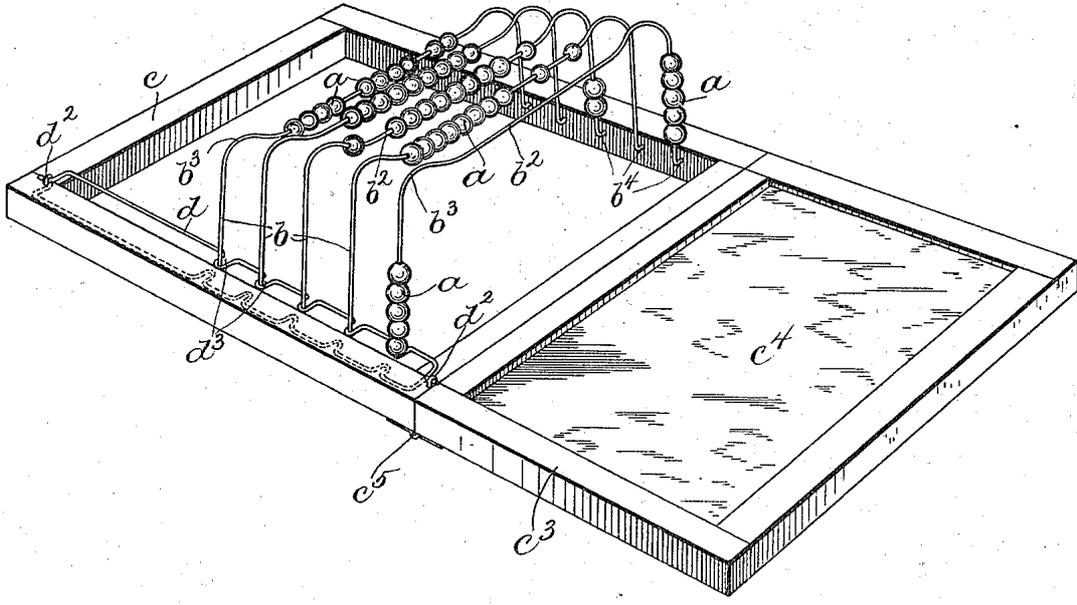
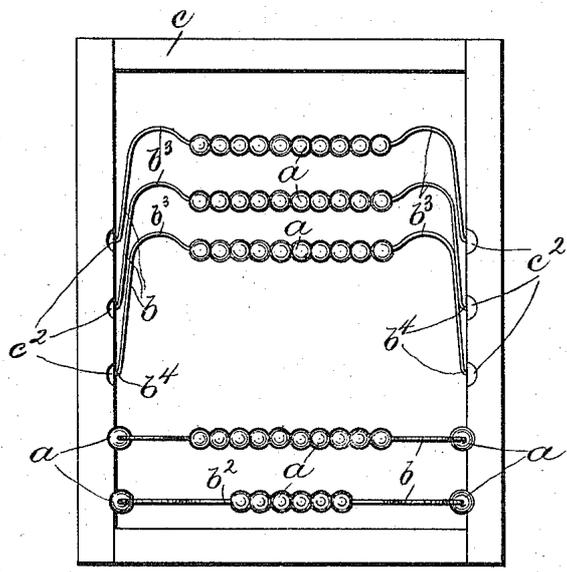


Fig. 2.



Witnesses
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ABACUS.

SPECIFICATION forming part of Letters Patent No. 580,516, dated April 13, 1897.

Application filed October 2, 1896. Serial No. 607,635. (No model.)

To all whom it may concern:

Be it known that I, BENJAMIN S. ANDREW, of Manchester, county of Hillsborough, and State of New Hampshire, have invented an
5 Improvement in Abaci, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

The present invention relates to an abacus
10 or frame to hold movable counters, and is especially intended for use in teaching small children arithmetic, &c., the object being to provide a simple and inexpensive abacus designed for educational use and so arranged
15 that when not in use it will occupy no unnecessary space. Such a device is especially useful in teaching small children, since by providing each child with an individual device of this kind the child's attention is called more
20 closely to the counters, which he is thus able to manipulate himself instead of being merely called upon to watch the teacher manipulate the counters where a single abacus is used by the teacher.

The abacus embodying the invention consists of a supporting-frame provided with one or more supporting wires or guides upon which are strung counters consisting of balls, cubes, or buttons or other suitable objects, the said
30 wires being mainly U-shaped, but having a flattened base portion to which the counters are adapted to be moved from the upright members or sides of the supporting-wires, and said wires are movably secured to the frame,
35 so that the sides of the U can be moved from a position perpendicular to the sides of the frame, or the upright position in which they are placed when the device is in use, to a position parallel thereto. When, therefore, the
40 abacus is not in use, the counter tracks or supports can be turned so as to lie parallel with the body of the frame and be completely closed in thereby, so that the whole device takes up no more space than the bare frame
45 itself would take up, or, in other words, about the space occupied by an ordinary child's slate, while when the device is to be used the U-shaped supports may be turned to their upright position, a locking device being shown

as provided for maintaining them thus upright. The U-shaped supports are each
50 curved at the junction of the sides with the base of the U in such a way as to afford an easy path for the counters, which may thus be "stored," so to speak, along the sides of the
55 supporting-wire and moved by the pupil to the base thereof for exercises in addition and subtraction. The curved portions are shown as slightly offset or shaped to provide for a slight upcurve between the base portion of
60 the inverted U, which is straight or flattened, as has been stated, and the side portions thereof, so that a counter once moved to the said base portion will have no tendency to fall back
65 unless it is positively moved. The frame, if desired, may be provided with a supplemental frame portion adapted to contain a slate or writing-tablet.

Figure 1 is a perspective view of an abacus embodying the invention, and Fig. 2 is a plan
70 showing also a slight modification.

The counters *a*, which may be of any desired color or shape or which may be of various shapes in the same device, are perforated and strung on the wire supports *b*, which in
75 turn are supported in the frame *c*, the said frame being of convenient size and shape for individual use.

The wire supports *b* are mainly U-shaped, as indicated, having a base portion *b*², preferably separated from the side portions by a curved or offset portion *b*³, thus forming a perfectly apparent division between the side
80 portions and the base portion *b*². Thus the side portions may be used for storing the counters
85 when not actually employed for illustrative purposes, there being, for example, as shown on one of the wire supports in Fig. 1, five
90 counters on one of the side portions and five counters on the other side, so that if the teacher asks the pupil to move, say, three
95 counters from one side to the base portion *b*² and two counters from the opposite side to said base portion for a problem in addition the result is at once apparent, and it is obvious that manipulations of almost any kind can be readily suggested to the pupil, there being practically two distinct supplies of counters,

if desired, each movable to and from a common position where the effect of the different combinations can be noted. Furthermore, the tendency of the counters to slip back down the side portions is obviated.

As herein shown, the wire supports b are secured to the frame by merely offsetting the ends thereof at b^4 and inserting them into suitable openings in the sides of the frame. Thus they can be moved from the upright position to the folded position, as shown in Fig. 2, being movable in either direction, as is most convenient.

In order to hold the wire supports upright when the abacus is in use, means are preferably provided for locking them in the central upright position, as shown. The fastening device may consist, as shown in Fig. 1, of a wire d , secured to the surface of the frame c by means of staples d^2 at each end, so that the said wire can be turned from the position shown in dotted lines to that shown in full lines, and the said wire is bent to form a series of recesses d^3 , one for each of the supporting-wires b , so that when the said supporting-wires are in their upright position the wire d can be turned to the full-line position shown in Fig. 1, causing the supports b each to enter one of the recesses d^3 and thus be maintained upright. The same object can be secured, if desired, as shown in Fig. 2, by forming recesses c^2 in the upper surface of the frame adjacent to each support, the said recesses being adapted to receive one of the counters and thus prevent a lateral movement of the said wire support upon which the counter is threaded.

It may be desirable in some cases to provide a writing-tablet in conjunction with the abacus in order that the pupil may be taught to write down the results observed, and such a writing-tablet may be connected with the main frame to form a single device. As shown in Fig. 1, a supplemental frame e^3 is provided, connected with the main frame c and containing a writing-tablet e^4 . The connection between the two may be of any suitable nature, and hinges e^5 may be provided,

as shown in Fig. 1, in order that the writing-tablet may be folded back.

I claim—

1. An abacus comprising a supporting-frame, one or more folding U-shaped supports secured to said frame, and movable counters mounted on said supports and adapted to be moved from the sides to the base thereof, and vice versa, substantially as and for the purpose described.

2. An abacus adapted for the individual use of school children comprising a frame, a series of U-shaped supports having the ends of their side portions hinged to the side members of said frame at intervals along the same, each of said supports being provided with an offset curve between the base and side portions thereof, movable counters mounted on said supports and adapted to be moved from the sides to the base thereof, and means for locking said supports in an upright position with relation to the frame, substantially as described.

3. An abacus comprising a frame having one or more U-shaped supports, the ends of the side portions of said supports being hinged to said frame, movable counters mounted on said supports and movable from the sides to the base thereof, and vice versa, and a recess in the frame adjacent to the side portion of the support, and adapted to receive one of the counters and thereby hold said support upright, substantially as described.

4. The herein-described abacus comprising a frame formed in two sections, folding U-shaped supports secured to one of said sections, movable counters on said supports adapted to be moved from the sides to the base thereof, and a writing-tablet contained in the other section, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

BENJAMIN S. ANDREW.

Witnesses:

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GEO. H. WARREN.