

May 4, 1926.

1,583,287

J. A. FISHER

ROUNDAABOUT

Original Filed March 16, 1922 2 Sheets-Sheet 1

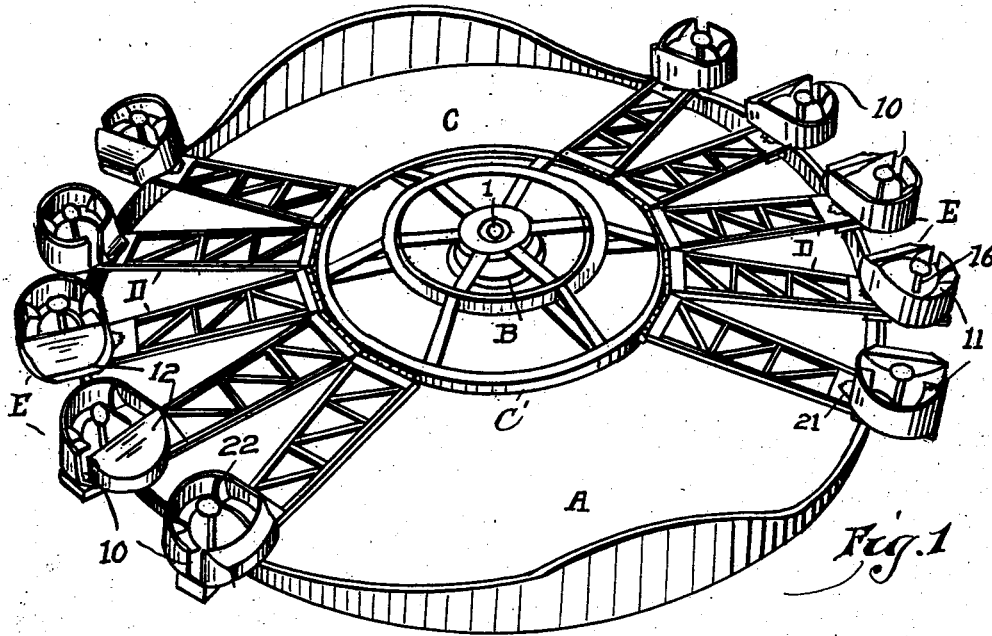


Fig. 1

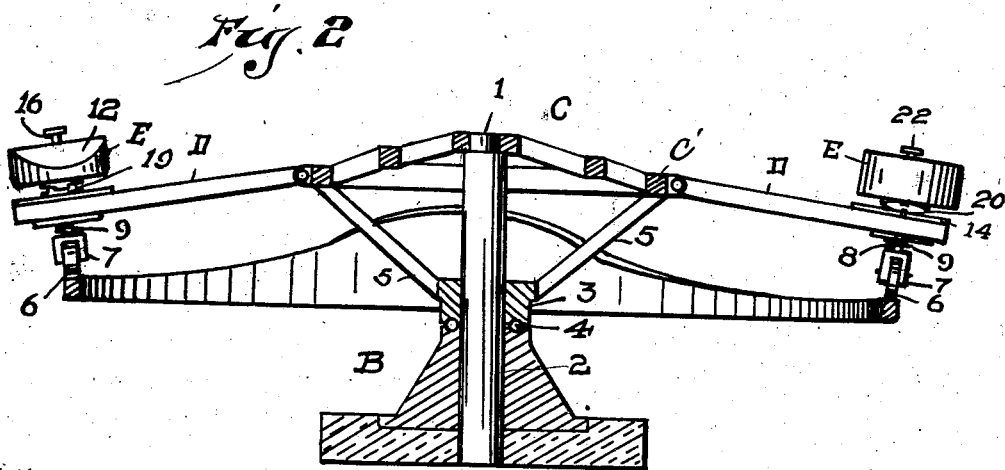


Fig. 2

WITNESS

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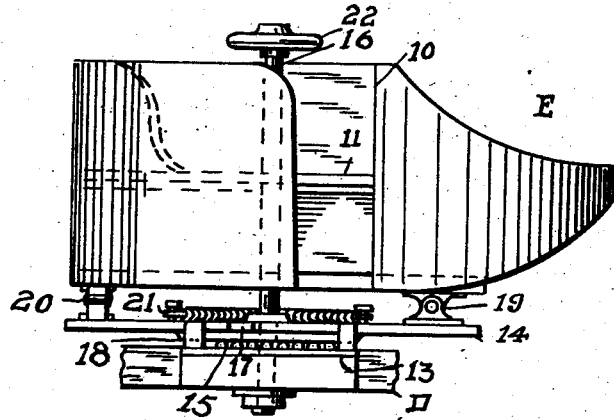


Fig. 3

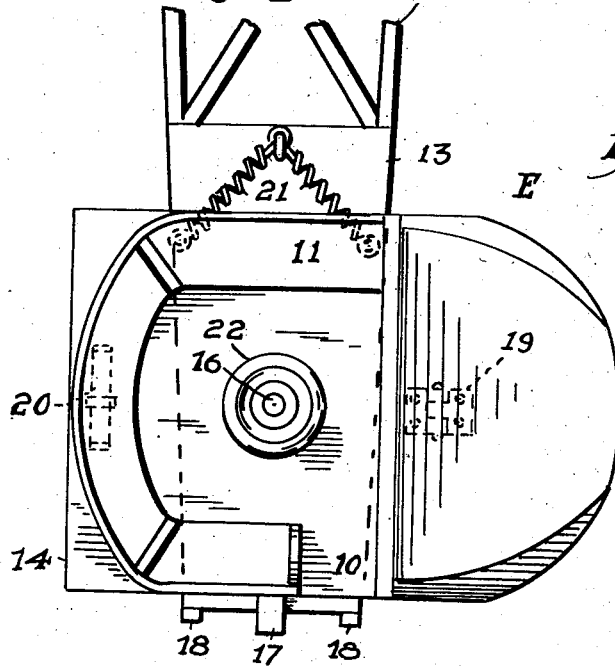
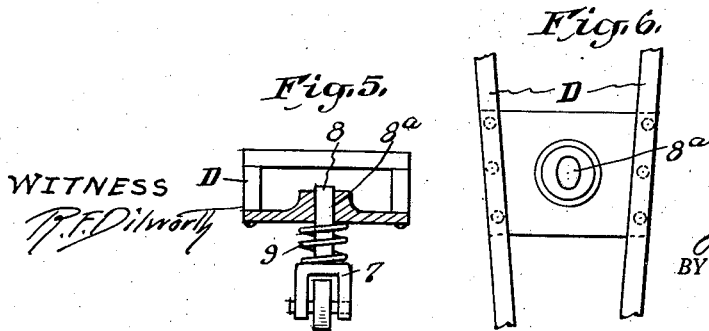


Fig. 4



WITNESS D  
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Patented May 4, 1926.

1,583,287

# UNITED STATES PATENT OFFICE.

JOHN A. FISHER, OF SANDUSKY, OHIO.

## ROUNDAABOUT.

Application filed March 16, 1922, Serial No. 544,134. Renewed May 27, 1925.

*To all whom it may concern:*

Be it known that I, JOHN A. FISHER, a citizen of the United States, and residing in the city of Sandusky, in the county of Erie and State of Ohio, have invented or discovered the new, useful, and Improved Roundabout, of which the following is a specification.

My invention consists in new and useful improvements in rotary amusement devices characterized by an annular, undulating track traversed by a passenger car mounted on an arm rotating on an axis coincident with the axis of the track.

More particularly the invention is characterized by imparting to the car an additional movement independent of its travel relative to the track.

In the embodiment of my invention which I have illustrated in the accompanying drawings, means are provided for imparting to the car, in addition to its normal movement along the track, a turning movement. This turning movement may be caused by the fact that the weight of the loaded car is eccentric to axis of the car's rotation. However I preferably provide means whereby said turning movement of the car may be voluntarily imparted by an occupant, or the automatically imparted movement of the car may be augmented, retarded or resisted by the occupant.

Means are provided for automatically limiting the turning movement of the car to prevent spinning, and I also preferably provide resilient means for cushioning the turning movement of the car and for automatically returning it to its normal position when at rest.

Means are also provided for cushioning the car on its support to prevent sudden jars and thus rendering riding more comfortable and safe.

Other novel features of construction and arrangement of parts will appear from the following description.

In the accompanying drawings, Fig. 1 is a general view in perspective of a rotary amusement device in which are embodied in practical form the principles of my invention; Fig. 2 is a diagrammatic section of the same; Fig. 3 is an end view of one of the rotary arms showing a passenger car mounted thereon, and Fig. 4 is a plan view of the same. Fig. 5 is an enlarged detail showing one of the depending yokes

in which the wheels, which support the arms on the track, are mounted, and Fig. 6 is a broken plan view of one of the arms illustrating the method of attaching the yokes to the arms.

The following is a detailed description of the drawings.

A represents an annular track, which may be of any suitable construction, but which in practice I prefer to make in portable sections so that the machine can be readily taken down, transported to a new site and there set up for temporary use.

The track proper or tread is of an undulating character comprising alternating dips and rises of more or less abruptness.

B is a base which is located at the axis of the track and upon which is mounted the rotary central frame C. 1 is the center post of said frame which depends into and is journaled in the vertical bearing 2 of the base B. 3 is a collar fixed on the post 1 and bearing on the top of the base B, said base and collar being provided with complementary raceways concentric with the post 1 and in which work the ball bearings or other anti-friction members 4.

Thus the center frame is provided with both a vertically disposed and a horizontally disposed bearing which prevent its wobbling and strictly confine its movement to rotation on a truly vertical axis.

The frame C is attached at its center to the upper end of the post 1 while its perimeter is supported by the inclined struts 5 extending down to the collar 3.

The perimeter of the frame C at two opposite points or zones is preferably formed of a plurality of straight chords C' of equal length to which are pivotally attached, on horizontal axes, the inner ends of the car supporting arms D which I have shown disposed in two groups, of five each, on opposite sides of the machine, thus obtaining a good balance which reduces the thrusts or lateral strains on the center frame. However I may use two oppositely disposed arms or may provide a plurality of the same equally spaced around the central frame.

The arms D extend slightly beyond the track A and are supported on said track by means of wheels 6 whose axles are journaled in the depending yokes 7 fixed on the lower ends of the stems 8 which slide vertically in suitable sockets 8<sup>a</sup> in the arms D. Said stems and sockets are preferably non-cylin-

dricul, as shown in Fig. 6, to prevent the wheels from shifting so that they would not truly follow the track. To cushion the support of the arms by the track I prefer to coil helical springs 9 about the stems 8 between the yokes 7 and the arms D.

It is evident that as the central frame rotates, the arms will travel around the track, rising and falling with the undulations of the track but having their movement free from tipping, since the arrangement is such that each of the arms moves in a horizontal and in a vertical plane only.

To enable the wheels 6 to maintain contact for their full width with the track, the tread of the latter is bevelled or inclined properly throughout its extent, as indicated in the drawings.

On the end portion of each arm D is mounted a passenger car E. These cars may be of any desired design, but I prefer to design the same that when loaded, their weight is eccentrically disposed as to their axis of turning movement, as will be more fully explained.

I prefer a roughly circular form of car having doorways 10 cut in its walls and an arcuate seat 11 at what might be called the rear of the car. The opposite or front wall of the car may be developed to form a hood 12.

The cars E of whatever design may be selected, are so mounted on the arms D as to be capable of at least a limited, independent, and preferably turning or oscillatory movement. Thus, I have shown a base plate 13 secured on the arm and supporting a turn table 14 by means of interposed ball bearings 15, or other suitable anti-friction devices. The turn table is maintained in proper position relative to the base plate by any convenient means, such as the vertically disposed post 16, which I term the "steering shaft", and which is fixed to the arm and extends up through the turn table which latter turns about the post.

The movement of the turn table on the base is preferably limited in extent by the lug 17 depending from the turn table and moving between a pair of spaced apart stops 18 on the base plate.

The car is mounted on the turn table, the latter, if desired, forming the bottom or floor of the car, but, for the purpose of increasing the comfort of the passengers, I prefer to resiliently mount the car on the turn table. Thus I have shown the front of the car supported on, and preferably slightly spaced above, the turn table by the hinge 19, while the rear of the car is supported by a spring, illustrated as an elliptical spring 20.

The movement of the car with the turn table is preferably cushioned and resiliently controlled by a pair of helical springs 21, attached to the arm D and diverging to be

attached to the under side of the car E at spaced apart points. Thus the car is automatically returned to its normal position when the machine is stationary.

The post 16 extends up through the floor of the car but is unattached to the same. The upper end of the post is provided with a fixed hand wheel 22, which I term a "steering wheel." An occupant of the car by grasping said wheel is able to either resist or augment the turning movement of the car.

Rotary power is applied to the central frame C by any convenient means, not shown, so that when the amusement device is in operation the central frame and with it the radially disposed arms, may be rotated at will, and stopped and started.

It is evident that as the machine is operated, the arms will travel around the annular, undulating track, rising and falling in response to the rises and dips in the track, but that there will be no unlimited tipping or tilting of the passenger cars as they are so mounted as to be incapable of such dangerous movements. Thus I am able to use relatively very abrupt changes in track level without danger of throwing the passengers from the cars or tossing them about with too great violence.

As a car descends a dip, the loaded side of the car, where the passengers are seated, will tend to swing around to the front, and, on the other hand, as the car ascends a rise in the track, the loaded side of the car will tend to swing toward the rear, the movement of the car being limited by the stops to prevent spinning and cushioned by the helical springs to prevent jolts and jars, which springs also bring the car to rest in its normal position with the doorway at the proper position to permit the passengers to embark and disembark at the loading platform.

By grasping the "steering wheel" a passenger may resist, retard or augment the automatic movement of the car. Again the car may be arranged to be moved independently of the arm by the steering wheel only, as, for instance, as when the undulations of the track are not abrupt enough and the speed of the car around the track too slow to automatically swing the car on its pivot.

Although, for the sake of clearness, I have described in detail the embodiment of the principles of my invention shown, in the drawings, I do not wish to limit myself thereby, but claim broadly:—

1. In an amusement device of the character described, the combination of an annular undulating track, an arm disposed radially of said track, said arm being rotatably mounted on a vertical axis concentrically of the track so as to travel around the latter and said arm being also pivotally mounted on a horizontal axis so as to follow

the undulations of the track, and a passenger car mounted directly on said arm and arranged to turn on the outer end of said arm, said car being provided with passenger accommodations which are so arranged that when the car is occupied the center of gravity of the car is rendered eccentric to its axis of turning whereby the travel of the arm around the undulating track will cause the car to swing about its axis relative to the arm.

2. In an amusement device of the character described, the combination of an annular undulating track, an arm disposed radially of said track, said arm being rotatably mounted on a vertical axis concentrically of the track so as to travel around the latter and said arm being also pivotally mounted on a horizontal axis so as to follow the undulations of the track, a passenger car carried on said arm and pivotally mounted on a substantially vertical axis on said arm so as to be capable of oscillation relative to the arm, and means for limiting the oscillatory movement of said car relative to its axis.

3. In an amusement device of the character described, the combination of an annular undulating track, an arm disposed radially of said track, said arm being rotatably mounted on a vertical axis concentrically of said track so as to travel around the latter and said arm being also pivotally mounted on a horizontal axis so as to follow the undulations of the track, a passenger car carried on said arm and mounted on a substantially vertical axis on said arm so as to be capable of oscillation relative to the arm, and resilient means for cushioning the oscillations of said car relative to its axis.

4. In an amusement device of the character described, the combination of an annular undulating track, an arm disposed radially of said track, said arm being rotatably mounted on a vertical axis concentrically of the track so as to travel around the latter and said arm being also pivotally mounted on a horizontal axis so as to follow the undulations of the track, a passenger car carried on said arm and pivotally mounted on a substantially vertical axis on said arm so as to be capable of oscillation relative to said arm, means for limiting the oscillations of said car relative to its axis, and resilient means for cushioning said oscillations.

5. In an amusement device of the character described, the combination of an annular undulating track, an arm disposed radially of said track, said arm being rotatably mounted on a vertical axis concentrically of the track so as to travel around the latter and said arm being also pivotally mounted on a horizontal axis so as to follow the undulations of the track, a pivot post

mounted on the outer end of said arm, and a passenger car mounted on said arm and arranged to turn with said pivot post as a center of movement so as to oscillate relative to said arm.

6. In an amusement device of the character described, the combination of an annular undulating track, an arm disposed radially of said track, said arm being rotatably mounted on a vertical axis concentrically of the track so as to travel around the latter and said arm being also pivotally mounted on a horizontal axis so as to follow the undulations of the track, means for driving said arm around the track, a pivot post mounted on the outer end of said arm, a passenger car mounted on said arm and arranged to turn with said pivot post as a center of movement so as to oscillate relative to said arm, and means for limiting the movement of the car relative to its axis.

7. In an amusement device of the character described, the combination of an annular undulating track, an arm disposed radially of said track, said arm being rotatably mounted on a vertical axis concentrically of the track so as to travel around the latter and said arm being also pivotally mounted on a horizontal axis so as to follow the undulations of the track, a vertically disposed pivot post mounted on the outer end of the arm, a car mounted on said arm and arranged to turn with said post as a center of movement so as to oscillate relative to said arm, and resilient means for cushioning the movement of the car relative to its axis.

8. In an amusement device of the character described, the combination of an annular undulating track, an arm disposed radially of said track, said arm being rotatably mounted on a vertical axis concentrically of the track so as to travel around the latter and said arm being also pivotally mounted on a horizontal axis so as to follow the undulations of the track, a vertically disposed pivot post mounted on the outer end of said arm, a passenger car mounted on said arm and arranged to turn with said post as a center of movement so as to oscillate relative to said arm, means for limiting the oscillations of said car relative to its axis, and resilient means for cushioning said oscillations.

9. In an amusement device of the character described, the combination of an annular undulating track, an arm disposed radially of said track, said arm being rotatably mounted on a vertical axis concentrically of the track so as to travel around the latter and said arm being also pivotally mounted on a horizontal axis so as to follow the undulations of the track, a vertically disposed pivot post on the outer end of said arm, a car pivotally

mounted on said arm with said post as a center of movement so as to oscillate relative to said arm, and means whereby the occupant of the car may move the same relative to its axis by grasping said post.

10. In an amusement device of the character described, the combination of an annular undulating track, an arm disposed radially of said track, said arm being rotatably mounted on a vertical axis concentrically of the track so as to travel around the latter and said arm being also pivotally mounted on a horizontal axis so as to follow the undulations of the track, means for driving said arm around the track, a vertically disposed pivot post on the outer end of said arm, and a passenger car mounted on said arm and arranged to turn with said post as a center of movement so as to be capable of oscillation relative to said arm, said car being provided with passenger accommodations which are so arranged that when the car is occupied the center of gravity of the car is rendered eccentric to its axis of turning whereby the travel of the arm around the undulating track will cause the car to oscillate on its axis relative to the arm.

11. In an amusement device of the character described, the combination of an annular undulating track, an arm disposed radially of said track, said arm being rotatably mounted on a vertical axis concentrically of the track so as to travel around the latter and said arm being also pivotally mounted on a horizontal axis so as to follow the undulations of the track, a vertically disposed pivot post on the outer end of said arm, a passenger car mounted on said arm and arranged to turn with said post as a center of movement so as to be capable of oscillation relative to its axis, said car being provided with passenger accommodations which are so arranged that when the car is occupied the center of gravity of the car is rendered eccentric to its axis of turning whereby the travel of the arm around the undulating track will cause the car to swing on its axis relative to the arm, and means for limiting the movement of the car relative to its axis.

12. In an amusement device of the character described, the combination of an annular undulating track, an arm disposed radially of said track, said arm being rotatably mounted on a vertical axis concentrically of the track so as to travel around the latter and said arm being also pivotally mounted on a horizontal axis so as to

follow the undulations of the track, a vertically disposed pivot post mounted on the outer end of said arm, a passenger car mounted on said arm and arranged to turn with said post as a center of movement so as to be capable of oscillation relative to its axis, said car being provided with passenger accommodations which are so arranged that when said car is occupied the center of gravity of the car is rendered eccentric to its axis of turning whereby the travel of the arm around the undulating track will cause the car to oscillate on its axis relative to the arm, and resilient means for cushioning the oscillations of the car.

13. In an amusement device of the character described, the combination of an annular undulating track, an arm disposed radially of said track, said arm being rotatably mounted on a vertical axis concentrically of the track so as to travel around the latter and said arm being also pivotally mounted on a horizontal axis so as to follow the undulations of the track, a vertically disposed pivot post mounted on the outer end of said arm, a passenger car mounted on said arm and arranged to turn with said post as a center of movement so as to be capable of oscillation relative to its axis, said car being provided with passenger accommodations which are so arranged that when said car is occupied the center of gravity of the car is rendered eccentric to its axis of rotation whereby the travel of the arm around the undulating track will cause the car to oscillate on its axis relative to the arm, means for limiting the swinging movement of the car, and resilient means for cushioning said movement.

14. In an amusement device of the character described, the combination of an annular undulating track, an arm disposed radially of said track, said arm being rotatably mounted on a vertical axis concentrically of said track so as to travel around the latter and said arm being also pivotally mounted on a horizontal axis so as to follow the undulations of the track, a passenger car pivotally mounted on a substantially vertical axis on the outer end of said arm so as to be capable of oscillation relative to said arm, and stationary means adapted to be grasped by the occupant whereby the occupant of the car can cause said car to move relative to its axis.

Signed at Sandusky, Ohio, this 24th day of Feby. 1922.

JOHN A. FISHER.