Jan. 30, 1940. L. R. POSEY 2,188,723

EDUCATIONAL DEVICE

Filed July 26, 1938 3 Sheets-Sheet 1

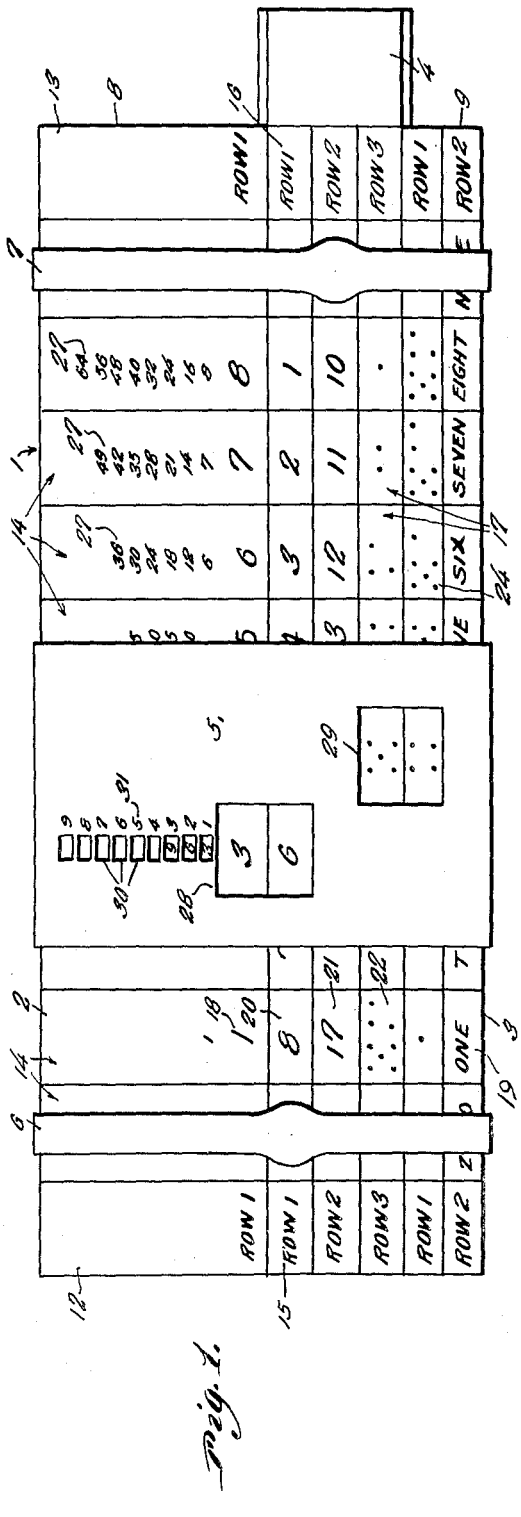

Fig. 1.

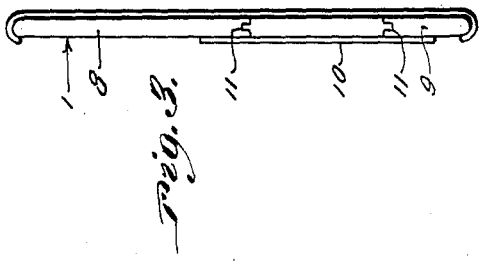

Fig. 3.

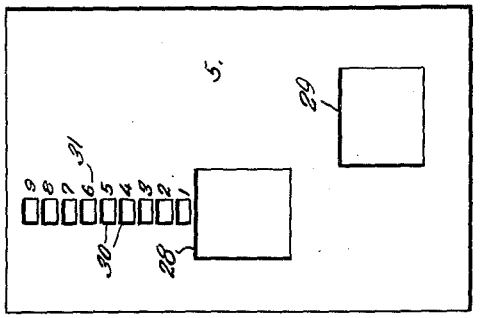

Fig. 2.

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EDUCATIONAL DEVICE

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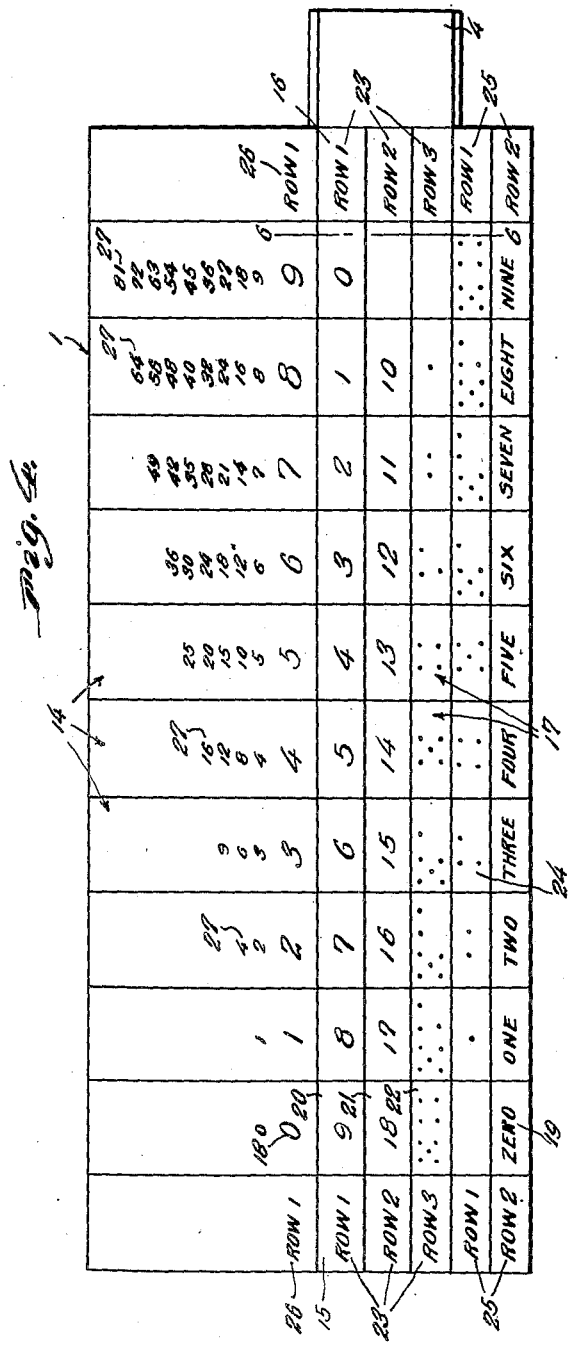


Fig. 5.

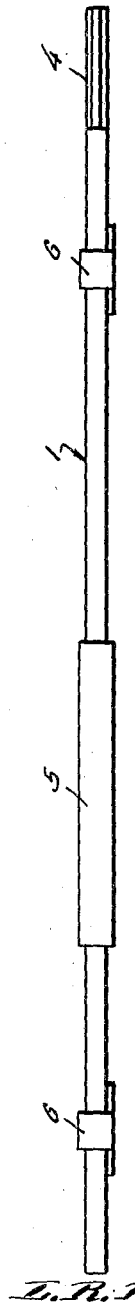
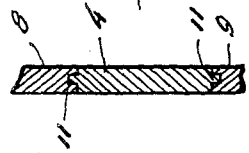


Fig. 6.



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EDUCATIONAL DEVICE

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Fig. 7.

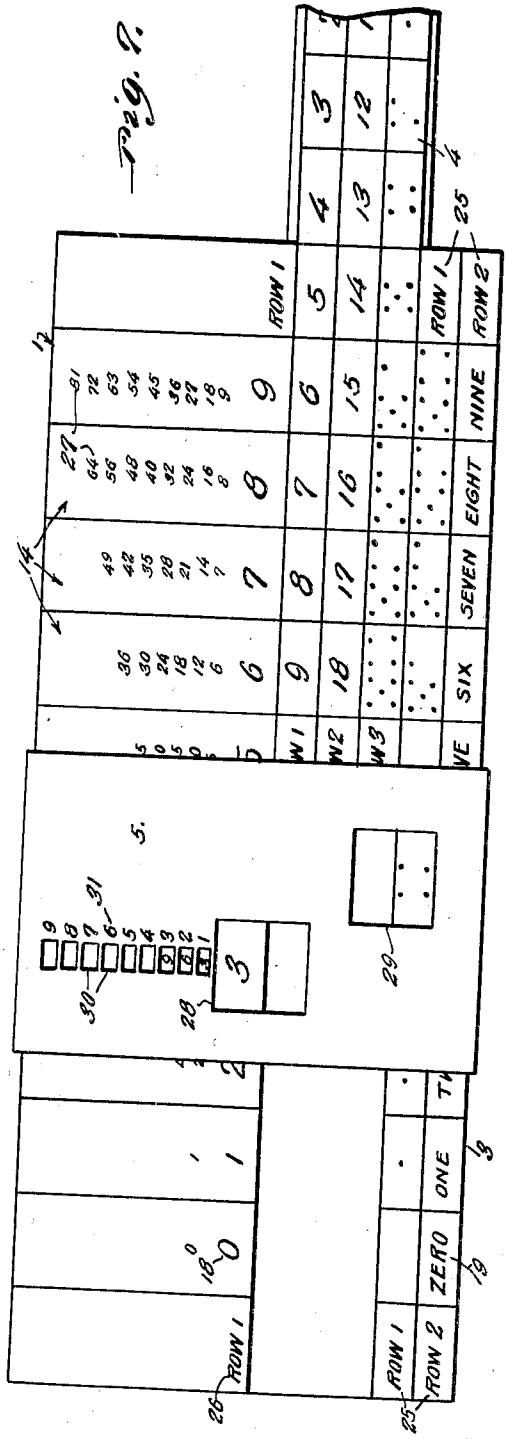
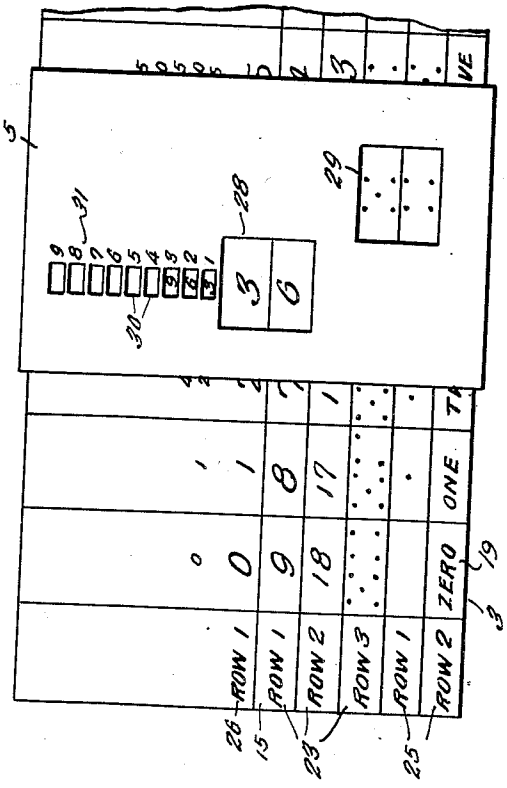


Fig. 8.



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Patented Jan. 30, 1940

2,188,723

UNITED STATES PATENT OFFICE

2,188,723

EDUCATIONAL DEVICE

Leroy R. Posey, Scotlandville, La.

Application July 26, 1938, Serial No. 221,404

4 Claims. (Cl. 35—75)

My invention relates to improvements in educational devices for teaching arithmetic principally to children.

Among the important objects of the invention are to provide a simply constructed, light weight, device of the slide rule type readily manipulative for the purpose of teaching objectively addition, subtraction, multiplication, and division facts, the meaning of "square" and "square roots", number sense or meaning, the meaning of remainder, the meaning of percent and fractions, and for impressing the facts of different problems upon the juvenile mind.

Another object is to provide a device adapted for the purposes set forth and also for use as a calculating instrument within the limits of primary number facts and combinations, as taught to children.

Other and subordinate objects are also comprehended by my invention all of which together with the precise nature of my improvements will be readily understood when the succeeding description and claims are read with reference to the drawings accompanying and forming part of this specification.

In said drawings:

Figure 1 is a view in front elevation of a preferred embodiment of my educational device,

Figure 2 is a view in front elevation of the sighting slide detached,

Figure 3 is a view in end elevation,

Figure 4 is a view similar to Fig. 1 with the sighting and blinding slides removed.

Figure 5 is a view in top plan,

Figure 6 is a detail view in transverse section taken on the line 6—6 of Fig. 4.

Figure 7 is a view in front elevation illustrating the use of the device with the blinding slides removed, and

Figure 8 is a similar view further illustrating the use of the device with the blinding slides removed.

Referring to the drawings, by numerals, the device of my invention comprises a rectangular base number-displaying panel 1 of suitable thickness and material and having top and bottom sides 2 and 3, respectively, a rule-like number-combining slide 4 slightly longer than the panel 1 and mounted in the same adjacent the lower side thereof for endwise manipulation lengthwise of said panel, a number-sighting, or flashing, slide 5 overlying the front face of said panel 1 and said slide 4 and mounted on the top and bottom edges of said panel 1 for movement lengthwise of the said panel and slide 4, and a pair of strip-like blinders 6 and 7 mounted on the panel 1 in the same manner as slide 5 for sliding movement along the panel and said slide 4 upon opposite sides of the former. Preferably the panel 1 comprises upper and lower sections 8 and 9 secured together in spaced relation by means of a cleat 10 attached to the backs thereof, and the number-combining slide 4 is secured to said sections by tongue and groove connections 11.

The base number-display panel 1 is lined transversely to provide thereon two left and right hand end-column spaces 12 and 13 and nine intermediate column spaces 14. The number-combining slide 4 is similarly lined to provide left and right hand end-column spaces 15 and 16 and nine intermediate column spaces 17 registering with the corresponding spaces on said panel 1 when the left hand end of said slide 4 is flush with the left hand end of said panel.

Immediately above the number-combining slide 4, said panel 1 has delineated thereon a line, or row, of black number symbols zero to 9 in the column spaces 14, respectively, increasing in numerical value from left to right, and at the base of said columns is a line 19 of printed legends designating the columns numerically in accordance with the value of the symbols of line 18 located therein.

Omitting now, for the present, further reference to the base number-displaying panel 1, and reverting to the number combining slide 4, said slide has delineated thereon three upper, intermediate, and lower lines, or rows, 20, 21, 22, respectively, of symbols, the upper line comprising the red symbols 0 to 9 arranged in the column spaces 17 and in ascending order from right to left, the intermediate line 21 comprises the symbols 10 to 18 arranged in said spaces 17 in ascending order from right to left and under the symbols 1 to 9, respectively of the upper line 20, and the lower line 22 comprising red dots arranged in dice like formation in the column spaces 17 in number corresponding to the value of the symbols in the upper line 20. The lines 20, 21 and 22 are, for convenience of location, designated in the end column spaces 15 and 16 of said slide 4 in successive numerical order from the top to the bottom of said slide as indicated at 23.

Returning now to the base number-displaying panel 1, above the line 9 said panel has delineated thereon a line 24 of black dots arranged in dice like formation in column spaces 14 in number corresponding to the numerical designations of

said column spaces. The lines 24 and 9 of said panel 1 are designated in the end columns 12 and 13 in numerical order downwardly, as indicated at 25, and the line 18 of said panel designated as "row 1" in said column spaces 12 and 13 as indicated at 26 all for convenience in locating the same. The base number-displaying panel 1 has further delineated thereon in each column space 14, and above the symbols of line 18, smaller number symbols 27 corresponding in value to multiples of the symbols in said line 18 and arranged in line formation, the highest symbol in each column 14 being the square in value of the symbol in line 18.

Coming now to the sighting-slide 5, said slide has formed therein a pair of large upper and lower, right and left hand, sight openings 28 and 29, respectively, of substantially the width of the column spaces 14 and 17, the upper one adapted to display therethrough combinations of symbols in lines 18 and 20, or in other words number combinations, and the lower one 29 for displaying combinations of symbols in lines 22 and 24, or in other words, dot combinations. Above the upper sight opening 28 said slide 5 has formed therein a vertical line of small square sight openings 33 spaced apart to display therethrough the multiple number symbols 27, the openings 30 being nine in number, it being understood that there are that number of symbols 27 in the nines column 14. Alongside the row of sight openings 30, to the right hand side thereof, said slide 5 has delineated thereon a vertical line 31 of small red symbols 1 to 9 arranged in vertically ascending order of said openings 30 respectively.

Referring now to the use of the described device, by moving the number-combining slide 4 so as to place any symbols in line 20 beneath one in line 18, and setting the sighting-slide 5 over the appropriate columns 14 and 17, so that the upper sight opening 28 displays the combination of symbols thus effected, the following facts may be ascertained. For instance, let it be assumed that said slide 4 has been moved to locate the symbol 6 of line 20 beneath the symbol 3 of line 18 and the said slide 5 set to display the combination thus effected as shown for instance in Fig. 1. In this position of said slide 4, the 9 symbol of line 20 thereof is in the 9 column 14 of panel 1 which, in addition, is the answer column. We therefore have the fact disclosed that 3 plus 6 equals 9. This same result follows under movement of the slide 4 to combine any symbol 0 to 9 of line 20 thereof with those of line 18 of panel 1, that is to say that the sum of the combination achieved is displayed in the 9 column 14 and in red since the symbols of line 20 are red. Due to the described arrangement of the dot symbols in lines 22 and 24, in the above exemplified position of the slides 4 and 5, the lower opening 29 displays therethrough the dot combination of five red dots in row 22 and four black dots in row 24, making nine dots, and in the 9 column of panel 1 nine red dots of row 22 are located thus again giving the answer in said 9 column, and giving another problem with the same answer to impress upon the mind of the child different number facts objectively. In each case the number to be added is red and the answer red thus further impressing the problem on the mind of the student.

With the slides 4 and 5 in the described position, the following multiplication facts may be ascertained as follows. Using the large black symbols in line 18, displayed through sight opening 28, as the multiplier, and the small red symbols in line 31 as multiplicands, we find the answer up to the square of the multiplier in the sight opening 30. When it is desired to go above the square of the multiplier, the answer can be found in the next column 14 to the right into which the slide 5 should be moved to display the answer through the sight openings 30. This arrangement provides for emphasizing the "square" root of numbers up to 9.

If it is desired to ascertain the facts of numbers 10 to 18, or in other words the symbols in line 21, the number-combining slide 4 must be moved to locate the selected number in the 9 column 14 of panel 1, the slide 5 not being used in this instance. For instance, assuming that the number 15 is selected, under the adjustment of the part described, and as shown in Fig. 7, and reading from left to right and down we have the combinations black 6, 7, 8 and 9 with red 9, 8, 7 and 6, respectively, in lines 18 and 20 each combination equaling 15. The black and red dots of lines 24 and 22 reading from left to right and upwardly beneath the column 14 will give the same answer if the combinations in these columns are added, thus teaching the lesson again objectively and emphasizing the same in corresponding colors. The manner in which division, percentage, and fractions may be taught, and the device used as a calculating instrument, need not be entered into herein, since the foregoing will suffice to impart a clear understanding of an illustrative use of the invention and the advantages inherent in the use thereof.

The blinders 6 and 7 may be used to cover the 0 and 15 columns of panel 1 together with columns of slide 4 registered therewith so as to hide the answer in the 0 column 14 and the facts in the 9 column 14 if desired or slipped from blinding position as illustrated in Fig. 8.

Manifestly the invention, as described, is susceptible of modification without departing from the inventive concept and right is herein reserved to such modifications as fall within the scope of the subjoined claims.

What is claimed is:

1. An educational device for teaching number facts comprising a rectangular panel having delineated therein lengthwise thereof a line of number symbols, a rule-like number-combining slide mortised in said panel for endwise sliding movement parallel with said line and having delineated thereon a line of number symbols similar to those of the first mentioned line, whereby under endwise movement of said slide to different positions symbols of said lines may be combined at will in column formation to present selected problems in addition, the symbols of each line being of successively higher value and the order of succession in one line being reverse to that in the other, whereby the symbols of the second mentioned line in the extreme left hand column indicate the answer to any selected problem, said panel and slide having depicted thereon a pair of parallel complemental lines of dots arranged in dice-like formation and presenting in said different positions of the slide, dot combinations in column form, of total values corresponding to those of the symbols of the different problems to thereby display different number facts of problems objectively.

2. An educational device for teaching number facts comprising a rectangular panel having delineated therein lengthwise thereof a line of num-

ber symbols, a rule like number combining slide mortised in said panel for endwise sliding movement parallel with said line and having delineated thereon a line of number symbols similar to those of the first mentioned line, whereby under endwise movement of said slide to different positions symbols of said lines may be combined at will in column formation to present selected problems in addition, the symbols of each line being of successively higher value and the order of succession in one line being reverse to that in the other, whereby the symbols of the second mentioned line in the extreme left hand column indicate the answer to any selected problem, said panel and slide having depicted thereon a pair of parallel complemental lines of dots arranged in dice-like formation and presenting in said different positions of the slide, dot-combinations in column form, of total values corresponding to those of the symbols of the different problems to thereby display different number facts of problems objectively, the dots in one line being distinguished by color from those in the other to distinguish the value added.

3. An educational device for teaching number facts comprising a rectangular panel having delineated therein lengthwise thereof a line of number symbols, a rule-like number-combining slide mortised in said panel for endwise sliding movement parallel with said line and having delineated thereon a line of number symbols similar to those of the first mentioned line, whereby under endwise movement of said slide to different positions symbols of said lines may be combined at will in column formation to present selected problems in addition, the symbols of each line being of successively higher value and the order of succession in one line being reverse to that in the other, whereby the symbols of the second mentioned line in the extreme left hand column indicates the answer to any selected problem, said panel and slide having depicted thereon a pair of parallel complemental lines of dots arranged in dice-like formation and presenting in said different positions of the slide, dot-combinations in column form, of total values corresponding to those of the symbols of the different problems to thereby display different number facts of problems objectively, and a number-sighting slide having sight openings therein mounted on said panel for movement along the same and said combining slide to different positions to display through the openings thereof the problems and the dot-combinations corresponding in total values thereto.

4. An educational device for teaching number facts comprising a rectangular panel having delineated therein longitudinally thereof a line of number symbols of successively higher value, and transversely thereof lines of number symbols related to the symbols of the line first mentioned, the symbols of the second mentioned lines being multiples of the related symbol of the first mentioned line, and a number-sighting slide mounted on said panel for movement along the same to different positions and being provided with a sight opening for displaying therethrough the symbol of the first mentioned line, rows of sight openings for displaying the relative row of multiples, and rows of number symbols thereon opposite said rows of sight openings, respectively, the symbols of said last rows being multiplicands.

LEROY R. POSEY.