United States Patent

[11] 3,603,583

[72] Inventor **Norman Bartlett**
North Miami Beach, Fla.

[21] Appl. No. **814,251**
[22] Filed **Apr. 8, 1969**
[45] Patented **Sept. 7, 1971**

[73] Assignee **Marjorie Bartlett**
North Miami Beach, Fla.
a part interest

[54] **PASSENGER PARTICIPATION AMUSEMENT RIDE**
7 Claims, 8 Drawing Figs.

[52] **U.S. Cl.** **272/36,** 272/37, 272/50
[51] **Int. Cl.** **A63g 1/00**
[50] **Field of Search** 273/36, 37, 50

[56] **References Cited**

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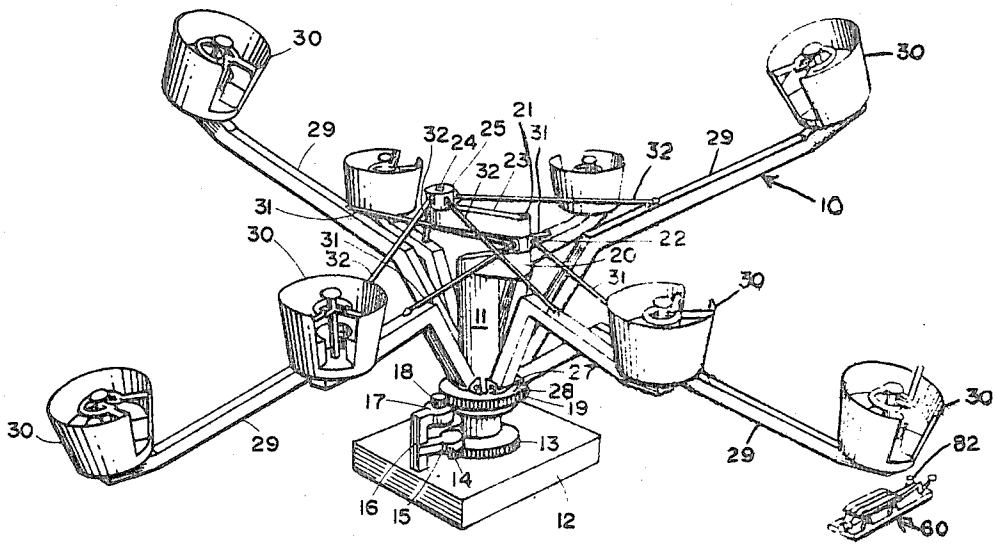
Primary Examiner—Anton O. Oechsle
Attorney—J. B. Dickman, III

ABSTRACT: A passenger participation amusement ride having a plurality of radiating arms on one end of which circular passenger-carrying cars are pivotally mounted, the other end of the arms are pivotally secured to a shaft that permits the simultaneous swinging of the arms in both horizontal and vertical planes. The cars are provided with a bench for seating passengers, which extends only about a portion of the car whereby the cars become unbalanced when loaded with seated passengers so that rotation of the cars is effected as the cars rise and fall and ratchet mechanism connected to the cars so that the cars can only rotate in one direction.



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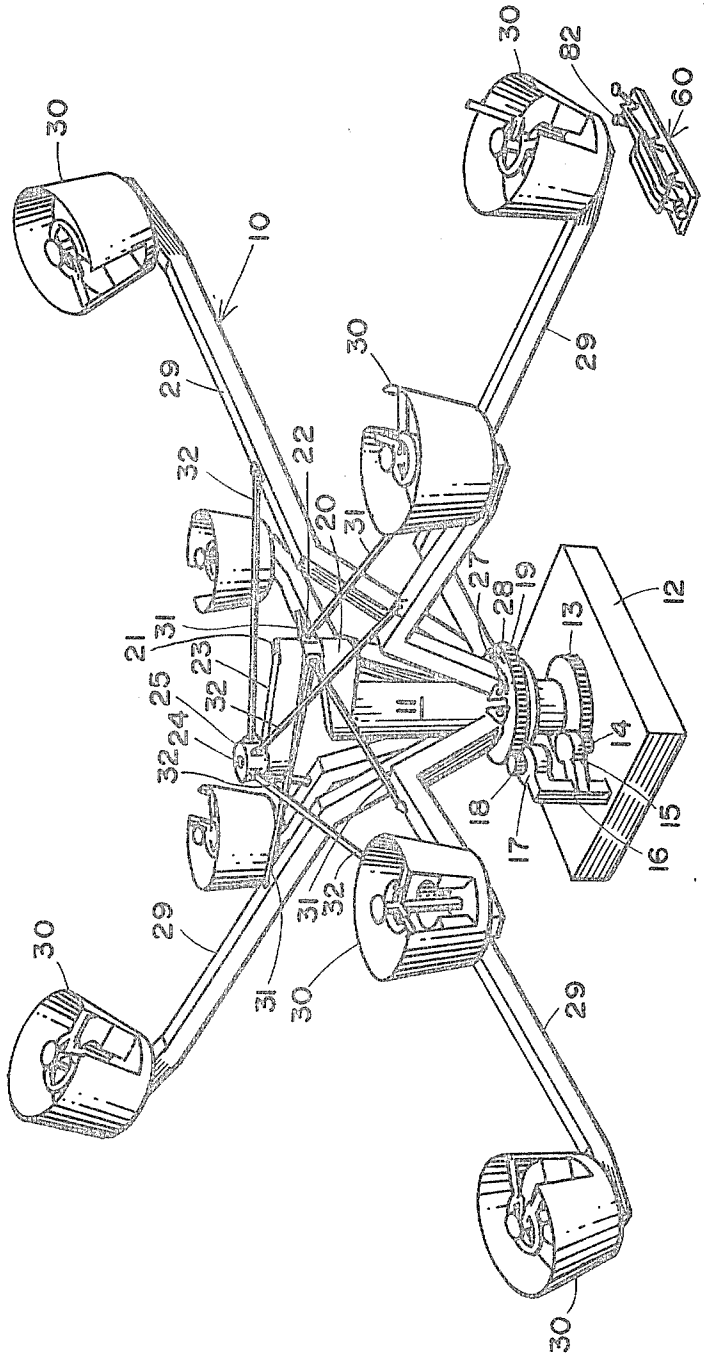

FIG. 1

INVENTOR
NORMAN BARTLETT
BY
Salvatore G. Militana
Attorney

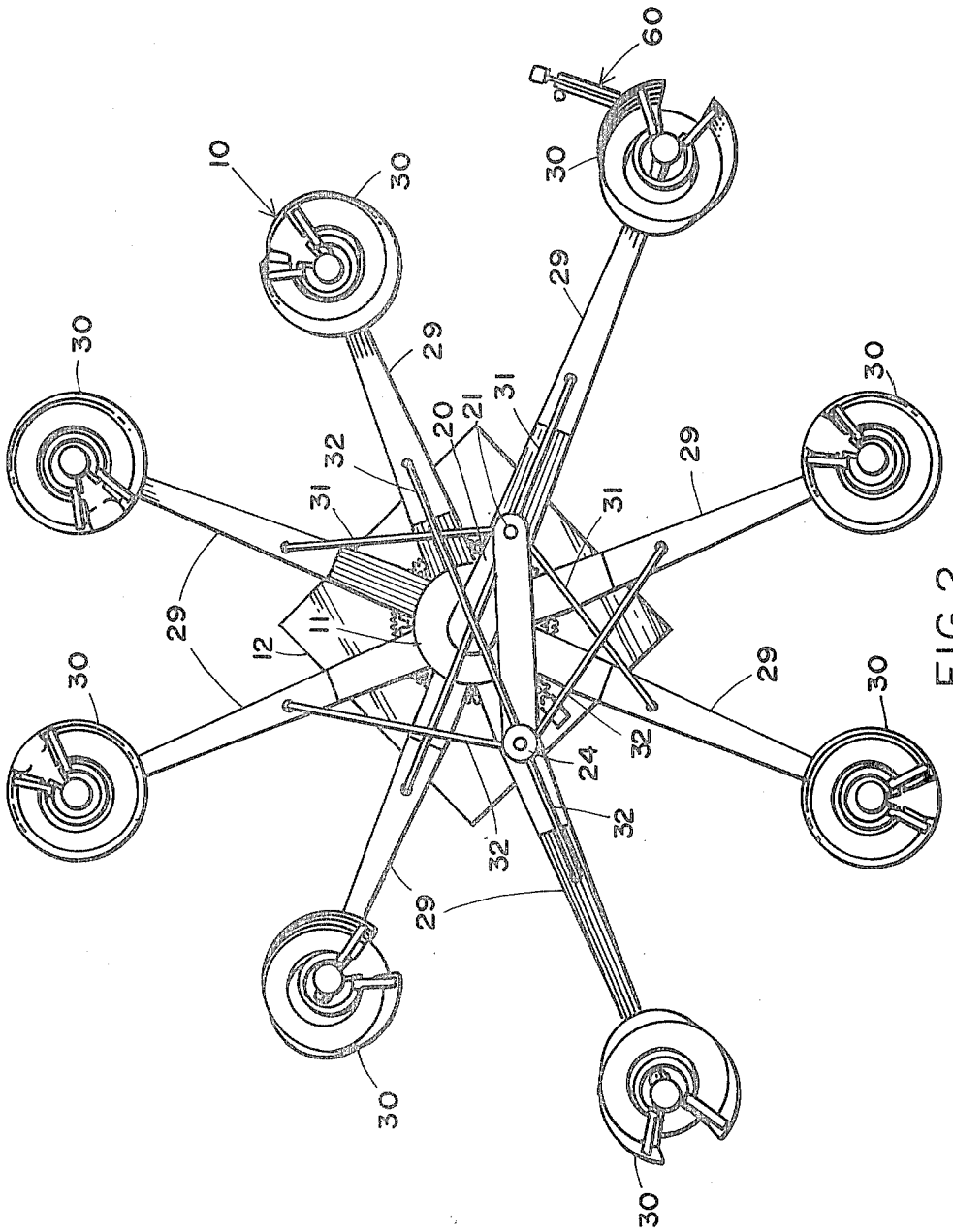

FIG. 2

INVENTOR
NORMAN BARTLETT
BY
Salvatore G. Militana
attorney

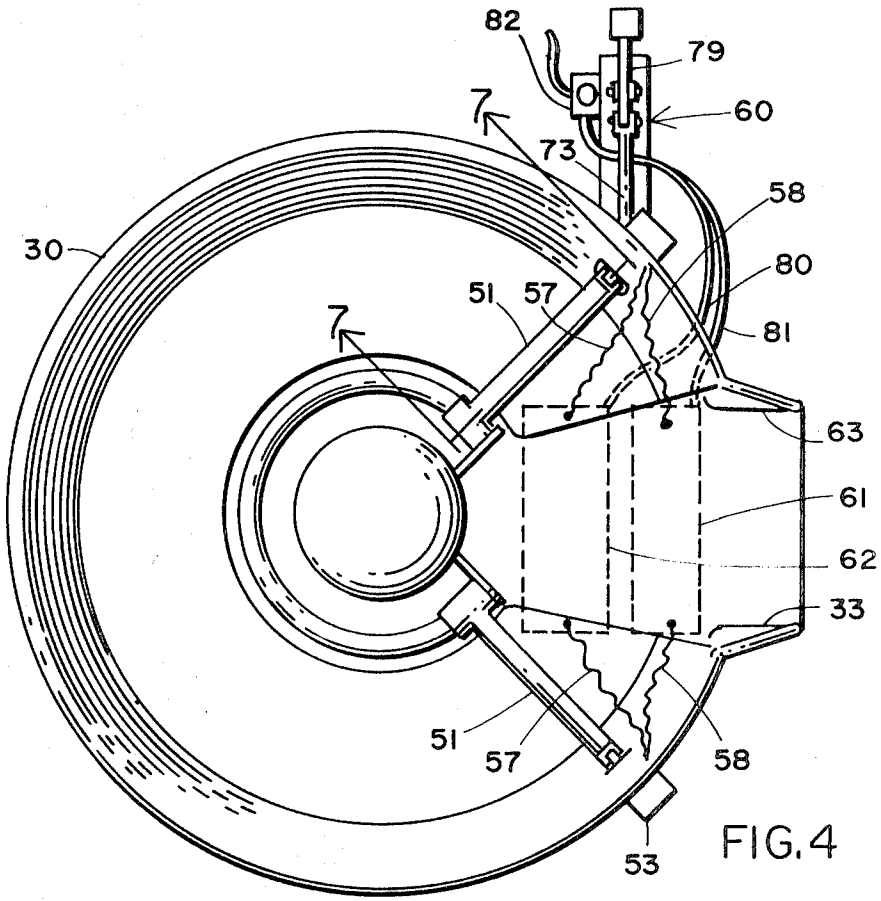

FIG. 4

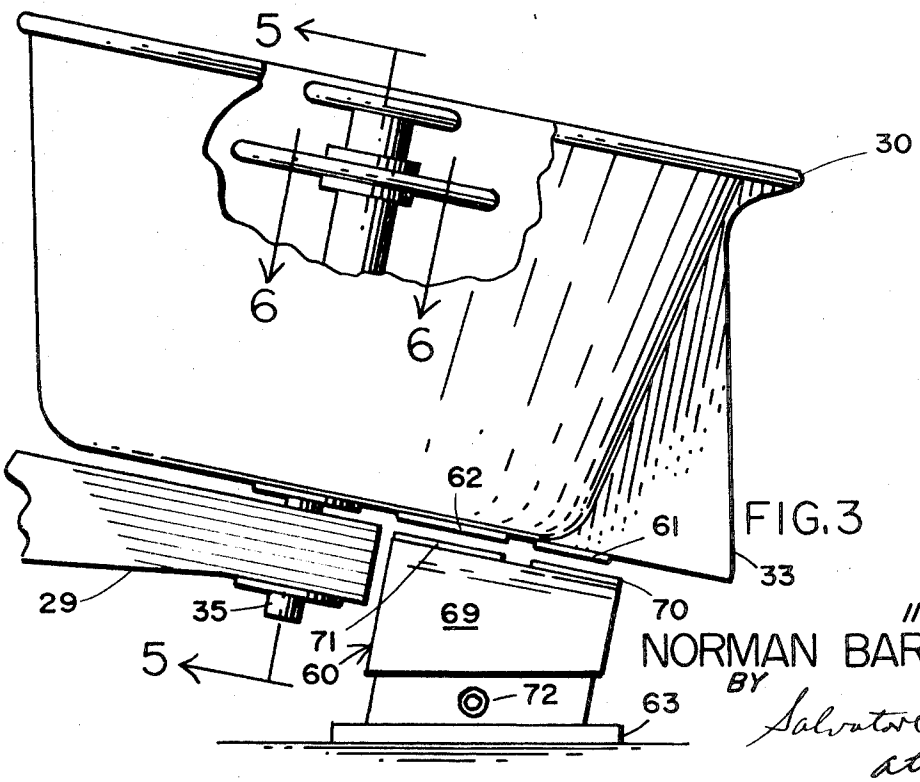

FIG. 3

INVENTOR
NORMAN BARTLETT
BY
Salvatore C. Militana,
attorney

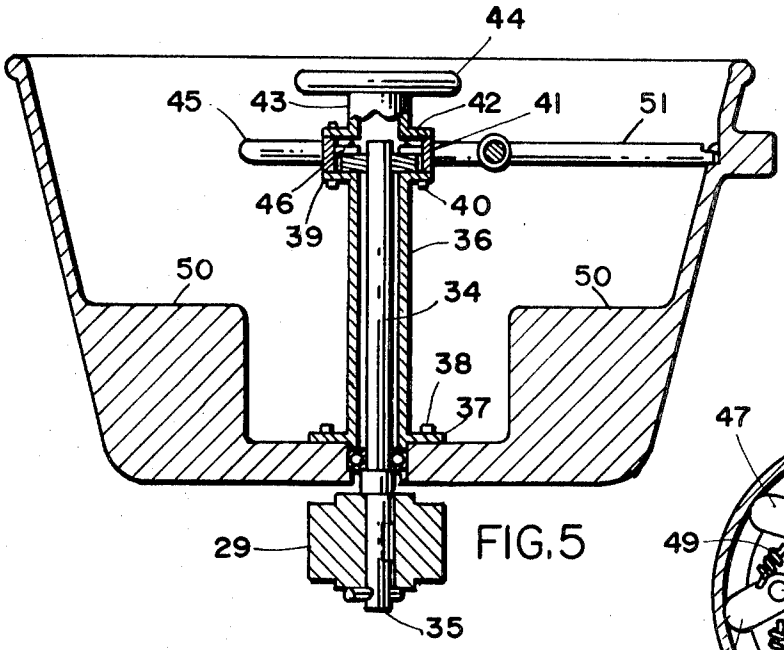

FIG. 5

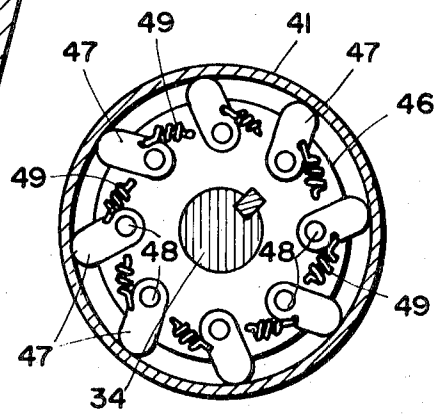

FIG. 6

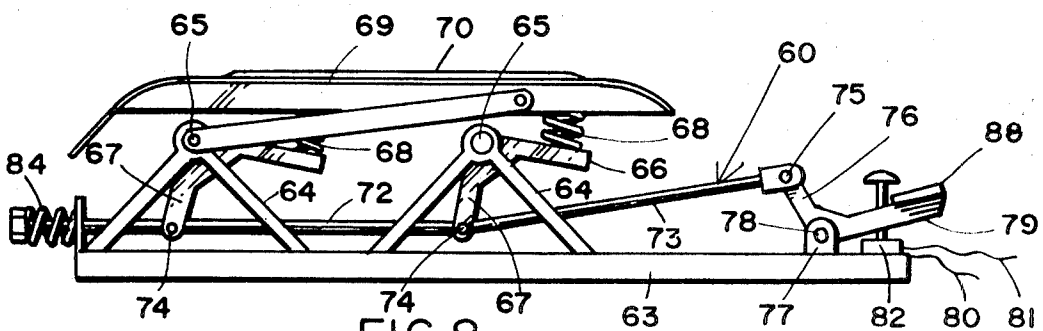

FIG. 8

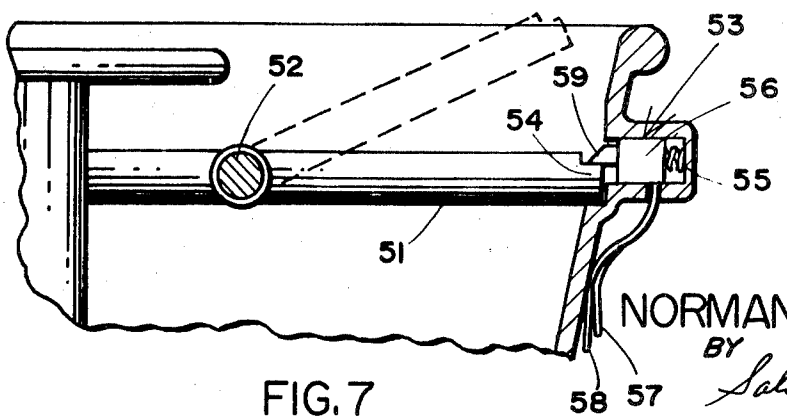

FIG. 7

INVENTOR
NORMAN BARTLETT
BY
Salvatore G. Militana
attorney

PASSENGER PARTICIPATION AMUSEMENT RIDE

This invention relates to amusement rides of the roundabout type and is particularly directed to one in which passengers participate and being an improvement over my U.S. Pat. No. 2,822,173, dated Feb. 4, 1958, entitled "Amusement Ride".

In my patent the amusement ride provided for a plurality of passenger carriers secured to the outer ends of a plurality of radiating arms wherein the arms are adapted to ascend and descent as they rotated about a fixed vertical axis.

The present invention contemplates the mounting of the passenger cars on the ends of the radiating arms so as to permit the passenger cars to rotate about their axes as the cars swung in a vertical plane wherein the rotational movement being only in one direction is enhanced by participation of the passengers in the cars.

Therefore a principal object of the present invention is to provide passenger-carrying cars rotatably mounted on the ends of radiating arms of a roundabout amusement ride wherein the presence of passengers in the cars unbalance the cars and compel the cars to rotate upon the vertical swinging movements of the radiating arms.

Another object of the present invention is to provide an amusement ride of the roundabout type whose passenger-carrying cars are rotatably mounted in only one direction on the ends of radiating arms so that as the radiating arms swing in a vertical plane, the cars will rotate about its axis on the arms.

A further object of the present invention is to provide an amusement ride of the roundabout type having passenger-carrying cars rotatably mounted on radiating arms with a manual loading and unloading device that maintains a car in a stationary position and electrically releases a gate to permit passengers to enter or leave the car only when the car is properly positioned to discharge or accept passengers safely.

With these and other objects in view, the invention will be best understood from a consideration of the following detailed description taken in connection with the accompanying drawing forming a part of this specification, with the understanding, however, that the invention is not confined to any strict conformity with the showing of the drawings but may be changed or modified so long as such changes or modifications mark no material departure from the salient features of the invention as expressed in the appended claims.

In the drawings:

FIG. 1 is a perspective view of a roundabout type amusement device constructed in accordance with my invention.

FIG. 2 is a top plan view.

FIG. 3 is a fragmentary side elevational view of a radiating arm with a car mounted thereon and positioned above a manual loading and unloading device.

FIG. 4 is a top plan view thereof.

FIG. 5 is a cross-sectional view taken along the line 5—5 of FIG. 3.

FIG. 6 is a cross-sectional view taken along the line 6—6 of FIG. 3.

FIG. 7 is a fragmentary cross-sectional view taken along the line 7—7 of FIG. 4.

FIG. 8 is an elevational view of my manual loading and unloading device.

Referring to the drawings wherein like numerals are used to designate similar parts throughout the several views, the numeral 10 refers to a roundabout-type amusement ride constructed in accordance with my invention and consisting of a centrally positioned vertical shaft 11 rotatably mounted on a pedestal 12. At the base of the shaft 10 there is secured a ring gear 13 which is engaged by a pinion gear 14. The latter is mounted on the shaft of a motor 15 supported on a bracket 16. A second motor 17 is mounted on the bracket 16 above the first motor 15 and is provided with a pinion gear 18 mounted on the shaft of the motor 15. Pinion gear 18 is in mesh engagement with a ring gear 19 rotatably mounted on the shaft 11 so as to rotate freely of the shaft 11.

At the top end of the rotatably shaft 11 is an eccentric arm 20 on the free end of which there extends a vertical shaft 21. A collar 22 is rotatably mounted on the shaft 21 immediately above the eccentric arm 20 with a second eccentric arm 23 having one end fixedly mounted on the shaft 21 above the collar 22. The other end of the second eccentric arm 23 is provided with a vertically disposed shaft 24 on which a second collar 25 is rotatably mounted.

Secured to the ring gear 19 is a plurality of lugs 28 to which one end of elongated radiating arms 29 are pivoted as at 27, the other end each having a rotatable passenger-carrying car 30 mounted thereon.

Alternate cars 30 have cables 31 connecting the lower collar 22 with the elongated arms 29 while the remaining alternate cars 30 have their elongated arms 29 connected to the upper collar 25 by cables 32. By virtue of the construction described in detail hereinabove and shown by FIGS. 1 and 2, upon energizing the motors 15 and 17 to operate in opposite directions, the shaft 11 and the ring gear 19 will rotate causing the elongated arms 29 to swing about the shaft 11 as center of rotation and the cars 30 to simultaneously with the swinging movement of the arms 29 rise and fall vertically. The cars 30 will move in a convoluted path from approximately 12 degrees below the horizontal to 39 degrees above the horizontal thereby swinging in a vertical arc of more than 50 degrees.

In the event only the motor 17 is energized the eccentrics 22 and 25 will remain stationary and the elongated arms 29 and cars 30 will rise and fall during each revolution of the arm's rotation. If the motor 15 were energized alone, the shaft 11 and eccentric arms 20 and 23 would rotate causing the collars 22 and 25 to rotate in a horizontally disposed circle. The action of the rotating collars 22 and 25 would cause the arms 29 to swing in an approximately vertical plane from 12 degrees below the horizontal to 39 degrees above the horizontal. Note that oppositely positioned arms 29 are connected to the same collar 22 and 25 and wherein one set of arms 29 is connected to one collar 22, the adjacent arms 29 are connected to the other collar 25. As shown by FIGS. 1 and 2 when the pair of cables 31 and 32 are in coplanar relation, one of the arms 29 of each pair of oppositely positioned arms 29 will be at its lowest position while oppositely positioned arms 29 will be at its highest position while the other four arms 29 will be in their midposition, two arms 29 swinging toward their highest position while two arms 29 will be swinging to their lowest position. As these arms 29 swing about the amusement ride 10 with the shaft 11 as center of rotation, the passenger-carrying cars 30 will likewise swing in a large circle as they rise and fall vertically. This movement of the arms 29 causes the unbalanced cars 30 to rotate about a pivot as is explained in detail hereinafter, permitting persons seated in the cars 30 to participate and assist the cars 30 in rotating as desired upon shifting their own weight in the cars 30.

As best shown by FIGS. 3–7 inclusive the passenger-carrying cars 30 that resemble a circular tub are provided with a passageway 33 at the front of the cars 30 for the entering and discharging of passengers. The cars 30 are each rotatably mounted on a fixed axially disposed shaft 34 splined at its lower end 35 to the end of the arms 29. A housing 36 extends over the shaft 34 being secured at the bottom flanged portion 37 as at 38 and terminating in a flanged portion 39 that is secured by bolts 40 to a collar 41. The collar 41 is capped by a flange member 42 and bolted thereto by the bolts 40 with a cylindrical housing 43 projecting upwardly of the flange 42 and a ringlike handle 44 mounted thereon. Secured to the collar 41 and extending circumferentially thereabout is a second ring handle 45 larger than the handle 44 which permits passengers to grasp same as they enter or leave the car 30 as well as to prevent the passengers from standing on the cars 30.

Within the confines of the collar 41 is a disc 46 splined to the stationary shaft 34. The disc 46 is provided with a plurality of pawls 47, pivoted as at 48 adjacent the periphery of the disc 46. The pawls 47 are spring loaded as at 49 so that the ends of the pawls 47 normally bear against the inner wall of the collar 41 thereby permitting the rotation of the collar 41 and the car

30 in a counterclockwise direction as shown by FIGS. 4 and 6, but preventing the rotation of same in a clockwise direction.

Extending about the inner portion of the cars 30 is a built-in arcuate bench or seat 50 that terminates at the passageway 33 with a pivoted gate 51 mounted at both ends of the seat 50. By virtue of this construction, passengers must sit on the bench 50 and thereby cause the car 30 to become unbalanced; since all of the weight of the passengers is disposed on that portion between the gates 51 wherein the passengers are seated. Consequently when the amusement ride 10 is operating, as the radiating arms 29 rise and lower above and below a horizontal plane passing through the end portions of the arms 29, the occupied cars 30 being unbalanced will be affected by gravitation and rotate. The passengers can, if they desire, sway their bodies in the direction of rotation and enhance the rotational movement of the cars 30.

In order to compel the passengers to seat themselves on the bench 50 and remain there for both their own safety as well as effect an unbalancing of the cars 30, the gates 51 are pivoted at one end as at 52 and latched at the other end by a solenoid operated lock 53. The latter consists of a latch 59 which yieldingly engages the end portion 54 of the gate 51 by virtue of a spring 55. A solenoid 56 enshrouds a portion of the latch 59 and when energized causes the latch 59 to slide away from the gate 51 to disengage the end portion 54 to permit the gate to be swung upwardly by the passengers and allow them to walk therealong. Wires 57 and 58 are connected at one end to the solenoid 56 and the other ends to plates 61 and 62 mounted on the lower surface of the cars 30. The plates 61 and 62 are conductors of electricity and are insulated from each other and from the car 30. When the plates 70 and 71 become electrically connected upon contact by a foot operated loading and unloading device 60, as is explained hereinafter, the solenoid 56 becomes energized and the latch 59 retracts to release the gate 51 and permit it to be swung to its open position.

The manual loading and unloading device 60 is mounted on the ground at the position it is desired to load and unload the passengers in the cars 30. The device 60 consists of base member 63 on which two pairs of spaced pivot supports 64 extend upwardly. Extending between the supports 64 are pivot pins 65 rotatably mounted thereon. Secured to the pivot pins 65 are bell cranks having arm members 66 and 67. Arms 66 extend in a generally horizontal direction having heavy helical springs 68 mounted on the ends thereof with a platform 69 supported on the springs 68. The top surface of the platform 69 is provided with metal plates 70 and 71 that are insulated from the platform 69 and from each as well as being aligned with plates 61 and 62 whereby plate 70 engages plate 61 and plate 71 engages plate 62 when the loading device 60 is operated.

The bell crank arm members 67 are pivoted as at 65 to operating rods 72 and 73 which are spring loaded as at 84 so that the platform 69 is at its lowest position when not actuated. The free end of the operating rod 73 is pivoted as at 75 to one end of a foot operated bell crank lever arm 76 which is pivoted to a support member 77. The other arm 79 extends somewhat horizontally having a foot pedal 88 secured thereon so that when a person steps forcibly on the foot pedal 88 against the spring pressure 84, the bell cranks 66, 67 are pivoted to swing the platform 69 upwardly. Plate 70 engages plate 61 while plate 71 engages plate 62. The frictional engagement of these plates prevent any rotational movement of the car 30 so that as the passengers enter or leave the car, the latter is held rigidly against any movement.

Alongside the foot pedal 88 is a foot actuated switch device 82 to which wires 83 and 81 are connected extending to plates 70 and 71 respectively. The switch device 82 is connected to a source (not shown) of electrical power. Also, a buzzer is connected in the electrical circuit so that the passengers may be notified when the gates 51 are unlocked and may be swung to their open position.

When a car 30 is to discharge its passengers, for example, the operator of the amusement ride will stop the rotation of the radiating arms 29 when the particular car 30 arrives at the position of the platform 69 which is in its lowered position. At the same time he swings the car 30 about its axis, if necessary, until the opening 33 is in approximate axial alignment with the arm 29 and facing the direction away from center of the ride 10. The operator then steps on the foot pedal 88, causing the plates 70, 71 to engage the plates 61, 62 respectively to secure the car 30 against any rotational movement. The operator then steps on the pushbutton of the switch box 82 closing the circuit through wires 80, 81, plates 70, 71 and plates 61, 62 wires 57, 58 and solenoid 56 to energize the solenoid 56 to release the locked gate 51 and permit the passengers to swing the gate 51 to its open position. At the same time a buzzer warns the passengers that the gate is unlocked. The operator then releases pushbutton of the switchbox 82 but maintains his foot pedal 88 in its depressed position as the passengers leave the car 30.

Other passengers are not permitted to enter the car 30 and when they are seated on the bench 50, the gates 51 are swung downwardly to their locked position and the foot pedal 88 is then released freeing the car 30. Now the amusement ride 10 is free to rotate to continue the cycle of stopping the next car 30 to discharge and receive passengers.

When all of the cars 30 have been thusly loaded with passengers, the amusement ride 10 is permitted to rotate and the cars 30 rise and fall as explained hereinbefore. Because the cars 30 are loaded in an unbalanced condition, they will tend to rotate about the axis 34 as the cars 30 swing in a vertical plane on the ends of the elongated arms 29. The pawl mechanism 46–49 inclusive will permit the cars 30 to rotate only in one direction so that as the passengers participate in the turning of the cars 30 by swaying their bodies in time with some cadence such as the usual music that accompanies the conventional amusement ride, the cars 30 can be made to rotate quite fast to the delight of the passengers.

Having disclosed my invention, what I claim as new and desire to secure by letters patent of the United States is:

1. A passenger participation amusement ride comprising a substantially centrally disposed shaft, a plurality of elongated arms radiating from said shaft, means rotating said shaft and swinging said arms in a horizontal plane, further means swinging said arms in a vertical plane, a plurality of passenger-carrying cars, pivot means mounting each of said cars at the free end of said radiating arms permitting the rotation of said cars on said arms, restraining means engaging said pivot means preventing the rotational movement of said cars in one direction, (The structure as recited by claim 1 wherein) said pivot means (comprises) comprising nonrotatable shaft means secured to said arm, said car having a wall portion extending about said shaft means and said restraining means comprising a plurality of pawls, means pivotally securing said pawls on either of said shaft means or said wall portion and said pawls engaging the other of said shaft means or said wall portion and spring means urging said pawls in contact relation whereby rotation of said car means is permitted in one direction and restrained from rotating in the other direction.

2. The structure as recited by claim 2 wherein said shaft means comprises a shaft and disc secured to said shaft with said pawls pivotally mounted at one end to said disc adjacent the periphery thereof with the other end of said pawls engaging the inside wall of said wall portion, said pawls extending at substantially the same oblique angle with relation to the radii of said disc.

3. The structure as recited by claim 1 wherein said cars are circular in shape, a passageway for entering and leaving said car positioned at the periphery of said circular car, a bench extending about said car and terminating adjacent both side of said passageway, a gate pivotally mounted at each end of said bench in proximity of said passageway, latch means securing said gates in a closed position whereby passengers seated on said bench are prevented from leaving said cars during rota-

tion of said amusement ride and said cars become unbalanced and rotate in the opposite of said one direction only as said cars swing in a vertical plane.

4. The structure as recited by claim 3 taken in combination with an arcuate handle coaxially mounted on said shaft means and terminating adjacent said passageway, said gates being pivoted to the ends of said arcuate handle, said latch means securing the free ends of said gates in a closed position, and means operatively connected to said latch means for releasing said gate and permitting the swinging of said gate to an open position.

5. The structure as recited by claim 4 taken in combination with stopping means mounted below one of said cars engaging said cars, preventing the rotation of said cars during the loading and unloading of the passengers.

6. The structure as recited by claim 5 wherein said stopping means comprises plate means, lever means supporting said plate means, and a foot pedal operatively connected to said lever means whereby upon depressing said foot pedal said lever means are pivoted to raise said plate means into frictional engagement with a lower surface of cars.

7. The structure as recited by claim 5 wherein said plate means comprises a pair of metal members in spaced relation to each other, a second pair of similarly spaced metal members mounted on the lower surface of said cars and adapted to be engaged by said first named pair of metal members, electromagnetic means connected to said latch means, said electromagnetic means being connected electrically in series with said second pair of metal members, lever means supporting said first named pair of metal members, a foot pedal operatively connected to said lever means for raising said first named pair of metal members, a source of electrical energy, means connecting said first named pair of metal members in series with said source of electrical energy whereby upon depressing said foot lever said first pair of metal members will frictionally engage said second pair of metal members to prevent the rotational movement of said car and closing a circuit for said electromagnetic means to release said latch means and permit the swinging of said gate to an open position.