

[54] **OCCUPANT PROPELLED ROUND-ABOUT DEVICES**

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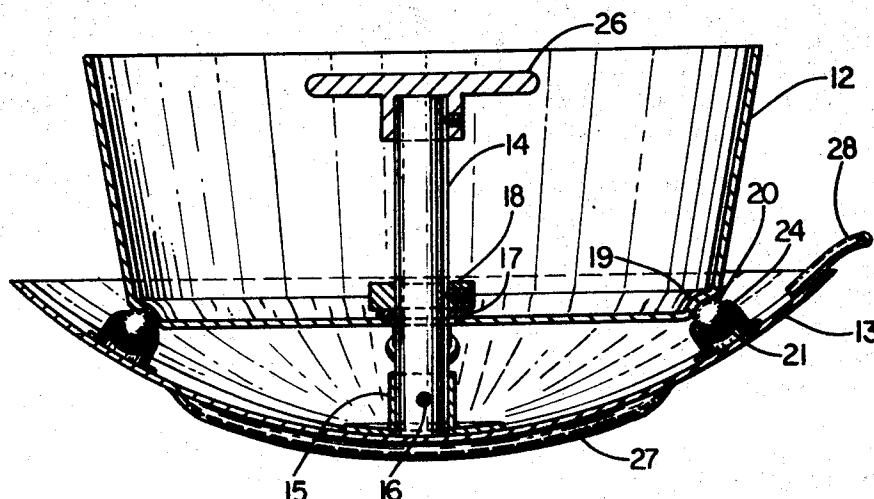
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[57] **ABSTRACT**

An amusement device including a rotatable container

and a base which base may be stationary, or upwardly concave or partly oval in shape, or it may be in the form of an outer container. The rotatable container has a central opening through which a shaft extends from the base. Bearings are arranged between the container and the shaft around which the container may be rotated and the shaft is provided with a wheel by means of which a child or a group of children in the rotatable container may exert a pulling or pushing action to cause rotation of the container. The base may be upwardly concave or partly oval in shape so that the device may be utilized as a sled in which case it may have runners thereon or it may be provided with a hook or have projections secured thereto as by welding to which a sled or snowmobile may be attached. Balls may also be arranged between the base and a groove at the junction of the side and bottom walls of the container to facilitate the rotation of the container. Balls may also be arranged in a groove at the periphery of the base member upon which the container rides when the base is in the form of a container, or the base may be in the form of a container having water therein and the shaft may be secured to the outer wall of the container by a universal joint so that the container may be rotated in planes inclined to the vertical axis of the outer container to cause waves in the water in the outer container. A track having upper and lower flanges may also be secured to the shaft or to the base plate, some portions of which are higher than other portions and a set of rollers secured to the container may ride on the lower track so that the container may rotate in an undulating manner to simulate a roller coaster. By utilizing a planetary gear surrounding the shaft and providing spur gears which mesh with the planetary gear, the inner container may be rotated directly by a child or a group of children seated in the rotatable container.

5 Claims, 21 Drawing Figures



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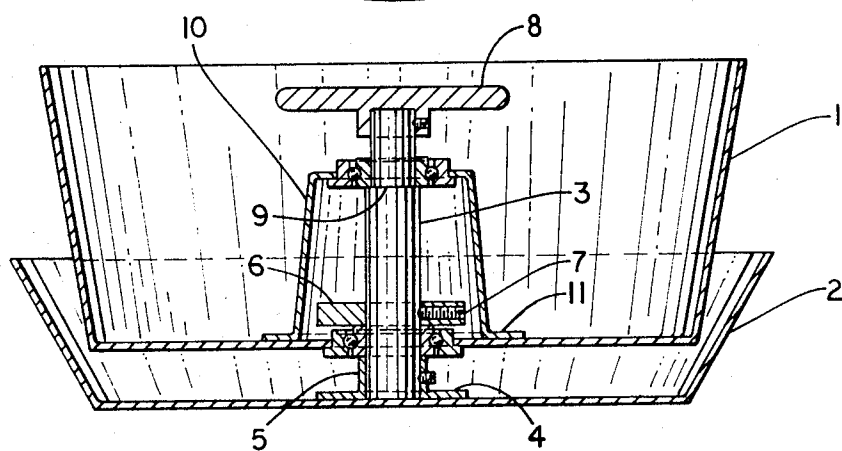
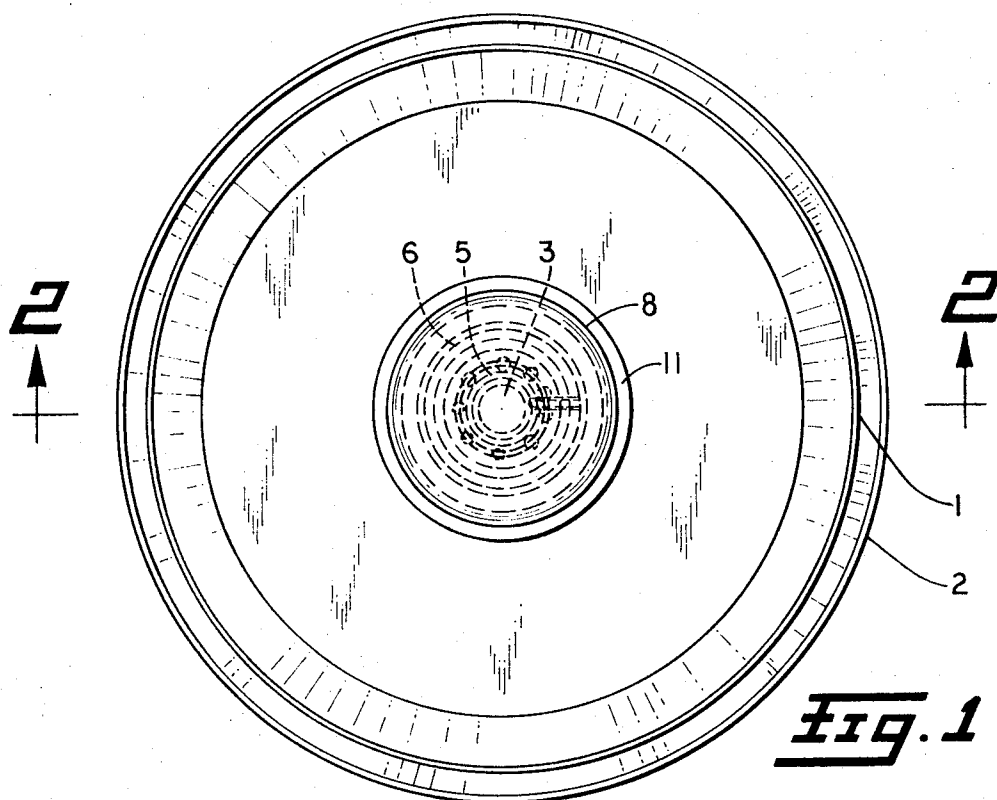
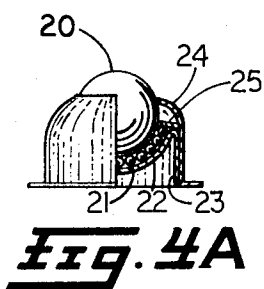
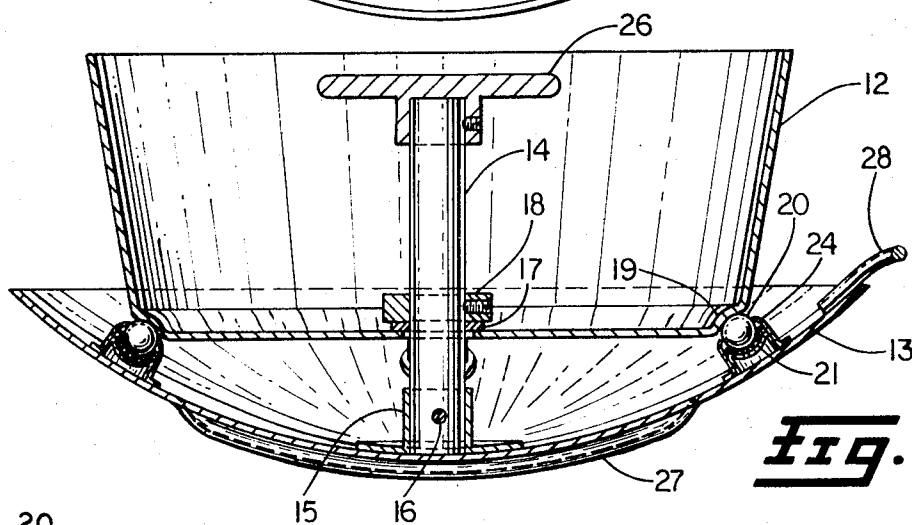
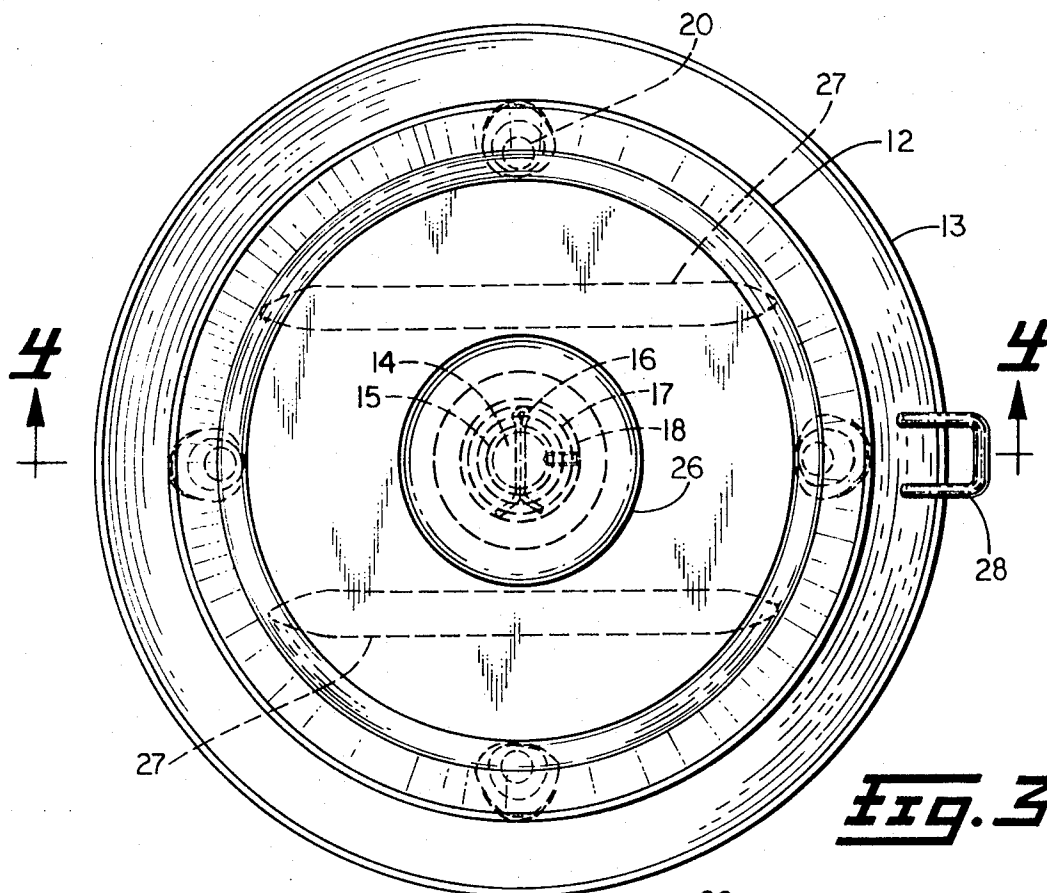
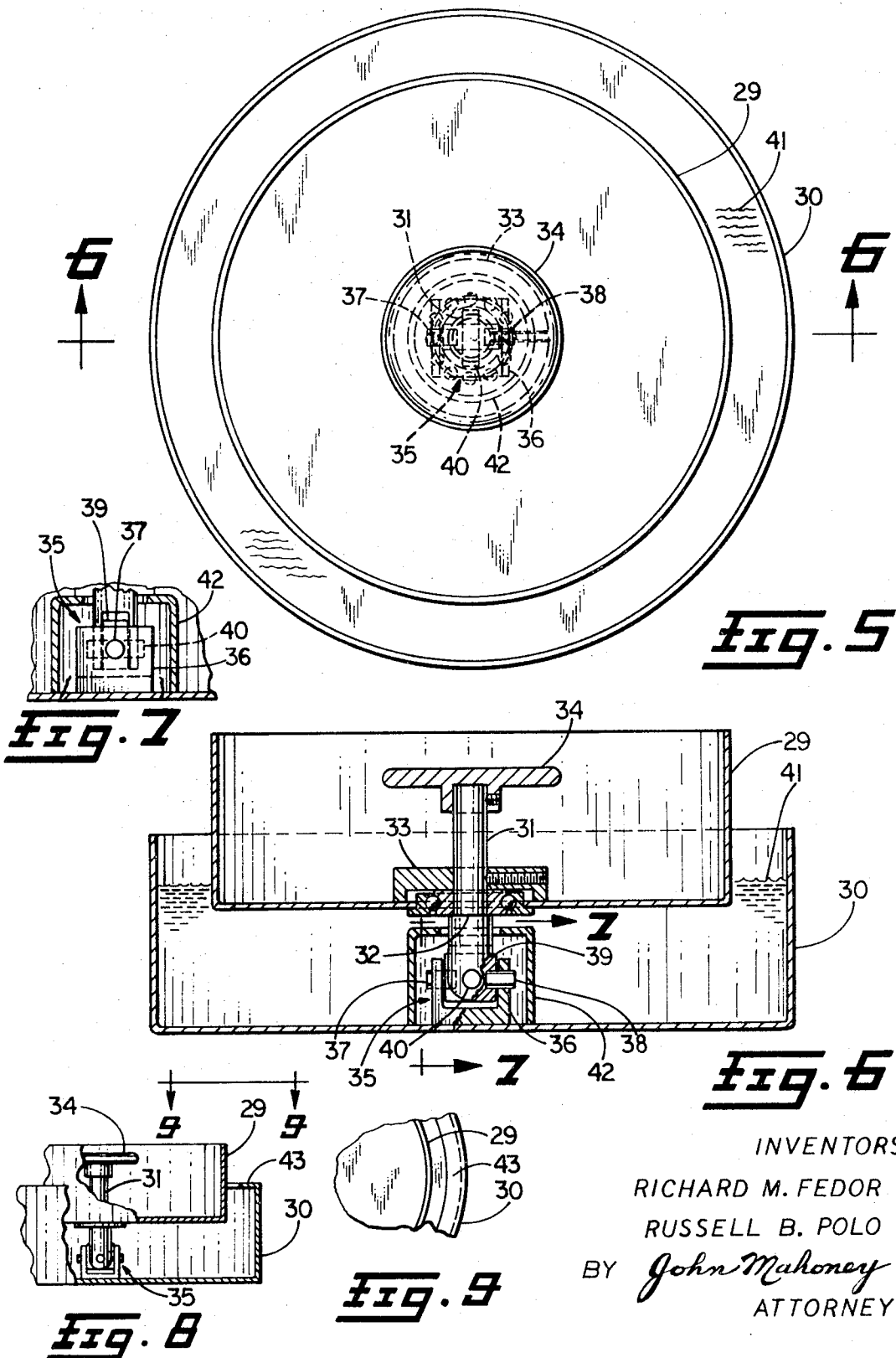


Fig. 2

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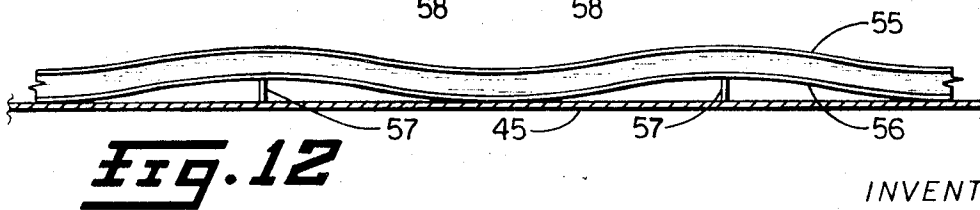
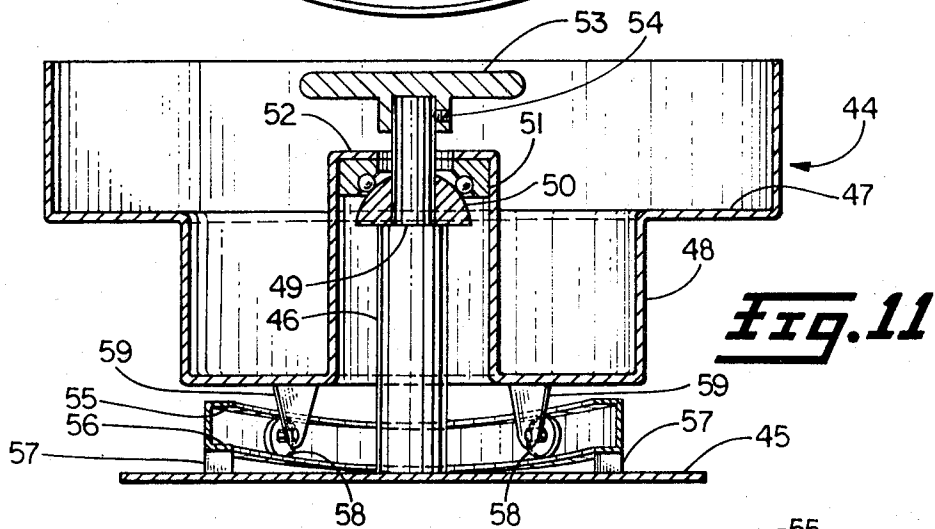
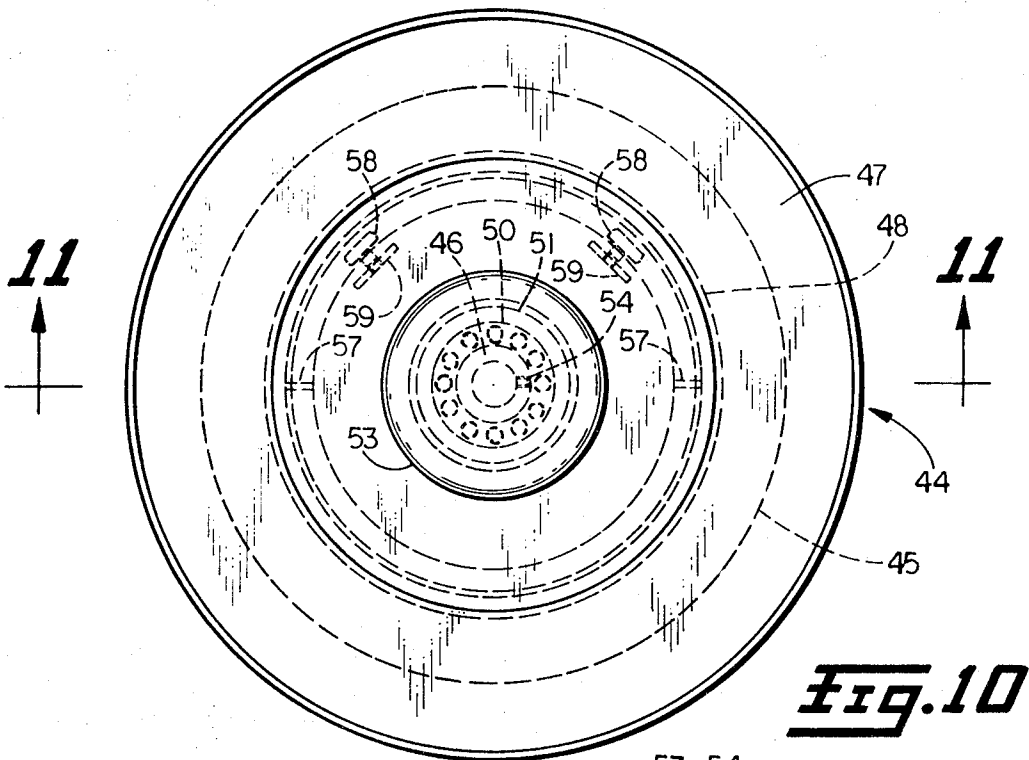


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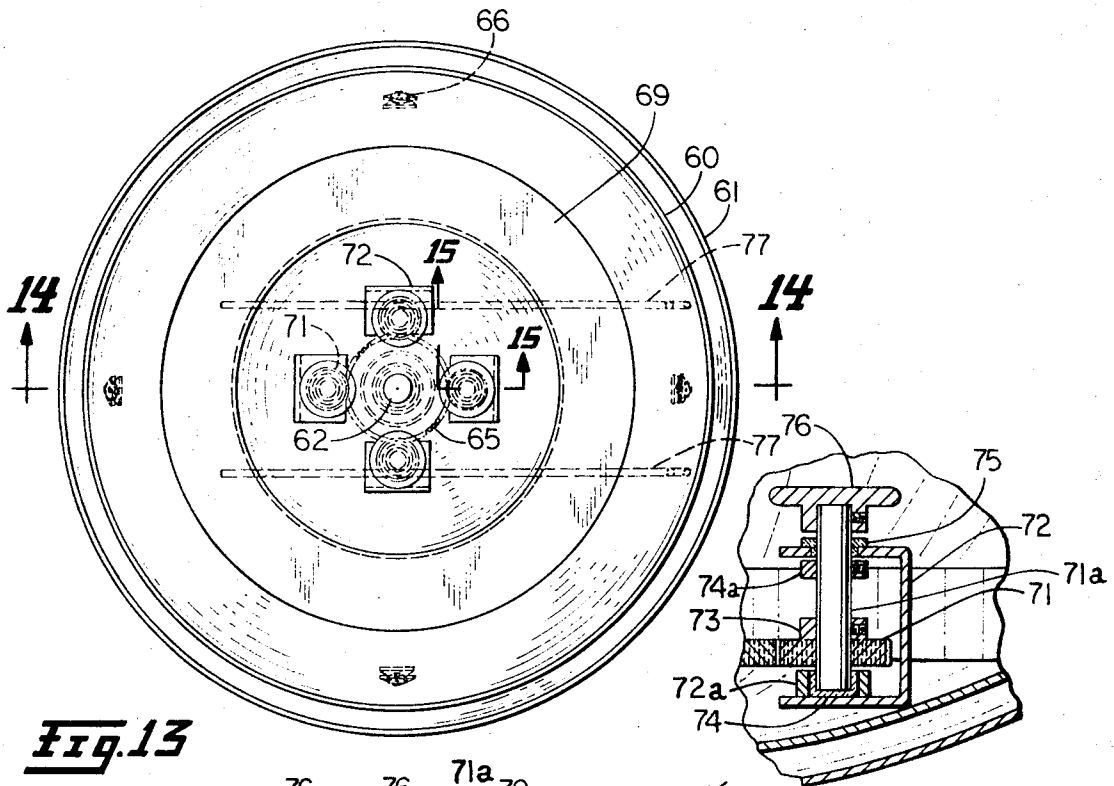


Fig. 13

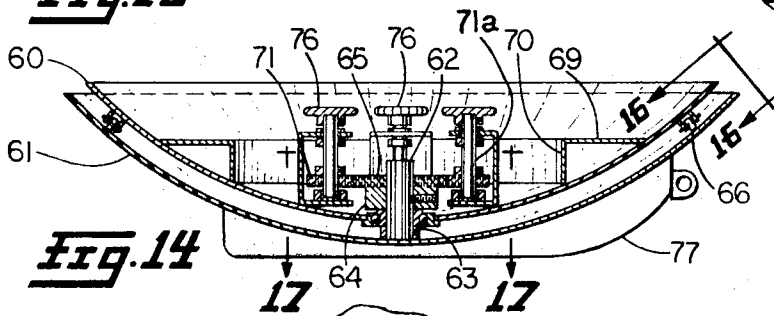


Fig. 14

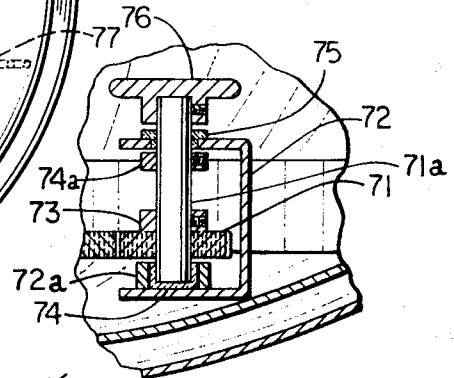


Fig. 15

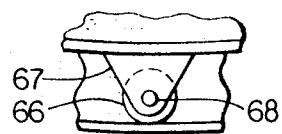


Fig. 16

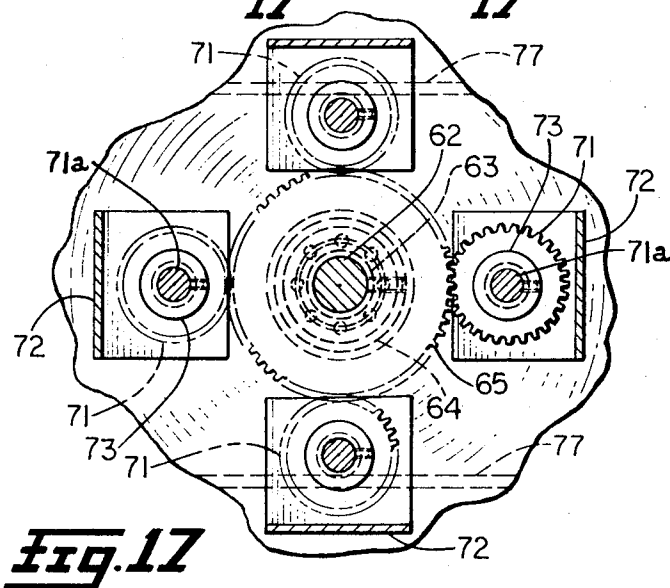


Fig. 17

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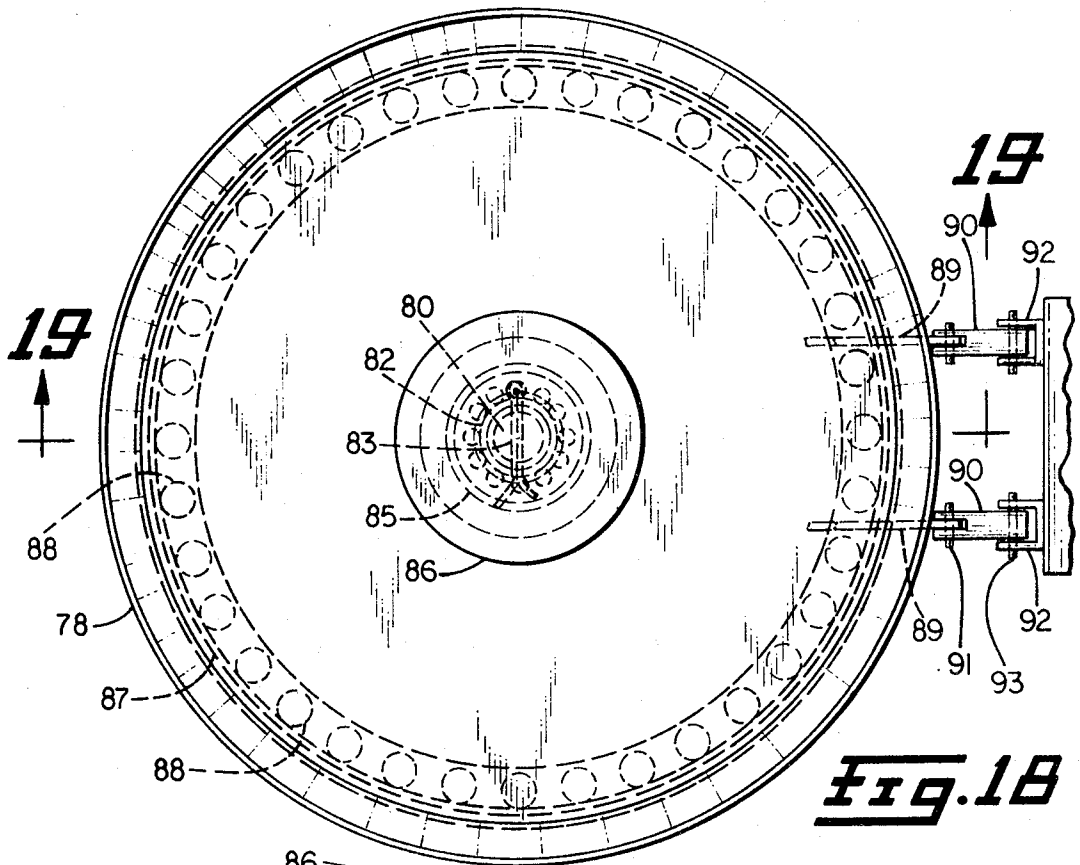


Fig. 18

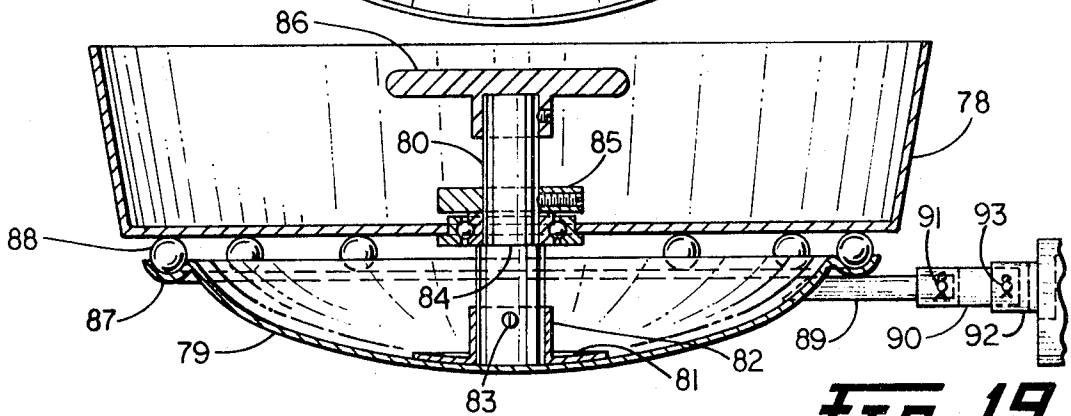


Fig. 19

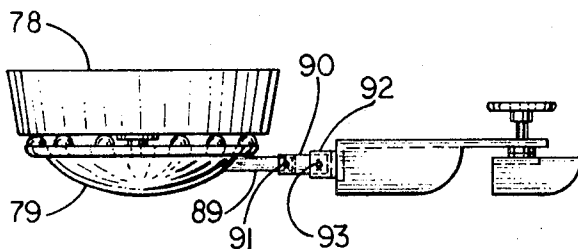


Fig. 20

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OCCUPANT PROPELLED ROUND-ABOUT DEVICES

The present invention relates to amusement devices which may be utilized by a child or group of children upon yards, lawns, or beaches and which may be provided with a base or outer container in the form of a sled or which may be provided with runners to form a sled, or it may be attached to a sled or a snowmobile to guide its movement as it slides upon a snow or ice-covered surface.

Briefly stated, it is an object of our invention to provide an improved amusement device which has sufficient height to minimize the danger of a child or group of children placed therein from falling from the container. Our improved device also includes a stationary base or outer container within or on which the inner container is rotatably mounted which outer base or container may be shaped so that it may be rocked by a child or group of children within the inner container. If desired, however, the outer container may be upwardly concave or partly oval in shape or may be provided with runners thereon so that it will slide or may be slid over a snow or ice-covered surface.

Our invention will be better understood by reference to the accompanying drawings in which:

FIG. 1 is a plan view and FIG. 2 is a cross sectional view on a plane passing through the line 2—2 of FIG. 1, of one form of our device; invention;

FIG. 3 is a plan view and FIG. 4 is a cross sectional view taken on a plane passing through the line 4—4 of FIG. 3 of another form of our invention;

FIG. 4A is a view partly in elevation and partly in section of the ball nests shown in FIG. 4;

FIG. 5 is a plan view and FIG. 6 is a cross sectional view taken on a plane passing through the line 6—6 of another form of FIG. 5 of our invention;

FIG. 7 is a sectional elevational view taken on a plane passing through the line 7—7 of FIG. 6, looking in the direction of the arrows;

FIG. 8 is a view partly in elevation and partly in section of a modification of the apparatus shown in FIG. 6;

FIG. 9 is a plan view of a fragmentary portion of the apparatus shown in FIG. 8 as viewed from a plane passing through the line 9—9 of FIG. 8;

FIG. 10 is a plan view and FIG. 11 is a cross sectional view taken on a plane passing through the line 11—11 of FIG. 10 of another modification of our invention;

FIG. 12 is a side elevational view of a lay-out of a track to show the undulations therein prior to being assembled in a substantially circular shape upon the base plate or around the shaft;

FIG. 13 is a plan view of another modification of our device and FIG. 14 is a cross sectional view taken on a plane passing through the line 14—14 of FIG. 13 and showing a side elevational view of one of the runners when the device is utilized as a sled.

FIG. 15 is an enlarged detail view of a fragmentary portion of the apparatus shown in FIG. 13 taken on a plane passing through the line 15—15 of FIG. 13;

FIG. 16 is an enlarged view as seen from a plane passing through the line 16—16 of FIG. 14 and showing a side elevational view of one of the rollers;

FIG. 17 is an enlarged plan view of the apparatus for rotating the inner container with parts shown broken away;

FIG. 18 is a plan view and FIG. 19 is a cross sectional view taken on a plane passing through the line 19—19 of FIG. 18 of another modification of our invention; and

FIG. 20 is a side elevational view of the device shown in FIG. 19 and showing the device connected to a sled.

Our improved amusement device may be constructed of various materials, such as fibre glass, a metal, such as aluminum, or a plastic material, such as a phenolic condensation product, and generally includes as one of the elements a rotatable container. It may, however, include an inner rotatable container and an outer container which outer container may be rocked by a child or a group of children in the inner container and which if desired may be upwardly concave or partly oval in shape or it may have runners thereon to provide a sled which runners may be formed integral with or secured to the outer base plate or container in any desired manner, such as by welding when the outer container is formed of a metal or a suitable adhesive when the outer container is formed of a plastic material. In another modification, the inner container is both rotatable and movable from a horizontal to an inclined plane or the inner container may be rotatable around a base supported shaft and may be provided with means for producing a rocking movement of the inner container which simulates a roller coaster, or means may be provided within the inner container by means of which it may be rotated by a child or a group of children setting within the inner container.

In the following description, our invention will be exemplified by a few specific examples which, however, are to be considered merely as illustrative and not as limitations upon our invention.

As shown in FIGS. 1 and 2, our improved device includes an inner container 1 and means are provided whereby a child or a group of children placed in the inner container may rotate it. For this purpose, an outer base or container 2 is provided having a flat bottom wall and an upwardly and outwardly inclined arcuate side wall and means are provided for rotatably supporting the inner container within the outer base member or container. For this purpose, a shaft 3 is provided, the lower portion of which is secured to the inner wall of the outer container by suitable means. As shown a flanged collar is provided, the flange portion 4 of which is secured to the inner wall of the flat portion of the outer base or container by suitable means, such as welding, and the collar 5 of which surrounds the shaft to which it is secured by suitable means, such as a set screw, and is in a position to support the inner race of a ball bearing, the outer race of which is provided with an annular flange on which one edge of the inner container surrounding the bearing rests and which may be secured thereto by suitable means, such as welding. The upper end portion of the inner race of the bearings may be held in place by a collar 6 secured to the shaft as by a set screw 7, or if desired, the inner race of the bearing may be fixed to the collar by suitable means, such as welding.

To prevent small children from falling from the inner container, the inner container extends a substantial distance above the outer container and the upper portion of the shaft is provided with a hand wheel 8 and the child or children within the inner container may pull or push on the hand wheel at which time their bodily force will cause rotation of the container.

To provide a more even rotation of the inner container, the shaft 3 may be provided with a shoulder 9 at a short distance below its upper end portion on which the inner race of a second set of bearings rest which may be secured to the shaft. The outer race of the second set of bearings may be supported in place by a casing 10, the upper portion of which rests on a flange extending from the outer race of the second set of bearings to which it is secured and the lower portion of which casing has an annular flange 11 secured to the bottom of the inner container.

A second form of our invention is shown in FIGS. 3 and 4 and includes a rotatable container 12 and means for supporting the rotatable container upon a base plate. For this purpose, a central shaft 14 is provided which is fixed to the base plate 13 in any desired manner. As illustrated, a flanged collar 15 is provided, the flange of which is secured to the base plate 13 and the collar of which surrounds and is fixed to the shaft 14 by suitable means, such as a cotter pin 16.

To enable the container 12 to be rotated within the outer base plate or container, the bottom wall of the container is provided with an aperture through which the shaft extends with the outer periphery of the aperture being spaced a short distance from the shaft and an annular thrust bearing 17 is provided which rests upon the bottom wall of the inner container and is held in place by a collar 18 which as shown is secured to the shaft by a set screw. It will be understood, however, that if desired, roller bearings may be provided between the shaft and the bottom wall of the inner container as shown in FIGS. 1 and 2 or as shown in FIGS. 18 to 20.

To facilitate the rotative movement of the inner container, an annular arcuate-shaped indentation 19 may be formed at the junction of the side and bottom walls of the container which rest upon a plurality of spaced balls 20, four being shown, and each of which in turn rests upon a multiplicity of smaller balls 21 as shown more particularly in FIGS. 4 and 4A. The smaller balls 21 upon which each of the larger balls rest, are held in place by an arcuate-shaped housing 22 which terminates in a downwardly extending flange 23 and a ball retaining means 24 is provided which is spaced from but which is arranged in proximity to the upper surface of each of the large balls and has an annular flange secured to the inner wall 23 by suitable means, such as welding and a flange secured to the base plate 18 by suitable means. For holding the smaller balls in place in housing 22, an annular ring 25 extends inwardly from the ball retaining means 24 to which it may be secured as by welding.

To enable a child or group of children to rotate the inner container which as shown extends a substantial distance above the base plate or outer container so that a child or group of children will not fall therefrom, shaft 14 is provided with a hand wheel 26 secured thereto by suitable means, such as a set screw, and to which wheel a pushing or pulling effect by a child or group of children may be applied to cause the inner container to rotate.

By applying pressure to the different parts of the bottom portion of the inner container, a rocking movement may also be applied to the base plate which as shown may be upwardly concave or partly oval shape and in upon which ribs or runners 27 may be formed integral with or attached to the outer container so that

the device will slide downwardly over an inclined snow or ice-covered surface or may be pulled over a snow or ice-covered level surface. For this purpose, a hook 28 is provided to which a rope or strap may be secured or by means of which the device may be secured to the rear end of power-operated means, such as a snowmobile.

A third modification of our invention is shown in FIG. 5 to 9 and includes an inner container 29 having its bottom portion arranged within an outer container 30. A child or a group of children may be placed in the inner container which extends a substantial distance above the outer container to minimize the danger of a child falling therefrom. In accordance with our invention, the inner container may be rotated around a shaft 31 having a shoulder 32 on which rests the inner race of a ball bearing which is held in place by a collar 33 having a downwardly extending annular flange which engages the inner wall of the inner container and the outer race of the bearing is provided with an annular flange upon which an edge of the inner container surrounding the bearing rests and to which it may be secured by welding. If desired, the inner race of the bearing may be welded directly to the shaft 31. A more stable arrangement, however, is provided by the use of a collar 33 which is secured to shaft 31 by suitable means, such as a set screw and which has a downwardly extending flange which holds portions of the inner container firmly against the annular flange of the outer race of the bearing.

In accordance with the invention shown in FIGS. 5 to 9, the inner container may not only be rotated by pushing or pulling on a hand wheel 34 secured as by a set screw to the upper portion of shaft 31 to provide a rotation of the inner container in a plane concentric with its vertical axis but may also be rotated in a plane which is inclined to the vertical axis of the outer container when a greater pressure is applied to one portion of the inner container than to other portions. For this purpose, the shaft 31 is connected to the outer container by a universal joint 35 which as shown includes a clevis having its web portion 36 secured to the bottom wall of the outer container and oppositely disposed arms, each having an aperture therein through which pins 37 and 38, respectively, extend into a central bar 39, the central bar 39 being arranged in a yoke in the shaft around which the shaft may be tilted in a backward and forward direction. A pin 40 also extends through the arms of the yoke of the shaft with a press fit and through the central bar 39 with a slip fit so that the shaft may be tilted to the right or to the left as shown in FIG. 6, or by using a combination of the tilting means, the shaft may be inclined in any desired direction.

In the device disclosed in FIGS. 5 to 9, the outer container may be partly filled with water up to a level slightly above the bottom portion of the inner container as indicated by the line 41 so that when a greater amount of pressure is applied to different portions of the inner container, the shaft may be tilted which in turn tilts the inner container to thereby agitate the water in the outer container to cause a wave-like effect.

The tilting movement of the shaft may be limited in various ways. As shown, a housing 42 surrounds the shaft and has an upper opening through which the shaft extends, the outer edge of which is spaced a short distance from the shaft. Other means, however, may be provided for limiting the tilting movement of the inner

container. For instance, the outer container may have an inwardly extending annular flange 43 as shown in FIGS. 8 and 9.

Another modification of our invention is shown in FIGS. 10 to 12 which includes a rotatable container 44 and a stationary base plate 45. As illustrated in FIG. 11, a shaft 46 is secured, such as by welding, to the base plate 45 which base plate as shown in FIG. 10 is circular in shape and to provide a convenient area within the container for a child or a group of children, container 44 has an annular seat 47 which terminates in a downwardly extending U-shaped body portion 48 which forms an annular chamber for the legs of a child or a group of children placed within the container and occupying the seat 47.

In accordance with our invention, means are provided for rotating the container by a child or a group of children seated within the container and a bearing is provided which permits a swivelling or undulating movement of the container as it is rotated. For this purpose, the shaft 46 is provided with a shoulder 49 which as shown is arranged slightly below seat 47 and upon which is arranged the flat portion of a semispherical ball 50 which has an opening therein through which shaft 46 extends. The curved portion of the semispherical ball forms the inner race of the bearing and the outer race 51 of the bearing is composed of a ring-shaped member provided with upper and peripheral flat surfaces and which has an annular groove formed on its inner surface for receiving the balls. The outer race of the bearings is held in place by an upwardly extending annular portion 52 of the body portion 48 which is provided with an opening through which the shaft 46 extends. The upper end portion of shaft 46 forms a support for a hand wheel 53 which is secured to the upper end portion of the shaft by suitable means, such as a set screw 54, and which may be pushed or pulled by a child or group of children occupying seat 47 of the inner container to cause the inner container to rotate.

In this modification of our invention, means are provided to cause an undulating movement of the container which simulates the movement of a roller coaster as the container rotates around shaft 46. For this purpose, a plurality of rollers are secured to the container which rollers during the rotation of the container engage a stationary portion of the device, such as the base portion in which case the track shown in FIG. 12 may be omitted, or they may engage a track secured to the base or a track wound around the shaft having an undulating outer surface to permit varying degrees of undulations of the container as it rotates. As shown, the track is arranged on the circular base plate surrounding the shaft and consists of upper and lower flanges 55 and 56 which track at intervals is held upwardly from the base plate by suitable means, such as spacers or struts 57. The number of rollers may of course be varied. As shown, two spaced rollers 58 are provided, each of which is secured to the container in any suitable manner and each of which rides on a flange of the track and causes an undulating movement of the container resembling a roller coaster as the container rotates. Each of the rollers may be secured to the container by suitable means, such as plates, one end of each of which plates is secured to the container by suitable means, such as welding and the other end of which is secured

to a roller which rides on the lower or upper flange of the track as shown in FIG. 11.

Another modification of our invention is shown in FIGS. 13 to 17 which includes a rotatable inner container 60 and a stationary member, such as an outer container or base member 61, and means are provided for rotating the inner container 60 relative to the outer container or base plate. For this purpose, a central shaft 62 is provided which may be secured to the outer container in any suitable manner, such as by welding, or as shown by a collar 63 which may be secured to the outer container by welding and which forms a support for the shaft to which it is secured by a set screw and for the inner race of a set of ball bearings, the upper portion of which bearings is held in place by a boss 64 extending downwardly from a central planetary gear 65. Boss 64 is secured to shaft 62 in a desirable manner, such as by a set screw. For providing a support for the inner container, the outer race of the bearings is provided with an annular flange upon which the edge of the inner container surrounding the bearings rests and to which it is secured in any convenient manner, such as by welding.

To enable the inner container to be easily rotated relative to the outer container, a plurality of rollers 66 may be secured to the inner container at a short distance from its outer edge which rollers ride on the outer container or base plate as the inner container is rotated relative thereto. As shown more particularly in FIGS. 14 and 16, each of the rollers is supported in place by a web secured to the inner container which has a pair of downwardly extending apertured flanges 67 through which a pintle 68 extends which also passes through an aperture in the roller. The number of rollers 66 may of course be varied depending upon the size of the device. As shown four are provided.

To provide a place for a child or a group of children within the inner container, a circular seat is provided which consists of an angularly-shaped member having a level seat portion 69 and a downwardly extending portion 70 with the extremities of both portions being secured to the inner container and the downwardly extending portion providing an annular recess into which a child or a group of children may place their legs.

Means actuated by a child or group of children are also provided for rotating the inner container relative to the outer container. For this purpose, a plurality of spur gears 71 as disclosed more particularly in FIGS. 15 and 17 are provided. The spur gears 71 and the means for holding them in place are similar to each other and a description of one with its associated appendages will suffice to describe them all. As shown in FIGS. 15 and 17, a U-shaped member 72 is provided, the lower portion of which is secured to the inner container, such as by welding, and the lower arm part of which supports a socket 72a which may be secured thereto by welding and has an inner lining 74 formed of a bearing material, such as bronze, upon which a vertical shaft 71a bears. Shaft 71a extends upwardly through a spur gear which gear has a boss 73 secured thereto and to the shaft 71a by suitable means such as a set screw and for holding the spur gear in the desired position. The shaft 71a also extends upwardly through a collar 74a which is secured to shaft 71a by suitable means, such as a set screw prevents removal of the shaft from the U-shaped member and then through a bushing 75 and terminates in an upper end portion to which a hand wheel 76 is secured.

Because the planetary gear is stationary, it will be understood that as the spur gears are rotated, they will cause rotation of the inner container. If desired, an over-running clutch may be mounted within each of the spur gears so that all hand wheels 76 and shafts do not rotate simultaneously.

Because the outer container or base plate is substantially concave or partly oval in shape, it will be understood that as so far described, the inner container may be rocked on the outer container. Preferably, however, a pair of runners 77 are secured to the outer container or base plate so that the device may be slid downwardly on an inclined snow or ice-covered surface or may be pulled over a snow or ice-covered level surface. For this purpose, the outer container or base plate may be provided with a hook to which a strap or rope may be applied for pulling the device or it may be attached to a sled or snowmobile.

Another form of our invention is shown in FIGS. 18 to 20 which includes a rotatable container 78 and a stationary base member 79 which as shown is upwardly concave or partly oval in shape and to the inner surface of which a stationary shaft 80 is secured by any suitable means. As shown, a flanged collar is provided, the flange portion 81 of which is secured to the inner face of the base portion by suitable means, such as welding, and the collar 82 of which surrounds the shaft and is secured thereto by suitable means, such as welding, or as shown by a cotter pin 83 which extends through apertures in the collar and the shaft.

The container is associated with the base member in a manner to provide easy rotation thereof by a child or a group of children placed in the container. For this purpose, the shaft is provided with a shoulder 84 upon which rests the inner race of a set of ball bearings which may be welded or otherwise secured to the shaft or held in place by a collar 85 which is secured to the shaft by means, such as a set screw. The outer race of the bearing is provided with an annular flange upon which the edge portion of the container surrounding an aperture through which the bearing extends rests and to which it may be secured by suitable means, such as welding. The shaft 80 extends upwardly into the container and is provided with a hand wheel 86 which may be held on the shaft by suitable means, such as a set screw. To provide for easy movement of the container 78, the outer base portion 79 is provided with a grooved periphery 87 within which a comparatively large number of spaced balls 88 are assembled.

In practice, a child or group of children may be placed in the container and by pulling or pushing on the

hand wheel, they will cause the container to rotate and by applying their weight unevenly upon different portions of the container, the child or children may also cause a rocking movement of the base member 79.

Because of the upwardly concave or partly oval shape of the base member 79, the device may be slid down a snow or ice-covered hill or pulled over a level snow or ice-covered surface, or a sled or a snowmobile may be fixed thereto. For such purpose, lugs 89 may be secured to the device by suitable means, such as welding, to which bars 90 may be secured by pins 91, which bars in turn may be secured to apertured lugs 92 on the sled by pins 93. Similar arrangements may be provided to connect the devices shown in FIGS. 3 and 4 and FIGS. 13 to 17, to a sled.

What is claimed is:

1. An amusement device including a container having a bottom wall and a continuous arcuate-shaped upstanding side wall, said bottom wall having an opening therethrough; a base member comprising an upwardly facing generally spherically concave shell; a shaft secured to the base member and extending upwardly through said opening in the bottom wall of said container with said container being rotatable with respect to said base member; bearing means associated with said container and said base member; a hand wheel secured to the top of said shaft whereby an occupant of said container by applying a pushing or pulling torque to said hand wheel may rotate said container on said bearings with respect to said base member; and substantially parallel runners extending from the bottom surface of said base member whereby the device may be used as a sled.

2. An amusement device as defined in claim 1 in which the outer edge portion of the bottom wall of the container terminates in a continuous outwardly and downwardly facing concave track and said bearing means being mounted on the concave shell with said bearings associated with said track.

3. An amusement device as defined in claim 2 whereby said bearings are balls.

4. An amusement device as defined in claim 1 including means extending from the outer edge portion of the base member of said device which enables it to be towed.

5. An amusement device as defined in claim 1 wherein said bearing means includes an upwardly facing concave track on the outer edge of said concave shell with said bearings associated with said track.

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