R. L. BEHAN.

KINDERGARTEN DEVICE.

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1,165,058.

Patented Dec. 21, 1915.

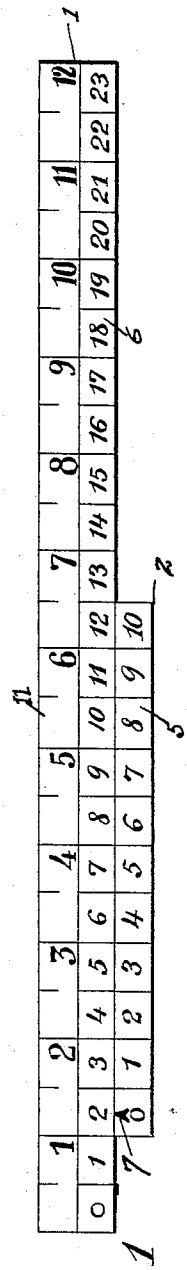


Fig. 1

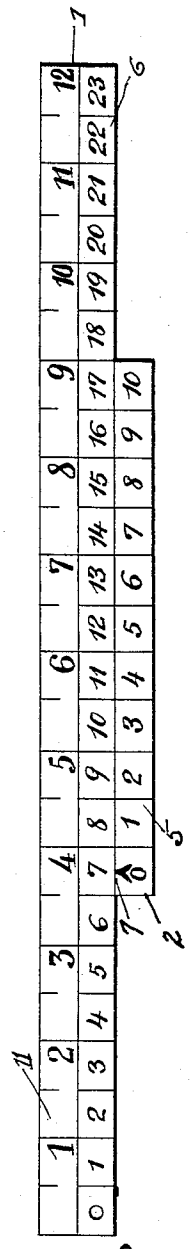


Fig. 2

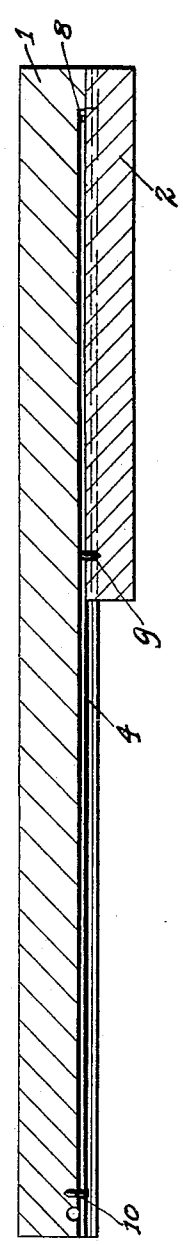


Fig. 3

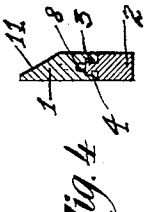


Fig. 4

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KINDERGARTEN DEVICE.

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To all whom it may concern:

Be it known that I, RICHARD L. BEHAN, of Jersey City, New Jersey, a citizen of the United States of America, have invented certain new and useful Improvements in Kindergarten Devices, of which the following is a specification, accompanied by drawings.

This device is adapted for use by children in the kindergarten grades for the purpose of acquiring the principles of addition and subtraction.

The improved device provides a useful school commodity and is preferably constructed to prohibit to the greatest degree possible injury by the child.

In my improved device the child is taught to add and subtract by physical means and all the stages in the addition or subtraction are optically apparent instead of by the mere process of memorizing.

The improved device can be cheaply, readily and easily constructed in many shapes suitable for ordinary school purposes.

In the drawings, Figure 1 is a plan view of my improved device; Fig. 2 is a plan view of the device with the sliding member in a different relative position; Fig. 3 is a sectional plan view, and Fig. 4 is a sectional view in a plane perpendicular to that of Fig. 3.

The device may be constructed of celluloid, ivory, wood or other suitable material and consists of two pieces 1 and 2. The lower member 2 having a tongue portion 3 so that it may be free to move in relation to member 1 by the tongue 3 sliding in the groove 4 of member 1.

On the upper face of the members 1 and 2 are series of equally spaced numerals, those on the lower portion, 5, running in arithmetical progression from zero to ten and those on the upper portion, 6, running from zero to any desired numeral.

I have shown an arrow or suitable mark, 7, over the cipher on the lower member 2, for ready reference purposes as hereinafter described.

Referring to Fig. 1, it will be readily seen that should the student desire to subtract 10 from 12 he would slide the lower member along until the numeral 10 came under the numeral 12 and then by looking at the numeral directly above the mark 7, he would find on member 1 the desired result, to wit, 2. Following the same process and referring to Fig. 1 it will be readily seen that 10 minus 8, or 6 minus 4, also gives the result, 2. It will be readily seen that there are other ways of subtracting numbers from 1 to 10. For instance, should it be desired to subtract 2 from 12, the arrow 7 on the lower member 2 is moved as in Fig. 1 to a position underneath the numeral 2 on upper member 1 and the result of subtracting 2 from 12 can be readily found by reading the number on member 2 directly underneath the number 12 on member 1, to wit, 10. In the same manner it will be seen that 2 from 8 leaves 6, 2 from 5 leaves 3, etc. When the student desires to add, say 7 and other desired numerals he places the mark on member 2 under the figure 7 of member 1 and should he desire to add 3 to 7 he will find his result directly above numeral 3, on member 1, to wit, 10. Should he desire to add 9 to 7 the result would be as readily seen by reference to Fig. 2, 16. It will be readily seen by reference to Figs. 1 and 2 that he may add and subtract any two numerals desired by a simple mechanical process and the answer is immediately apparent to him.

In Figs. 1 and 2 I have shown the upper member having the numeral 23 at its right hand end, of course the numerals may be continued to any desired number, but referring to the drawings, should the student desire to subtract 1 from 23 it can be readily seen that the result will be 22.

For the purpose of readily moving member 2 in relation to member 1, the groove 4 and the tongue 3 are provided. I have shown the tongue and groove 3 and 4 respectively, as being T-shaped so that the member 2 may not fall away from member 1, but I do not limit myself to such shaping of the tongue and groove.

In member 1 there is a secondary grooved portion 8, which extends from the left hand end over to the last numeral, as shown in Fig. 3. The pin 9 is carried on the head of tongue 3 and is adapted to fit and move in the aforementioned groove 8, so that when the lower member is moved to the right it cannot be entirely moved out of connection with member 1. Within the right hand side of the zero portion of member 1, there is a downwardly projecting pin 10 which comes into contact with the upwardly projecting pin 9 of member 2, so that the lower member 2 can never be moved farther

to the left except to the extent that the left side faces of members 1 and 2 are in the same plane.

From the foregoing it will be seen that no matter how careless the child may be in playing with the device, he will not be able to disengage members 1 and 2, without first breaking one of the projecting pins or otherwise being careless. Of course when member 2 is moved to its extreme left position the corresponding numbers will each be under the other and all subtracted would have the result of zero, and so it is seen that this device permits of the addition or subtraction of any numbers being only limited in range to the scale of marking on members 1 and 2 or the length of member 1.

In the drawings I have shown the device as being adapted for use as a ruler, member 1 having beveled face 11 suitably scaled as shown in Figs. 1 and 2.

It is well recognized that the Montessori system of educating children is particularly adapted to work in the kindergarten grades and my device is constructed along similar lines in that the pupil sees with his own eyes, because of his physical manipulation of figures, the correct result. He does not have to repeat, as heretofore, that two and two make four, an innumerable number of times so that when he comes to add two and two he says to himself that two and two are four, and knows the result therefore is four, but in place of so memorizing he manipulates his adding device and sees that two and two are four and the result is consequently apparent to his visionary powers and he knows the result is four.

Without attempting to describe many variations that readily present themselves and without limiting myself to the specific device shown, I claim and desire to secure by Letters Patent the following:

In a kindergarten device the combination of two members, the upper member having a grooved portion, and the lower member having a tongued portion adapted to fit within and free to move within said grooved portion, the upper member having a secondary grooved portion of lesser length, the lower member having a pin adapted to project into said secondary grooved portion, the upper member having a projecting pin which contacts with the pin on the lower member and so prohibits the movement of the lower member in one direction, the upper member having a series of numerals in arithmetical progression and the lower member having equally spaced numerals from zero to ten in arithmetical progression, all for the purposes set forth.

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

RICHARD L. BEHAN.

Witnesses:
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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."