A. T. McCLUER.

EDUCATIONAL APPLIANCE.

APPLICATION FILED JAN. 27, 1916.

1,291,045.

Patented Jan. 14, 1919.

2 SHEETS—SHEET 1.

Fig. 1

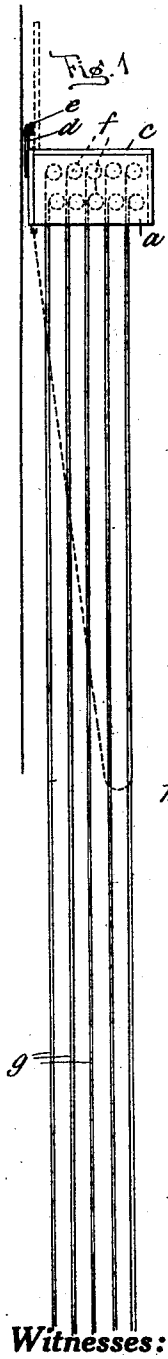
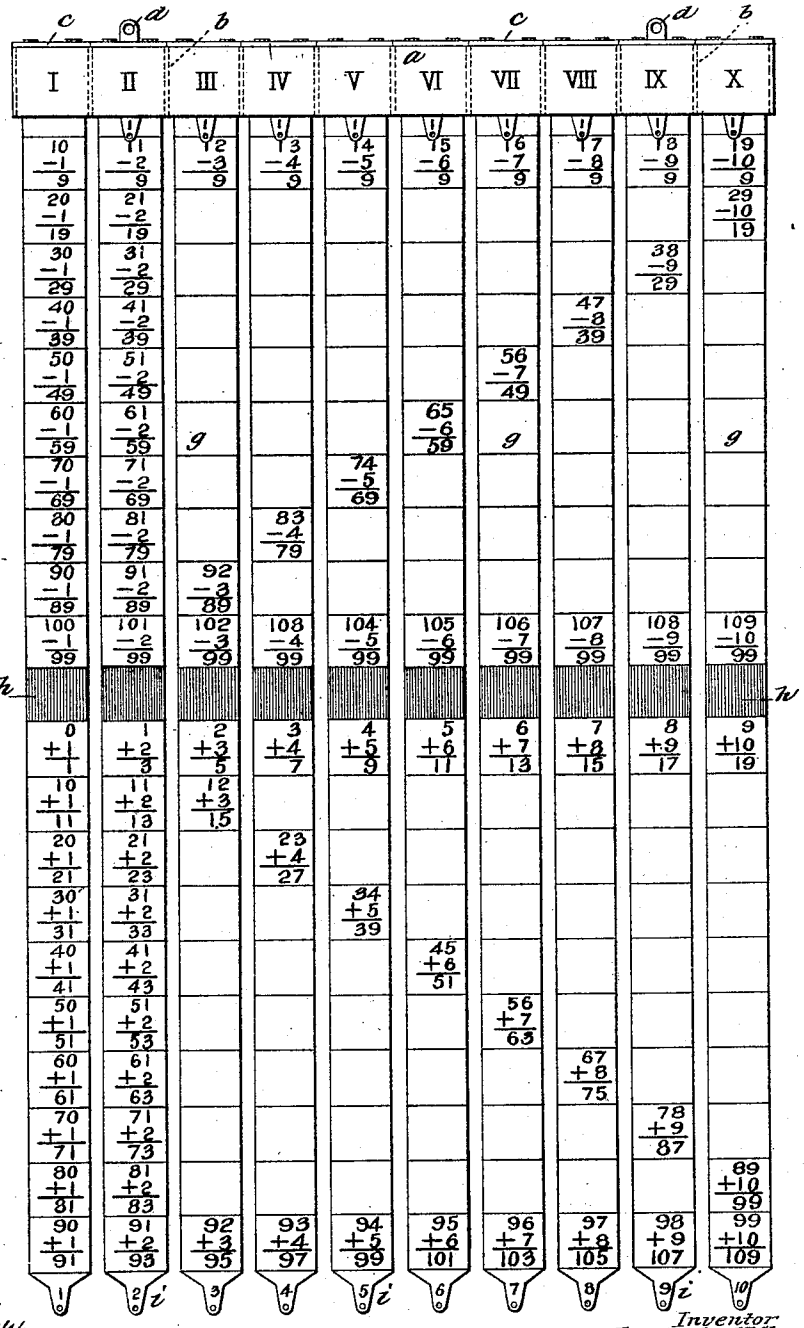


Fig. 2



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2 SHEETS—SHEET 2.

Fig. 3

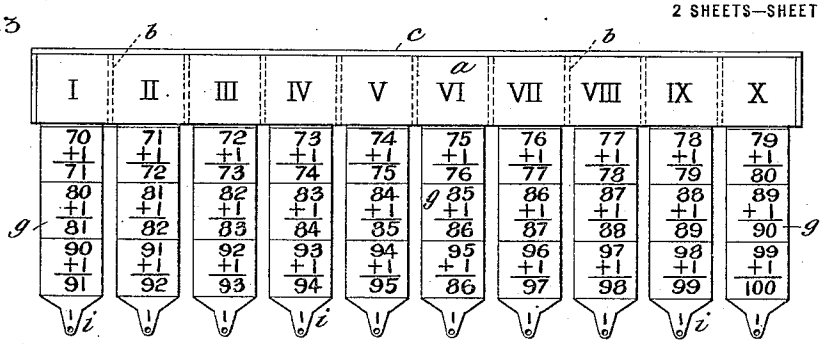


Fig. 4

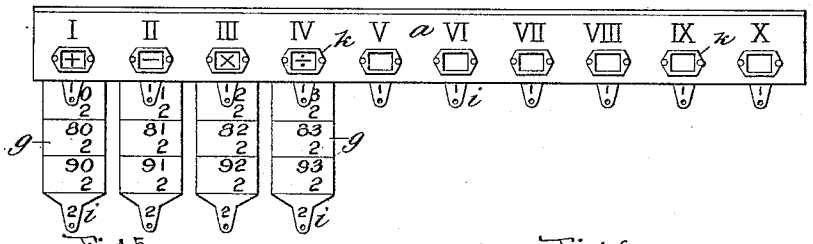


Fig. 5

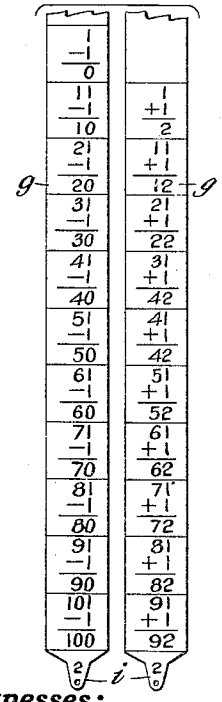


Fig. 6

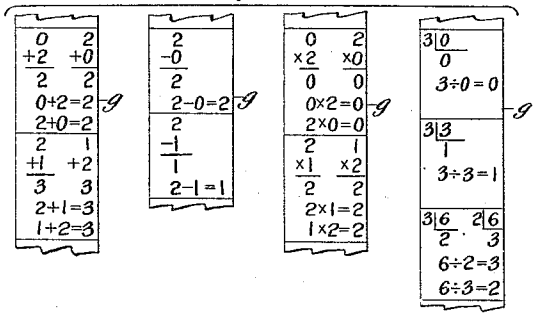


Fig. 7

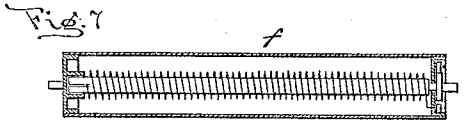
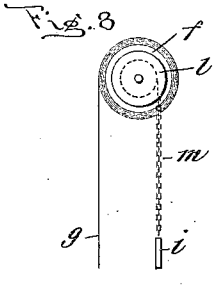


Fig. 8



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UNITED STATES PATENT OFFICE.

ANNA TAYLOR McCLUER, OF NEW YORK, N. Y., ASSIGNOR OF ONE-HALF TO JOHN ROBERT TAYLOR, OF BROOKLYN, NEW YORK.

EDUCATIONAL APPLIANCE.

1,291,045. Specification of Letters Patent. Patented Jan. 14, 1919.

Application filed January 27, 1916. Serial No. 74,569.

To all whom it may concern:

Be it known that I, ANNA TAYLOR McCLUER, a citizen of the United States, residing in the borough of Manhattan, city, county, and State of New York, have invented a new and useful Educational Appliance, of which the following is a specification.

My invention relates to appliances for use in the school room to facilitate the teaching of the fundamental principles of mathematics, addition, subtraction, multiplication and division.

It is the present practice in educational institutions to use charts made by the teacher for this purpose. The charts are made of card board or paper and each contains one subject. These charts must be hung on the wall for each lesson and must be removed and stored afterward. The charts become torn, broken and soiled from much handling and become unsanitary. They require considerable storage space and much time is lost in putting up and taking down the charts and in placing them in a storage receptacle.

The object of my invention is to facilitate the handling of the charts, to keep them attached to the storage receptacle, to facilitate the storing of the charts, and to store the maximum number of charts in the minimum amount of space.

A further object is to so arrange the charts both as to the disposition of the matter imprinted upon them and their relation one to the other that the lessons will be made more interesting to the pupil and teaching will be facilitated.

These and further objects will more fully appear in the following specification and accompanying drawings, considered together or separately.

I have illustrated my invention in the following drawings wherein similar reference characters designate corresponding parts in all the figures and in which—

Figure 1 is an end elevation of a receptacle carrying a plurality of charts some of which are extended.

Fig. 2 is a front elevation of the same showing the number 1 chart of group I, number 2 chart of group II, etc., extended.

Fig. 3 is a similar view showing number 1 chart of all the groups partly extended.

Fig. 4 is a similar view showing a modification in which the operation symbol is carried on the casing and no answers on the charts.

Fig. 5 is a view showing a modified form of chart wherein both sides are imprinted with problems.

Fig. 6 is a view showing another modification wherein four groups of charts are employed, one group for examples in addition, one for subtraction, one for multiplication and one for division, each chart showing the different ways of stating the problems.

Fig. 7 is a longitudinal section of a spring shade roller on which the charts may be mounted, and

Fig. 8 is an end elevation of a modified form of roller.

In the drawings, *a* designates a casing closed at the ends and sides and open at the bottom. The casing is divided by means of partitions *b* into a plurality of compartments and, in Fig. 2 each compartment is shown as provided with a door *c* hinged to one side of the casing. In Fig. 3 a single door closing all the compartments is shown. The casing is provided with hangers *d* by means of which it may be supported on hooks *e* carried on a wall or other vertical surface.

In each compartment of the casing is properly supported a group of rollers *f* each of which carries wound thereon a chart or ribbon *g*. The rollers *f* are preferably of the usual spring shade roller type, and the charts may be drawn down to expose all or a part thereof below the bottom edge of the casing *a*. The charts or ribbons *g* may be of tough paper, shade cloth or any other suitable material. The charts shown in Figs. 1, 2, 3 and 4 are preferably separated at their centers and an insert *h* is secured in place between the two parts. This insert is of flexible material and preferably of color contrasting with that of the chart. The free end of each chart is provided with a tab *i* with a designating character for each chart of each group. The tab is provided with a perforation for a purpose to be hereinafter explained.

The charts shown in Figs. 1, 2 and 3 are each provided with a series of problems in addition and a series of problems in subtraction with the insert *h* separating the series. Each chart is divided into a number of sections corresponding to the number of problems desired, and the problem arranged on the decade plan, *i. e.*, each problem of a chart has its principal item ten units higher

than the one above. The secondary item, or the minuend in subtraction, and the number to be added, is the number corresponding to that on the tab *i*. In the embodiment illustrated each compartment has a group of ten charts numbered from 1 to 10 and the number on the tab will indicate that that number will be added to or subtracted from another number. The principal item of all the charts of each group is the same and the principal item of each group is 1 higher than that of the group to the left of it.

By this arrangement if chart 1 of group 1, chart 2 of group 2, chart 3 of group 3, chart 4 of group 4, chart 5 of group 5, chart 6 of group 6, chart 7 of group 7, chart 8 of group 8, chart 9 of group 9 and chart 10 of group 10 be exposed as in Fig. 2 the principal items of the topmost problems, those nearest the casing, will be 10, 11, 12, 13, 14, 15, 16, 17, 18 and 19, the subtrahends will be 1, 2, 3, 4, 5, 6, 7, 8, 9 and 10 and the remainders will be 9 in every case. The next set of minuends will be decades of the first or from 20 to 29, the subtrahend will be the same as before and the remainders will be 19 in all cases. Likewise in the last set of problems the minuends will be from 100 to 109, the subtrahends will be the same as before and the remainders will be 99.

In studying the problems the pupil will see that by increasing the subtrahend and minuend by the same amount the remainder will be the same. Working from right to left he will see that by diminishing the subtrahend and minuend by the same amount the remainder will be the same.

When the number 1 chart of each group is withdrawn to the same extent as in Fig. 2, the subtrahends will be the same as before, that is from 10 to 19 from left to right in the first set below the edge of the casing, the minuends will be 1, corresponding to the number on the tab, in every case, and the remainders be from 9 to 18 showing that by subtracting the same from a series of gradually increasing numbers the series of remainders will show a corresponding increase.

When it is desired to teach addition the required charts are drawn out of the casing as far as the inserts *h* only. When subtraction is being studied the charts are drawn out to the full extent and to avoid confusion the charts are turned back at the inserts and the perforation in each tab is engaged with a hook *j* carried on the casing, and only the problems in subtraction will be in view.

In the modification shown in Fig. 4 the charts may be imprinted as before except that the operation signs and the answers to the problems are not given. The front of the casing is provided with pockets *k* into which may be placed cards bearing the symbols of operations. By this construction different operations may be performed without changing the charts. The only change necessary will be that of the symbol cards. The charts will be capable of holding a great many more problems than when the answers are printed thereon.

In Fig. 5 I have shown a chart with problems imprinted on both sides, addition on one side and subtraction on the other. By this method double the amount of work may be placed on a chart of the same length as in the other figures or the length of the chart may be halved for the same amount of work.

In Fig. 6 I have shown a modification wherein each compartment of the casing carries a group of charts and each group is for a different operation, *i. e.*, one group addition, one group subtraction, one group multiplication, and one group division. In each problem is shown the different ways in which the same result may be obtained.

I preferably employ spring rollers for carrying the charts for the reason that such rollers will automatically wind the charts, but I do not wish to limit myself to such rollers. Any suitable roller may be employed. In Fig. 8 I show a roller carrying a drum *l* at one end. A chain or cord *m* is wound around the drum in the direction opposite to the way in which the chart is wound. When the chart is exposed by unwinding it from the roller the chain or cord will be wound on the drum and when it is desired to rewind the chart the roller is rotated by pulling on the chain or cord. The chart being light in weight will not be sufficient to rotate the roller against the friction of its bearings even when it is unwound to its fullest extent.

In accordance with the provisions of the patent statutes, I have described the principle of my invention, together with the apparatus which I now consider to represent the best embodiment thereof; but I desire to have it understood that the apparatus shown is merely illustrative and that the invention may be carried out in other ways.

Having now described my invention, what I claim as new and desire to secure by Letters Patent, is:

1. In a device of the character described, a receptacle, a chart containing a mathematical problem within the receptacle, a constantly visible character on the chart indicating one of the items of the problem, and means for withdrawing the chart from the receptacle.

2. In a device of the character described, a receptacle, a plurality of charts, each containing a mathematical problem, within the receptacle, a constantly visible character on each chart indicating one of the items of the problem on that chart, and means for withdrawing a chart from the receptacle.

3. In a device of the character described,

a plurality of receptacles, a chart containing mathematical problems carried in each receptacle, a constantly visible character on the chart indicating one of the items of each problem on that chart, and means for withdrawing a chart from a receptacle.

4. In a device of the character described, a casing having a plurality of receptacles therein, a chart containing mathematical problems carried in each receptacle, a constantly visible character on the chart indicating one of the items of each problem on the chart, and means for withdrawing the chart from the receptacle.

5. In a device of the character described, a plurality of receptacles, a plurality of charts containing mathematical problems carried in each receptacle, a constantly visible character on the chart indicating one of the items of each problem thereon, and means for withdrawing the charts from the receptacle.

6. In a device of the character described, a casing having a plurality of receptacles therein, a plurality of charts containing mathematical problems carried in each receptacle, a constantly visible character on each chart indicating one of the items of the problem on the chart, and means for withdrawing the chart from the receptacle.

7. A device of the character described comprising a receptacle, a roller supported within the receptacle, a chart containing a mathematical problem supported on the roller, means for withdrawing the chart from the receptacle, and a constantly visible character on the withdrawing means indicating one of the items of the problem on the chart.

8. A device of the character described comprising a receptacle, a plurality of rollers supported within the receptacle, a chart containing a mathematical problem supported on the roller, separate means for withdrawing each chart from the receptacle, and a constantly visible character on the withdrawing means indicating one of the items of the problem.

9. A device of the character described comprising a receptacle, a spring roller supported within the receptacle, a chart containing a mathematical problem supported on the roller, a tab for withdrawing the chart from the receptacle, and a constantly visible character on the tab indicating one of the items of the problem.

10. A device of the character described comprising a receptacle, a plurality of spring rollers supported within the receptacle, a chart containing a mathematical problem supported on each roller, a tab for withdrawing each chart from the receptacle, and a constantly visible character on each tab indicating one of the items of the problem on the chart.

11. A device of the character described comprising a receptacle, a chart carried within the receptacle, said chart carrying problems in a plurality of mathematical principles, a tab for withdrawing the chart from the receptacle, and means for supporting the free end of the chart when the latter is wholly withdrawn from the receptacle whereby a portion of the chart will be masked by another portion of the same chart.

12. A device of the character described comprising a receptacle, a plurality of charts carried within the receptacle, said charts each carrying problems in a plurality of mathematical principles, a tab for withdrawing each chart from the receptacle, said tab having means for supporting the free end of the chart when the latter is wholly withdrawn from the receptacle.

13. A device of the character described comprising a casing having a plurality of compartments open at the bottom, a plurality of spring actuated rollers mounted to rotate in each compartment, a chart secured to each roller, each chart containing problems in a plurality of mathematical principles, a tab for withdrawing a chart from its compartment, a constantly visible character on each tab indicating one of the items of the problems on that chart, and a plurality of supports on the casing, the tab on each chart having means for engaging a support to hold the free end of the chart when the latter is wholly withdrawn from its compartment.

14. A device of the character described comprising a casing having a plurality of compartments open at the bottom, a removable closure for the top of the compartments, a plurality of spring actuated rollers mounted to rotate in each compartment, a chart secured to each roller, each chart containing problems in a plurality of mathematical principles, a tab for withdrawing a chart from its compartment, a constantly visible character on each tab indicating one of the items of the problems on that chart, a plurality of hooks on the casing, and a flexible insert in each chart, whereby a portion of the chart may be folded back of another portion, each tab having a perforation for engaging a hook when the chart is wholly withdrawn from its compartment.

This specification signed and witnessed this twenty-fifth day of January, 1916.

ANNA TAYLOR McCLUER.

Witnesses:
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ANNA QUINN.

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