STACKING TOY WITH INNER AND OUTER STACKING COMPONENTS

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ABSTRACT
An amusement device that can be utilized as a stacking toy that teaches constructional principles, as a puzzle, or in other forms. In accordance with the invention, there is provided an elongated hollow cylinder having a longitudinal slot therein adapting it to be compressed circumferentially. A plurality of rings proportioned to be slidably fit over the cylinder in stacked arrangement are provided. Also provided are a plurality of cylindrical disks proportioned to be slidably fit within the cylinder in stacked arrangement. First and second end caps are proportioned to fit over and compress the end of the cylinder so as to be yieldingly held in frictional engagement therewith. In a preferred embodiment of the invention, each of the end caps forms the center of an end ring, the end rings having the same outer diameter as the plurality of rings. When the device is assembled in its most natural form, it gives the appearance of concentric cylinders.
STACKING TOY WITH INNER AND OUTER STACKING COMPONENTS

BACKGROUND OF THE INVENTION

This invention relates to amusement devices and, more particularly, to a constructional amusement device suitable for a young child.

There have been previously developed various constructional-type toys which provide amusement for a child and, at the same time, teach principles of constructional assembly. For example, simple wooden building bricks or blocks can serve this function, as can a set of rings adapted to be fitted over a based pole member. In most instances, these types of toys do not require particularly subtle interaction of fitted parts, or, if they do, the knowledge needed for assembly is beyond the experience of a young child.

It is accordingly an object of this invention to provide an amusement device that allows even a young child to assemble and disassemble fitted parts in interesting constructions which provide a challenge and which offer visual satisfaction and amusement.

SUMMARY OF THE INVENTION

The present invention is directed to an amusement device that can be utilized as a stacking toy which teaches constructional principles, as a puzzle, or in other forms. In accordance with the invention, there is provided an elongated hollow cylinder having a longitudinal slot therein adapting it to be compressed circumferentially. A plurality of rings proportioned to be slidably fit over the cylinder in stacked arrangement are provided. Also provided are a plurality of cylindrical disks proportioned to slidably fit within the cylinder in stacked arrangement. First and second end caps are proportioned to fit over and compress the end of the cylinder so as to be yielding held in frictional engagement therewith.

In the preferred embodiment of the invention, each of the end caps forms the center of an end ring, the end rings having the same outer diameter as the plurality of rings. When the amusement device is assembled in its most natural form it gives the appearance of concentric cylinders.

Further features and advantages of the invention will be more readily apparent from the following detailed description when taken in conjunction with the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a perspective view of one of the component parts of the invention;
FIG. 2 is an elevational perspective view of another component part in accordance with the invention;
FIG. 3A is an elevational perspective view of another component part in accordance with the invention;
FIG. 3B is a cross-sectional view of the component of FIG. 3A as taken through the arrows designated B—B;
FIG. 4A is an elevational perspective view of another component part in accordance with the invention;
FIG. 4C is a cross-sectional view of the component of FIG. 4A as taken through the arrows designated C—C;
FIG. 5 is an elevational perspective view of a particular construction of some of the component parts of the invention;
FIG. 6 is a cross-sectional view of the component parts of the invention when constructed in a particular natural configuration that is deemed the solution to a puzzle; and
FIG. 7 is an elevational perspective view of certain components of the invention interacting in a manner that can provide amusement.

DESCRIPTION OF THE PREFERRED EMBODIMENT

FIGS. 1 through 4 illustrate embodiments of the various component parts of the invention. Referring to FIG. 1, there is shown an elongated hollow cylinder 10 that is preferably formed of clear plastic and has a longitudinal slot 11 that allows it to be compressed circumferentially. In the particular embodiment shown, the cylinder 10 has a length of about 4.50 inches, an outer diameter of about 1.76 inches, an inner diameter of about 1.60 inches, and a slot width of about 0.67 inches. These approximate dimensions, and the dimensions set forth in the description to follow, are shown for convenience of illustration and to ease the understanding of the reader, but are in no way intended as limiting the scope of the invention.

FIG. 2 shows one of plurality of cylindrical disks 20 that are provided in the present invention. The disks 20 are preferably formed of a colored plastic, for example, a red plastic. In the particular embodiment shown, the disk 20 is in the form of a cup which has an outer diameter of 1.47 inches and a height of 0.75 inch, so that the disks 20 are proportioned to slidably fit within the cylinder 10 in stacked arrangement. It should be understood that the disk 20 could take on various configurations, for example, that of a completely enclosed cylinder or a hollow cylinder, the main concern being its general conformity of shape to the inside of the cylinder 10.

Referring to FIGS. 3A and 3B, there are shown views of one of a plurality of rings 30 that are proportioned to be slidably fit over the cylinder 10 in stacked arrangement. The ring 30 is preferably formed of a clear plastic and has an inner diameter of 1.80 inches, an outer diameter of 4.00 inches and a height of 0.75 inch. In the particular illustrative embodiment, the ring 30 consists of an apertured circular disk 31 having an inner flange 32 extending perpendicularly around its aperture and an outer flange 33 extending perpendicularly around its circumference. The area between the flanges 32 and 33 forms a "track" 34 that can be utilized in a variation of device play that will be described below.

FIG. 4 shows an embodiment of one of a pair of end rings 40 that are utilized in the present invention. The end rings 40 are preferably formed of a colored plastic and include, as their center portions, an end cup 41 that is formed as a recess in the end ring 40. The cup 41 has an inner diameter of 1.75 inches and is adapted to fit over and compress the end of the cylinder 10 so as to be yielding held in frictional engagement therewith. The remainder of the end ring around the cup 41 is similar in construction to the ring 30. The cup 41 has an inner depth of 0.75 inch, and the overall end ring height is 0.84 inch. Again, it should be pointed out that the shape and dimension of the end cup portion 41 is of primary concern in that the cap serves the function of engaging the cylinder 10. The remainder of the end ring could take on alternative forms, for example an en-
closed form, but it is preferred that the end ring be similar in shape to the ring 30. Referring to FIG. 5, there is shown one of the many constructional forms that the components of the invented device can assume. The amusement device preferably comes equipped with one cylinder 10, four rings 30, six disks 20, and two end rings 40. For constructional playing activities, not all of the components of a set need be used together. In FIG. 5, for example, the cylinder 10 is engaged in one of the end rings 40, and one ring 30 is stacked on the end ring 40. Five of the disks 20 are stacked within the cylinder 10, the bottom disk of the stack resting on the bottom of the cup 41 that forms the center of the end ring 40. In this arrangement, it is seen that the slot 11 serves the additional purpose of allowing insertion of a finger to remove one or more of the disks 20 as may be desired by a child playing with the amusement device. The stacking arrangements that are possible both inside and outside the cylinder 10 provide a child with an interesting variety of constructional possibilities, and is, in this sense, educational. By forming the rings 30 and the cylinder 10 of a clear plastic while the disks 20 are formed of a colored plastic, an inner column of stacked disks can be seen through an outer column of stacked rings, again providing the dual appeals of entertainment and education.

Referring to FIG. 6, the set of preferred components are shown as constructed in a natural and classic configuration that can be considered the solution to a “puzzle.” In this arrangement, the six disks 20 fill the inside of the cylinder 10, the length of the cylinder being substantially an integral multiple of the disk height. Each of the stacked rings 30 has a height that corresponds to the height of the disks 20 and, with both end rings 40 in position, the rings substantially cover the length of the cylinder between the end rings. The orientation of any of the disks 20 or the rings 30 can be reversed without changing the general overall shape of the device as constructed in FIG. 6.

FIG. 7 illustrates still another way in which the components of the invented amusement device can be utilized. As above stated, the ring 30 is formed in a manner that leaves a track 34 between its inner and outer flanges (FIG. 3A). The disks 20 are dimensioned such that one or more of them can be placed in the track 34 to roll therein. Similar amusement of this type can be achieved by rolling the disks in a track 34 that forms part of the end rings 40.

While the invention has been described with reference to a particular preferred embodiment, it will be appreciated that variations can be made without departing from the scope of the invention. For example, the disks and end rings may be formed of a clear plastic like the rest of the components of the set, thus making solution of the devices “puzzle” phase more difficult. I claim:

1. An amusement device comprising:
an elongated flexible hollow cylinder having a longitudinal slot extending the full length thereof to allow said cylinder to be compressed circumferentially;
a plurality of rings proportioned to be slidably fit over said cylinder in stacked arrangement;
a plurality of cylindrical disks proportioned to slidably fit within said cylinder in stacked arrangement;
first and second end caps proportioned to fit over and circumferentially compress the opposite ends of said cylinder so as to be yieldedly held in frictional engagement therewith.

2. An amusement device as defined by claim 1 wherein each of said end caps forms the center of an end ring, said end rings having the same outer diameter as said plurality of rings.

3. An amusement device as defined by claim 1 wherein each of said rings has the same height and wherein the length of said cylinder is substantially an integral multiple of the ring height.

4. An amusement device as defined by claim 1 wherein each of said disks have the same height and wherein the length of said cylinder is substantially an integral multiple of the disk height.

5. An amusement device as defined by claim 4 wherein each of said disks and said rings have substantially the same height and wherein the length of said cylinder is substantially an integral multiple of the disk and ring height.

6. An amusement device as defined by claim 1 wherein said slot is sufficiently wide to accommodate the finger of a child.

7. An amusement device as defined by claim 2 wherein each of said plurality of rings is formed of a clear plastic material.

8. An amusement device as defined by claim 7 wherein said cylinder is formed of a clear plastic material and each of said disks is formed of a colored plastic material.

9. An amusement device as defined by claim 8 wherein each of said end rings is formed of a colored plastic material.

10. An amusement device as defined by claim 5 wherein each of said rings comprises:
a circular disk having a circular aperture therein; an inner flange extending perpendicular said disk around said aperture; and an outer flange extending perpendicular said disk at the outer circumference thereof, said inner and outer flanges extending in the same direction with respect to said disk.

11. An amusement device comprising:
an elongated flexible hollow cylinder having a longitudinal slot extending the full length thereof to allow said cylinder to be compressed circumferentially;
a plurality of rings slidably fit over the central portion of said cylinder in stacked arrangement;
a plurality of cylindrical disks slidably fit within said cylinder in stacked arrangement, the number of said disks being sufficient to substantially fill said cylinder;
first and second end caps that are fit over and circumferentially compress the opposite ends of said cylinder so as to be yieldedly held in frictional engagement therewith.

12. An amusement device as defined by claim 11 wherein the number of rings is sufficient to substantially cover the length of said cylinder between said end caps.

13. An amusement device as defined by claim 12 wherein each of said end caps forms the center of an end ring, said end rings having the same outer diameter as said plurality of rings.
14. An amusement device as defined by claim 13 wherein each of said plurality of rings is formed of a clear plastic material.

15. An amusement device as defined by claim 14 wherein said cylinder is formed of a clear plastic material and each of said disks is formed of a colored plastic material.

16. An amusement device as defined by claim 15 wherein each of said end rings is formed of a colored plastic material.

17. An amusement device as defined by claim 16 wherein said end rings have substantially the same width as said plurality of rings.

18. An amusement device as defined by claim 17 wherein each of said disks has substantially the same width as said plurality of rings and said end rings.