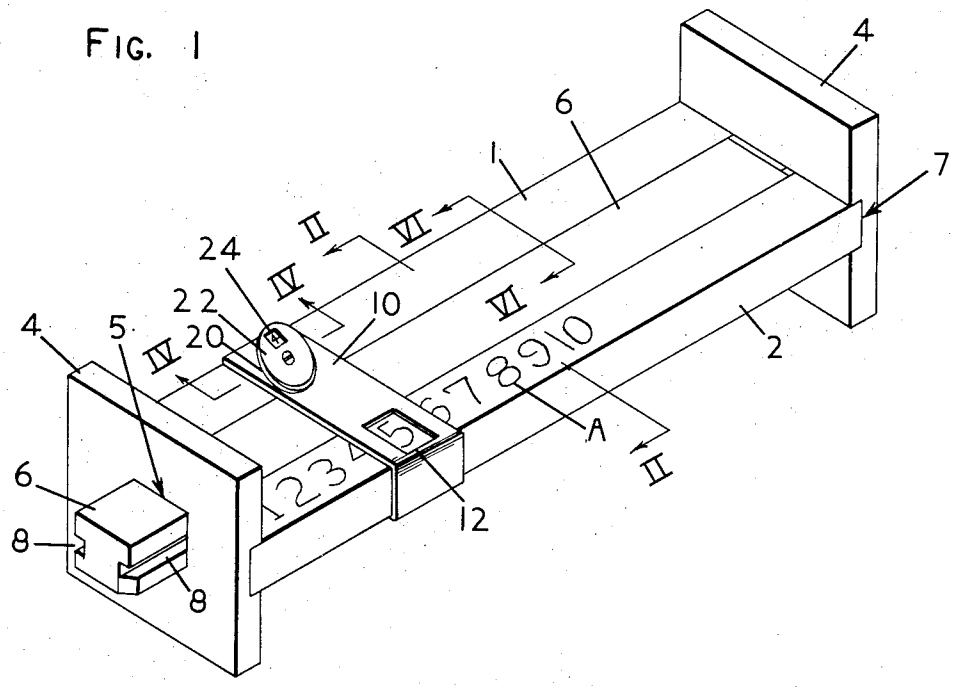
Aug. 10, 1954 C. T. GILBERT 2,685,748

EDUCATIONAL TOY

Filed April 14, 1952

2 Sheets-Sheet 1

FIG. 1



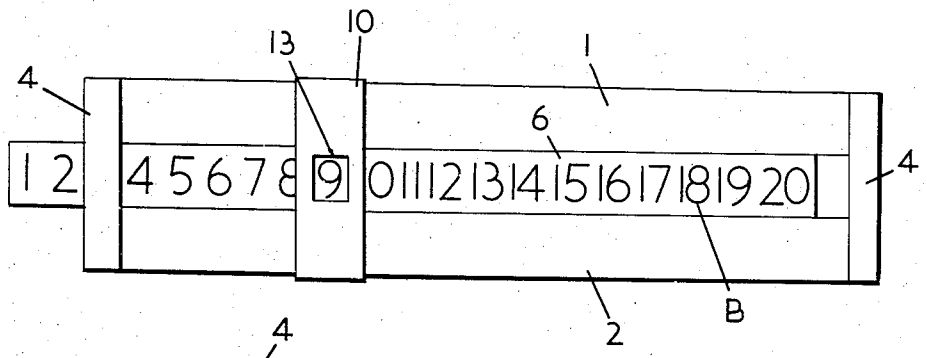


FIG. 3

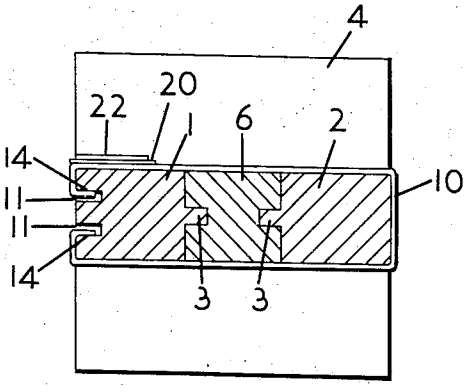


FIG. 2

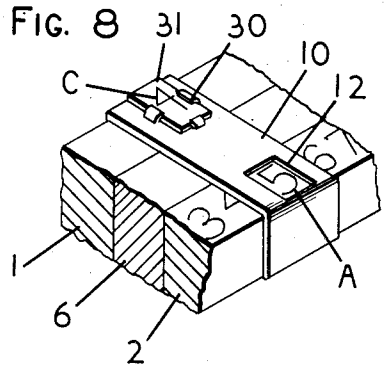
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Aug. 10, 1954 C. T. GILBERT 2,685,748

EDUCATIONAL TOY

Filed April 14, 1952 2 Sheets-Sheet 2

FIG. 8



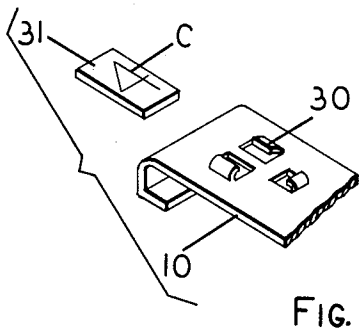


FIG. 9

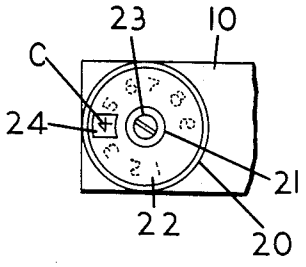


FIG. 5

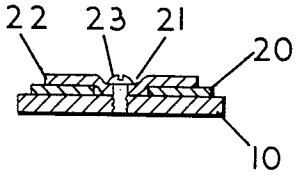


FIG. 4

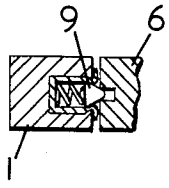


FIG. 6

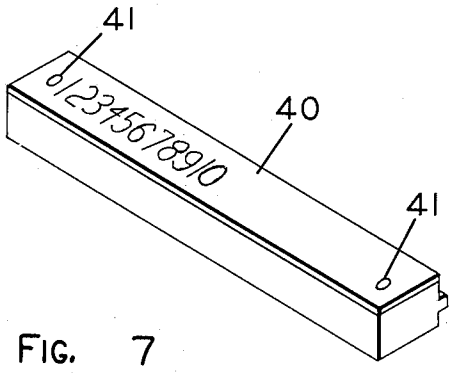


FIG. 7

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EDUCATIONAL TOY

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Application April 14, 1952, Serial No. 282,098

4 Claims. (Cl. 35—31)

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This invention relates to children's toys and more particularly to an educational toy designed for use by children of primary school age to facilitate their understanding of addition and subtraction.

My invention is designed to provide a toy which may be manipulated by the child to indicate the sum of two added numbers or to indicate the remainder of two subtracted numbers. Further, my invention is designed to provide means whereby one of the numbers selected for the addition or subtraction may be mounted on the toy as a means of keeping the child's attention fixed on that particular value and thereafter by manipulation of the toy the result of adding or subtracting that particular number from one of a series of different numbers will be automatically indicated to the child. The toy is so designed that initially an adult may set the toy in a fashion to produce the desired results when adding or subtracting and as the child progresses the child may learn to make the proper settings of the toy to produce the desired addition or subtraction.

The toy is designed to be simple in operation and to have sufficient animated characteristics to retain the child's attention and interest. In addition, the toy is designed to facilitate its handling by a child.

These and other objects and purposes of my invention may be readily seen by those acquainted with the design and manufacture of children's educational toys upon reading the following specification and the accompanying drawings.

In the drawings:

Figure 1 is an oblique view of my toy.

Figure 2 is a sectional view of my toy taken along the plane II—II of Figure 1.

Figure 3 is a bottom view of my toy with the movable member set in the same position as that shown in Figure 1.

Figure 4 is a sectional view of the indicator band for my toy taken along the plane IV—IV of Figure 1.

Figure 5 is an enlarged, fragmentary view of one end of the indicator band for my toy.

Figure 6 is a fragmentary, sectional view taken along the plane VI—VI of Figure 1.

Figure 7 is an oblique view of a modified form of my toy.

Figure 8 is an oblique view of a modified design for the indicator band for my toy.

Figure 9 is a fragmentary, exploded, oblique view of the modified design shown in Figure 8.

In executing the objects and purposes of my invention, I have provided a pair of side rails securely held together on each end by a centrally apertured block or standard. Between the side rails, a central member is slidably mounted to pass through the apertures in each of the end members. On one face, the central member is

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provided with suitable numerical indicia and on the other face one of the side rails is provided with similar numerical indicia. An indicator band encircles both the side rails and the slidable member and is provided with means for simultaneously indicating selected indicia on both the central member and the marked side rail. Means are provided on the indicator band for mounting a removable tab having impressed thereon a selected numeral to form the basis of the problems to be worked out by manipulation of the indicator band together with the central slidable member.

Referring specifically to the drawings, the numerals 1 and 2 indicate a pair of side rails each having an inwardly projecting tongue 3 (Figure 2). At each end, the side rails are rigidly secured together by a standard or end block 4. For further strength and rigidity, the end blocks 4 are transversely slotted 7 to receive the ends of the side rails 1 and 2. The side rails 1 and 2 are secured to the end blocks 4 by suitable joining means such as glue or screws or both. The end blocks are each centrally apertured at 5 and extend substantially above and below the side rails 1 and 2 whereby, when placed upon a surface, the end blocks will space the side rails well above that surface for purposes which will be explained more fully hereinafter.

Between the side rails there is slidably mounted a central rail 6 having on each side a groove 8 of such size and shape as to suitably receive one of the tongues 3. The central rail 6 has a length equal to the overall length of the toy. The side rails 1 and 2 and the central rail 6 are each of square or rectangular construction. The apertures 5 in the end blocks 4 are each of square or rectangular shape to permit the central rail 6 to slide therethrough without interference in either direction. The central rail 6 is held in sufficient frictional bearing with the side rail 2 to prevent accidental displacement by the spring loaded detent 9 (Figure 6).

The end rail 2 is provided with a plurality of equally spaced numerical indicia such as the numbers 1 through 10 starting at one end of the toy and extending along the toy for between one-half and two-thirds of its length. These numbers are indicated in Figure 1 by the letter "A." The central rail 6 is provided with similar numerical indicia indicated by the letter "B" (Figure 3) having the identical spacing as the indicia "A" but extending the entire length of the central rail 6. There are twice as many indicia on the central rail 6 as there are on the side rail 2.

Slidably mounted about and encircling the side rails 1 and 2 and the central rail 6, as a group, is an indicator band 10. The outer face of the side rail 1 is provided with a pair of parallel grooves 11 into which is received one of each of the inturned ends 14 of the indicator

band 10. The indicator band 10 has a pair of apertures therethrough 12 and 13. The aperture 12 is arranged to align with the numerals "A" on the side rail 2. The aperture 13 is arranged to align with the numerals "B" on the center rail 6. Each of the apertures 12 and 13 is of such size that only one of the numerals "A" or "B" may be seen through the aperture at one time. The apertures 12 and 13 are aligned transversely of the toy.

On that portion of the indicator band 10 overlying the side rail 1 and on the same face of the indicator band as the aperture 12, there is provided an indicator element for displaying a selected numeral (Figures 1, 4 and 5). This numeral will form one of the components of a series of problems. The numerals "C" are applied to a circular disc 20. The circular disc 20 has a large, central opening for receiving the dimple 21 in the center of the circular cover 22. The cover 22 is secured to the indicator band 10 by means of a screw 23. The bearing between the dimple 21 and the indicator band 10 holds the cover 22 against rotation while the disc 20 is free for rotation. The parts should be so made that the disc may be readily turned but may not turn without the aid of an operator. The disc 20 has an aperture 24 of such size and arrangement that it will frame one of the numerals "C," the selection of the numeral "C" being changed by rotation of the disc. The disc is shown with the numerals 1 to 9. Another range of numerals may be desired. In this event, the cover 22 is removed by removal of the screw 23. The disc may then he replaced with another disc bearing the desired range of numerals.

It will be recognized that the arrangement of the above parts may be reversed, i. e., the disc 20 made stationary and the cover 22 made to rotate.

It is possible to replace the disc and cover arrangement with a series of insert plates. When this is done, three upwardly extending fingers 30 are punched out of the indicator band 10 (Figures 8 and 9). The upper ends of each of the fingers 30 are bent over parallel to the top face of the indicator band. The fingers 30 are arranged to receive therebetween one of a group of insert plates 31. The insert plates 31 are designed to be readily removable merely by withdrawing them from under the fingers 30. A plurality of insert plates are used, each having thereon a single numeral indicated as "C."

The various parts of my invention may be made from any suitable material such as wood, plastic or metal depending upon cost, durability and the type of appearance desired. The finish given to my invention will depend in part upon the materials used for its manufacture.

Operation

My invention may be used to either add or subtract two numbers. One of the numbers involved in the addition or subtraction will appear as one of the numbers "A" or "B." The other number will be the indicia "C" appearing through the aperture 24 in the cover 22. The operation of my invention may best be described by the use of an example. If the number "4" is selected as one of the two numbers to be used in the addition or subtraction process, the disc 20 is rotated to frame the numeral "4" in the aperture 24 of the cover 22. The toy is then inverted and the central rail 6 moved to the left until the numeral "4" of the indicia "B" is immediately adjacent the left-hand end block 4 (Figure 3). For the purpose of addition, the toy is then returned to its initial position and the indicator slide 10 adjusted so that the selected one of the indicia "A" to which it is desired to add the numeral "4" appears through the aperture 12. In the illustration, the numbers "4" and "5" are to be added. Thus, the indicator slide 10 is moved until the numeral "5" appears in the center of the aperture 12 (Figure 1). The toy is then inverted and the answer resulting from the addition of the numerals "4" and "5" appears in the aperture 13 (Figure 3), through which the indicia "B" may be read.

If it is desired to perform a subtraction, the figure from which the number "C," appearing through the aperture 24 is to be subtracted, is selected on the indicia "B" and the slide indicator 10 moved until this desired numeral appears through the aperture 13. The toy is then placed right-side-up and the remainder from this subtraction will appear through the aperture 12. Thus, if "4" is to be subtracted from "9" the remainder "5" will appear in the aperture 12. Once a particular number has been selected and thereby indicated by the disc 20, that number may be added to any one of the numbers appearing as the indicia "A" merely by moving the slide indicator 10 to show the selected number through the aperture 12. Automatically the sum of the two numbers will appear in the aperture 13. The same is true if subtraction is carried out.

When the insert plate 31 is used instead of the disc and cover arrangement, the insert plate 31 bearing the desired numeral is selected and inserted between the fingers 30. Except for this, the use of the toy remains the same as when the disc and cover are used.

The end blocks 4, by reason of their size and shape, provide legs for the toy. They hold the side rails 1 and 2, central rail 6 and indicator band 10 well above the surface of a desk or table. Thus, the child may manipulate the toy without interference. Further, the legs hold the toy secured in position so that the child's attention will not be distracted from the problems being worked out on the toy.

Whenever it is desired to change the basic number selected for the series of problems, such as to change from number "4" to number "5," the disc 20 is rotated to align the newly selected number with the aperture 24. If the insert plate arrangement is used, the insert plate 31 bearing the number "4" is removed and replaced by the insert plate 31 bearings the number "5." At the same time, the central rail 6 is adjusted to the left or to the right, as may be necessary, to place the newly selected number of the indicia "C" immediately adjacent the left end block 4. It will be recognized that the total number of indicia "B" must be sufficiently greater than that of the indicia "A" to reflect the sum of the largest number indicated by the indicia "A" plus the largest number indicated by the indicia "C." Although my invention is shown with indicia "A" embracing the numbers 1 through 10 and the indicia "B" embracing the numbers 1 through 20, indicating that the indicia "C" embraces the numbers 1 through 10, it will be recognized that this is merely a convenient selection of numerical range and that any greater or lesser range of numbers may be selected. For this purpose the numbers may start at a higher range than 1.

To enable my toy to be flexible enough to meet progressive demands for higher numbers, it may be made with a removable cover on the side rail

2 and the center rail 6 whereby one strip of numbers may be replaced by a strip of different numbers. To this end, both the side rail 2 and the center rail 6 are made slightly thinner and are equipped with a replaceable facing strip 40 bearing the desired numerals (Figure 7). The facing strip may be mounted by any suitable attachment means such as by screws 41. This makes my invention flexible to present and solve increasingly more complex number combinations as the children through the use of the toy become familiar with the processes of addition and subtraction.

It will be recognized that the indicia on the side rail 2 and on the central rail 6 may both be arranged to be read from the same face of the toy. If this is done, the apertures 12 and 13 will be adjacent each other. The arrangement illustrated is preferred, however, because the necessity for inverting the toy increases its attractiveness for children. It provides a certain amount of anticipation and increases the animation since it involves the physical effort of inversion. It will also be recognized that I have described but two particular mechanical arrangements for presenting and changing the indicia "C" and that others may be utilized without departing from the principle of my invention.

Various modifications of my invention may be made, each without departing from the principle thereof. Each of these modifications is to be considered as included in the hereinafter appended claims unless these claims by their language expressly state otherwise.

I claim:

1. In an educational toy, the combination including: a pair of spaced side rails; a pair of end members, one rigidly mounted at each of the ends of said pair of side rails; a central rail slidably mounted between said side rails; a plurality of equally spaced numerals on one face of one of said side rails; a plurality of equally spaced numerals on one face of said central rail, said numerals on said one side rail and said numerals on said central rail each being spaced the same distance; an indicator band slidably mounted on said side rails and overlying said central rail; a pair of apertures in said indicator band, one aligned with the numerals on said one side rail and the other aligned with the numerals on said central rail; each of said apertures being of a size to frame a single number; an indicator element bearing numerical indicia; means for movably mounting said indicator element on said indicator band whereby the number displayed by said indicator element may be changed; said indicator element displaying a number equal to the numerical difference between the number on said one side rail and the number on said central rail framed by the apertures in said indicator band when a number on said central rail of value equal to that of the number displayed by said indicator element is immediately adjacent the one of said end members proximate to the smallest numerals of said central rail and of said one side rail.

2. An educational toy as described in claim 1 wherein said numbers on said one side rail are on the face of said side rail opposite from the face of said central rail bearing said numbers.

3. In an educational toy, the combination including: a pair of spaced side rails; a pair of centrally apertured end members, one rigidly mounted at each of the ends of said pair of side rails; said end members being substantially

square, said side rails and said end members together forming a generally H-shaped unit; a central rail slidably mounted between said side rails and movable through the aperture in each of said end members; a plurality of equally spaced numerals on one face of one of said side rails; a plurality of equally spaced numerals on one face of said central rail, said numerals on said one side rail and said numerals on said central rail each being spaced the same distance; an indicator band slidably mounted on said side rails and overlying said central rail; a pair of apertures in said indicator band, one aligned with the numerals on said one side rail and the other aligned with the numerals on said central rail; each of said apertures being of a size to frame a single number; a disc rotatably mounted on said indicator band; a stationary cover overlying said disc; a plurality of numerical indicia on said disc; an aperture in said cover adapted to successively and individually frame each of said numerical indicia as said disc is rotated, said aperture in said cover framing a number equal to the numerical difference between the number on said one side rail and the number on said central rail framed by the apertures in said indicator band when a number on said central rail of value equal to that of the number framed by said aperture in said cover is immediately adjacent the one of said end members proximate to the smallest numerals of said central rail and of said one side rail.

4. In an educational toy, the combination including: a pair of spaced side rails; a pair of centrally apertured end members, one rigidly mounted at each of the ends of said pair of side rails; a central rail slidably mounted between said side rails; a plurality of equally spaced numerals on one face of one of said side rails; a plurality of equally spaced numerals on one face of said central rail, said numerals on said one side rail and said numerals on said central rail each being spaced the same distance; an indicator band slidably mounted on said side rails and overlying said central rail; a pair of apertures in said indicator band, one aligned with the numerals on said one side rail and the other aligned with the numerals on said central rail; each of said apertures being of a size to frame a single number; a removable insert plate; means on said indicator band to detachably hold said insert plate; said insert plate bearing a number equal to the numerical difference between the number on said one side rail and the number on said central rail framed by the apertures in said indicator band when a number on said central rail of value equal to that of the number on said insert plate is immediately adjacent the one of said end members proximate to the smallest numerals of said central rail and said one side rail.

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