Dec. 12, 1961 R. T. WEST 3,012,369

FLYING SAUCER TOY

Filed March 17, 1958

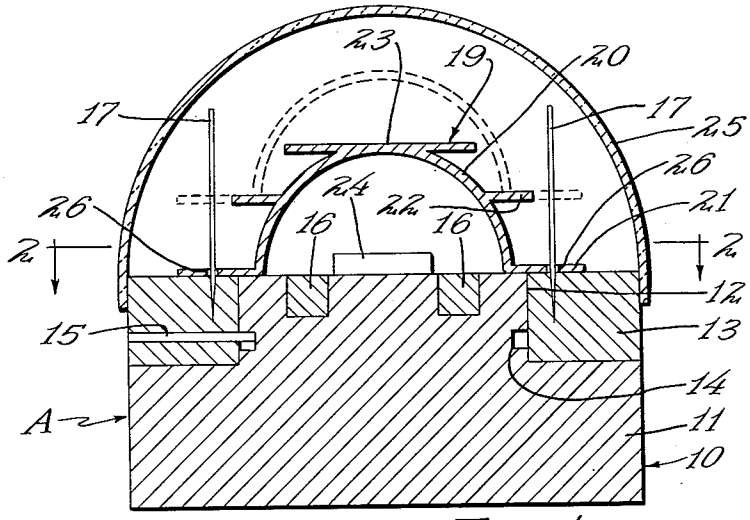


FIG. 1

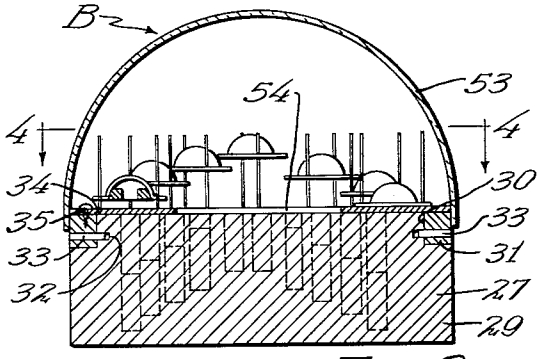


FIG. 3

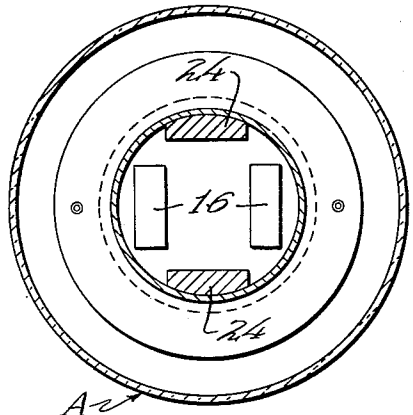


FIG. 2

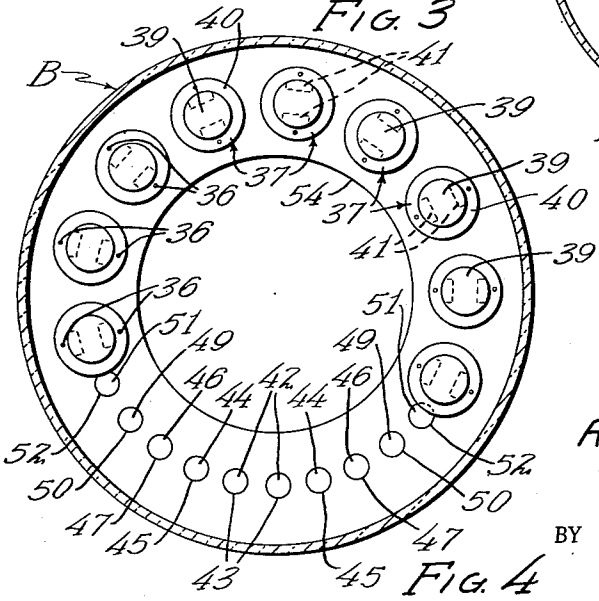


FIG. 4

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FLYING SAUCER TOY

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This invention relates to an improvement in flying saucer toys wherein it is desired to provide a toy creating an unusual illusion when in use.

During recent years there has been much talk about so called flying saucers which have been repeatedly reported soaring in the atmosphere over the earth. The present device comprises a toy which may be used as an ornament or paper weight and which incorporates a circular object capable of soaring into the air and decending to a platform upon operation of the toy.

In a preferred form of my construction, the toy comprises a saucer shaped object incorporating one or more magnets concealed within the object or attached to the under surface thereof. The object is supported upon a rotatable member by guide means which extend through angularly spaced portions of the disc to hold the disc from rotation relative to the rotatable member. Mounted in fixed relation to the rotatable member, and beneath the disc, are one or more magnets arranged with uppermost sides which are of similar polarity as the under surfaces of the magnets incorporated within the disc. The magnets in the disc and in the base are so arranged to move into or out of vertical relation upon rotation of the rotatable member. When the magnets on the base move beneath the magnets on the rotatable member, a repelling action is created which raises the disc out of contact with the base and supporting member. When the magnets on the base are not in position beneath the magnets of the disc, the disc descends. For example, if the disc is provided with two magnets in diametrically opposed relation, and if the base is provided with a similar pair of magnets in diametrically opposed relation, the disc will hover in spaced relation to the rotatable member when the magnets in the disc are above the magnets in the base and will gradually descend onto the rotatable member when the rotatable member is rotated 90 degrees.

A feature of the present invention resides in the fact that one or more objects representing flying saucers may also be mounted upon a rotatable member which moves over one or more fixed magnets. In this arrangement, the objects representing the flying saucers are mounted offset from the center of rotation of the rotatable member and the fixed magnet or magnets may be located beneath the rotatable member and at a similar radius from the center of rotation of the rotatable member. Thus, as the rotatable member is turned, the disc shaped objects will rise from the rotatable member and soar in the air above the fixed magnet.

A further feature of this latter form of construction of my invention lies in the fact that a series of magnets may be arranged in angularly spaced relation in the path over which the objects representing flying saucers may move and in sinking the magnets at varying levels beneath the surface of the rotatable member. By an arrangement of this type, one or a series of objects representing flying saucers may be caused to move gradually from the surface of the rotatable member and soar in the air during a portion of the circular motion of the rotary member and then may be caused to gradually descend to rest upon the surface of the rotatable member during the remainder of the circular movement.

These and other objects and novel features of the present invention will be more clearly and fully set forth in the following specification and claims.

In the drawings forming a part of the specification:

FIGURE 1 is a cross sectional view through a magnetic toy showing the general arrangement of parts therein.

FIGURE 2 is a sectional view on a horizontal plane through the toy illustrated in FIGURE 1, the position of the section being indicated by the line 2—2 of FIGURE 1.

FIGURE 3 is a vertical sectional view through a modified form of toy.

FIGURE 4 is a horizontal sectional view through the toy illustrated in FIGURE 3, the position of the section being indicated by the line 4—4 of FIGURE 3.

FIGURES 1 and 2 of the drawings illustrate a toy A which is of a simple form. In the particular arrangement illustrated, the toy A includes a generally cylindrical base 10 having a relatively larger diameter lower portion 11 and a relatively smaller diameter upper portion 12. A ring 13 encircles the smaller diameter portion 12 and in the arrangement illustrated is of the same outside diameter as the large diameter portion 11. The small diameter portion 12 of the base is provided with a peripheral groove 14 extending into its surface. One or more pins 15 or similar fastening means extend through the ring 13 and into the groove 14 to attach the two parts together.

A pair of magnets 16 are embedded in the upper portion 12 of the base 10, these magnets 16 being in diametrically opposed relation about the center of the base. A pair of small diameter wires or pins 17 extend into the upper surface of the ring 13 in diametrically opposed relation to the center of the ring. These pins 17 act to hold the object 19 representing a flying saucer from rotation relative to the ring 13.

The object 19 is provided with a central dome shaped portion 20 having a peripheral flange 21 at its lower extremity. A smaller diameter ring shaped member 22 may encircle a portion of the dome 20 and a disc 23 is provided at the top of the dome. Obviously, the shape of the object representing the flying saucer may be varied in design and construction. However, the object is preferably made of non-magnetic material.

A pair of magnets 24 are cemented or otherwise secured to the underside of the dome 20 inwardly of the brim 21. These magnets 24 are arranged with their undersurface polarized similarly to the upper surfaces of the magnets 16. As a result, when the magnets 24 are directly above the magnets 16, the repelling action will raise the magnets 24 and the object 19 to which they are attached upwardly into spaced relation to the base. On the other hand, as the magnets 24 are rotated into right angular relation to the magnets 16 as indicated in FIGURE 2 of the drawings, the weight of the object 19 and the magnets 24 attached thereto will cause the objects to drop into contact with the base.

A dome shaped transparent cover 25 of plastic or other suitable material is frictionally fit or otherwise secured to the ring 13 and overlies the object 19 and the guide pins 17. In actual practice, the interior surface of this dome is decorated to provide a landscape, and the upper surfaces of the ring 13 and base portion 12 are also decorated. Thus, as the ring 13 is rotated, the object 19 gradually lifts from its base and hovers in the air, producing a very novel and unusual effect. Due to the small size or diameter of the pins 17, they are virtually unnoticeable and as they are arranged on diametrically opposite sides of the body 19, and due to the fact that the openings 26 in the ring 21 are somewhat larger in diameter than the diameter of the pins 17, the object may tilt and flutter in a very lifelike manner.

In FIGURES 3 and 4 of the drawings, a somewhat different embodiment of the same principle is disclosed. The toy B is shown as having a base 27 provided with

a large diameter lower portion 29 and a smaller diameter portion 30. A ring 31 encircles the small diameter base portion 30 and the outer surface of the ring preferably forms a continuation of the outer surface of the lower portion 29 of the base. A groove 32 is provided in the periphery of the small diameter portion 31 and pins such as 33 extend through the ring 31 and into the groove 32 to hold the ring and base assembled.

A thin base plate or disc 34 of non-magnetic material is secured to the ring by screws 35 or other suitable fastening means and overlies the upper surface of the base portion 30. The disc 34 may or may not be continuous and may comprise merely a ring of material leaving the center portion of the base visible.

A plurality of pairs of pins 36 extend upwardly from the disc 34. Each pair of pins 36 are angularly spaced from each additional pair and the center point between the pins of each pair is at a common radius from the center of rotation. In the particular arrangement illustrated, the pins are radially spaced and the inner and outer pin of each pair are radially spaced objects such as 37, each being designed to represent a flying saucer or space ship, are slidably supported on each pair of pins. Each of the objects 37 includes a dome shaped top portion 39 and a horizontal encircling flange or rim 40 through which the pins 36 extend. The pins 36 are preferably on diametrically opposite sides of the axis of the dome 39. The apertures through which the pins 36 extend are of sufficiently greater diameter than the diameter of the pins so that each of the objects 37 is provided with a pair of diametrically opposed magnets 41 attached to their undersurfaces in any suitable way. The detail arrangement of the objects 37 may be varied considerably and are shown generally similar to the objects 19 shown in FIGURE 1.

A series of magnets are embedded in the base 27. These magnets are preferably embedded in the base 27 at different depths. The magnets may be actually cast into a base formed of non-magnetic material or may be inserted into suitable apertures formed in the upper surface of the base. In the particular arrangement illustrated, two intermediate magnets of the series indicated at 42 are wedged in apertures 43 in the upper surface of the base 21 so that their upper surfaces are substantially flush with the upper surface of the base. The magnets 44 on opposite sides of the central magnet 42 are wedged into apertures 45 which are slightly deeper than the apertures 43 so that the upper surfaces of the magnets 44 are slightly below the top surface of the base. Magnets 46 are arranged outwardly of the magnets 44 and are wedged in apertures 47 slightly deeper than the apertures 45 so that the upper surfaces of the magnets 46 are below the level of the upper surfaces of the magnets 44. Magnets 49 are arranged outwardly of the magnets 46 and are inserted in apertures 50 to a depth greater than the depth of the apertures 47 so that the upper ends of the magnets are below the level of the upper ends of the magnets 46. The outermost magnets 51 are recessed in apertures 52 deeper than the recesses 50 so that the upper surfaces of the magnets 51 are below the level of the upper surfaces of the magnets 49.

All of the magnets 42, 44, 46, 49 and 51 are arranged with similar poles uppermost. The upper ends of these poles are of similar polarity to the lower ends of the magnets 41 in the objects 37. As a result, as the objects 37 rotate over the various magnets embedded in the base, a repelling action is created which causes the various objects to lift from the surface of the disc 34. Due to the fact that the repelling force is proportional to the distance between the magnets in the base and the magnets in the objects 37, the various objects will rise gradually to assume their greatest height when over the intermediate magnets 42 and then the objects will gradually lower onto the surface of the disc as rotation continues.

A dome 53 similar to the dome 25 is marginally secured to the ring 31 to rotate in unison therewith. This dome 53 is preferably of transparent plastic or glass and may be internally decorated to provide a scenic effect. If preferred, the center portion 54 of the disc 34 may be cut away to provide a fixed center portion which may also be decorated to provide a fixed area about which the various objects move. For example, the center portion of the base which is exposed through the open center 54 of the ring 34 may be painted to represent a lake or body of water surrounded by representations of trees or the like and as a result, the rotation of the ring 31 provides an illusion of a series of flying saucers or space ships taking off from the ground one after another, soaring in the air, and then coming to earth again. By varying the depths of the various magnets, the objects may be caused to dip intermediate their flight or to raise or drop more suddenly so as to produce any similar desired effect.

In using either embodiment A or B the child will place the base 10 or 27 on a flat surface. Inasmuch as most of the area rotatable relative the base 10 or 27 is provided by the transparent cover 25 or 53, as the case may be, the user will usually press his fingers against the cover and then produce a twisting thereof. The soaring of the object 19 or the objects 37 automatically ensues, or at least such an illusion is present for the pins 17 are virtually unnoticeable, especially when moving.

While the various objects have been described as being similar in form, it is obvious that if preferred, the objects may be somewhat differently shaped or may be differently colored to provide a variation in the shape and form. In constructing the objects, it is only necessary that the objects be light in weight and be of sufficient size to slide upon the pins. If the various objects are to follow a similar path, it is also desirable that they be of substantially equal weight and that the magnets in each be of substantially equal strength.

In accordance with the patent statues, I have described the principles of construction and operation of my improvement in flying saucer toys, and while I have endeavored to set forth the best embodiments thereof, I desire to have it understood that changes may be made within the scope of the following claims without departing from the spirit of my invention.

I claim:

1. A magnetic toy including a base, a ring rotatably supported upon said base, a pair of spaced parallel pins mounted on said ring and rotatable therewith, an object having a pair of apertures therein so that said object is slidably supported by said spaced pins for movement toward and away from said base, magnet means secured to said object, and magnet means secured to said base and over which said magnet means in said object may move upon rotation of said ring relative to said base, the undersurface of said magnet means in said object and the upper surface of said magnet on said base being of similar polarity and parallel to each other to provide a repelling force therebetween, whereby, upon movement of said magnet means on said object over said magnet on said base, said object will be repelled upwardly on said pins.

2. The construction described in claim 1 and in which said pins are positioned on diametrically opposite sides of the axis of rotation of said ring.

3. A magnetic toy including a base, a ring rotatably supported by said base, a pair of guide pins extending upwardly on diametrically opposite sides of said base, an object having a laterally extending flange provided with a pair of spaced apertures for encircling said pins so that said object is slidably supported on said pins for movement toward and away from said base, a pair of magnets secured to said object on diametrically opposite sides of the axis of said ring, and a pair of magnets on said base on diametrically opposite sides of the axis of said ring, the lower ends of the magnets on said object and the upper ends of the magnets on said base being of similar

polarity to create a repelling force, whereby upon rotation of said ring relative to said base, said magnets on said object are moved into and out of vertical alignment with said magnets in said base causing said object to move vertically as said ring rotates.

4. A magnetic toy including a base, a ring encircling said base and rotatable relative thereto, an object supported by said ring, said object having a laterally extending flange provided with a pair of spaced apertures, a pair of upright pins mounted on the ring and extending through said apertures for slidably supporting said object on said ring for movement of said object toward and away from said ring, magnet means secured to said object, and a series of magnets supported by said base beneath the path of movement of said object upon rotation

of said ring, the lower end of said magnet means in said object and the upper end of said magnets in said base being of similar polarity to create a repelling force therebetween, whereby movement of said object over said magnets in said base will cause said object to rise from said base.

5. The construction described in claim 4 and including a transparent dome secured to said ring and overlying said object and said pins.

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