

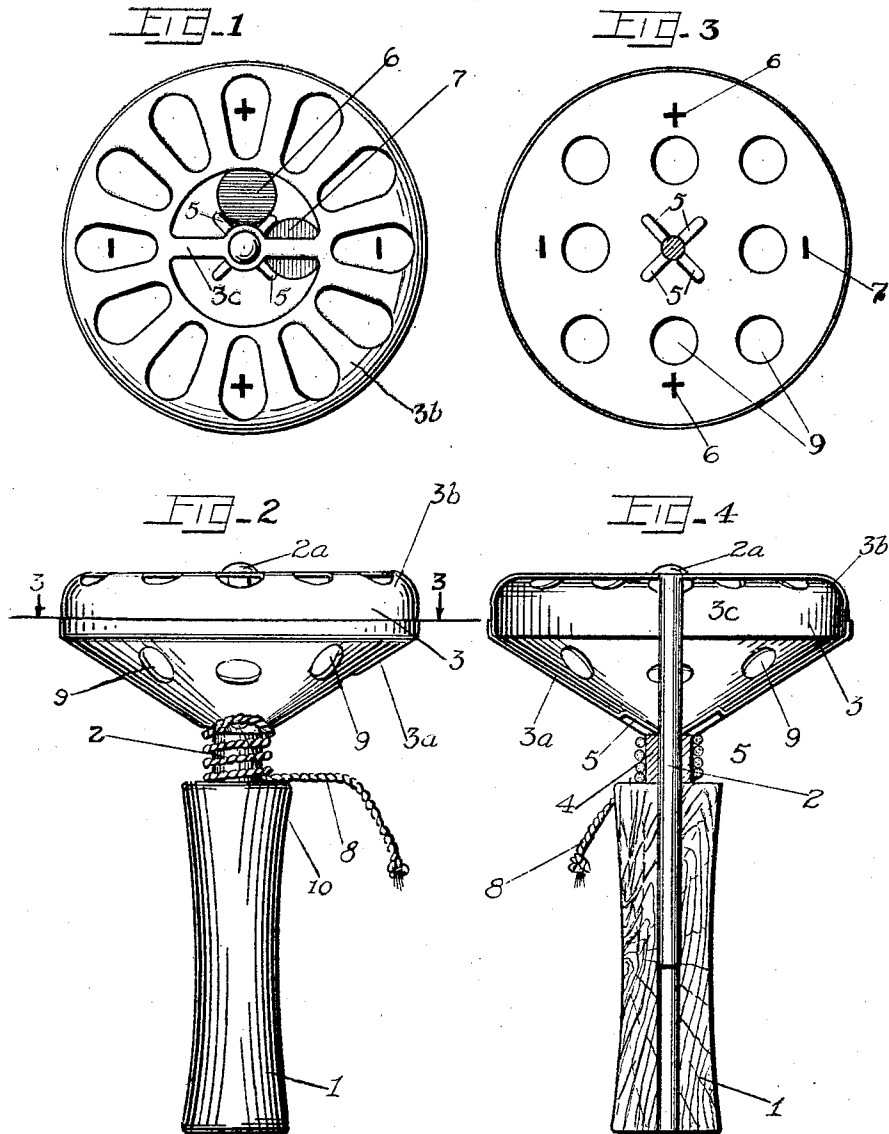
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F. M. PIERCE

EDUCATOR TOY

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UNITED STATES PATENT OFFICE.

FRANK M. PIERCE, OF CHICAGO, ILLINOIS.

EDUCATOR TOY.

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To all whom it may concern:

Be it known that I, FRANK M. PIERCE, a citizen of the United States, and a resident of the city of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in an Educator Toy; and I hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings and to the numerals of reference marked thereon, which form a part of this specification.

This invention relates to a toy primarily designed for educational purposes and which may also be used as a game in which several can participate and gain the same educational advantages.

The invention in general comprises an alternately oppositely rotating cage containing rolling elements which may be variously colored and to which may be assigned any arbitrary numerical unit and that come to rest at various times adjacent different symbols for designating the mental calculation to be performed, as will be hereinafter more fully described and particularly pointed out and defined in the appended claims.

In the accompanying drawings which illustrate a preferred embodiment of this invention and in which similar reference numerals refer to similar features in the different views:

Figure 1 is a top plan view of the toy.
Figure 2 is an elevational view of the toy.

Figure 3 is a sectional view upon the line 3—3 of Fig. 2.

Figure 4 is a central vertical section of the toy with parts in elevation.

In referring now to the drawings which illustrate one embodiment of this invention, there is shown a handle 1 in which a rod 2 is secured for forming a support for rotatably supporting a cage 3 which rests upon the top of a cylindrical rotary drum 4 mounted upon the rod just above the handle and which has a central journal aperture for receiving the rod 2. The cage 3 comprises a lower conical section 3^a having a circular series of retarding apertures 9, and a perforated or transparent upper section 3^b having a downwardly extending flange that fits within a cylindrical lip or portion upon the top of the lower section as clearly shown in Figure 4, to which it is secured by the head

of the rod 2. The perforations in the upper section are large, closely spaced, and arranged in circular formation, and within said circular series of apertures or perforations are a pair of segmental apertures separated by a central strip 3^c having a journal aperture for receiving the rod 2 which has a head 2^a for confining the cage thereon. This open work structure of the top of the cage is for the purpose of readily observing the interior, and may be termed a transparent top. The lower conical end of the cage 3 has four equally spaced radial vanes 5 between which a pair of rolling elements 7 are adapted to lodge or settle. These lodging spaces between the vanes 5 may be termed settling pockets for the rolling elements.

The lower conical section has symbols or indicia interiorly thereof which are readily seen through the top, and which designate a certain calculation to be performed when a rolling element comes to rest directly opposite such symbols. In the present embodiment of this invention, these symbols consist of a pair of diametrically opposite plus signs 6 and a pair of diametrically opposite minus signs 7, the diameters of the respective signs being at an angle of 90° from each other. The rolling elements may be of different color; the rollers 6 may be blue and the other may be red for a purpose to be later explained.

Means have been provided for rotating the cage. The means selected in the present instance imparts alternate rotary motion to the cage and consists of a cord or cable 8 secured to the lower end of the cage and wrapped around the drum 4. The particular manner of securing the cord to the cage may comprise lips 10 struck from the cage which is preferably made from sheet metal, and clamping the cord under the lips as shown in Figure 2.

In the operation of this toy, it is grasped by the hand and the cord wound upon the drum 4. Then by pulling upon the cord, rotary movement will be imparted to the cage; if the pull is strong enough, the acquired momentum of the cage will continue to revolve the cage and rewind the cord in the opposite direction. When the cage comes to rest after an operation, the rolling elements will spin around therein, but their movements will be retarded by the apertures 9 so as to hasten the lodgment of the rolling

elements, between the vanes 5 which form receiving pockets therefor. Now assume that the numerical unit assigned to each rolling element is 5 and that they came to rest in the settling pockets opposite the plus signs, the scored points will be ten. If one comes to rest adjacent a minus sign and one adjacent a plus sign they will offset each other and no points will be scored, if the two rollers come to rest adjacent the minus signs, the scored points will be minus ten. If the settling pockets are directed between a plus and minus sign when the cage stops, the rollers will not be adjacent any of the symbols and no points will be scored. After the points have been added or subtracted according to the method above pointed out, the cord may be pulled again rotating the cage in the opposite direction, agitating the rollers which will roll into certain settling pockets when the cage stops. The scored points are then added or subtracted from those previously scored and this operation may continue as long as desired. These mental additions and subtractions afford a child excellent training during its playing moments. Several may participate in competition in the use of the toy. Thus one may take the blue ball and the other the red ball and each keep track of the scored points after each rotation of the toy. Other methods of use and scoring may be resorted to if desired.

From the foregoing it will be apparent that a very pleasing toy has been provided that will not only amuse a child but teach it addition and subtraction and train its memory.

I am aware that many changes may be made, and numerous details of construction may be varied through a wide range without departing from the principles of this invention, and I therefore do not purpose limiting the patent granted hereon, otherwise than necessitated by the prior art.

I claim as my invention:

1. In an educational toy, a rotatable cage having symbols and settling pockets, rolling elements in said cage adapted to be lodged in said settling pockets when the cage stops rotating, said rolling elements designating a numerical unit governed by said symbols.

2. In an educational toy, a cage movably mounted therein and having a transparent

top and roller settling pockets having symbols, means for operating said cage, rolling elements in said cage, said elements designating a numerical unit governed by said symbols, means in said cage to constrain said rolling elements to said pockets when at rest.

3. In a toy, a rotatable cage having a conical lower section provided with roller settling pockets, said pockets having symbols, rolling elements in said cage, means for rotating said cage for agitating said rolling elements, means in said cage for causing said elements to leave said pockets when said cage is rotated and to settle in said pockets when said cage is at rest, said rolling elements designating a numerical unit governed by said symbols.

4. In a toy, a cage having a transparent top, lugs struck up from the bottom of the cage to form a plurality of roller settling pockets therein, rolling elements in the cage designating numerical units governed by said symbols and means in the cage for causing said elements to settle in said pockets when the cage is at rest, means for operating the cage for agitating said rolling elements in said cage and means for causing said rolling elements to leave said pockets when said elements are agitated.

5. In an educational toy, a rotatable cage having symbols and settling pockets, rolling elements in said cage adapted to be lodged in said settling pockets when the cage stops rotating, said rolling elements designating a numerical unit governed by said symbols, means for rotating said cage, said means comprising a drum secured thereto, a support for said cage and said drum, and a cord adapted to be wound about said drum.

6. In an educational toy, a rotatable cage having plus and minus symbols and settling pockets, rolling elements in said cage adapted to be lodged in said settling pockets when the cage stops rotating, said rolling elements designating a numerical unit which is adapted to be added or subtracted depending upon whether or not it lodges in the settling pocket adjacent the plus or a minus symbol.

In testimony whereof I have hereunto subscribed my name in the presence of two subscribing witnesses.

FRANK M. PIERCE.

Witnesses:

CARLTON HILL,
OSCAR HARTMANN.