

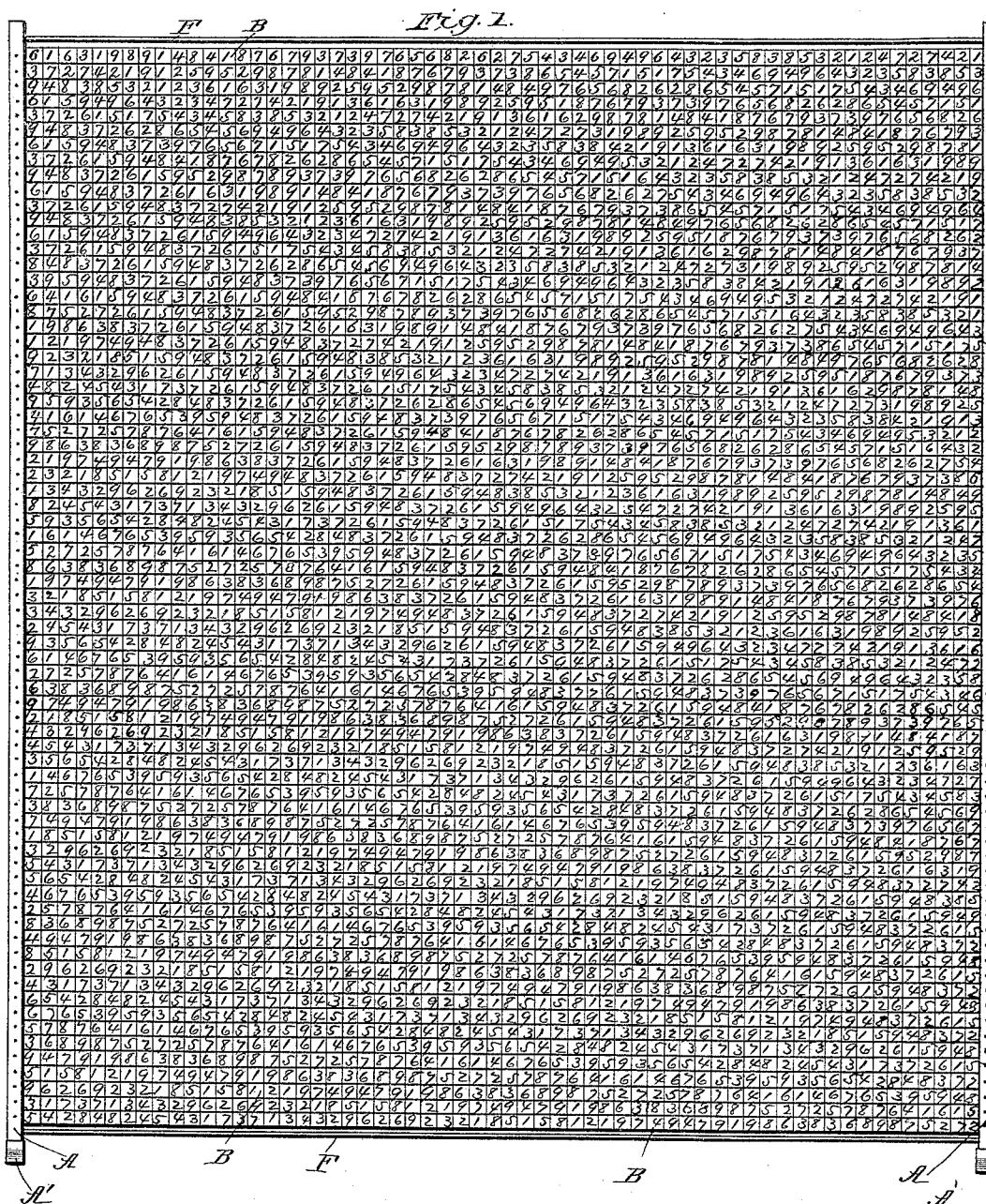
(No Model.)

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F. E. MEYERS.
EDUCATIONAL APPLIANCE.

No. 421,956.

Patented Feb. 25, 1890.



WITNESSES:
Fred G. Dieterich
R. B. Turpin

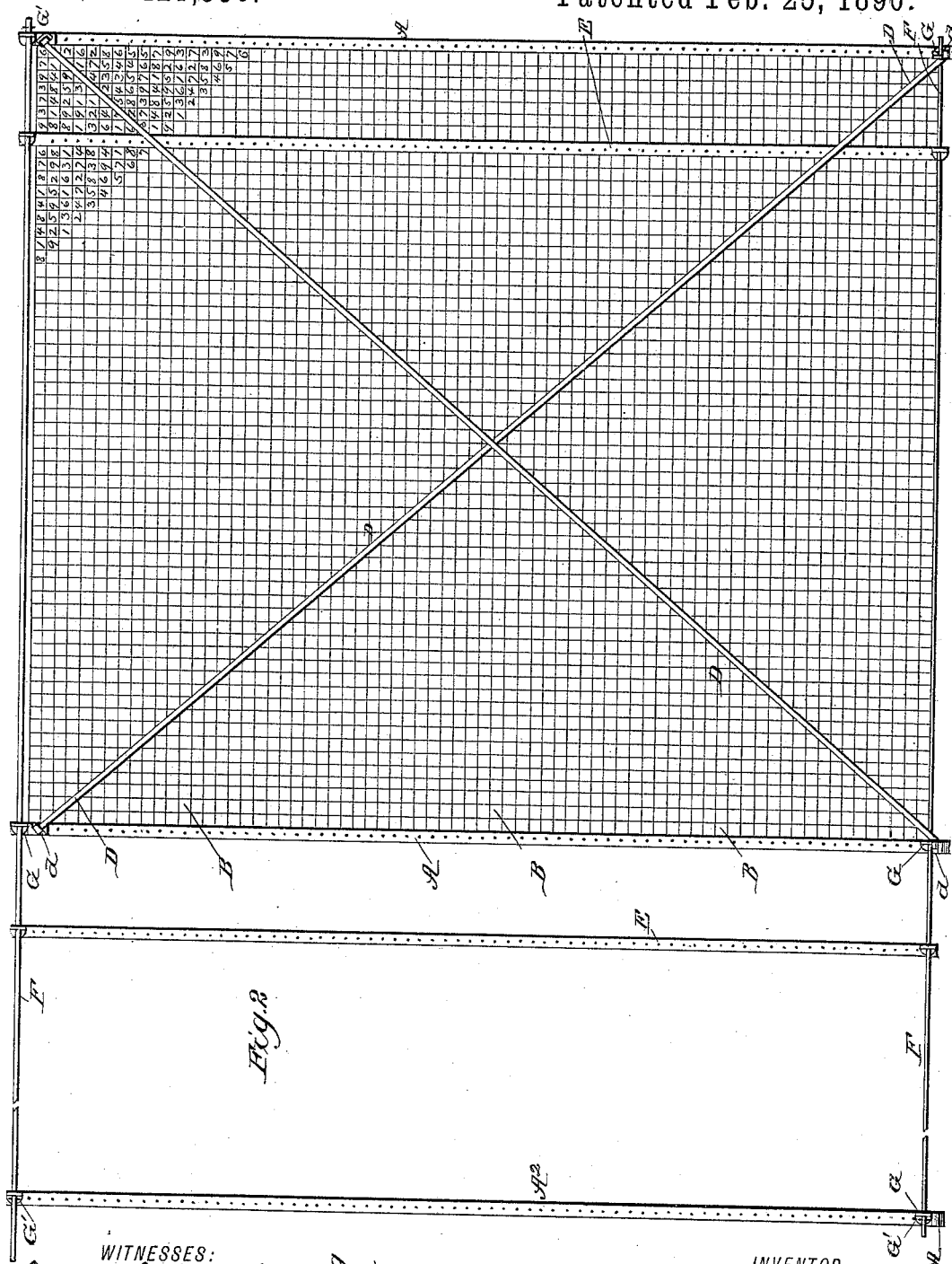
INVENTOR
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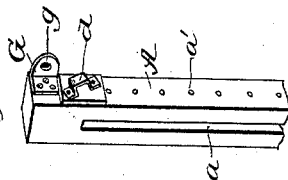
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Fig. 4.



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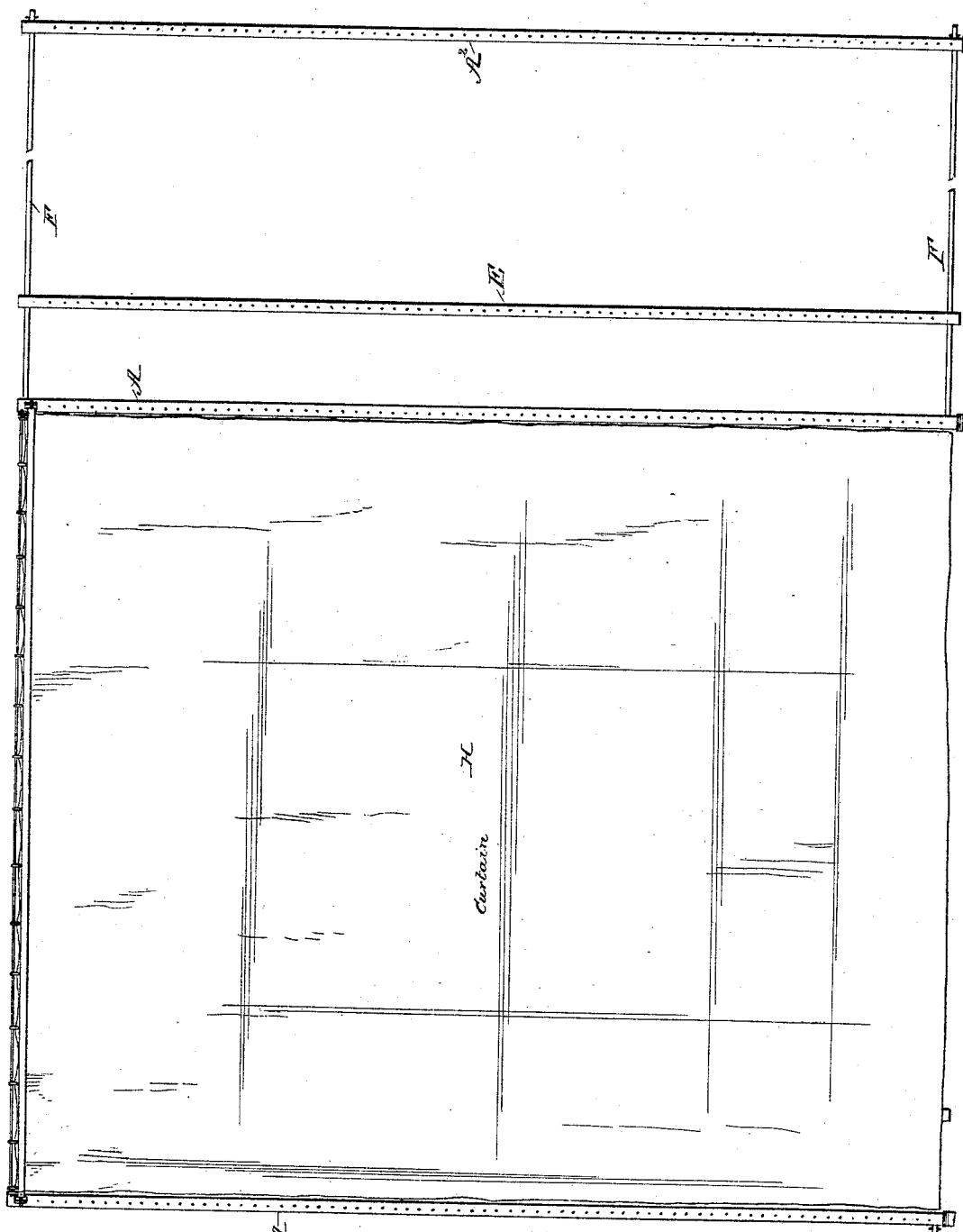
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Fig. 3.

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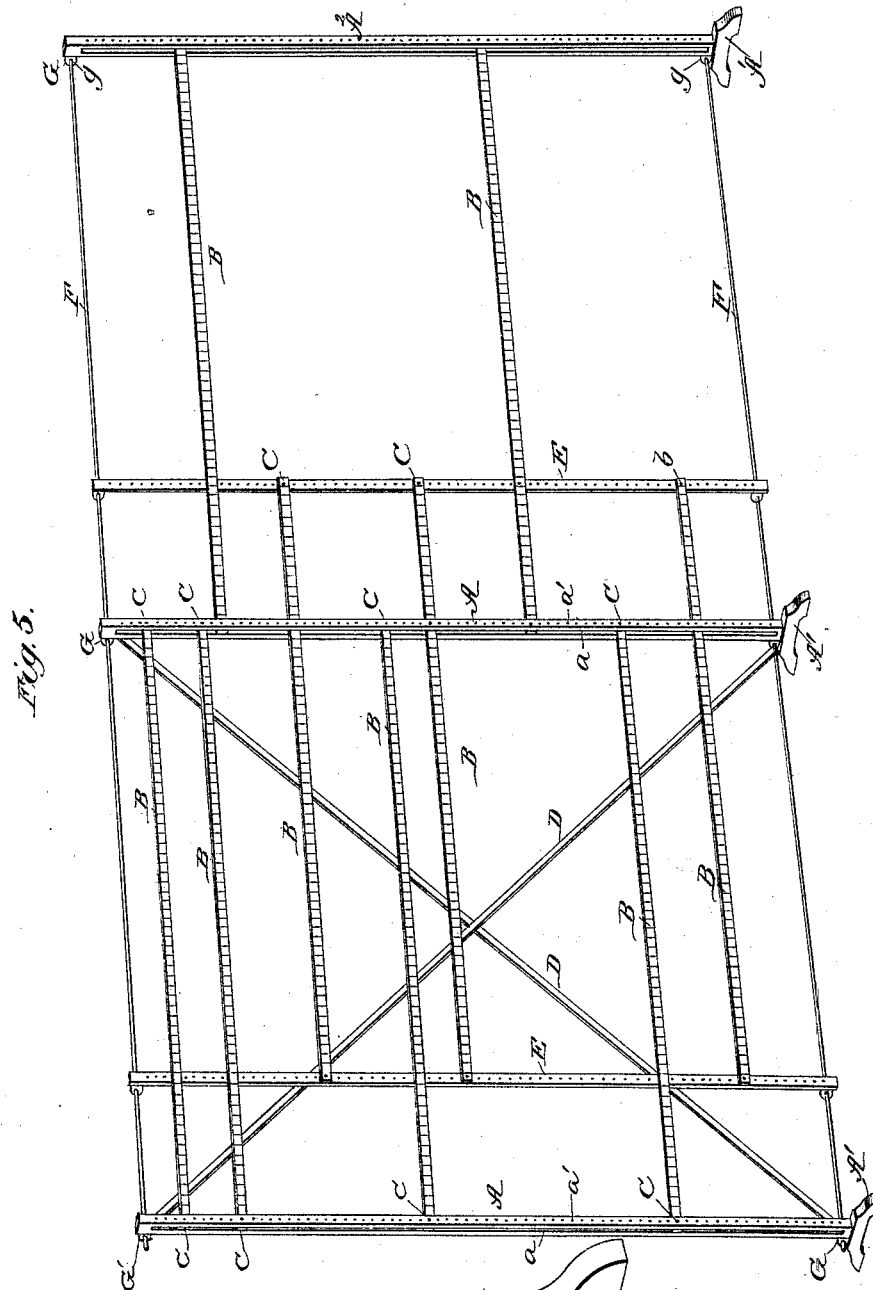
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EDUCATIONAL APPLIANCE.

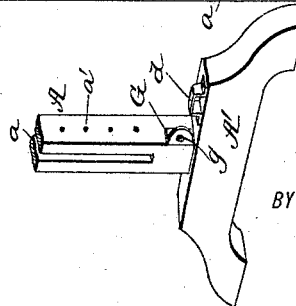
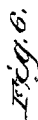
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UNITED STATES PATENT OFFICE.

FRANKLIN E. MEYERS, OF GARRETT, PENNSYLVANIA.

EDUCATIONAL APPLIANCE.

SPECIFICATION forming part of Letters Patent No. 421,956, dated February 25, 1890.

Application filed May 14, 1889. Serial No. 310,789. (No model.)

To all whom it may concern:

Be it known that I, FRANKLIN E. MEYERS, of Garrett, in the county of Somerset and State of Pennsylvania, have invented a new and useful Improvement in Educational Appliances, of which the following is a specification.

My invention is an improvement in educational appliances, being practically a movable figure arithmetical chart, seeking to provide a novel construction by which to facilitate the teaching of addition, and seeks, among other objects, to provide a simple construction, which will be convenient in use, can be easily set up and taken down, and when down can be packed in a small space for storage or for transportation from place to place.

The invention has for further objects other improvements; and it consists in certain novel constructions and combinations of parts, as will be hereinafter described, and pointed out in the claims.

In the drawings, Figure 1 is a front view of a part of the apparatus, showing the figured board and the standards thereof. Fig. 2 is a rear view of the appliance, the board being only partly figured. Fig. 3 is a front view of the appliance with the curtain drawn across the figured board. Fig. 4 is a detail view of the upper end of one of the main frame-standards. Fig. 5 is a perspective view of the appliance, some of the slats being removed and some being shown out and others moved partially out; and Fig. 6 is a detail view of the lower end of one of the main frame-standards.

In carrying out my invention I provide a frame and a number of figured strips or slats supported in such frame one below the other, and having their figures so arranged that the figures of one slat may be brought successively in vertical rows with the figures of the several other slats, so as to vary the figures for addition. Each of the slats, as will be seen, is movable its entire length, so that all the figures of each slat may be brought into register with all those of the other slats.

In more specifically describing the frame it may be said to have standards A A, having feet or base-pieces A' and formed with vertical slot-like ways *a*, for the slats B. These standards are preferably formed with pin-

holes *a'* for the pins C, which hold the slats to the standards. Such standards A A may be termed the "main standards," and I also provide a supplemental or lateral standard A², which is similar in construction to such main standards, and is used for the purpose more fully described hereinafter.

The slats B, of which any suitable number may be used, but of which I prefer to use seventy-two, (72,) as shown, are by preference each divided into sixty (60) spaces equal in size, a figure being provided in each space, such figures being disposed in a particular manner, as will be described. These slats or strips have near their ends openings *b* for the fastening-pins C. The slats so secured in the standards A form therewith practically a parallel-ruler-like construction, and to brace the said construction rigidly in position with the standards A and vertical, as is desired in use, I provide braces D, crossing each other, in rear of the slats B and fitted at their ends removably in sockets *d*, formed or provided on standards A, near the upper and lower ends of the same, the parts D thus forming strut-braces. These brace-bars D are usually made of wood and are sufficiently elastic to so bend as to enter at their ends the sockets *d* and to be readily removed when it is desired to take down the apparatus.

As the apparatus is for teaching addition, I omit ciphers from the slats B and arrange the figures on the several slats, as shown in Fig. 1. It will be seen that I begin with 1 at the upper right-hand corner of the figure-board, then place 2 at the left of 1, then number 3 diagonally below and to the right of said 2, then put 4 at the left of said 2, and so on, the figures running in proper order from 1 to 9, from left to right diagonally across the figure-board formed by the slats. Now whenever in so numbering the slats it is found that the figure occurring in order is the same as that previously placed on the same slat to the right of the space to be figured the said figure is dropped and the next in order is placed in the space. For instance, if in numbering the slats it is found that a figure—say 4—will occur next to a 4 previously applied to the strip, the last 4 is skipped and 5 is put in its place. The purpose of this is to prevent repetition in addition by the

movement of such slat laterally, as it will be seen that if the row with the first 4 be added up, and then such slat moved one space to the right, the same figure will be brought into the row to be added and no new addition will result. I have found in practice that the described system of arranging or disposing the figures results in preventing repetitions, and is much to be desired. It will be seen that both sides of the slats are figured, the figures on the one or first side, as shown in Fig. 1, ending at the lower left-hand corner of the figure-board, and following with the next figures in order, beginning at the upper right-hand corner of the back of the slats, and then continuing as on the face, as will be seen from the drawings. When the front or face of the slats has been exhausted in addition, the slats may be reversed, bringing a different set of figures to the front. Now in adding, the first row at the right may be taken and added up, then the next row, and so on until the pupil or class is familiar with the additions experienced in all the rows. Then the lowest slat may be moved one step to the right, which changes the addition in all the first fifty-nine rows, counting from the left. Then from time to time the said lowest slat may be moved a single space to the right until it reaches the right main standard A. Then the next upper slat is similarly moved, and so on. To support the slats as they are so moved, I provide what may be termed "carrier-bars" E, which are movable laterally, so as to support the slats.

It will be seen that I provide one of the carriers E between the standards A and one to the right of the said standards, both such bars being provided with holes to receive the pins C, and being arranged to slide on rods F, extended horizontally across and beyond the main frame at the bottom and top thereof, such rods F being preferably passed through eyes or openings *g* in plates G, attached to said frame and suitably secured, and also passed through eyes *g* on standard A² and secured, the rod being secured by pins G' or in other suitable manner.

It will be seen that the slats, when released from standards A, are secured by the pins C to the carrier-bars, and are carried thereby outward until their outer ends reach the standard A², when they may be secured at one end to the said standard A² and at their other ends to the standard A next the said standard A², when the carrier-bars may be moved back to bring out another slat, and so on until all the slats are brought out. The slide-rods F and the carrier-bars, it will be seen, can be readily detached and packed with the other parts in quite a small space.

The curtain H is arranged to be adjusted to expose any desired number of rows of figures, and is preferably supported on a roller, as shown.

It is obvious that by lengthening the slats or increasing the number of the slats the num-

ber of combinations may be increased; but by the construction as shown, manipulated in the manner described, over eleven million five hundred and fifty thousand combinations can be formed, thus preventing pupils from committing to memory, as is the case in a limited number of combinations.

Having thus described my invention, what I claim as new is—

1. In an educational appliance, substantially as described, the combination, with the framing, of figured slats supported thereby and adjustable longitudinally for their full lengths, whereby the figures at one end of each of the slats may be brought successively into register with each of the figures on the other slats, substantially as and for the purposes specified.

2. In an educational appliance, the combination of the main frame-standards, the figured strips or slats connecting said standards and detachably secured thereto, sockets being formed or provided on the standards near the upper and lower ends thereof, and the strut-braces fitted at their ends in said sockets and removable, all substantially as described, whereby the apparatus may be conveniently taken apart for transportation or storage, as and for the purposes specified.

3. In an educational appliance, substantially as described, the combination of the standards A, formed with vertical slats, the slats or strips provided with figures and fitted at their ends in said slats, and pins passed through the standards and the said slats, substantially as set forth.

4. An improved educational appliance, substantially as described, provided with a series of independently-movable figured strips or slats, such figures being arranged or disposed in numerical order diagonally across the figured board formed by said strips, the figure at the top of each of said diagonal rows following in numerical order that at the bottom of the preceding row, substantially as set forth.

5. An improved educational appliance, substantially as described, comprising the frame, the supplemental standard arranged laterally to said frame, and the slats, such slats being disconnected from the supplemental standard and movable longitudinally and independently within the frame, whereby the said slats may be set out from the frame to the supplemental standard one by one or in any desired number, substantially as set forth.

6. In an educational appliance, the combination of the main frame-standards slotted vertically and having pin-holes leading into said slots, sockets being formed or provided on the standards near the upper and lower ends thereof, and the sockets at the diagonally-opposite corners of the frame being arranged to open toward each other, the slats provided with figures and fitted at their ends in the slots of the standards and having pin-openings arranged to coincide with those of the standards, pins passed through said open-

ings in the standards and slats, and the diagonal strut-braces arranged to cross each other and to fit at their ends in the sockets of the frame-standards, substantially as set forth.

5 7. The combination, with the frame having the main standards and the supplemental standard arranged laterally to said frame, of the slats movable longitudinally out to the supplemental standard, the carrier bar or bars
10 for supporting said slats when being so moved, and supports for said carrier-bars, substantially as set forth.

8. The improved educational appliance, substantially as described, consisting of the

frame having standards A, and provided with 15 eyes or openings *g*, and the supplemental standard A², also having eyes *g*, the figured slats, the upper and lower rods F, supported in said eyes *g*, the figured slats and the carrier-bars sliding on rods F and adapted to 20 support the figured slats as the latter are moved out to the supplemental standard, substantially as set forth.

FRANKLIN E. MEYERS.

Witnesses:

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WM. PRICE.