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Grattoni

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[54] **HAND MANIPULATIVE BALL AND RACE PUZZLE DEVICE**

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[52] **U.S. Cl.** ..... **273/153 R**

[51] **Int. Cl.** **A63f 7/04**

[58] **Field of Search** ..... 273/109, 113, 115, 273/116, 153 R, 156

[56] **References Cited**

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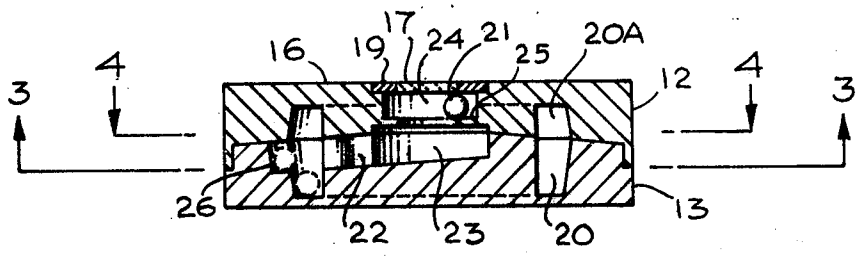
Primary Examiner—Anton O. Oechsle

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[57] **ABSTRACT**

A puzzle device consists of a two part opaque hand manipulative closed case in which is a circular race in which a small playing ball rolls freely, there being a central cavity beneath a small viewing window in the top closure of the case; a radial groove intersects the race and connects with the cavity under the window, there being an intermediate separating flange which during manipulation of the device guides the ball to the window where it is visible when the puzzle is solved.

2 Claims, 6 Drawing Figures



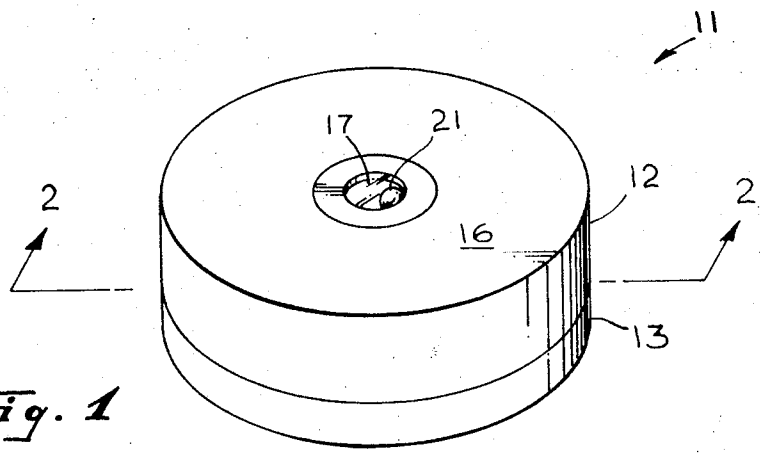


Fig. 1

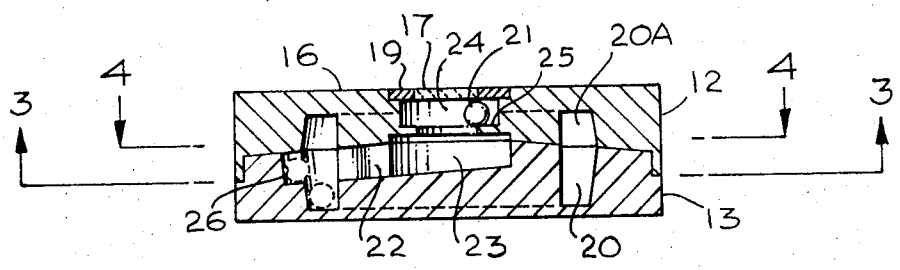


Fig. 2

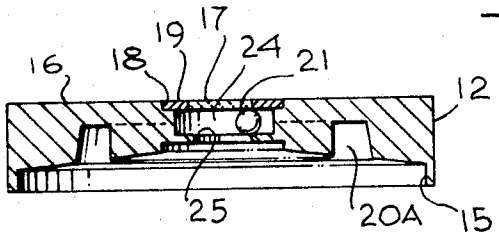


Fig. 5

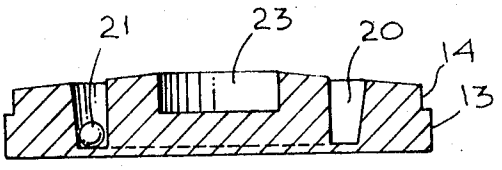


Fig. 6

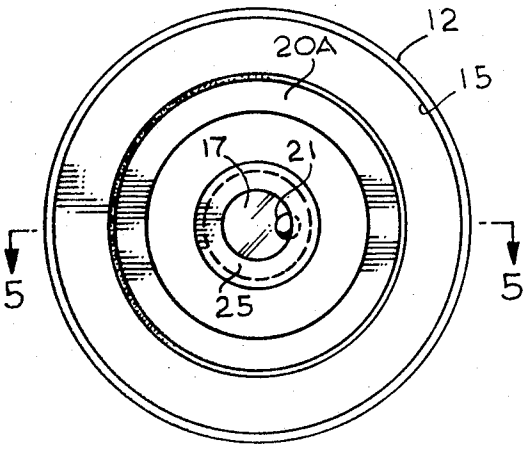


Fig. 3

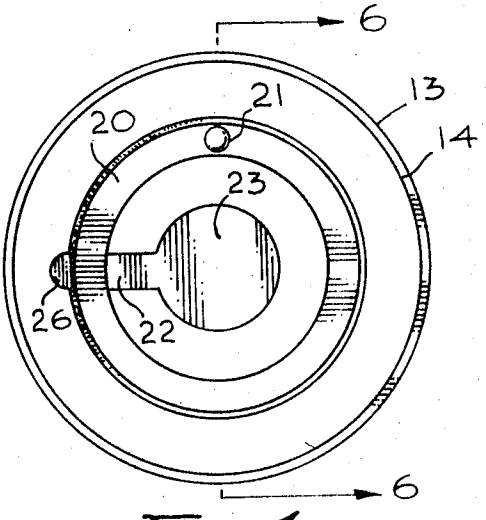


Fig. 4

HAND MANIPULATIVE BALL AND RACE PUZZLE DEVICE

BACKGROUND AND SUMMARY OF THE INVENTION

It is the principal object of this invention to provide an interesting puzzle device which is played by its manipulation in the hands, which is simple and of permanent construction, is self-contained, and whose inner structure is invisible except for a small window which makes visible the movable spherical playing ball at the time that the puzzle has been solved. It is the object of the puzle to bring the ball to the position of visibility at the window.

These and other objects are attained by my invention herein described, reference being made to the accompanying drawings showing one form thereof.

BRIEF DESCRIPTION OF THE DRAWING

FIG. 1 is a perspective view showing the exterior form of the device, and particularly showing the playing ball visible in the sight window when the puzzle has been solved;

FIG. 2 is a vertical cross-sectional view taken on the line 2—2 of FIG. 1, also showing alternative positions of the playing ball;

FIG. 3 is a bottom plan view of the upper half of the device taken from the position indicated by the line 3—3 of FIG. 2;

FIG. 4 is a top plan view of the lower portion of the device, taken from the position indicated by the line 4—4 of FIG. 2;

FIG. 5 is a cross-sectional view taken on the line 5—5 of FIG. 3; and

FIG. 6 is a cross-sectional view taken on the line 6—6 of FIG. 4.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring to the drawings, a preferred embodiment of the puzzle device consists of a pill-box like container 11 having an upper portion 12 and a lower portion 13 which fit together by means of a peripheral recess 14 in the outer rim of the lower portion 13 into which there is engaged the peripheral flange 15 on the bottom edge of the upper portion 12, these fitting closely together for a friction fit, or being provided with concealed fastening pins, adhesives, or similar means to secure the parts together. The outer surfaces of the body 11 are smooth and preferably without position-defining markings. The body is preferably made of light weight metal, but it may be made of opaque synthetic plastic, or other suitable structural material.

The top surface 16 is provided with a relatively small centrally disposed observation window which consists of a transparent lens 17 held in a suitable recess 18 by a tightly fitting bushing 19. The single playing ball 21 may be there observed to indicate that the puzzle has been solved.

The lower portion 13 is provided with an internal cicular groove or race 20 large enough to permit the free rolling of the playing ball 21, this groove being disposed between the center and the periphery of the said lower portion. The groove is of depth at least twice the diameter of the playing ball 21. A radial groove 22 extends outwardly from a central shallow cavity 23, to and slightly beyond the race 20, the portion beyond the race forming a rest pocket 26 large enough to contain the playing ball 21, during the progress of solving the puzzle.

The playing ball 21 is preferably a steel ball, as commonly used in ball bearings, for one reason because of its weight and the production of faint sounds which assist the operator in following its movement.

The upper portion 12 of the body 11 is provided on its top surface with the observation window including the lens 17 as above described. Beneath the lens 17 and concentric therewith there is provided a terminal recess 24 which is slightly deeper than the diameter of the playing ball 21, there being provided at the lower edge an inwardly directed peripheral flange or shelf 25 upon which the ball may repose at the end of its journey from its starting position in the circular race 20, and from which shelf it may be observed through the lens at the termination of the game or solution of the puzzle. The upper portion 12 of the body 11 is also provided with a downwardly directed groove 20A which coincides with the race or groove 20 previously described in the lower portion of the body 11.

While the drawings are made approximately to scale for the preferred form of my device, it will be understood that variations in the arrangement of the parts and the appearance of the assembly may be employed, within the limits defined by the claims.

The playing ball 21 is moved through the grooves and into and out of the several recesses by manipulation of the device held in the hands, being guided by the slight sound or "feel" of the ball as it moves.

I claim:

1. A puzzle device comprising
   - a two-part opaque body having an interior circular race;
   - a playing ball adapted to roll freely in said race;
   - a viewing window in the top face of said body;
   - a centrally disposed cavity formed in said body beneath said window;
   - a radially disposed coverage groove which near one end intersects said race and at the other end terminates in the bottom part of said centrally disposed cavity;
   - said centrally disposed cavity having an inwardly directed flange at an intermediate elevational position dividing said cavity into an upper and a lower part, whereby the playing ball may be seen through said window when said ball is resting on said flange in said upper part of said cavity.

2. A puzzle device comprising
   - a body having an upper portion and a bottom portion arranged to be superimposed, each portion being provided with a corresponding circuitious groove which when the two portions are assembled form an interior race in which a spherical playing ball may freely roll, said race being in a depth at least twice the diameter of the playing ball;
   - a radial groove in the bottom portion of said body, said radial groove intersecting said race at an elevation above the bottom of said race, and extending outwardly therefrom for a distance approximately the diameter of the playing ball, and said radial groove extending inwardly from said intersection on a slightly inclined path to connect with a shallow central cavity in the said bottom portion;
   - a centrally disposed transparent window in said upper body portion;

a shallow upper central cavity formed in said upper body portion, said upper cavity adjoining said shallow central cavity in said bottom body portion when the portions are superimposed;

a spherical playing ball adapted to freely roll at times in said central cavity, in said radial groove, and in said race;

means for holding together said superimposed upper and lower body portions; and

an inwardly directed flange disposed on the lower rim of said central cavity, upon which flange said playing ball may at times be disposed and viewed from said window.

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