TOY SPINNING TOP

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ABSTRACT

A top having a hollow partially transparent rotating body mounted on a stationary base and driven by a vertical reciprocating screw axially located in the body, a horizontal stationary scenic plate or platform within the body, a reduction gear unit within and driven by the rotating body and disposed below the scenic plate, an object supporting tubular column around the screw within the body and rotated by the gear unit, and at least one rotating figure within the body above the stationary scenic plate having its axis of rotation parallel to the tubular column and being driven by the gear unit, whereby the object, body, column and/or figure all rotate at different speeds and/or directions to each other.

11 Claims, 5 Drawing Figures
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TOY SPINNING TOP

BACKGROUND OF THE INVENTION

1. Field of the Invention

This invention relates to tops having visible spinning or whirling motion about a vertical axis supported in a stationary base, combined with figures which rotate relative to the top.

2. Description of the Prior Art

Toy spinning tops having an upper whirling transparent hood which is rotatable about a fixed vertical axle and contains whirling figures inside its hood are known in Balleis United States Pat. No. 3,449,858 issued on June 17, 1969. Such tops include reduction gear units driven by their spinning bodies or hoods for moving one or more figures mounted on a rotating horizontal plate within their hoods.

SUMMARY OF THE INVENTION

Generally, the present invention contemplates providing a toy spinning top with a stationary platform or scenic plate having figures and/or objects which rotate relative thereto and to the spinning body of the top as well as having a central column which may rotate at a different speed from that of the figures. This top has a hollow body rotatable on a vertically disposed stationary axle or shaft affixed to a base, which body comprises an upper transparent dome and a lower housing, between which is mounted a gear reduction unit. This unit comprises a pinion gear rotatable with the body and journalled on the shaft which meshes with a gear rotatably mounted on a stationary plate affixed to the shaft. This gear is provided with a pinion which meshes with a reduction gear journalled for rotation on the shaft, which reduction gear is affixed to a larger concentric drive gear that meshes with a plurality of circumferentially spaced figure or object rotating gears, also mounted on or journalled in the stationary plate. A stationary scenic plate or platform covers these gears and is disposed below the upstanding rotatable figures. The central rotatable column is mounted on the large drive gear and may carry various figures or objects. The lower housing may be provided with a reed plate and a fan for making music when the top is spinning.

OBJECTS AND ADVANTAGES

Thus it is an object of this invention to provide a toy spinning top with rotating figures on a stationary scenic disk as well as a rotating column carrying various objects, so that a child playing with this spinning top will get a more fascinating impression and will play with this top with greater interest and enjoyment.

Another object is to produce, for example, a series of Mother Goose story book tops with the rotating figures and objects being the characters from nursery rhymes.

BRIEF DESCRIPTION OF THE DRAWINGS

The above mentioned and other features, objects and advantages and a manner of attaining them are described more specifically below by reference to an embodiment of this invention shown in the accompanying drawings, wherein:

FIG. 1 is an isometric view of a toy spinning top embodying this invention;
FIG. 2 is an axial vertical sectional view of the top shown in FIG. 1;
FIG. 3 is an enlarged fragmentary view of the reduction gearing shown in FIG. 2;
FIG. 4 is a cross-sectional view taken substantially along line 4 — 4 of FIG. 2 with parts broken away, and showing the upper portion of the reduction gear arrangement; and
FIG. 5 is a cross-sectional view taken substantially along line 5 — 5 of FIG. 2 showing the lower portion of the reduction gear arrangement.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring now to the drawings, particularly FIGS. 1 and 2, a spinning top 10 according to this invention is provided with a base cup 12 which may be made of a flexible plastic and has a vertical central aperture 14 for supporting the lower end of an upwardly projecting stationary axle or shaft 16 which may be affixed thereto by means of a stop 18 on the shaft and a push nut 20. A protective washer 22 may be disposed between the stop 18 and the top surface of the base cup 12. A hollow body 24 in the shape of a Mother Goose hat, is journalled for rotation on the shaft 16 by means of an apertured bottom ferrule 26 and a gear reduction unit 50 to be described hereinafter.

This hat shaped body 24 consists of an opaque lower shell housing 28 which has a horizontally dish shaped upper wall 30 and a transparent plastic upper dome 32 over the dish 30. The bottom ferrule 26 is affixed to the lower surface of the shell housing 28 and rests on a thrust washer 34 which is disposed adjacent the upper surface of the stop 18.

Ferrule 26 may contain a reed plate 27 for musical tones which may be operated by a fan 29 affixed to the shaft 16 having a relative motion with respect to the rotating apertured housing 28 for sucking air through the apertures 26' in the ferrule 26 and reeds on the plate and out through the apertures 28' in the housing 28. The upper surface of the transparent hat shaped dome 32 is provided with a cup shaped depression 36 having a central aperture 38 through which a central screw guide tube 40 may depend axially into the body 24. A top ferrule 42 disposed in this depression 36 houses a cup shaped ratchet means 44 having teeth means around its rim which may engage a clutch plate and/or teeth cooperating depressions 45 in the bottom of the cup 36. An axial reciprocating screw means 46 extends through a slot in the center of the ratchet means 44 and into the tube 40. This screw means 46 has a knob 48 at its upper end for manually pumping or reciprocating the screw for imparting a whirling or spinning motion to the body 24 through the ratchet means 44 engaging and disengaging the depressions 45.

Referring now to FIG. 3, the gear reduction 50 is disposed in the dished portion of the wall 30 of the lower shell housing 28 which wall 30 carries a pinion gear 51, which is rigidly secured to the center thereof and journaled on the shaft 16. This pinion 51 meshes with a gear wheel 52 of a cluster gear 54 rotatably mounted in a gear housing plate 56 mounted on a stationary plate 58 rigidly secured to the shaft 16 by means of a bushing 60. A pinion 62 on the cluster gear 54 meshes with a gear wheel 64 which is journaled for rotation on the shaft 16. Axially aligned and affixed to this gear 64 for rotation therewith is a larger drive gear 66 which gear meshes with three circumferentially spaced spindle, figure or object supporting gears 68, 70 and 72
which are rotatably journalled between the stationary plate 58 and a stationary scenic plate or platform 74. For example, as shown in FIGS. 1 and 2, the gear 68 has as its figure 69 attached thereto a cat and a fiddle. The other gears 70 and 72 herein show figures 71 and 73 mounted thereon to be, for example, a "dog" and a "dish and spoon."

A central column 76 concentric with the top tube 40 is affixed to the center of the larger or drive gear 66 for rotation therewith and is adapted to support figures or objects 77, such as a cow jumping over a moon, for rotation in the transparent hood 32.

For example, to illustrate another Mother Goose rhyme, the object 79 on the column 76 may be a well and the three figures 69, 71 and 73 mounted on the gears 68, 70 and 72, respectively, may be a pail, Jack, and Jill in falling or tumbling positions.

When the spinning top 10 as illustrated, is rotated by the drill spindle or screw means 46 by upward and downward movements of the knob 48, pinion 51 which is rigidly secured to the rotating body 24, will rotate the column 76 in a clockwise direction and the figure supporting gears 68, 70 and 72 in a counterclockwise direction. Thus the body 24 rotates at one and a faster speed in a clockwise direction, while the column 76 rotates at another and slower speed in a clockwise direction, and the figures 69, 71, and 73 rotate at yet a different speed in a counterclockwise direction, all for the added enjoyment of a child.

While there is described above the observed principles of this invention in connection with specific apparatus, it is to be clearly understood that there may be many unobserved side effects as well as other and different types of objects and figures for rotation, all of which contribute substantially to the efficiency of this device, and that this description is made only by way of example and not as a limitation to the scope of this invention.

I claim:

1. In a toy spinning top having a hollow body rotatable on a stationary shaft affixed to and projecting upwardly from a fixed base and having an upper transparent dome and a lower housing, an axially reciprocating screw means for rotating said body, and a gear reduction unit within said lower housing driven by said hollow body, the improvement comprising:
   A. a scenic platform affixed to said stationary shaft within said hollow body,
   B. at least one figure rotatably mounted above and journaled in said platform in said dome and adapted to be driven by the reduction gearing relative to said platform and said hollow body, and
   C. a centrally disposed column within said rotating body above said platform and having one end affixed to the gear reduction unit for rotation thereby relative to said hollow body, said rotating figures, and to said platform.

2. A spinning top comprising:
   A. a stationary base having a vertical shaft anchored thereto,
   B. a circular housing journaled on said shaft,
   C. a reciprocating screw mounted in said housing above and co-axial with said shaft for rotating said housing,
   D. a stationary scenic platform inside said housing mounted on and affixed to said shaft,
   E. a rotatable spindle journaled in said stationary platform parallel to said shaft, and
   F. gearing means between said housing and said platform, and journaled on said shaft for rotating said spindle when said housing rotates.

3. A top according to claim 2 wherein said spindle includes a figure affixed thereto.

4. A top according to claim 2 further comprising a tubular column above said platform and affixed to said gearing means for rotation thereby.

5. A top according to claim 4 wherein said tubular column includes an object affixed thereto.

6. A spinning top comprising:
   A. a stationary base portion having
      a. a vertical shaft, and
   b. a stationary scenic platform mounted on and affixed to said shaft,
   c. at least one rotatable spindle journaled in said stationary platform parallel to said shaft, and
   d. gearing means attached to said platform for rotating said spindle; and
   B. a rotatable housing journaled on said shaft and surrounding said platform having
      a. a reciprocating screw means above and co-axial with said shaft and housing for rotating said housing on said base, and
   b. a gear connected to said housing for driving said gear means attached to said platform to rotate said spindle when said housing is rotated.

7. A top according to claim 6 wherein said spindle includes a figure affixed thereto.

8. A top according to claim 6 further comprising a tubular column above said platform and affixed to said gearing means for rotation thereby.

9. A top according to claim 8 wherein said tubular column includes an object affixed thereto.

10. A top according to claim 6 including a reed plate and fan mounted in said housing for making a musical tone when said housing rotates.

11. In a toy spinning top having a hollow body rotatable on a stationary shaft affixed to and projecting upwardly from a fixed base and having an upper transparent dome and a lower housing, an axially reciprocating screw means for rotating said dome and housing, and a pinion gear rotatable with the hollow body, the improvement comprising:
   A. a stationary plate affixed to said shaft within said hollow body,
   B. a gear housing affixed to said stationary plate,
   C. a gear and pinion cluster rotatably mounted in said gear housing and driven by said pinion gear,
   D. a reduction gear rotatably mounted on said shaft and engageable with said pinion cluster,
   E. a drive gear affixed to said reduction gear for rotation therewith,
   F. at least one gear rotatably journaled in said stationary plate engageable with said drive gear and driven thereby,
   G. a figure affixed to the axis of said one gear for rotation therewith within the transparent dome, and
   H. a scenic plate disposed between said figures and said one gear affixed to said stationary plate whereby said figures rotate relative to said stationary scenic plate and said hollow body.

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