No. 649,054. Patented May 8, 1900.

H. A. HOLIBAUGH.

EDUCATIONAL DEVICE.

(Application filed Feb. 20, 1900.)

(No Model.)

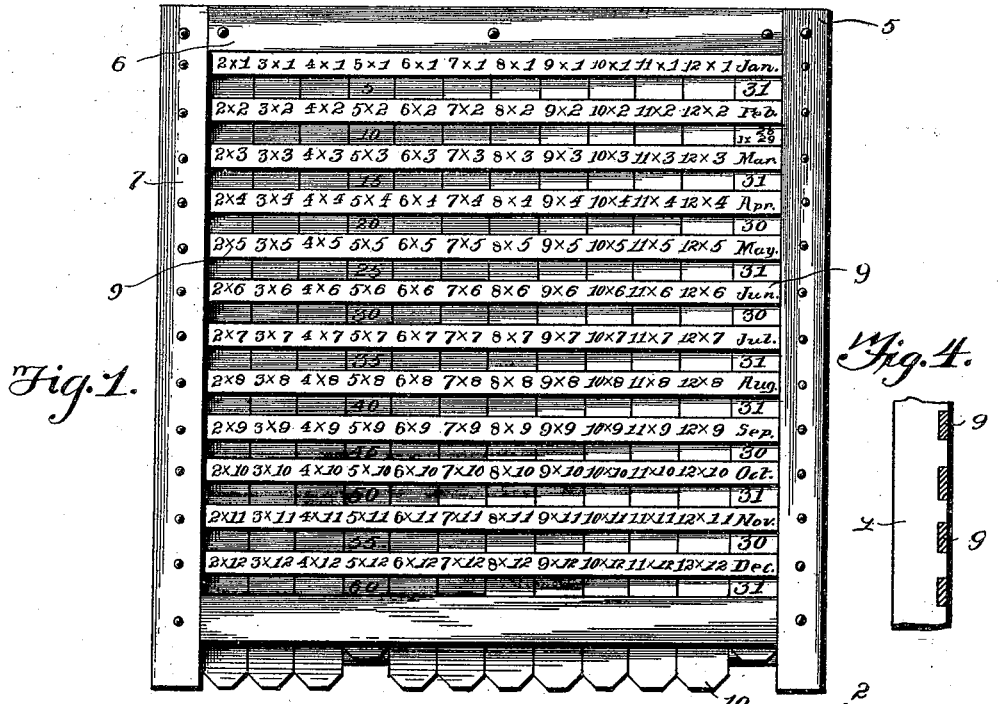

Fig. 1.

Fig. 4.

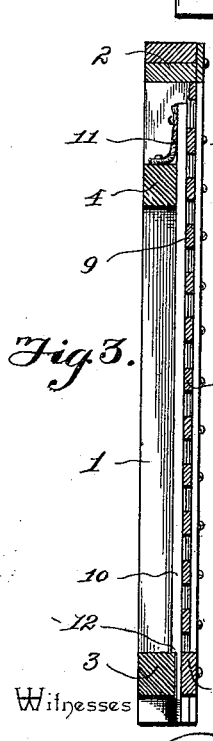

Fig. 3.

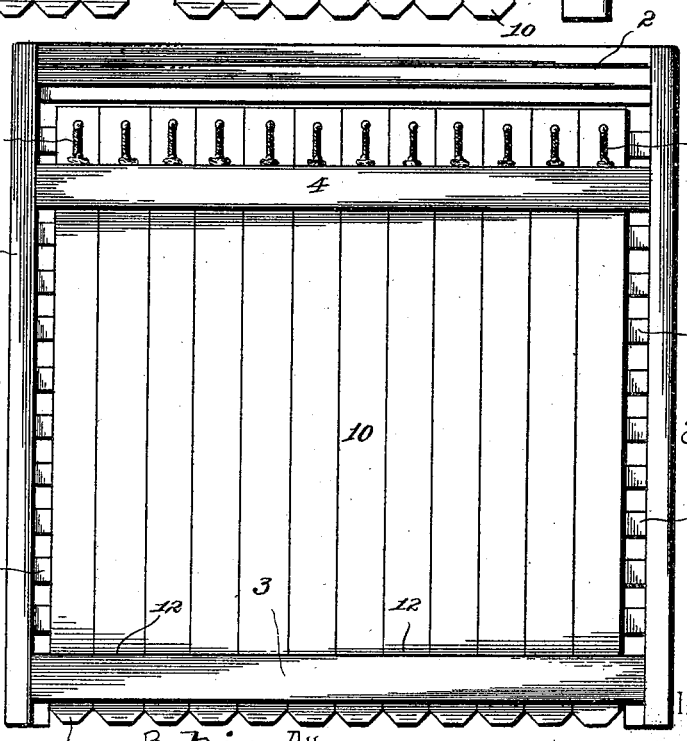

Fig. 2.

Witnesses

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Inventor

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UNITED STATES PATENT OFFICE.

HIRAM A. HOLIBAUGH, OF MARLBOROUGH, OHIO, ASSIGNOR OF ONE-HALF TO FRANKLIN E. LAMIELL, OF SAME PLACE.

EDUCATIONAL DEVICE.

SPECIFICATION forming part of Letters Patent No. 649,054, dated May 8, 1900.

Application filed February 20, 1900. Serial No. 5,943. (No model.)

To all whom it may concern:

Be it known that I, HIRAM A. HOLIBAUGH, a citizen of the United States, residing at Marlborough, in the county of Stark and State of Ohio, have invented a new and useful Educational Device, of which the following is a specification.

This invention relates to an educational device, and particularly to a multiplier; and the purpose of the same is to provide mechanical means for assisting children or juveniles to memorize the multiplied results of different numbers, which are arranged in such manner as to first present to the child a series of numbers arranged in regular progression without exposing the result of the several multiplied numbers, to cause the child to exercise its mind in first determining the correct answer, if possible, and if unable to arrive at the proper answer to dispose movable parts in relative position for quick operation by a simple method bearing the correct results of the series of numbers to which it pertains.

The invention consists in the construction and arrangement of the several parts, which will be more fully hereinafter described and claimed.

In the drawings, Figure 1 is a front elevation of the improved multiplier, showing the operation of ascertaining a result by an abnormal position of a portion of the movable parts. Fig. 2 is a rear elevation of the improved device. Fig. 3 is a transverse vertical section of the device. Fig. 4 is an enlarged sectional view of a portion of one of the end bars, showing the manner of countersinking the terminals of the numeral-slats therein to provide a flush fitting.

Similar numerals of reference are employed to indicate corresponding parts in the several views.

The numeral 1 designates opposite end bars, having upper connecting-bars 2 and a lower guide-bar 3, which stands inwardly from the lower terminations of the end bars a sufficient distance to permit the operation of parts which will be more fully hereinafter set forth. The said end bars 1 are also connected by a supporting-bar 4 in the same plane as the bar 3, and surrounding the face side of the improved device and secured to the end bars 1 and the top bars 2 are flat binding-slats 5, 6, and 7, which are firmly secured to the said bars and also extend over the opposite extremities of a transversely-extending guide-slat 8, disposed opposite and in spaced relation to the guide-bar 3, but a little above the plane of the latter, as clearly shown by Fig. 3. Extending transversely across the face of the device are a series of numeral-slats 9, which are spaced apart in parallel relation and have their opposite extremities let into the outer edges of the end bars 1 and flush with the latter and covered by the opposite end binding-slats 5 and 7, twelve of these slats being used, to correspond to the ordinary mathematical multiplication-table. The spaces between the opposing edges of the slats 9 are equal throughout the whole series, and beneath or behind the said slats a series of twelve reciprocating longitudinally-disposed bars 10 are mounted and have their lower extremities confined between the guide-bar 3 and guide-slat 8. The lower ends of the bars 10 are reduced, so that they can be easily disengaged and operated, and at their upper extremities they are held in proper position by the supporting-bar 4, the adjacent slats 9 being limited in their upward movement by having their upper end strike against the adjacent top bar 2. The reciprocable operation or movement of the several bars 10 is limited to a certain extent for a purpose which will presently appear, and to automatically return each of the bars to its normal position it has the upper end of an elastic cord 11 secured thereto, the said cord having its opposite terminal attached to the adjacent upper edge of the bar 4. To cause all of the bars to occupy a similar position when at rest or disposed normally, each has a rear shoulder 12, which is held firmly against the upper edge of the guide-bar 3, and by this means also each of the bars 10 is prevented from being thrown out beyond the lower edge of the bar 3 or slat 8 a greater distance than primarily provided for.

The numeral-slats 9 have a series of numerals arranged thereon in multiplying relation and in vertical alinement throughout the series of twos, threes, &c., the multiplicand and multiplier being respectively at the left

and right, as usual. When the bars 10 are in normal position, the resultant answer of the several numbers is concealed and hidden under the several slats, the parts being so proportioned and adjusted as to movement that when the bars 10 are pressed toward the top bars 2 the resultant answers, which are carried thereon in regular spaced relation, will be exposed between the slats 9 and directly below the numbers to which they appertain, as will be observed in Fig. 1, wherein the answers are shown to the column of fives. After ascertaining the answer, as just explained, the pressure is relieved from the operated bar 10, and it is automatically returned to normal position by the elastic cord 11 and retained in such position by the shoulder 12.

As before indicated, the advantage of concealing the answers or results to the several multiplied series of numbers is to cause the child or juvenile to first exercise its faculties of memory to arrive at the result without depending upon the mechanical means or the answer that will be correctly shown by the reciprocation of the proper bar 10.

The improved device will also form a valuable acquisition in encouraging memorizing of other matter, and as shown to the right, where the twelve months of a year are arranged in regular vertical sequence from top to bottom, and having the bar 10 coacting therewith provided with the number of days for each month and including the change produced by a leap-year in the month of February. This addition illustrates the possibilities of continuing to add other useful information to materially lighten the labors of teaching the young, and it is also obvious that the number of slats 9 and bars 10 might be increased indefinitely. It is also proposed to illuminate the several slats and bars by staining or painting them in different colors and not only render the device more attractive, but also serve as a means of teaching the names of colors and what they are, as well as facilitate a distinction between closely-related colors.

Changes in the form, proportions, and minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of the invention.

Having thus described my invention, what is claimed as new is—

1. In a device of the character set forth, the combination of a series of transverse slats held in fixed position and equally spaced apart, the said slats having educational illustrations thereon and an answer which is normally hidden from view, a plurality of reciprocating bars movable closely against the said slats and adapted to expose the answer to the illustrations on the slats in the spaces between the latter and in proper relation to each series, means for automatically returning said reciprocating bars to normal position.

2. In a device of the character set forth, the combination of a series of fixed slats spaced apart from each other in parallel relation and having educational illustrations applied thereto in regular order, and a plurality of reciprocable bars movable in a plane transverse to the direction of the said slats to expose an answer or information relating to the educational illustration on the slats in the space between the latter, a retractile means connected to the said bars for automatically returning them to normal position when released.

3. In a device of the character set forth, the combination of a support including a lower guide-bar and guide-slat and an upper supporting-bar, a series of transversely-extending slats arranged in spaced relation and having educational illustrations applied thereto in regular order, a plurality of reciprocable longitudinal bars arranged close to and in rear of the slats and having answers or information relating to the educational illustrations on the slats, said information being exposed, by the movement of the bars and displayed, in the spaces between the slats, a yielding device attached to the rear portion of each longitudinal bar and the said supporting-bar, and a stop-shoulder projecting rearwardly from the bars to bear upon the upper edge of the guide-bar.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

HIRAM A. HOLIBAUGH.

Witnesses:
W. F. MILLER,
G. E. ALLOTT.