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COMBINED TUMBLING TOY WITH RIBS AND BALL

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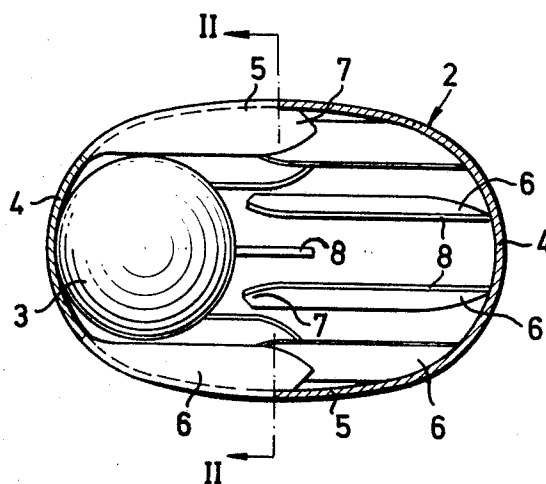


FIG. 1

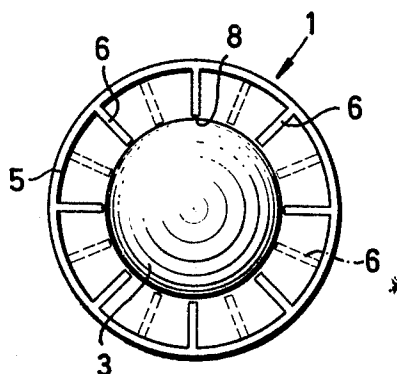


FIG. 2

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COMBINED TUMBLING TOY WITH RIBS AND BALL

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6 Claims

ABSTRACT OF THE DISCLOSURE

A tumbling toy having an elongated shell and internal ribs integral with the shell and presenting axially extending inner edges on which a ball may roll forth and back within the shell.

This invention relates to a tumbling toy of the kind comprising an elongated shell having rounded ends, axially extending guide means within said shell and a ball axially movable forth and back within said guide means. Toys or puppets of the kind referred to are known in which the guide means comprises a tube connected with the outer shell by means of suitable stiffening members.

It is an object of the present invention to provide a toy of the kind referred to which can carry out more complicated and amusing tumbling movements which movements will continue for an extended period after having been initiated.

According to the invention there is provided a toy comprising an elongated shell having rounded ends, a ball axially movable within said shell, and a plurality of internal ribs integral with said shell, each of said ribs having an inner edge extending axially and tangentially of a circular cylinder the diameter of which slightly exceeds that of the ball.

A toy constructed in accordance with the invention can be made with a shell having a very small weight as compared to the weight of the ball since the internal ribs are effective both as stiffening means for the outer shell and as guide means for the ball. The movements of the ball occur very smooth with a minimum of friction because the ball rolls on the edges of the ribs. Consequently the toy may perform long-lasting movements of great effect before coming to rest in an upright position, even in case it has been given only a modest push or thrust or, alternatively, if it is placed on a surface which is only slightly inclined from horizontal. The toy can also be manufactured in a simple and cheap way since the ribs can readily be produced integral with the outer shell by injection moulding or other suitable methods which do not involve the use of complicated moulding tools. It will be appreciated that normally the toy will be made of two halves or parts in which the ball is mounted before the parts are permanently connected together.

The shell may be composed of two wholly or substantially identical, cup shaped shell parts joined together in a central plane, each shell part having a plurality of internal ribs protruding beyond said central plane into the other shell part. In this way the extensions of the ribs provide an effective and simple means for guiding the two shell parts during the connection operation which may consist in a glueing or welding together the adjoining annular shell end faces. In the finished toy, the said extensions of the ribs furthermore provide a partial relief in respect of shearing forces acting on the connecting seam between the shell parts.

In order to enable the invention to be carried out, a preferred embodiment thereof will now be described, by

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way of example, with reference to the accompanying drawing in which

FIG. 1 shows an axial or longitudinal section through the toy, and

FIG. 2 shows an end view taken approximately as a section along the line II—II of FIG. 1 and showing one of the shell parts and the ball.

As shown on the drawing, the toy comprises an outer shell composed of two identical parts 1 and 2, and a ball 3 of heavy material, preferably steel, which is movable forth and back in the longitudinal direction in the shell. The two shell parts 1 and 2 may preferably be made of plastic material, and each part has a rounded, wholly or substantially spherical bottom 4 which merges smoothly into a web portion 5 of approximately cylindrical shape even if the generatrix thereof is preferably slightly convex as shown in FIG. 1. Thus the outer contour of the toy is substantially oval in an axial section as shown in FIG. 1. Preferably, the outer surface of the shell 1, 2 is a surface of revolution generated by rotating said axial section about the longitudinal axis which in FIG. 1 is horizontal.

Integral with each shell part 1 and 2 are a plurality of longitudinal internal ribs 6 extending substantially in radial planes from the inner surface of each shell part towards the longitudinal axis. As shown, each shell part has eight ribs 6 angularly equi-spaced. The internally facing longitudinal edge 8 of each rib extends parallel to the axis of the toy and merges smoothly with the bottom portion 4 of each shell part 1, 2. The rectilinear portions of the ribs extend tangentially to a circular cylinder which is coaxial with the outer shell and the diameter of which is slightly greater than the diameter of the ball 3. The ball can therefore roll on the edges 8 of the ribs when it moves forth and back within the shell.

As shown in FIG. 1 the ribs 6 are extended beyond the annular end face of each shell part 1 and 2 by means of protruding portions 7 the outer edges of which are a relatively tight fit in the opposed shell part. The rib portion 7 may therefore be utilized for centering the shell parts when they are to be connected after the ball 3 has been placed in one of the shell parts, and they furthermore relieve the connecting seam between the shell parts in the finished toy.

Due to the great weight of the ball 3 in relation to the shell 1, 2 the finished toy will, when it is left to itself, stand vertically on one of its ends, but when it is placed on an inclined surface or if one pushes it slightly, it will turn and carry on a tumbling movement whereby the ball 3 rolls forth and back internally of the shell by the edges of the ribs 6. When the shell is constructed as a body of revolution, the tumbling movement of the toy may, if it is given a suitable thrust or impact, be superposed by a rolling movement about the longitudinal axis which may produce a very amusing effect.

The finished toy may be provided with a cover or coating of a suitable fabric, or a printed decoration of naturalistic or non-figurative character, not shown, may be applied to the outer surface thereof. A colored or patterned decoration may also be provided directly in the material of which the shell parts are made.

What I claim is:

1. A tumbling toy comprising a hollow body having an axis and including two opposite, substantially identical cup shaped sections which are rounded in shape and joined together in a central plane, each of said body sections including a plurality of individual ribs located in and rigidly secured to the respective body section and projecting radially inwardly from the body section toward said axis, said ribs being angularly spaced from each other about said axis and having inner free edges extend-

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ing in the direction of said axis and defining a ball cage in the body, the ribs in one body section being discontinuous and staggered with respect to the ribs in the other body section, a ball located in said ball cage and being dimensioned to roll back and forth in the cage along the free edges of said ribs while engaging only the free edges of the ribs during travel.

2. The tumbling toy defined in claim 1 wherein the ribs in each of the body sections extend into the other body section.

3. A tumbling toy comprising a hollow body of generally oval shape having an axis and including opposite end portions which are rounded in shape, said axis passing through said opposite end portions of the body, a plurality of individual ribs located in and rigidly secured to the body and projecting radially inwardly from the body toward said axis, said ribs being angularly spaced from each other about said axis and having inner free edges extending parallel to and equally radially spaced from said axis thereby defining a ball cage in the body, a ball located in the cage and being dimensioned to roll back and forth in the cage along the free edges of said

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ribs while engaging only the free edges of the ribs during travel.

4. The tumbling toy defined in claim 3 wherein said ribs are formed integral with said body substantially throughout the length of the ribs.

5. The tumbling toy defined in claim 4 wherein said ribs include at least three ribs equally angularly spaced about said axis.

6. The tumbling toy defined in claim 5 wherein said body is formed by a surface of revolution.

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