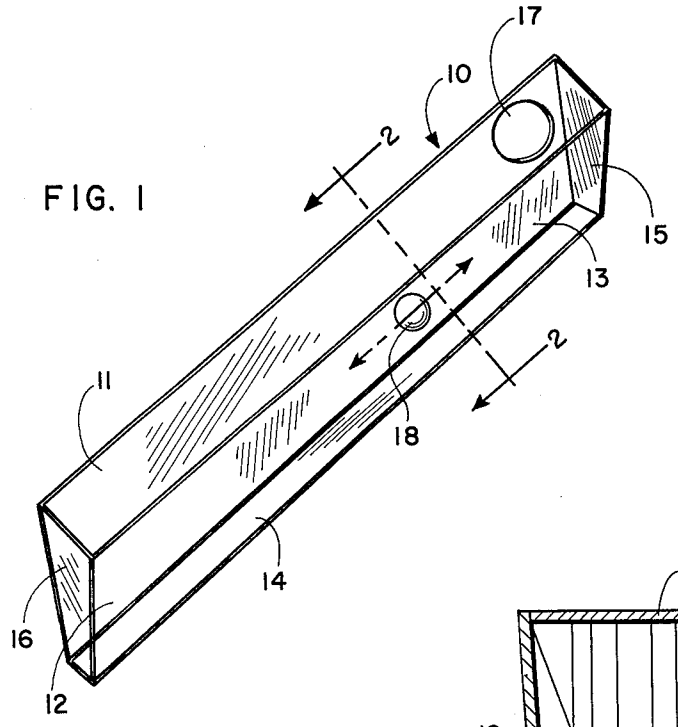
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NOVELTY SPINBALL TOY

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FIG. 1



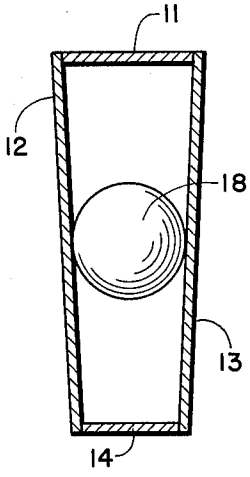


FIG. 2

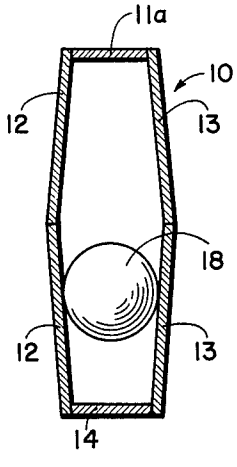


FIG. 4

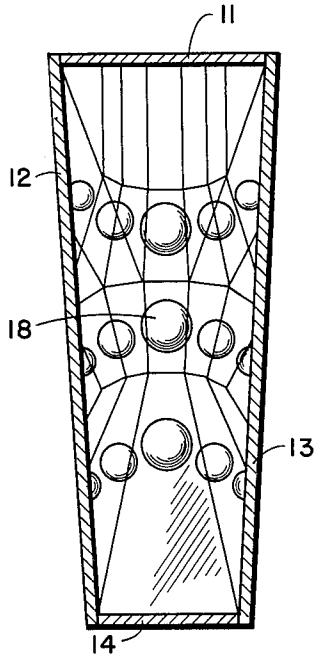


FIG. 3

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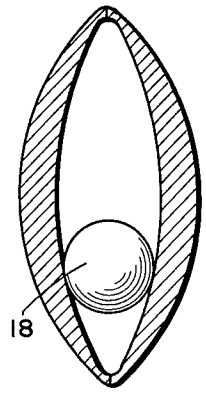


FIG. 5

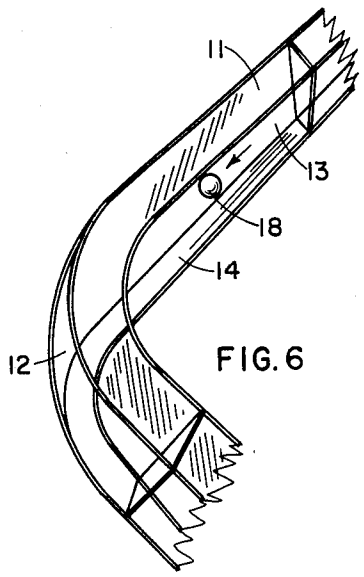


FIG. 6

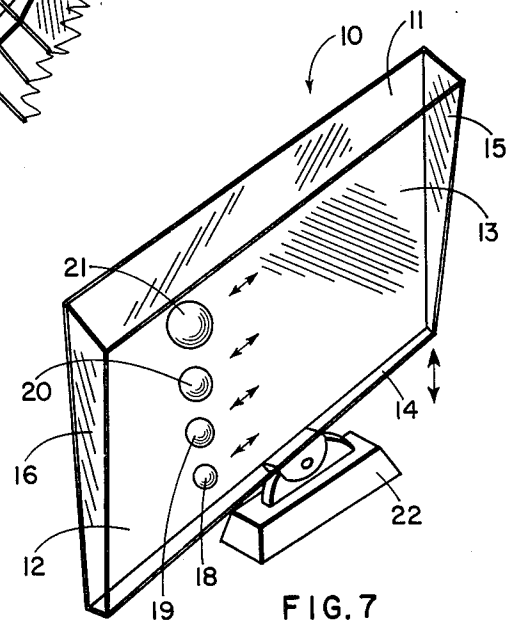


FIG. 7

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3,237,512

NOVELTY SPINBALL TOY

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Filed Oct. 21, 1963, Ser. No. 317,515
8 Claims. (Cl. 88—15)

This invention relates to a toy and more particularly to a toy having the combined characteristics of a specially constructed longitudinal marble runway and a kaleidoscope.

It is the primary purpose of the invention to create a novel action amusement toy for the enjoyment of both children and adults, and one in which a spherical element such as a ball or marble appears to be suspended in mid-air inside the toy and in which said ball or marble spins rapidly as it slowly traverses the length of the toy.

A secondary object of the invention is to provide a novel action kaleidoscopic toy, which object is attained in the basic construction without the addition, deletion or alteration of any parts whatsoever in the embodiments to be described herein.

Another important object of the invention is to provide a novel amusement device which is exceptionally simple in construction and which can be manufactured, packaged, and sold in large quantities at a comparatively low cost.

Still additional objects, benefits and advantages of this invention will become evident from a study of the following detailed description taken in conjunction with the accompanying drawing, in which:

FIGURE 1 is a perspective view of a preferred embodiment of the invention constructed from transparent strips, preferably plastic.

FIGURE 2 is a somewhat enlarged cross-sectional view of the preferred embodiment taken across lines 2—2 shown in FIGURE 1.

FIGURE 3 is an enlarged end view illustrating the general pattern of reflections prevalent when either end of the toy is pointed toward a natural or artificial light source and the kaleidoscopic effect is viewed from the other end.

FIGURE 4 is a cross-sectional view of an alternative configuration wherein the two sides of the toy are appositely angled in the center on a longitudinal plane to form a slight V-shape.

FIGURE 5 is a cross-sectional view of another alternative configuration wherein the top and bottom of the toy are dispensed with and the two sides are molded on a longitudinal plane in the shape of a longitudinal lens.

FIGURE 6 is a perspective view of a variation of the toy shown in FIGURE 1 wherein one end thereof is curved and wherein the ends are dispensed with to form a section to which may be joined additional curved and/or straight sections as desired, to form a multi-sectional runway somewhat in the fashion of a model train track.

FIGURE 7 is a perspective view of another variation of the toy shown in FIGURE 1 wherein the structure is vertically elongated and pivotally mounted on a base, allowing the toy to be tilted from the horizontal in either direction, and wherein a plurality of spherical elements are employed.

Referring now specifically to the drawing, a toy **10** made in accordance with the present invention is shown to comprise a top **11** of plane transparent material, two plane transparent sides **12** and **13**; a plane transparent bottom **14**; and transparent ends **15** and **16**; all fastened together by any suitable means such as cementing, to form a longitudinal runway enclosure. It is to be especially noted that plane ends **15** and **16** have a trapezoidal shape, against

the edges of which top **11**, sides **12** and **13**, and bottom **14** are cemented. From a study of the drawing it follows then that top **11** is of a wider dimension than bottom **14**. This novel arrangement forms a trapezoidal shaped, or convergent angled enclosure, the purpose of which will be explained hereinafter, and which can best be seen by referring to FIGURE 2 of the drawing. Circular opening **17** is provided in the top **11** as a means of introducing into and removing from the toy **10** a spherical element such as a ball or marble **18**, and additional balls or marbles as may be employed.

In operation, a spherical element such as a ball or marble **18** is introduced into the enclosure formed by top **11**, sides **12** and **13**, bottom **14** and ends **15** and **16**, through circular opening **17**. For convenience this element will hereafter be termed a ball. It is to be noted that the inside dimensions of the toy **10** are in such relation to the diameter of ball **18**, as to cause ball **18** to bear against sides **12** and **13** about midway of the enclosure when viewed in a vertical plane. The toy **10** is now held in the hand or hands and tilted on either end, which action causes ball **18** to spin and at the same time slowly traverse the length of toy **10**, due to the force of gravity. After ball **18** thus travels the length of the enclosure, toy **10** may then be tilted in the direction opposite to that in which first tilted, which causes ball **18** to longitudinally traverse the length of the enclosure in the direction opposite to that in which first traversed.

The action of ball **18** while spinning and traversing the length of the enclosure is novel, amusing and interesting because (1) ball **18** appears to be suspended in mid-air inside toy **10** which apparent phenomenon arouses the curiosity and interest of the observer, (2) ball **18** normally would be expected to roll, not spin, when toy **10** is tilted, and (3) ball **18**, when of the vari-colored marble variety, presents constantly changing colored patterns on the visible portion of its sphere, as it rapidly spins while traveling the length of the enclosure. Further amusement is provided when the toy **10** is tilted rather sharply in order to impart added impetus to ball **18**, and then tilted sharply in the opposite direction after ball **18** has traversed approximately two-thirds the length of the enclosure. Thus ball **18** will continue to spin rapidly and travel slowly up the incline, striking against end **15** or **16** as the case may be, and continuing to spin until friction uses up the kinetic energy previously generated. Then ball **18** will begin to spin in opposite rotation and comparatively slowly traverse the length of the enclosure downward, if toy **10** is still held on the same sharp incline or tilt.

The novel actions of ball **18** just described are caused by the unique arrangement of the variously described parts of toy **10** wherein the trapezoidal shape of ends **15** and **16** provide a convergent angled runway in relation to the diameter of balls employed instead of one wherein ball **18** would be loosely contained within the enclosure, the latter common arrangements of which would cause ball **18** to roll on bottom **14**, thereby losing all novelty and interest provided by the spinning action of ball **18** heretofore described. The reason ball **18** spins instead of rolls can easily be seen by a study of the drawing which shows ball **18** to bear against sides **12** and **13** at a point slightly below its normal axis of rotation. This in turn provides a considerable leverage ratio which causes ball **18** to spin rapidly instead of roll. It is also to be particularly noted that while spinning rapidly, the ball **18** travels the length of the toy **10** enclosure comparatively slowly, which is opposite to the action of a rolling ball as generally provided in common marble runway arrangements.

It is to be understood that the degree of convergence of the two sides **12** and **13** is optional; however, it has been found in practice that the greater the degree of conver-

gence from the normal, the more slowly the ball **18** will spin on its axis but will travel faster from one end of the runway enclosure to the other, due to the points of contact with sides **12** and **13** being further below ball **18**'s normal axis of rotation. Conversely, the lesser the degree of convergence the faster the ball will spin but will travel more slowly when traversing the length of the runway enclosure.

Only one ball is shown in FIGURES 1 through 6 of the drawing for simplicity; however, it is to be understood that a plurality of balls may be introduced, of the same or varying sizes, to create still greater interest and spectacle. Balls of different sizes will be suspended in different vertical planes, the larger balls always in a higher plane; and will spin and travel in their respective longitudinal runway planes.

The ball or marbles may be colored in a variety of ways to present varying pleasing effects; likewise the enclosure itself or certain parts thereto may be constructed from tinted transparent material. Further, the balls may be made from transparent material with varied arrangements of reflecting surfaces incorporated within, which presents a pleasing effect by rotatively casting reflections as the balls spin along the runway enclosure.

It is to be noted that the kaleidoscopic pattern as illustrated in FIGURE 3 is prevalent in the preferred embodiment described without any additions, deletions or alterations whatsoever. Thus in effect the embodiment illustrated comprises two toys in one; (1) to observe the spinning action of the ball **18** externally or additional balls if employed, the toy is preferably held in the hand in a tilted position, presenting either side **12** or **13** to the eye of the observer; (2) to utilize the toy as a kaleidoscope, either end **15** or **16** is held close to the eye or eyes of the observer and one end of the toy **10** is inclined sufficiently upward or downward to start the ball **18** or additional balls spinning. When toy **10** is thus held, the reflections from the spinning ball **18** and additional balls if employed are viewed internally, said reflections growing smaller or larger as the ball or balls spin away from or toward the eye of the viewer. Further, the kaleidoscopic effect is even more enhanced when one end of the toy **10** is pointed toward brightly colored and illuminated images and moved about while being held at an incline, the colors from the images commingling with reflections from the spinning ball or balls to produce an infinite variety of novel moving reflections. The multiple ball reflections shown in FIGURE 3 all emanate from the single ball **18**. When several balls are employed, it can readily be seen that the pattern presented is even more profuse.

It is believed that the cross-sectional views of alternative configurations illustrated in FIGURES 4 and 5 of the drawing will be readily understood without further elaboration as to their application to the basic embodiment. In both FIGURES 4 and 5, convergent-angled runways are provided, the same as in the basic embodiment, to cause ball **18** to spin instead of roll, as it traverses the longitudinal plane of the enclosure when either end thereof is inclined. The arrangement illustrated in FIGURE 4 provides a double runway; ball **18** spins whether toy **10** is held with top **11***a* or bottom **14** uppermost. FIGURE 5 illustrates an embodiment constructed with only four pieces—two sides and two ends. The advantage of this arrangement is the magnification afforded by the two longitudinal convex-concave contoured sides. In FIGURE 5, the aperture hole (comparing to aperture **17** in FIGURE 1) is placed in the center portion of one of the elliptical ends (not illustrated).

FIGURE 7 illustrates a toy employing balls **19**, **20** **21** in addition to ball **18** as illustrated in FIGURES 1 through 6 of the drawing, each ball being of a different diameter and each being suspended in a vertical plane bisecting the angle of the runway at a different horizontal level. In addition to illustrating the use of a plurality of balls, FIGURE 7 shows a base **22** which incorporates a readily understood free pivotal arrangement to permit manual tilting of the toy from one end to the other to observe the back-and-forth spinning action of balls **18**, **19**, **20** and **21**.

While this invention has been described with particular reference to the construction shown in the drawing and while various changes may be made in the detail construction, it shall be understood that such changes in detail shall be within the spirit and scope of the present invention as defined by the appended claims.

Having thus described my invention what I claim as new and desire to be protected by Letters Patent is:

1. A toy comprising in combination two longitudinal plane transparent sides, a longitudinal plane transparent top, a longitudinal plane transparent bottom and trapezoidal plane transparent ends, said two longitudinal plane transparent sides, said longitudinal transparent bottom and said longitudinal transparent top being joined to the edges of said trapezoidal plane transparent ends and to each other to form a longitudinal convergent angled interior runway enclosure, at least one ball freely and rotatively disposed inside said longitudinal convergent angled interior runway enclosure, each said ball having a diameter of such dimensional relation to the variable width of said longitudinal convergent angled interior runway enclosure as to cause each said ball to be suspended in a vertical plane inside said longitudinal convergent angled interior runway enclosure and to bear against said longitudinal plane transparent sides at points below the normal axis of rotation of each said ball, each said ball spinning rapidly as the length of said longitudinal convergent angled interior runway enclosure is traversed when the toy is inclined from a horizontal position toward the vertical, said toy as described presenting kaleidoscopic patterns of each said ball when either end of said toy is held close to the eye of an observer and the other end pointed toward a light source.

2. A toy comprising in combination two longitudinal plane transparent sides angled near their centers on a longitudinal plane, a longitudinal plane transparent top and a longitudinal plane transparent bottom of equal dimensions, and double-trapezoidal plane transparent ends, said two angled longitudinal plane transparent sides, said longitudinal plane transparent top and said longitudinal plane transparent bottom being joined to the edges of said double-trapezoidal plane transparent ends and to each other to form a longitudinal doubly-convergent angled interior runway enclosure, at least one ball freely and rotatively disposed inside said longitudinal doubly-convergent angled interior runway enclosure, each said ball having a diameter of such dimensional relation to the variable width of said longitudinal doubly-convergent interior runway enclosure as to cause each said ball to be suspended in a vertical plane inside said doubly-convergent angled interior runway enclosure and to bear against said angled longitudinal plane transparent sides at points below the normal axis of rotation of each said ball, each said ball spinning rapidly as the length of said doubly-convergent angled interior runway enclosure is traversed when the toy is inclined from a horizontal position toward the vertical, said toy as described presenting kaleidoscopic patterns of each said ball when either end of said toy is held close to the eye of an observer and the other end pointed toward a light source.

3. A toy comprising in combination two longitudinal transparent sides molded into a convex-concave longitudinal contour, elliptical plane transparent ends contoured in dimensional relation to said two longitudinal convex-concave transparent sides, said two longitudinal convex-concave transparent sides being joined to the edges of said elliptical ends and to each other to form an elliptically contoured interior runway enclosure, at least one ball freely and rotatively disposed inside said elliptically contoured enclosure, each said ball having a diameter of such dimensional relation to the variable width of said el-

liptically contoured interior runway enclosure as to cause each said ball to be suspended in a vertical plane inside said elliptically contoured interior runway enclosure and to bear against said longitudinal convex-concave transparent sides at points below the normal axis of rotation of each said ball, each said ball spinning rapidly as the length of said elliptically contoured interior runway is traversed when the toy is included from a horizontal position toward the vertical, said toy as described presenting quasi-kaleidoscopic patterns of each said ball when either end of said toy is held close to the eye of an observer and the other end pointed toward a light source.

4. A toy as described in claim 1, wherein the said longitudinal convergent angled runway enclosure includes both straight and curved runway portions between said trapezoidal plane transparent ends, and wherein said trapezoidal plane transparent ends are dispensed with to form runway sections, and wherein said runway sections are joined to for a mult-sectional runway track.

5. A toy as described in claim 1, wherein a plurality of spherical elements are employed, each said spherical element being of a different diameter, whereby said spherical elements are each suspended in the vertical plane bisecting the angle of the runway at a different horizontal level, said toy being pivotally mounted on a base to permit tilting of said toy toward and away from the vertical.

6. A toy as described in claim 1 wherein an aperture is provided in said longitudinal plane transparent top for introducing into and removing from said longitudinal convergent angled interior runway enclosure each said ball employed therein.

7. A toy described in claim 2 wherein an aperture is provided in said longitudinal plane transparent top for introducing into and removing from said doubly-convergent angled interior runway enclosure each said ball employed therein.

8. A toy described in claim 3 wherein an aperture is provided in a portion of one of said elliptical plane transparent ends for introducing into and removing from said elliptically contoured interior runway enclosure each said ball employed therein.

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