A. L. FIERLEIN.

EDUCATIONAL TOY.

APPLICATION FILED OCT. 28, 1920.

1,386,170. **Patented Aug. 2, 1921.**

Fig. 1

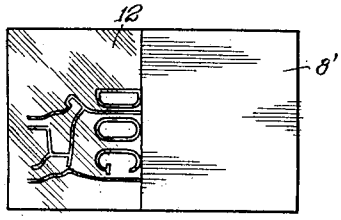


Fig. 2.

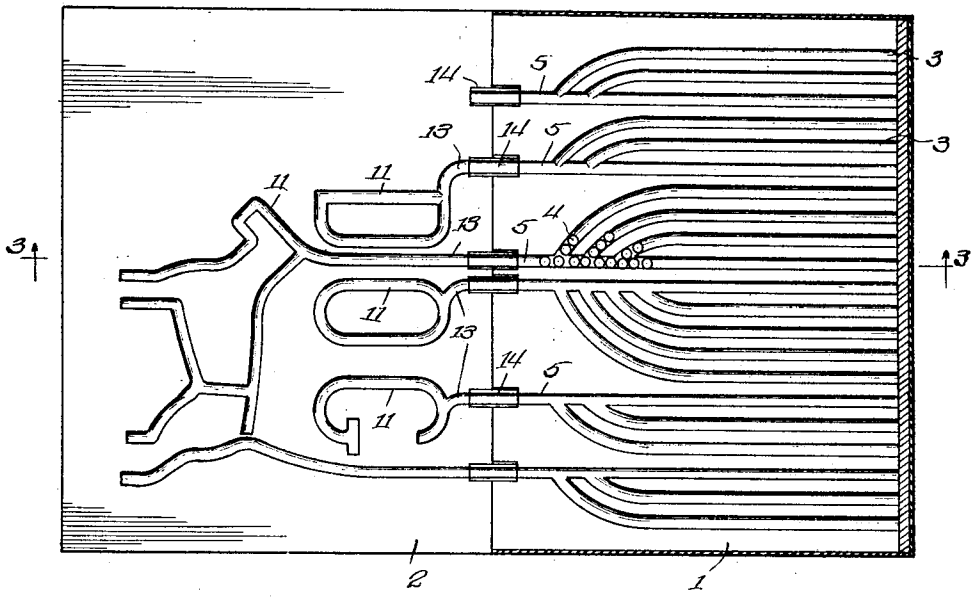


Fig. 3.

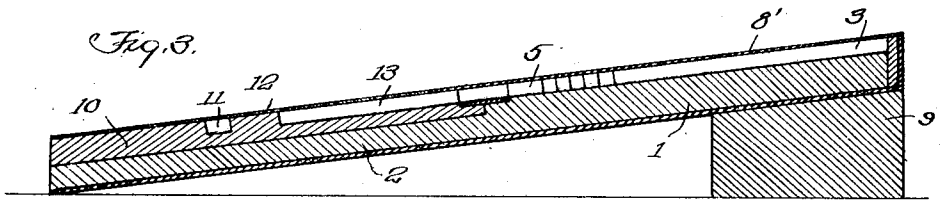


Fig. 4.

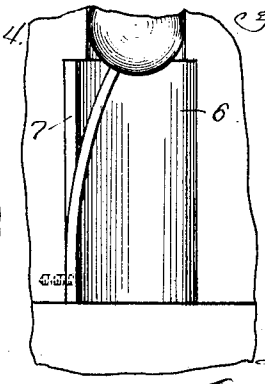


Fig. 5.

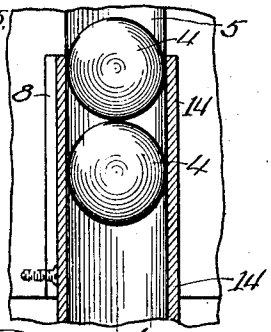
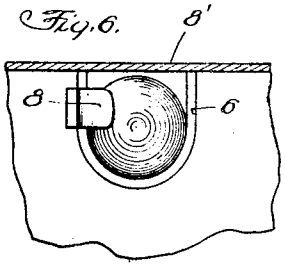


Fig. 6.



Witness:
C. K. Olsen

Inventor:
Albert L. Fierlein
By Munn & Chamberlain Atty.

UNITED STATES PATENT OFFICE.

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EDUCATIONAL TOY.

1,386,170. Specification of Letters Patent. Patented Aug. 2, 1921.

Application filed October 28, 1920. Serial No. 420,272.

To all whom it may concern:

Be it known that I, ALBERT L. FIERLEIN, a citizen of the United States, residing at the city of Batavia, in the county of Kane and State of Illinois, have invented certain new and useful Improvements in Educational Toys, of which the following is a specification.

My invention relates to toys in which the close and interested attention of the child is sought, and which, when enlisted, may be turned to its educational advantage. And the object is to produce the outline representation of letters, numerals, simple words and material objects by means which are not clearly evident. It may be used, not simply as a toy, but for teaching the alphabet, numerals or elementary words. The interest and attention of the child are strongly directed to the figures formed and thus more readily fixed on the mind.

The principles of my invention are illustrated in the drawings in which Figure 1 represents in reduced form a top view of a device constructed in accordance therewith. Fig. 2 is an enlarged top view of the same with certain portions removed. Fig. 3 is a section on line 3, 3 of Fig. 2. Figs. 4 and 5 are details of construction still further enlarged. Fig. 6 is a view of Fig. 4 looked at from below.

Further describing my invention with reference to the drawings in which like characters of reference denote like parts throughout: In constructing the device I provide a foundation or body portion which may be of wood or other suitable material, such as indurated wood fiber which comprises a reservoir portion, 1 and a portion 2 relatively less in thickness for the purpose hereafter set forth. Said reservoir section or portion is provided with recesses forming a reservoir or number of reservoirs which are represented in the drawing by longitudinal converging grooves 3 but other forms of reservoir may be substituted. Within said reservoirs is placed a large number of small balls 4. The balls used may be of any suitable material such as lead and, for this purpose, ordinary lead shot may be provided which may be colored or stained to give a variety of color effects. And each one of the reservoirs may be provided with balls of a color different from that of those contained in the other reservoirs. Steel balls may also be used and, in fact, I prefer to use them, especially when enameled in different colors.

Conduits 5 extend downwardly from the lower parts of the several reservoirs. The lower ends of the conduits are enlarged in cross-section as shown at 6 in Fig. 4 and provided with a valve or retaining device normally to hold back and retain the balls 4 within the reservoirs. Suitable means for such retention includes a spring receiving recess 7 in the lower part of which is secured a spring 8. The upper part of said spring projects forwardly into the conduit as shown in Fig. 5 and the end thereof is adapted to receive and sustain the weight of the balls in the reservoir thereabove. An opaque cover 8′ extends over the top of the said reservoir section and is secured thereto concealing the reservoirs and the balls therein. The rear and upper part of the board should be supported by the transverse cleat 9 thus providing a normally inclined position, which will give movement to the balls 4 under the action of gravity.

The relatively thin or recessed portion 2 is adapted to receive a record member or plate 10 slidable therein. In the face of said record member are formed grooves 11 outlining any desired figure or figures, including letters, numerals, representation of natural objects or combinations thereof. The face of said slidable member 10 is covered by a sheet of transparent material 12 such as glass or celluloid permanently secured in place thereon. When in position the grooves in said member and said reservoir portion should be in substantially the same plane. Grooves or conduits 13 are extended upwardly from the figure outlining grooves 11 to connect them with the conduits 5 downwardly extended from the reservoirs 3.

The upwardly extending conduits are provided with sleeves 14 which extend beyond the edge of the plate itself so that the extended end will be received within the enlarged part 6 of the downward conduits 5 and force the springs 8 back into the position shown in Fig. 5 thereby releasing the balls 4 and permitting them to flow under the action of gravity through the said sleeves into the upwardly extended conduits 13 of the plate below.

Said balls when released will be impelled by gravity to follow the conduits and flow into the outline grooves, forming the out-

line figures cut in the record plate. When the complete figure or combination of figures is outlined by the balls which have moved into them the position of the board may be reversed causing them to flow back into the reservoirs from which they originally came. When the lower plate or board is removed and the sleeves 14 are withdrawn from conduits 5, the springs 8 resume the position shown in Fig. 5, and the device is in condition to repeat the operation with the same or a different record.

It is evident that there is no limit to the number of record plates that can be made or to the designs that may be supplied therein. The material from which the device is made may be varied as desired or most expedient and, for instance, stamped metal or molded fiber may be used, and by making the sleeves 14 removable the balls may be led successively to one or another of the letters or other figures.

I claim:—

1. An educational toy comprising a reservoir, a multiplicity of balls normally contained therein, a record plate having a groove in its face outlining a pattern or figure, and means for connecting the reservoir and record plate whereby said balls will flow by gravity to said plate to complete said pattern or figure.

2. An educational toy comprising a reservoir, a multiplicity of balls normally contained therein, a conduit leading from said reservoir, a removable record plate having a groove in its face outlining a pattern or figure, and a conduit connecting with said pattern or figure and adapted to register with the reservoir conduit.

3. An educational toy comprising a reservoir, a multiplicity of balls therein, means for normally retaining said balls in said reservoir, a removable record plate having a groove in its face outlining a pattern or figure, and means on said plate for disengaging said retaining means and permitting said balls to flow to said plate when such disengagement is made.

4. An educational toy comprising a reservoir, a multiplicity of balls therein, spring means for normally retaining said balls in said reservoir, a removable record plate having a groove in its face outlining a pattern or figure, and means on said plate for disengaging said retaining means and permitting said balls to flow to said plate when such disengagement is made.

5. An educational toy comprising a reservoir, a multiplicity of balls therein, a conduit leading from said reservoir, a spring stop normally extended into said conduit, a record plate having a groove in its face outlining a pattern or figure, a conduit communicating with said pattern or figure and adapted to register with the reservoir conduit and a sleeve having a portion extended beyond said last named conduit adapted to be introduced into the reservoir conduit and displace said spring stop therefrom.

6. An educational toy comprising a plurality of reservoirs, a multiplicity of balls normally contained in each of said reservoirs, conduits leading from said reservoirs, a removable record plate having grooves in its face outlining patterns or figures and, conduits connecting with said patterns or figures and adapted to register with the corresponding reservoir conduits.

7. An educational toy comprising a plurality of reservoirs, a multiplicity of balls contained in each of said reservoirs, conduits leading from said reservoirs, spring stops normally extended into said conduits, a record plate having grooves in its face outlining patterns or figures, conduits communicating with said patterns or figures and adapted to register with the reservoir conduits and removable sleeves having a portion extended beyond said last named conduits adapted alternatively to be introduced into the reservoir conduits and displace said spring stops therefrom.

In witness whereof I have hereto set my hand at Chicago, Illinois, this 25th day of October, 1920.

ALBERT L. FIERLEIN.