Feb. 23, 1965 S. LUGGER 3,170,687

ROTARY TOY APPARATUS

Filed May 9, 1962

Fig. 1.

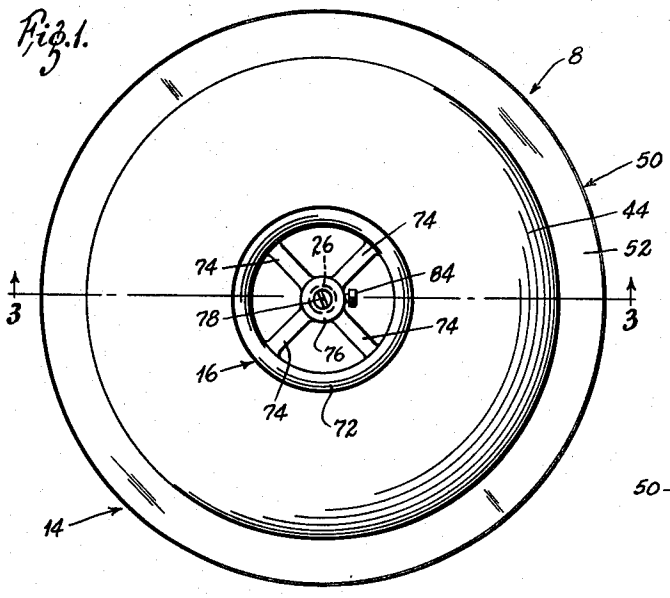


Fig. 4.

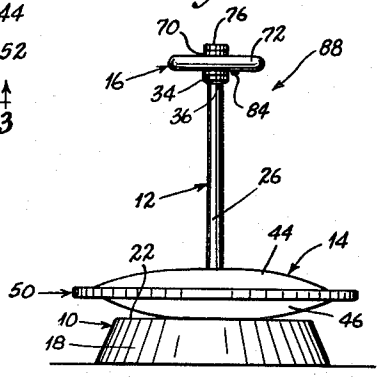


Fig. 2.

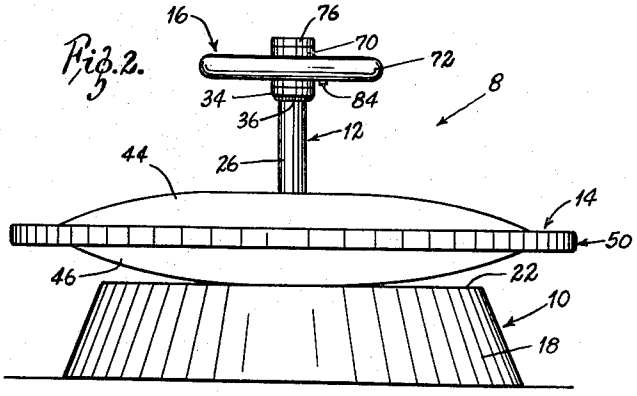


Fig. 5.

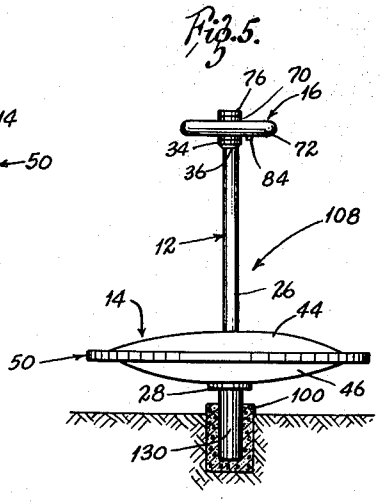
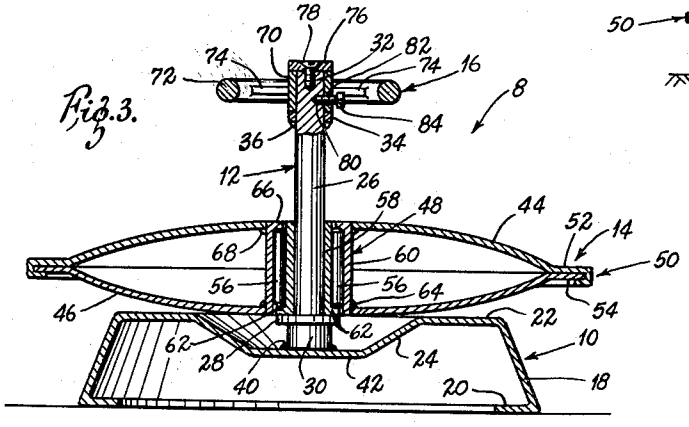


Fig. 3.



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ROTARY TOY APPARATUS

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The present invention relates generally to recreation and entertainment and more particularly to a novel rotary toy apparatus that although primarily designed for use and enjoyment by children, may also be manufactured on a scale large enough for use and enjoyment by adults.

The apparatus embodying the invention may be portable, so that it may be placed in operation at any desired location, or the apparatus may optionally be permanently installed, for example outdoors, as will appear.

The primary objective of the invention is to provide an amusement device that includes a rotatable platform whereon one or more individuals may sit or stand, and swirl or be swirled without danger of personal injury.

In order to attain this primary objective, the invention provides means supported from a stationary base about which a disc assembly is adapted to revolve, said disc assembly being supported for free rotational movements about an upright or standard that is rigidly secured to the base and extends upwardly therefrom.

The revolving or rotatable disc assembly is appropriately disposed in a horizontal plane slightly above the base, and rotations thereof may be produced by an individual seated or standing thereon, or the manual spinning of said assembly by a person standing beside the apparatus, as will be explained in more detail.

Another object of the invention is to provide a toy apparatus of the type to be described that may be portable or may be permanently installed, particularly with respect to out-of-doors use, as will appear.

Broadly, the present invention provides: a base; a standard supported centrally from the base and extending thereabove; a platform comprising a disc assembly rotatable about said standard and supported thereby; a bearing assembly or unit facilitating rotary movements of the disc assembly; a handwheel; means for releasably securing the handwheel to the upper end portion of the standard; and elements associated with the components specifically mentioned, as will appear.

The invention is illustrated on a sheet of drawings that accompanies this specification. Features and advantages of the invention that have not been set forth hereinabove, will either be apparent or pointed out in the detailed description to follow with reference to said drawings, augmented by the operational explanation that will be presented subsequent to said description.

In said drawings:

FIGURE 1 is a top plan view of a portable apparatus embodying the concept of the present invention;

FIGURE 2 is a side elevational view thereof;

FIGURE 3 is a vertical sectional view taken on the line 3—3 of FIGURE 1;

FIGURE 4 is a side elevational view on a reduced scale, illustrating an exemplary embodiment of the invention wherein the handwheel of the apparatus would be disposed at a higher level relatively to that shown in FIGURE 2; and

FIGURE 5 is a view similar to FIGURE 4 illustrating an exemplary permanent installation wherein the apparatus is supported from a concrete base embedded in the ground.

With particular reference to FIGURES 1, 2 and 3, a portable type rotary toy apparatus of the present invention is indicated as a whole by the numeral 8. The exemplary apparatus 8 includes as its major components a base generally designated 10, a cylindrical upright or standard designated 12, a rotatable disc assembly generally designated 14, and a handwheel designated 16.

The base 10 includes a peripheral side wall 18 that merges at the bottom into an annular inturned flange portion 20, and at the top into a horizontal wall 22 that has a central depressed section 24 formed therein as shown in FIGURE 3. The peripheral side wall 18 of the base 10 illustrated is conical, but it will be understood that this contour is not critical, but exemplary only. That is to say, the base 14 could be cylindrical, rectangular, or of any other configuration if desired.

The upright or standard 12 is cylindrical, and as shown, includes a main body section 26, a circular outstanding flange segment 28 integral therewith, and a therebelow preferably enlarged in diameter extension 30 that depends from and merges into said flange segment 28. Formed in the upper end portion of the standard main body section 26 and extending centrally downwardly therein is a threaded opening 32, and a collar 34 is rigidly secured to said main body by welding as suggested as 36, or otherwise. As suggested at 40, the bottom portion of the extension 30 is welded, or otherwise integrated with the horizontal bottom wall 42 of the top wall depressed section 24. From the foregoing description, and with particular reference to FIGURE 3, it will be apparent that the standard 12 is rigidly supported in vertical position from the base 10.

The rotatable assembly 14 includes an upper disc 44, a lower disc 46, and a free wheeling bearing unit generally designated 48. Although the upper and the lower discs are preferably contoured as shown in the drawings, it will be understood that the illustrated shape and diameter of them would be subject to change without departure from the concepts of this invention.

The peripheral edge of the disc assembly 14 is indicated at 50, where it is seen in FIGURE 3, that the marginal edge portion 52 of the upper disc 44 is crimped about the marginal edge portion 54 of the lower disc 46. Here again, it will be understood that the illustrated method of integrating the edge portions 52 and 54 is exemplary only, and subject to modification. Thus for example, the marginal edge portions of the discs may be welded together if desired, the peripheral edge 50 may be rounded, and so on.

The bearing unit 48 is a typical one having free wheeling characteristics, so that the disc assembly 14 may optionally rotate or be rotated, in a clockwise or a counterclockwise direction. Inasmuch as the bearing unit 48 is typical of a number of commercially available bearing units appropriate for the purpose contemplated herein, and furthermore since no claim is made to the bearing per se, only a brief description will be directed thereto.

Thus, the unit 48 illustrated includes a circular series of roller bearings 56 retained in operative position by an inner sleeve member 58 and an outer sleeve member 60. The inner sleeve 58 merges at its lower end into an outstanding annular flange portion 62 that rests upon the flange 28 of the standard 12. The outer sleeve 60

merges at its upper end into an inturned annular flange portion 66 that is welded, as suggested at 68, to the upper disc 44. The lower end of the sleeve 60 surrounds the flange 62 and, as suggested at 64, is welded to the lower disc 46 of the assembly 14. It will be appreciated as hereinbefore noted, that the illustrated and described bearing unit 48 has been presented as exemplary only, and does not exclude the employment of ball bearing or tapered roll bearing units should such be more feasible under certain conditions.

The handwheel 16 includes a hub portion 70 that preferably extends above and below the rim 72 as shown. A plurality of spokes 74 are integral with the hub portion 70 and the rim 72, and in the assembled status of the apparatus 8, the bottom face of the hub portion rests upon the top face of the collar 34 as illustrated particularly in FIGURE 3.

Numeral 76 designates a circular retainer plate for the handwheel 72, said plate being removably secured atop the hub portion 70 and the top face of the standard 12 by means of a countersunk screw 78. Said screw has a threaded shank that engages in the cooperative opening 32 provided therefor in the upper end portion of the main body section 26, as shown.

Means are provided for affixing the handwheel 16 to the upper end portion of the standard 12, or for optionally enabling rotations of said handwheel within the confines of the collar 34 and the retainer plate 76 thereabout.

Accordingly, a first horizontally disposed internally threaded opening 80 is provided in the upper end portion of the standard 26 in a plane below that of the perpendicular opening 32, and a second horizontally disposed threaded opening 82 is provided in the hub portion 70 of the handwheel. A set screw 84 having a threaded shank as shown, may secure the handwheel to the standard 26, or may be unthreaded to free said handwheel whereby to permit rotations thereof, as should be obvious.

The apparatus 8 shown in FIGURES 1 through 3 is particularly suitable for small children. It is noted that the diameter of the disc assembly 14 is considerably greater than that of the base 10, so that a youngster seated on said assembly would not be injured even though he let loose of the handwheel and were propelled onto the floor.

In FIGURE 4 there appears an exemplary modification of the invention. Generally designated by the numeral 88, this apparatus is a counterpart of the apparatus 8, the only difference being that the standard 12 is further elongated, so that the handwheel 16 would be located within convenient reach of an individual standing on the disc assembly 14. With this arrangement, rotary movements may be imparted by footwork, and the disc assembly may even serve as a platform whereon dance steps may be performed.

Inasmuch as except for the greater height of the standard 12, all components of the apparatus 88 are identical with those of the apparatus 8, the same reference numerals have been applied to corresponding elements that appear in FIGURE 4.

In FIGURE 5 there appears a typical out-of-doors installation of the apparatus generally designated 108. In this modification, the base 10 is dispensed with, the extension 30 appearing in FIGURE 3 is lengthened and designated 130, said extension being embedded in concrete 100 which thus serves as a base to support the apparatus. Obviously, in this out-of-doors installation, the standard 12 may be of any desired height, so that the handwheel 16 may be disposed in a lower plane, similar to that exemplarily shown in FIGURE 3, or in any desired intermediate plane.

Although the manner wherein the toy would be enjoyed is believed apparent, a brief explanation will be given. Thus, a child seated on the disc assembly 14 may grasp the handwheel 16, and by hand over hand pulling action, cause said assembly and himself to resolve in a direction opposite to the direction of pull. At such times of course, it will be understood that the set screw 84 would be in place, and thus the handwheel 16 would be stationary with respect to the standard 12.

With the set screw 84 withdrawn from engagement with the threaded opening 80, the handwheel 16 would be free, so that a youngster could hold on to it while a person standing by could manually effect rotations of the disc assembly 14.

In view of the foregoing, it should be apparent that the present invention provides a rotary toy that is sturdy, has relatively few moving parts, and may be manufactured in various dimensions.

Wherefore, it is to be understood that changes in the form of the elements, or rearrangement of them in a manner readily apparent to those skilled in this art, are contemplated as within the scope of the present invention set forth in the claim hereunto appended.

What is claimed is:

In a rotary toy apparatus, in combination:

a circular base including a peripheral side wall and a horizontally disposed top wall having a central depressed section formed therein;

a vertical standard expending upwardly above said base and including a main body section, an outstanding circular flange integral therewith, and a therebelow extension having a diameter larger than that of said main body section but smaller than that of said flange, said extension being rigidly secured to the depressed section aforesaid of the base top wall;

a free wheeling bearing unit disposed about the main body section of the standard resting on and supported by the outstanding circular flange aforesaid of the standard;

a rotatable disc assembly including an upper disc and a lower disc, the central portions of said discs being integrated with the bearing unit, and the diameter of said assembly being considerably larger than that of said base;

a handwheel including a rim portion and a hub portion, said hub portion extending above and below the rim portion and being integrated with said rim portion by a plurality of radial spokes, the diameter of said wheel being considerably smaller than that of the disc assembly;

a collar rigidly secured to the standard main body section, with the upper surface of said collar disposed below the top face of said body section a distance corresponding tot he length of the handwheel hub portion;

a perpendicular threaded opening extending centrally downwardly in the main body section of the standard from the top face thereof;

a circular top plate having a countersunk central opening therein, the diameter of said plate corresponding with that of the handwheel hub portion;

a screw having a countersunk head seated in the central opening of the top plate, and a threaded shank in engagement with the perpendicular opening in the standard, whereby to confine the hub portion thereof and thus the handwheel between said collar and said top plate;

a first horizontal threaded opening provided in the standard main body section above the collar aforesaid;

a second horizontal threaded opening provided in the hub portion of the handwheel, said first and second openings being in the same horizontal plane;

and a set screw having a threaded shank in engagement with the second opening and adapted to also engage in the first opening with both of said openings disposed in alignment, whereby said handwheel is rigid with the standard when the set screw engages both of the openings aforesaid, and is rotatable about the standard when the set screw engages only the second of said openings.

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