

No. 643,894.

Patented Feb. 20, 1900.

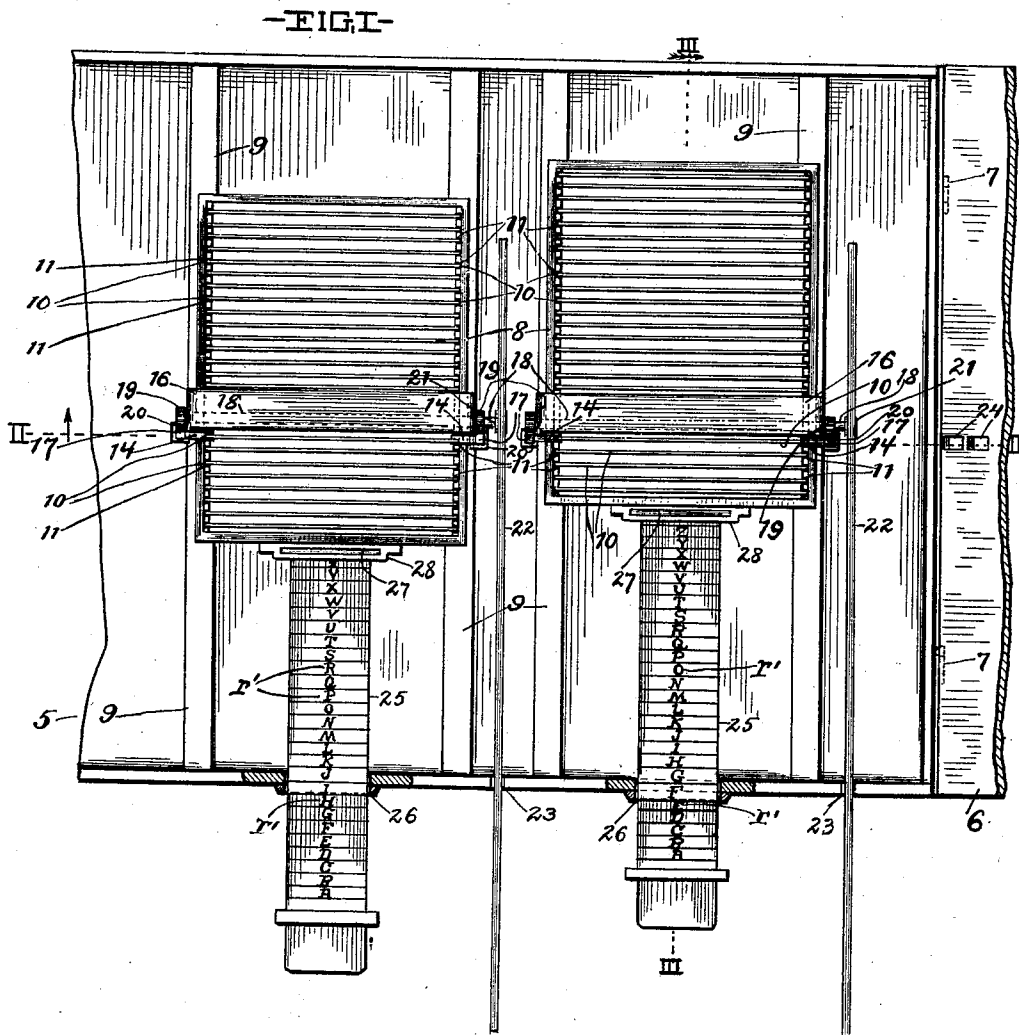
S. FURDEK.

READING-TEACHING OR EDUCATIONAL DEVICE.

(Application filed Sept. 26, 1899.)

(No Model.)

2 Sheets—Sheet 1.



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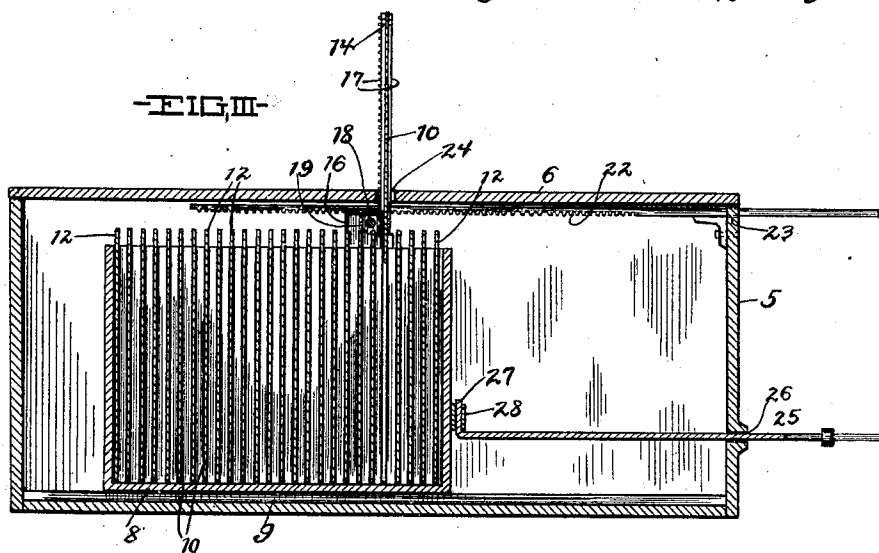
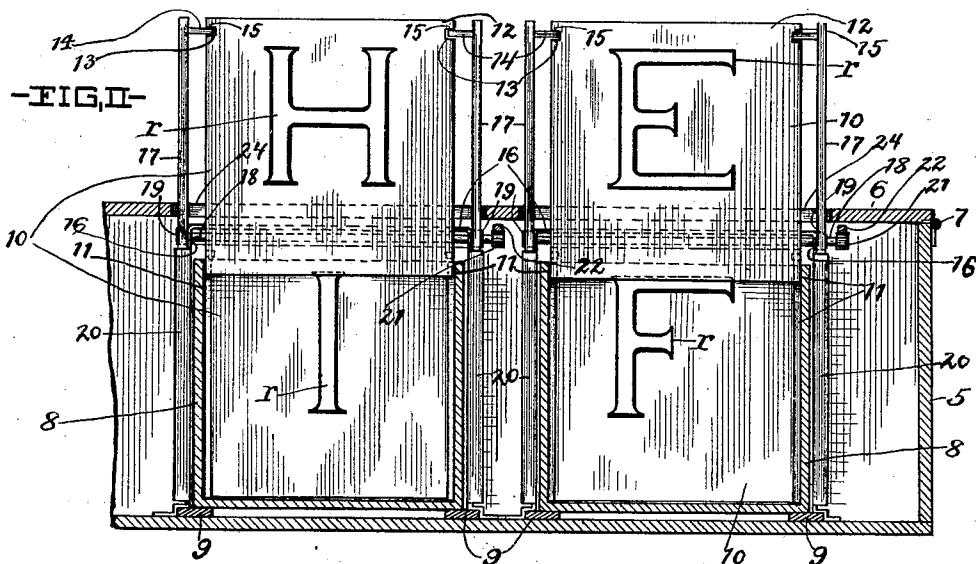
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READING-TEACHING OR EDUCATIONAL DEVICE.

(Application filed Sept. 28, 1899.)

(No Model.)

2 Sheets—Sheet 2.



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UNITED STATES PATENT OFFICE.

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READING-TEACHING OR EDUCATIONAL DEVICE.

SPECIFICATION forming part of Letters Patent No. 643,894, dated February 20, 1900.

Application filed September 26, 1899. Serial No. 731,741. (No model.)

To all whom it may concern:

Be it known that I, STEPHEN FURDEK, of Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Reading-Teaching or Educational Devices; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use the same.

My invention relates to improvements in reading-teaching machines or educational devices.

The primary object of this invention is to facilitate the education of pupils in the primary or elementary studies—such, for instance, as elementary arithmetic, spelling, reading, geography, &c.; to compel the pupil to devote greater attention to examples placed before him by his teacher; to improve the capacity of the pupil to observe correctly, and to facilitate the work of the teacher.

With this object in view and to the end of realizing other advantages hereinafter appearing the invention consists in certain features of construction and combinations of parts hereinafter described, and pointed out in the claims.

In the accompanying drawings, Figure I is a top plan of a machine embodying my invention, and portions are broken away and in section in this figure to more clearly show the construction. Fig. II is a transverse vertical section on line II II, Fig. I, looking in the direction of the arrow. Fig. III is a vertical section on line III III, Fig. I, looking in the direction of the arrow.

My improved machine comprises a case 5, that has its top formed by a lid 6, capable of closing the case and hinged to the latter at one side, as at 7, in any approved manner. Any suitable number of carriages 8 are arranged within and upon the bottom of the case. The bottom of the case constitutes the base of the machine. The case illustrated has two carriages 8, arranged parallel and a suitable distance apart. Each carriage is mounted upon the rails 9 of a track or way formed upon the bottom of the case, and the tracks or ways for the carriages are parallel. Each carriage 8 contains any suit-

able number of upright cards or slides 10, supported within and from the carriage in any approved manner and arranged at short intervals longitudinally of the carriage. The carriages are open at the top, and the slides are removable upwardly from within the carriages. In the machine illustrated the slides engage grooves or recesses 11, formed in the sides of the carriages. Each side of each carriage is provided, therefore, upon its inner surface with as many vertical grooves or recesses 11 as there are cards in the carriage. The grooves or recesses 11 of each side of the carriage are arranged at short intervals longitudinally of the carriage and directly opposite corresponding grooves or recesses formed in the inner surface of the opposite side of the carriage, and all of the said grooves or recesses are open at the top of the carriage to accommodate an upward withdrawal or ascent of the slides 10. The slides 10 bear different letters, characters, or representations respectively.

If the device or machine is to be used as an educational device in teaching spelling or reading in the primary or elementary schools, the slides 10 would bear the different letters, respectively, of the alphabet, and the case would have as many carriages as there were letters in the words that were to be read or spelled by the pupils.

If the machine were employed in teaching geography, the slides 10 would bear different maps, respectively.

The machine might be used also for advertising purposes, in which case it would not cease to be an educational device, at least in the opinion of the advertiser, yet the primary object of the machine is that of an educational device for schools, and its capability of use for purely advertising purposes is of less importance.

In the machine illustrated the slides bear the different letters, respectively, of the alphabet. Suppose that the foremost slide of each carriage bears the letter "A" and that the remaining slides of each carriage bear in proper succession the remaining letters of the alphabet. Then the fifth slide of the right-hand carriage will bear the letter "E" and the eighth slide of the left-hand carriage will

bear the letter "H," and the said slides when elevated out of the carriage, as shown in Fig. II, will when read together spell the pronoun "He." Similarly, the ninth slide of the left-hand carriage bears the letter "I" and the sixth slide of the right-hand carriage bears the letter "F," and the said slides when elevated the distance required will exhibit the word "If."

The means employed for lifting or elevating the slides of a carriage is preferably as follows: The height of the slides is such relative to the depth of the carriage that the slides when in their lower or normal position within the carriage shall have their upper portions projecting a suitable distance above the carriage, as shown at 12, Fig. II, and the projecting portion 12 of each slide is provided with two transversely-arranged recesses or slots 13 13, formed in opposite side edges, respectively, of the slide and at the same elevation, and the slots 13 of each slide register with the corresponding slots formed in the adjacent slides, so as to accommodate the movement of the slides with the carriage when the latter is actuated longitudinally without interfering with the location of the slide-elevating arms 14 and 14, that are arranged in the line of the different recesses 13 and 13, respectively, of the slides.

The side walls of each recess 11 prevent lateral displacement of the engaging slide within the latter's carriage and form lateral guides for the slide during the ascent or descent of the slide. The slides are wide enough to snugly fit between the sides of the carriage, so that they cannot become displaced edgewise laterally of the carriage to such an extent as to bring their recesses or slots 13 out of registering relation with the arms 14. The upper walls of the slots 13 of each slide form shoulders that engage and rest upon the arms 14 when the said slide is in line with the arms and the arms have commenced to lift the slide.

An inverted-U-shaped frame 16 of any approved construction straddles the path of the carriage, preferably about midway between the ends of the said path, and the said frame is secured to the base in any approved manner. The two arms 14 and 14 for each of the carriages overhang opposite sides, respectively, of the path of the respective carriage and; as already indicated, are arranged in line with the slots 13 at opposite side edges, respectively, of the slides of the carriage, so that when any one of the slides upon having shifted the carriage longitudinally has been brought into such position relative to the arms 14 that shoulders 15 of the said slide overhang or overlap the arms an elevation of the said arms will result in the raising of the said slide, as required to exhibit the letter, character, or representation appearing upon the face of the slide. Each of the arms 14 is formed upon a vertically-arranged rack 17, that meshes with a pinion 19, operatively

mounted upon a shaft 18, that is arranged horizontally above and transversely of the path of a carriage 8 and supported from the upright end members or legs of the inverted-U-shaped frame 16, that straddles the said carriage. Two racks 17 and 17 are provided, therefore, at opposite sides, respectively, of the path of the said carriage and mesh with different pinions, respectively, of the said shaft. Obviously, therefore, the slide that is in the position required to render it capable of being elevated by arms of the said racks is raised upon the rotation of the pinion-bearing shaft in the direction required to effect the elevation of the aforesaid racks, and an elevated slide is lowered by rotating the said shaft in the opposite direction. Suitable guides 20 for retaining the racks in operative engagement with the pinions are provided and supported from and within the case 5 in any approved manner. Means for effecting the rotation of the said shaft 18 is provided and comprises in the machine illustrated a pinion 21, operatively mounted upon a shaft and engaged by a rack 22, that extends forwardly through the forward side of the case 5 and a suitable distance forward of the latter to within reach of the operator, and obviously the shifting of the last-mentioned rack rearwardly or forwardly will result in the rotation of the connected shaft in the one or the other direction. The forward side of the case 5 is slotted, as at 23, to accommodate the location and operation of the shaft-operating rack. The lid or top 6 of the case 5 is slotted, as at 24, to accommodate the location and operation of the racks 17 and the elevation of the slides 10 the distance required to exhibit the letter, character, or representation upon the face of the slides.

An index to inform the operator of the position of each carriage relative to the mechanism employed in elevating a slide from the carriage is provided and in the machine illustrated consists of a bar 25, that is hitched to the forward end of the carriage in any approved manner and extends forwardly through the forward side of the case 5 and forward of the case a suitable distance to within reach of the operator. The forward side of the case is suitably slotted, as at 26, to accommodate the location and operation of the said bar. The operative connection between the bar 25 and the connected carriage consists, preferably, of an upwardly-projecting flange 27, formed upon the rear or inner end of the bar and engaging an eye 28, formed upon the forward end of the carriage. The bar 25 bears upon its upper side the letters, characters, or representations η' , corresponding to the letters, characters, or representations appearing upon the faces of the slides, and in the machine illustrated, therefore, the said bar bears the letters of the alphabet, which letters are arranged in consecutive order and so as to correspond with the arrangement of the letters upon the

slides. Hence in the machine illustrated the letter "A" appears upon the forward end of the letter-bearing face of the bar and the remaining letters of the alphabet appear upon the said bar consecutively and in proper order between the said letter "A" and the rear or inner end of the bar, and the letters upon the bar are arranged a distance apart equal to the distance apart of the slides, and the relation of parts is such, furthermore, that when any one of the slides of a carriage is in position to be engaged and elevated by arms 14 that letter, character, or representation upon the carriage-actuating bar that corresponds with the letter, character, or representation upon the said slide shall be next forward of the forward side or wall of the case 5, and thereby inform the operator that the slide bearing the said letter, character, or representation is in the position required for elevation.

What I claim is—

1. A machine of the character indicated, comprising a base; a track or way formed upon the base; a carriage engaging and movable endwise of the way or track; slides supported from and arranged within the carriage at short intervals longitudinally of the carriage, and each of the said slides having two downwardly-facing shoulders formed upon opposite side edges, respectively, of the slide; two slide-elevating arms arranged at opposite sides, respectively, of the carriage below the aforesaid shoulders, and means for elevating and lowering the said arms.

2. A machine of the character indicated, comprising a base; a track or way formed upon the base; a carriage engaging and movable endwise of the track or way; slides supported within and arranged transversely of the carriage at short intervals longitudinally of the carriage, which slides are capable of being elevated and have, respectively, two slots formed in opposite side edges, respectively, with each side edge registering with the slots in the adjacent side edges of the adjacent slides; two slide-elevating arms arranged at opposite sides, respectively, of the path of the carriage and arranged to register with the different slots, respectively, of any one of the slides in the lower or normal position of the slides, and mechanism for elevating or lowering both of the slide-elevating arms simultaneously.

3. A machine of the character indicated, comprising a base; a track or way formed upon the base; a carriage engaging and movable endwise of the way or track; slides supported from and arranged within the carriage at short intervals longitudinally of the carriage, and each of the said slides having two downwardly-facing shoulders formed upon opposite side edges, respectively, of the slide; two racks arranged at opposite sides, respectively, of the path of the carriage and provided with arms arranged below the aforesaid shoulders, and a suitably-operated shaft provided with

pinions meshing with the aforesaid racks, substantially as and for the purpose set forth.

4. A machine of the character indicated, comprising a base; a track or way formed upon the base; a carriage engaging and movable endwise of the way or track; slides supported from and arranged within the carriage at short intervals longitudinally of the carriage, and each of the said slides having two downwardly-facing shoulders formed upon opposite side edges, respectively, of the slide; two racks arranged at opposite sides, respectively, of the path of the carriage and provided with arms arranged to extend in under the aforesaid shoulders; a suitably-operated shaft provided with pinions meshing with the aforesaid racks; another pinion operatively mounted upon the said shaft, and a suitably-operated rack meshing with the last-mentioned pinion, substantially as and for the purpose set forth.

5. A machine of the character indicated, comprising a base; a track or way formed upon the base; a carriage engaging and movable endwise of the way or track; slides supported from and arranged within the carriage at short intervals longitudinally of the carriage, and each of the said slides having two downwardly-facing shoulders formed upon opposite side edges, respectively, of the slide; an inverted-U-shaped frame straddling the path of the carriage; a suitably-operated shaft arranged above the path of the carriage below the central member and supported from the frame; pinions operatively connected with the shaft at opposite sides, respectively, of the frame, and racks meshing with the pinions and provided with arms arranged to project in under the shoulders of the aforesaid slides, substantially as and for the purpose set forth.

6. In a machine of the character indicated, the combination with a carriage; vertically-movable slides bearing letters, characters or representations and supported from the carriage at short intervals longitudinally of the carriage, and mechanism for elevating any one of the said slides: of an index for indicating which slide is in the position required to render it capable of being operated upon by the slide-elevating mechanism, which index consists of a forwardly and rearwardly extending bar that is connected with the carriage at one end and extends laterally through an upright stationary wall and bears letters, characters or representations, corresponding with the representations upon the slides, and furthermore corresponding, in arrangement longitudinally of the index-forming bar, with the arrangement of the slides of the carriage, substantially as and for the purpose set forth.

Signed by me at Cleveland, Ohio, this 14th day of September, 1899.

STEPHEN FURDEK.

Witnesses:

C. H. DORER,
A. H. PARRATT.