Sept. 19, 1933. A. O. EDWARDS 1,927,682

CIRCULAR SWING

Filed Jan. 29, 1931

FIG. 4

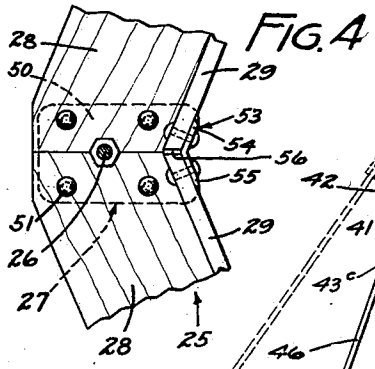


FIG. 5

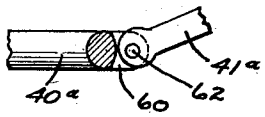


FIG. 1

FIG. 7

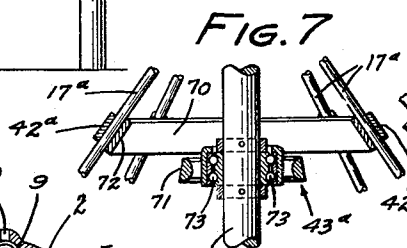


FIG. 6

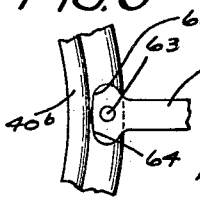


FIG. 2

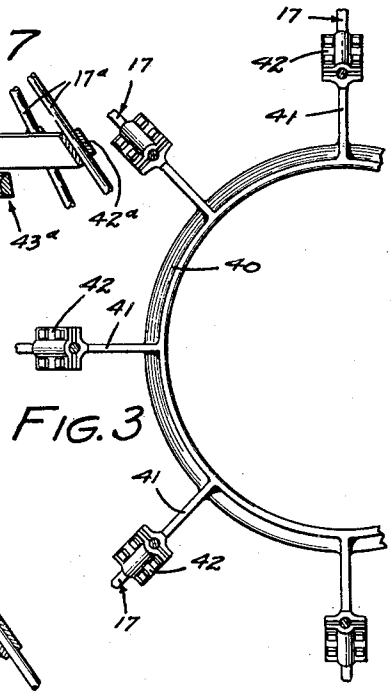


FIG. 3

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CIRCULAR SWING

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5 Claims. (Cl. 272—33)

This invention relates to improvements in devices known as merry-go-rounds, carousals, or circular swings, and has, among its objects, to provide a device so constructed that the riders may not be injured by contact with the post about which the device operates; to provide a swinging structure, the swinging motion of which with reference to the post is limited by a bumper means adapted to prevent jars, incident to bumper action, being communicated to the riders; to so place the bumper means that the riders cannot possibly be injured thereby; and to provide a sturdy construction which can be cheaply manufactured.

Features of the invention include all details of construction shown, as well as the broader ideas of which the illustrated embodiment is symbolic.

Features and advantages of the invention will appear in the description of the drawing forming a part of this application, and in said drawing

Figure 1 is a vertical sectional elevation showing the bumper in action, and also showing the normal position of the riding platform in dotted lines;

Figure 2 is a detail sectional elevation illustrating the upper portion of the apparatus including the bumper ring;

Figure 3 is a plan illustrating one form of bumper ring construction, and connection;

Figure 4 is a plan section illustrating the bracket means for connecting the platform elements;

Figure 5 is a plan view showing a modified form of connection, between the bumper and the rods;

Figure 6 is a view similar to Figure 5 showing a third modification of the bumper-connecting means, and

Figure 7 is a fragmentary vertical section illustrating a modification of the bumper construction.

Numeral 1 indicates a post, at the top of which is a cap 2 rotatably and rockably associated therewith. The cap construction and its mode of connection is a feature of this invention. A plug 3 is telescopically engaged with and secured at the upper end of the tubular post, in this instance inserted in the post, and has a flange 4 limiting its downward movement. The upper part of the plug-like cap is provided with an upwardly flared socket indicated at 5, which has a spherical surface 6 against which the corresponding surface 7 of a cylindrical projection 8 of the cap engages. This projection 8 is hollow to provide a lubricant supply chamber 9. An opening 10 permits introduction of grease or oil into the chamber, and the grease is delivered downwardly through opening 11 to lubricate the surfaces 6 and 7. The cap as shown has the form of a hollow hemisphere having its open side downwardly faced, and has a flange 15 in the plane of its open side. This flange has a series of openings 16 through which hanger rods 17 pass to extend below and support a riding platform. These rods have heads 18 engaging the upper part of the flange in a manner to suspendingly attach the rods. The cap construction is an important feature of the invention.

Numeral 25 indicates a platform which is shown as of polygonal formation, in plan, but which may be circular. The rods 17 are attached as at 26 to brackets 27, the lower end of the rods passing through the horizontal element 28 upon which the riders sit or stand. A backing element 29 is circumscribingly attached to the inner edge of the element 28. A hand rail 30 circumscribes the bars 17 and is attached thereto by clips 13.

A valuable feature of this invention is the bumper means arranged at such level that the riders cannot possibly be injured thereby, and acting to prevent the platform 28 from coming close enough to the post 1 during swinging motions to injure the riders, and of performing the same function in regard to the hand rail 30. To this end, the bumper means is connected to the series of downwardly radiating rods at a point between the hand rail 30 and the cap 2 and in this case nearer the cap than the hand rail. Of course, the bumper may be placed at a lower level. This bumper means connects the rods at a point intermediate of the cap and platform, and it has herein the form of a circular ring 40 having integral radially extending arms 41, each arm having terminally thereof clamping means 42 surrounding the corresponding rods 17. It will be noted that the arms 41 are perpendicular to the rod, but are at an angle to the plane of the ring so that the thrust communicated by the rod is transferred through the extension 41 and to the ring, and thence to a companion bumper member 43 attached to the post, or directly to the post. This bumper member 43 may be rotatably attached, although it is not so shown. In whatever manner it is made, it will be seen that when the device is swung to the position shown

in Figure 1, the inner surface of the ring engages the post (or an element equivalent to 43) in a manner to prevent any engagement of the elements 30 or 28, or to prevent any such near engagement of these elements with the post as would injure the riders. When the motion of the supporting structure is thus suddenly arrested by the bumper, there is not a corresponding jarring effect at the platform, because of the resilient flexing action of that portion of the rods below the bumper. This is another valuable feature. The elements 17 have the relatively long portions 46 which lie below the clamps 42. Under these conditions a "floating" effect is maintained.

The term "bumper means" may or may not include two elements, one on the post and one connected with the rods. If two are used, it is important that one of the elements connect the rods so that they move in unison.

As shown by the dotted line position of Figure 1, the circular or polygonal platform 28 which circumscribes the post is spaced a considerable distance from the post when the device is not in use, and the bumper is so placed that it cannot possibly injuriously contact a rider, and the resiliency of the rods absorbs shocks due to the impacts of the bumper. Proper action is obtained by having the rods rigidly connected with the bumper so that they move in unison therewith.

It is conceivable that the bumper may form an integral part of the cap piece 2, as it virtually does in this case. The bumper may have extensions which are integral with the cap, and then the rods 17 may be connected to the bumper ring to extend downwardly. This latter expedient, of course, would require more material and would be difficult to cast.

The cushioning effect or buoyancy due to the rods is not only believed to be something new in a device of this kind, but the bumper is is placed so that it is impossible for a rider to be injured thereby, or by contact with the post 1. It is desirable to place the bumper adjacent the cap to obtain the greatest amount of resiliency. The gist of the invention is the placement of the ring out of harm's way, and above the platform so that the rods extend below the ring and can flex.

Another feature of the invention is the bracket structure of Figure 4, including a horizontally arranged portion 50 upon which the terminal portions of adjacent platform elements rest, and to which they are secured by fastening devices 51 passing through corresponding openings in the horizontal portion 50. Each bracket is provided with a vertical portion 53 right-angularly related to the portion 50 which has angularly related portions 54—55 corresponding to the plan configuration of the platform. Against these portions are arranged vertical guard elements 29 of the platform. A reinforcing web 56 connects the right-angularly related portions of the bracket, and the ends of the element 29 abut this web 56 as shown in Figure 4.

The use of resilient rods connected together by the bumper ring at a substantial distance above the platform is to be sharply distinguished from the use of chains, ropes, and rods, not so connected because in devices heretofore known to me the bumper action was a jarring action and not a floating or buoyant action. This springing flexible floating action is due largely herein to the arrangement of the bumper ring at a substantial distance above the platform and adjacent the cap. I am aware that rods have been used but they have not been connected together by the bumper means lying above the platform, nor have they extended below the bumper means at all.

In Figure 5 a modification of the connecting means between the ring and the rods has been shown, this connection permitting slight vertical motion of the connecting arms and increasing the buoyancy and lessening the jar. In this instance, the ring 40^a is provided with radial lugs 60 and each arm 41^a is detachably connected to corresponding lug by a horizontal pivoting element 62.

Figure 6 shows a modification in which the arms are pivoted for limited horizontal motion and has the advantage of modifying the circular motion of the device, and of thus modifying the sensory effect on the riders. In this form of the invention, the ring 40^b has a circumferential horizontal flange, as in the first instance, and to this flange each arm 41^b is pivoted on a vertical pivot 63, so that it has slight motion in opposite directions in a horizontal plane, the degree of motion being limited by the stop surfaces 64—65.

In Figure 7 the bumper ring 70 is formed from sheet metal by stamping to provide a truncated conical annulus, to the outer side of which annulus, the rods 17^a are rigidly, or yieldably, attached by any suitable means 42^a. In this instance, the post is provided with a spoked wheel, as part of the bumper means, and this wheel is generally designated by numeral 43^a. The rim has a flat peripheral surface 71 with which the surface 72 of the annulus 70 contacts. The element 43^a is rotatable upon the post 1, on ball bearings 73. The surface 72 engages flatly with the flat surface 71, to limit the rocking motion of the structure in exactly the same manner as previously described.

The bumper member 43 is shown as rotatably attached to the post and is held in place by ring 43^b held by set screw 43^c.

I claim as my invention:

1. A device of the class described, comprising a post having a cap rotatable and rockable thereon, a ring below the post which is adapted to support the riders, a series of suspension rods capable of flexion and having their upper portions attached to the cap and having their lower portions attached to the ring, a bumper ring as a fulcrum for the rods arranged adjacent the cap and relatively remotely from the rider-ring and adapted to engage the post, and means connecting the rods to the bumper ring, whereby relatively long lever-arm-like rod portions are provided between the bumper ring and the rider-ring to obtain springy action of the rods about the bumper ring as a fulcrum, the sizes of the bumper ring being such as to limit rocking motion in a manner to prevent contact between the rider-ring and the post.

2. A device of the class described comprising a post, a riding structure rotatably and rockably mounted upon the post including a riding platform and a series of resilient suspension rods, and bumper means including a member carried by the post out of reach of the riders and above the platform, and cooperable with the suspension rods to form a fulcrum about which resilient lever-like action of the rods can take place when the structure is rocked.

3. A device of the class described comprising

a post, a riding structure rotatably and rockably arranged upon the post including a riding platform and a series of resilient suspension rods, bumper means including a ring surrounding the post, means by which the ring is clamped to the rods, the said ring being so placed as to cooperate with the post to form a fulcrum about which resilient lever-like action of the rods can take place, when the device is rocked or when rocked and rotated.

4. A device of the class described comprising a post, a riding structure rotatably and rockably mounted upon the post including a riding platform and a series of resilient suspension roads, and bumper means including a member rotatably mounted on the post out of reach of the riders and above the platform, and cooperating with said suspension rods to form a fulcrum about which resilient lever-like action of the rods can take place when the structure is rocked.

5. A device of the class described comprising a post, a riding structure rotatably and rockably mounted upon the post including a riding platform and a series of resilient suspension rods, and bumper means including a member rotatable upon the post above the platform and out of reach of the riders, and cooperating with a ring carried by said suspension rods, in a manner to form a fulcrum about which resilient lever-like action of the rods can take place when the structure is rocked.

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