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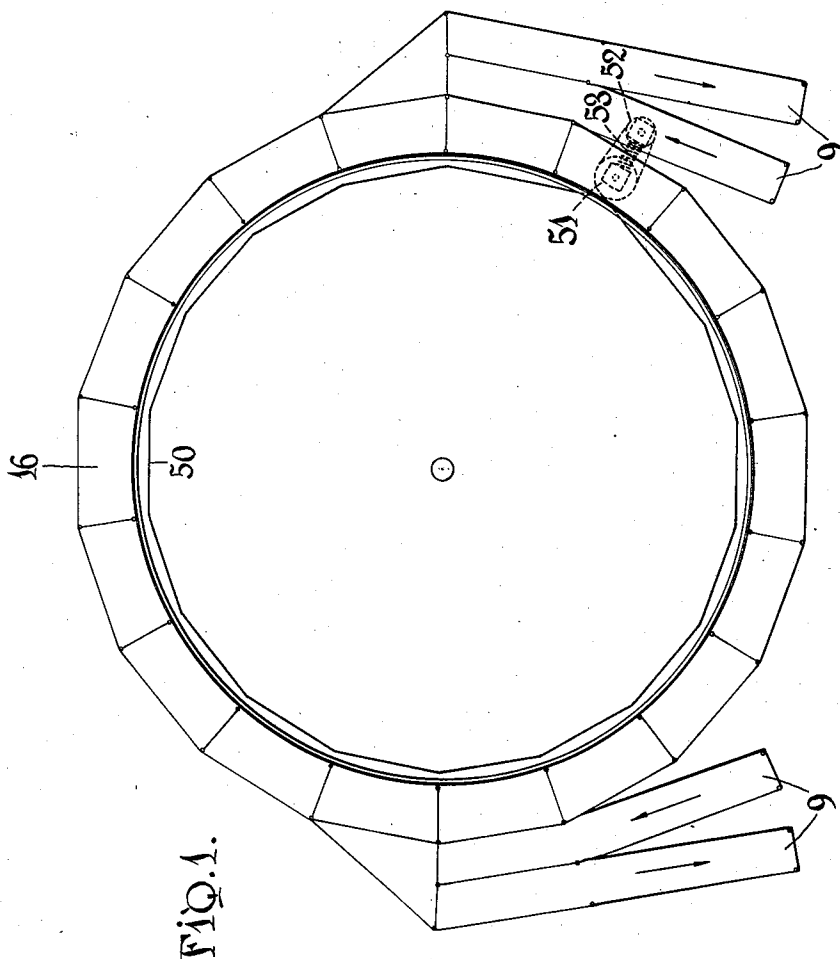
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2,209,549

AMUSEMENT RIDE

Filed Dec. 7, 1938

5 Sheets-Sheet 1



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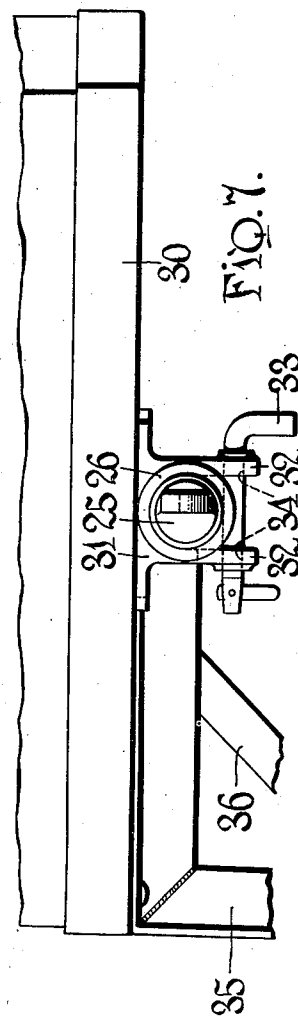
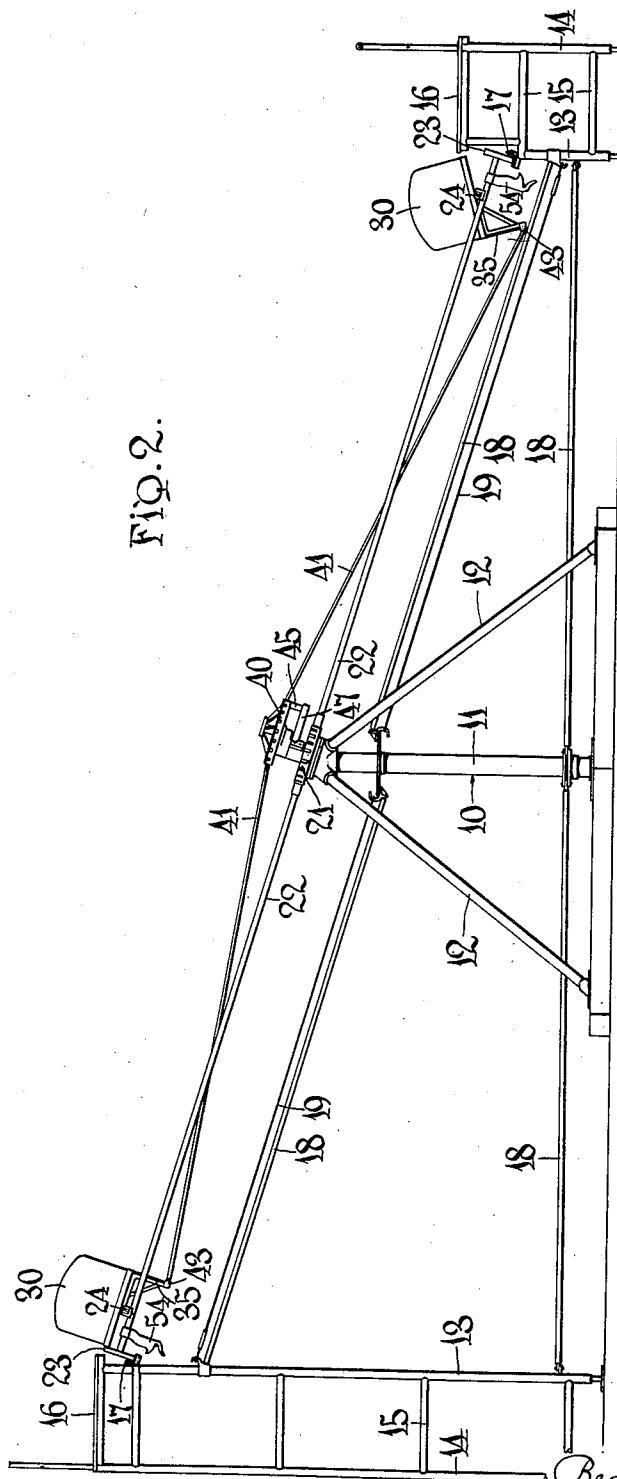
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5 Sheets-Sheet 2



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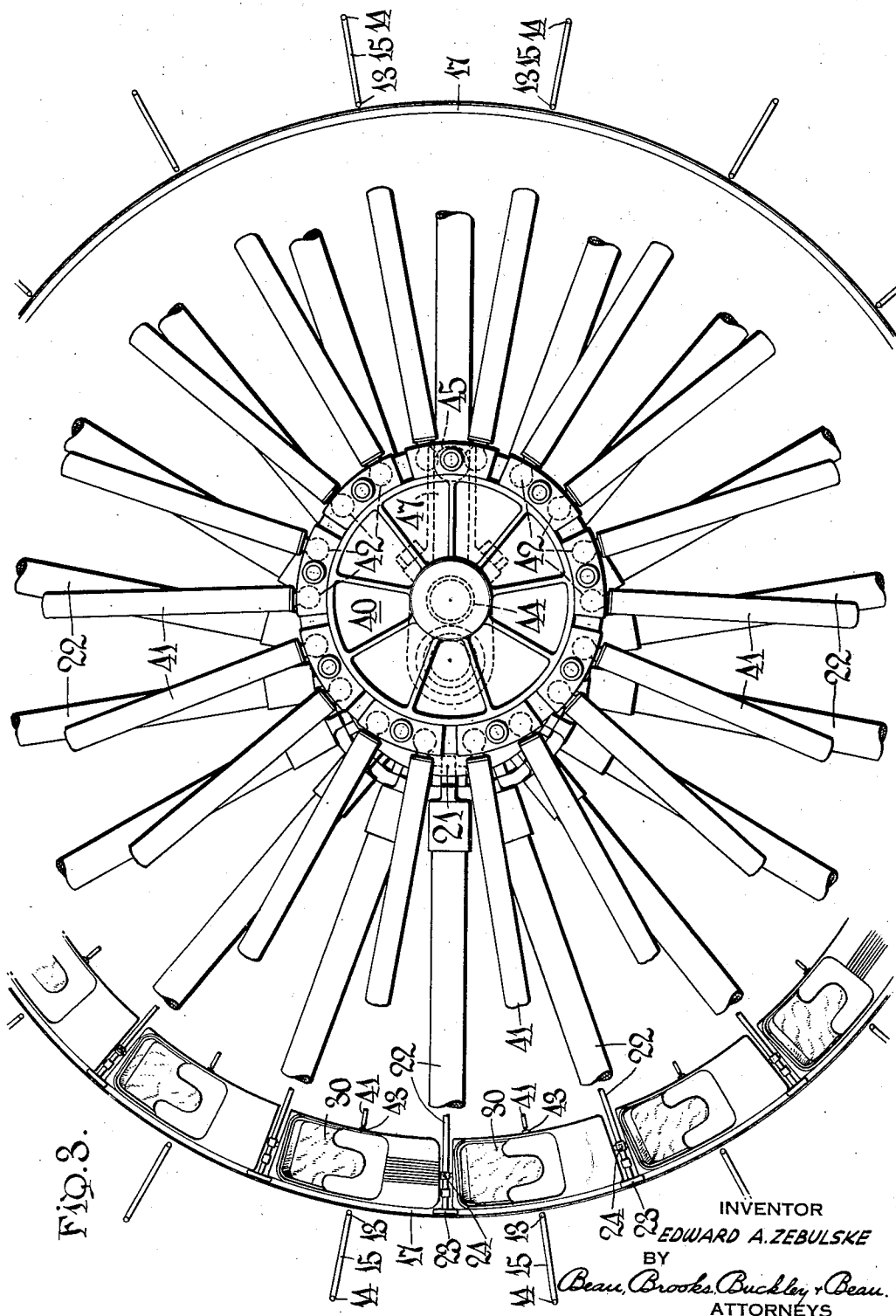
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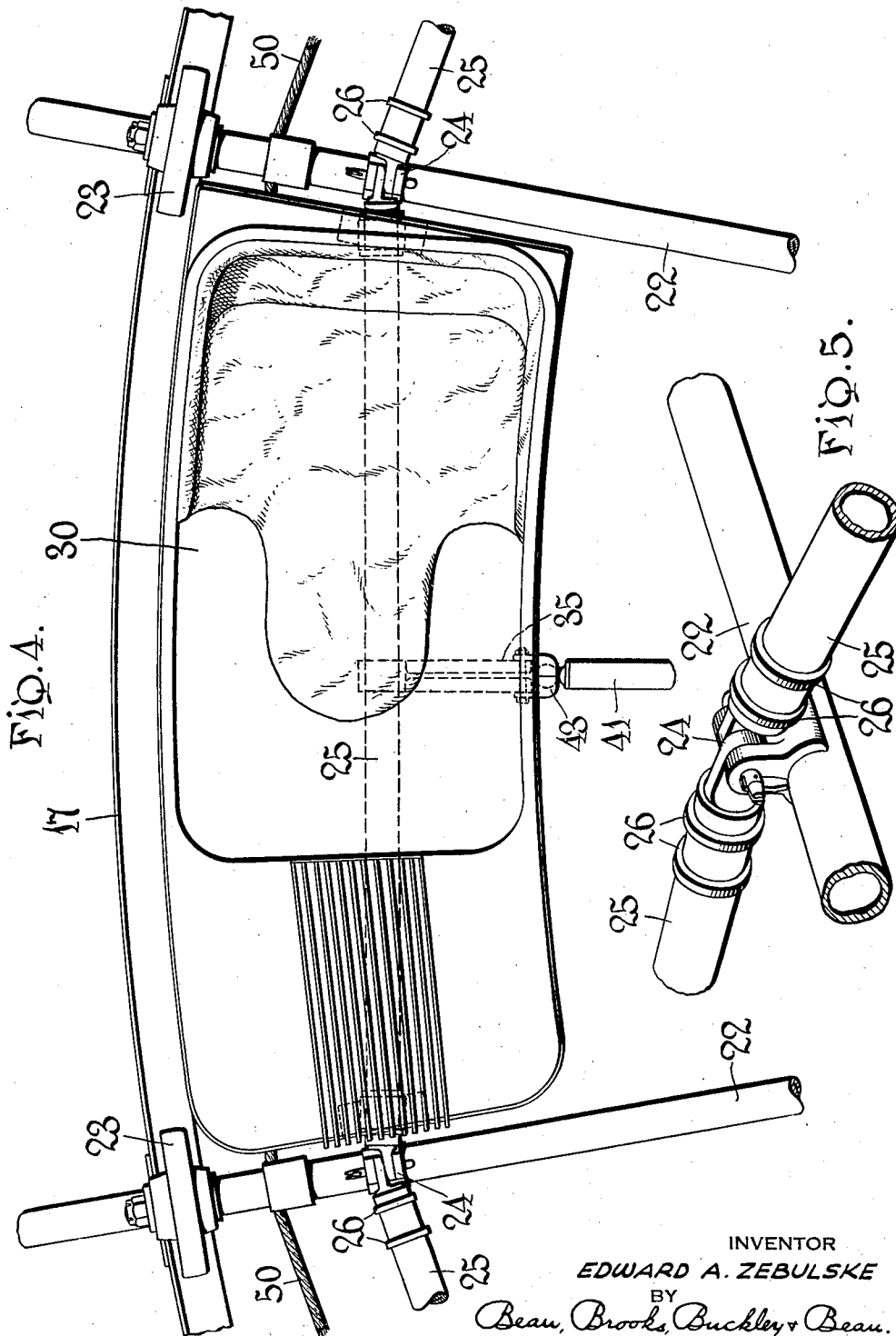
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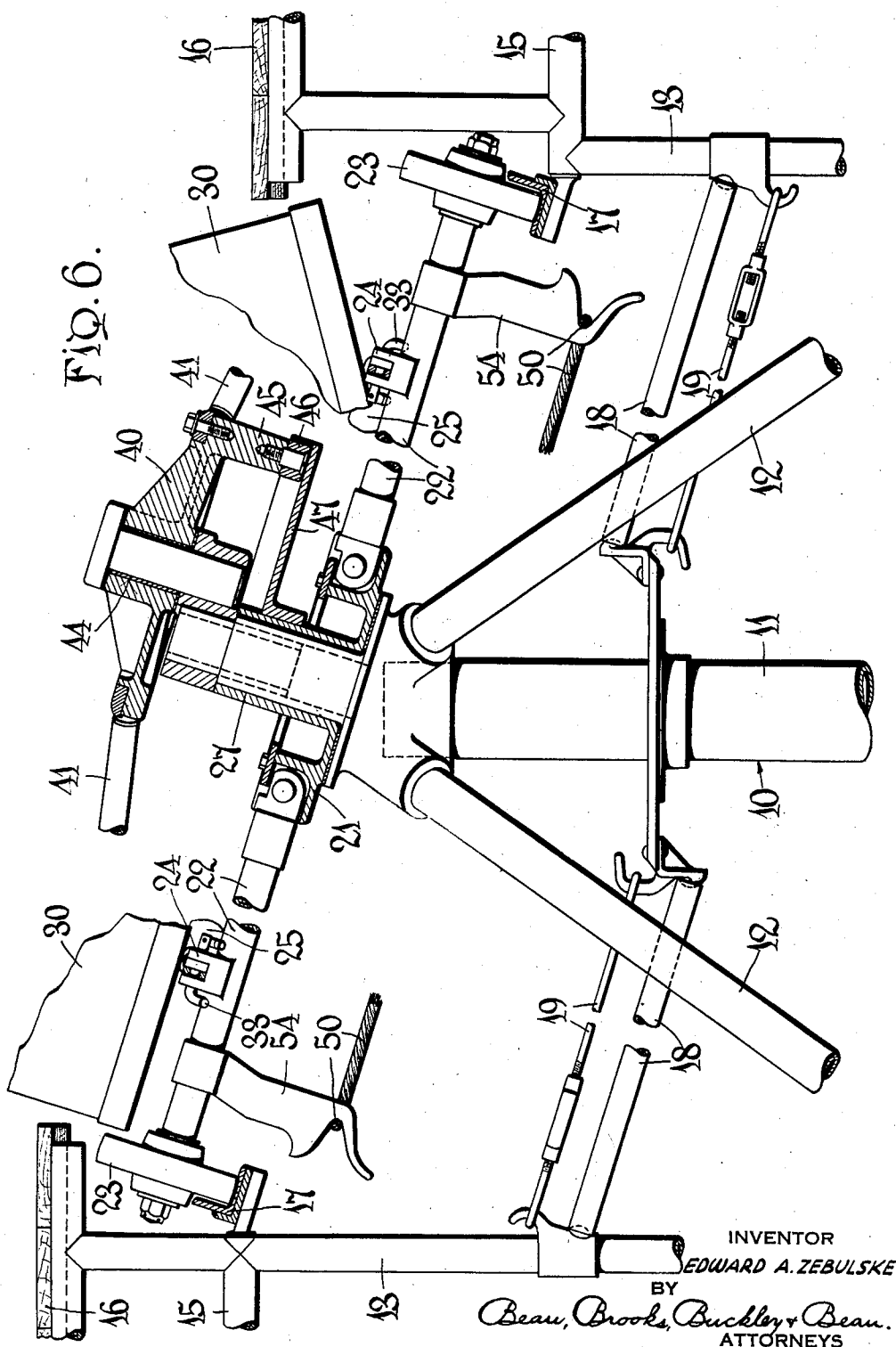
E. A. ZEBULSKE

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AMUSEMENT RIDE

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UNITED STATES PATENT OFFICE

2,209,549

AMUSEMENT RIDE

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Application December 7, 1938, Serial No. 244,425

6 Claims. (Cl. 272-51)

This invention relates to improvements in an amusement device known as a "roundabout" and suitable for use at carnivals and amusement parks and the like. More particularly it relates to such a device in which one or more cars rotate in a circle around a common center, the plane of the circle being inclined at an angle to the horizontal.

In devices of this type it has been common to have the cars rotate in such manner that they are at a constant angle to the plane of the circle in which they rotate. Ordinarily this angle is at right angles to such plane. With this construction, when the car is at the top of its travel, that is, at the top of the circle, the car leans inwardly, which creates a force in an inward direction counteracting to a greater or lesser extent the centrifugal force which tends to throw the car and the passengers outwardly. At the bottom of the circle, however, both car and passengers are leaning outwardly, which accentuates the centrifugal force and gives the passengers a feeling that they may be thrown out of the car.

It is an object of this invention to construct a roundabout of the class described, in such a fashion that the passengers are comfortable at all times and have no tendency to be thrown outward. This permits the utilization of greater operating speeds for the devices with safety to the passengers.

It is a further object to accomplish this result by a simple device which maintains the cars at all times in a position whereby the centrifugal force upon the passengers is adequately counteracted. Other objects will appear hereinafter.

These objects are accomplished by the invention herein described which will be more readily understood by reference to the appended drawings.

In the drawings:

Fig. 1 illustrates a general plan view of the device, with many parts removed for simplification;

Fig. 2 illustrates a sectional elevation of the device;

Fig. 3 illustrates an enlarged fragmentary view of the eccentric means for maintaining the cars at an inwardly inclined angle with some of the cars indicated on a much reduced scale at the outer edges thereof;

Fig. 4 indicates an enlarged plan view of a car and associated mechanism;

Fig. 5 is a perspective view of the outer end of a sweep and the joint between two adjacent cars;

Fig. 6 is an enlarged view partly in section

and partly in elevation of various parts of the device, considerable parts being broken away for simplification and condensation; and

Fig. 7 is an enlarged side elevation of one of the brackets for holding the cars in place.

Referring to Fig. 2, the device generally is located on a frame 10 which consists of a central column 11 held in place by lateral braces 12, a plurality of circumferential supporting columns 13 located at a constant distance from central column 11, and a second set of circumferential columns 14 located outwardly from columns 13 and connected thereto by lateral braces 15. The columns 13 and 14 are highest on one side of the column 11 and lowest on the other, while the intermediate columns 13 and 14 graduate in height from the highest to the lowest. The columns 13 and 14 are kept in a fixed position with regard to central column 11 by means of rods 18 and braces 19.

At the top of the columns 13 and 14 is preferably located a runway or walk 16 for the convenience of patrons and others, although such walk is not necessary for the functioning of the device.

Rigidly attached to the columns 13 is a circular track 17 which is preferably located in a single plane as shown. The attachment is preferably near the top of the columns 13, so that the cars (described below) are conveniently located near the runway or walk 16. The basic plane of this track is inclined at a substantial angle to the horizontal.

Located at the center of the device and adjacent the top of the column 11 is a rotatable member 21 freely rotating in a bearing 27. To the member 21 are attached a number of radially extending sweeps 22. The sweeps are preferably rigidly attached to the rotatable member and at their outer ends are provided with rollers or wheels 23 which ride on the track 17.

Located somewhat inwardly from the outer end of each sweep is a joint 24 to which is attached a tie member 25 circular in cross section and extending to a similar joint on the next adjacent sweep. This joint is shown in Fig. 5. The tie members 25 serve to keep the sweeps rigidly in position and apart from each other and serve also as supports for the cars, which will be described next. Fitted on each tie member 25 are four collars 26, two located near each end of the tie member, for the purpose hereinafter described.

On each tie member 25 is positioned a passenger carrier or car 30 which can rotate about

the tie members 25 as an axis. Each car is held in place by means of brackets 31 (see Fig. 7) having depending flanges 32, said brackets being attached to the underside of the car. One of these brackets is located adjacent each end of the car, and fits snugly over the tie member 25 between the collars 26, the collars preventing the cars from sliding longitudinally. The recess formed by the depending flanges 32 is preferably curved, as shown in Fig. 7, in order that the pressure on the tie member may be spread over its area thus diminishing friction as the car rotates about the tie member as an axis. The tie member is positively held within the bracket by means of a pin 33 passing through holes 34 in the lower part of the depending flanges.

Located eccentrically with respect to the rotatable member 21 is a rotatable member 40 freely rotating in a stationary bearing 44. Spaced somewhat from the axis of rotation of this rotatable member 40 is a depending arm 45 provided at its lower end with a roller 46 rotating about a vertical axis. This roller fits between the arms of a U-shaped member 47 rigidly attached to rotatable member 21. As member 21 rotates it thus carries arm 45 and roller 46 with it. Due to the fact, however, that member 40 is located eccentrically with respect to member 21 roller 46 will ride inwardly or outwardly in the slot provided by the arms of the U-shaped member 47, so that it reaches its point of closest approach to the member 21 when it is on the opposite side of member 21 from that of the axis of rotation of member 40, and its farthest distance from member 21 when it is on the same side of member 21 as the axis of rotation of member 40.

To the member 40 are attached a plurality of tie members or rods 41 (see Figs. 3 and 6), each extending to a depending bracket 35 provided with braces 36 and rigidly attached to the inner side of the corresponding car. These tie rods are of such length and the eccentric member is so located that the cars are at all times tipped at an angle inwardly to the vertical, as shown very clearly in Fig. 2. The joint between the tie rods and the eccentric member 40 is preferably by means of a universal joint 42 and there is also preferably a similar universal joint 43 where it is attached to the car. This is due to the fact that the tie rods occupy varying angles with respect to the rotatable member 40, depending upon the varying positions on the circular track of the cars to which they are attached. This is shown in Fig. 3 where it is seen that the tie rods cross the sweeps at varying angles.

In the form shown in the drawings, a tie rod 41 is connected to a car on the lower part thereof, so that the moment of force exerted by the tie rod about the axis upon which the car rocks or pivots (that is, tie member 25) extends downwardly from such axis. This causes tie rod 41 to push outwardly on the under structure of the car in order that the upper structure may tip inwardly. In this case the effective length of the tie rods 41, that is, the distance between the center of rotation of such tie rods and the vertical axis of the cars, is greater than the effective length of the sweeps 22, that is, the distance between the center of rotation of such sweeps and the axis about which the cars rock or pivot. The tie rods, however, could equally well be connected to the upper part of the cars, in which case the moment of force would extend upwardly from the latter axis, so that an inward pull of the tie rod would cause the upper structure to tip inwardly.

In this case the effective length of the tie rods 41 would be less than the effective length of the sweeps 22.

The cars and associated tie rods 41 and sweeps 22 are caused to travel around the track 17 by any convenient mechanism. In the form shown in the drawings (Fig. 1) this is accomplished by means of a continuous cable 50 wrapped around two rotatable drums 51 and 52. Drum 51 is stationary, while drum 52 is movable towards and away from drum 51. It is kept as far away as possible from drum 51 by means of a spring 53, so that cable 50 is kept taut at all times. The drum 51 is rotated by any suitable means, such as a motor. The cable passes over hooks 54 attached to each sweep 22. The hooks are provided with V-shaped notches so that the cable will wedge firmly therein and exhibit the smallest tendency to slip.

In accordance with the present invention the passenger carriers are thus always inclined at an angle inwardly to the vertical. At the top of the inclined circle this angle is such that the car may be located at right angles or approximately at right angles to the plane of the track. At the bottom of the inclined circle, on the other hand, the angle between the car and the plane of the track will be much less.

In addition to counteracting centrifugal force, the arrangement of the present invention is useful in helping to counteract any tendency the car may have of actually dropping away from the passenger as it travels on the descending side of the circle, due to the acceleration of gravity.

As many modifications may obviously be made from the form shown in the drawings without departing from the spirit of the invention, the invention is not intended to be limited thereto except as defined in the appended claims. Some of the modifications immediately apparent are that the device may be driven by a motor attached to the central rotatable member 21 instead of a motor located at one side of the apparatus, or that some of the tie members, braces, etc., may be made integral with the frame or other parts of the device. The form shown, however, is more practical than these suggested modifications in that it may be easily dismantled and put together again for location at a different place.

When the expression "in a plane inclined to the horizontal" is used, it is understood that slight departures from a true plane, such as in the form of undulatory motion, is included. Likewise, the use of the expression "in a circular path" permits the same variations.

I claim:

1. An amusement device comprising a plurality of pivotally mounted passenger carriers, means for causing said passenger carriers to travel in a circular path in a stationary plane inclined to the horizontal, and tie members radially extending substantially from a center located eccentrically with respect to and on the downward side from the center of said circular path, said tie members being attached adjacent their outer ends to said passenger carriers and having different effective lengths than the effective distance between said passenger carriers and the center of said circular path, whereby said passenger carriers are at all times maintained at an angle inwardly inclined from the vertical.

2. An amusement device comprising a plurality of sweeps radially extending substantially

from a common center, passenger carriers pivotally connected to said sweeps, means for causing said passenger carriers and sweeps to travel in a circular path in a stationary plane inclined to the horizontal about said common center as an axis, and tie members radially extending substantially from a second common center located eccentrically with respect to and on the downward side from said first mentioned common center, said tie members being attached adjacent their outer ends to said passenger carriers and having different effective lengths than the effective lengths of said sweeps, whereby said passenger carriers are at all times maintained at an angle inwardly inclined from the vertical.

3. An amusement device comprising a rotatable member, a plurality of sweeps radially extending from said rotatable member, passenger carriers pivotally connected to said sweeps, a substantially circular track located in a plane inclined to the horizontal and whereon said sweeps travel, a second rotatable member located eccentrically with respect to said first mentioned rotatable member and on the downward side of said circular track from said first mentioned rotatable member, and tie members radially extending from said second rotatable member to said passenger carriers and having different effective lengths than the effective lengths of said sweeps, whereby said passenger carriers are at all times maintained at an angle inwardly inclined from the vertical.

4. An amusement device comprising a rotatable member, a plurality of sweeps radially extending from said rotatable member, wheels located adjacent the outermost extremity of said sweeps, a substantially circular track located in a plane inclined to the horizontal and upon which said wheels ride, passenger carriers pivotally connected to said sweeps, a second rotatable member located eccentrically with respect to said first mentioned rotatable member and on the downward side of said circular track from said first mentioned rotatable member, and tie members radially extending from said second rotatable member to said passenger carriers and

having different effective lengths than the effective lengths of said sweeps, whereby said passenger carriers are at all times maintained at an angle inwardly inclined from the vertical.

5. An amusement device comprising a plurality of pivotally mounted passenger carriers, means for causing said passenger carriers to travel in a circular path in a stationary plane inclined to the horizontal, a rotatable member located eccentrically with respect to and on the downward side from the center of said circular path, and tie members joined to said rotatable member by means of universal joints and radially extending from said rotatable member, said tie members being attached adjacent their outer ends by universal joints to said passenger carriers and having different effective lengths than the effective distance between said passenger carriers and the center of said circular path, whereby said passenger carriers are at all times maintained at an angle inwardly inclined from the vertical.

6. An amusement device comprising a rotatable member, a plurality of sweeps radially extending from said rotatable member, wheels located adjacent the outermost extremity of said sweeps, a substantially circular track located in a plane inclined to the horizontal and upon which said wheels ride, tie members connecting said sweeps, passenger carriers pivotally mounted on said tie members, a second rotatable member located eccentrically with respect to said first mentioned rotatable member and on the downward side of said circular track from said first mentioned rotatable member, and a second set of tie members radially extending from said second rotatable member to said passenger carriers and having different effective lengths than the effective lengths of said sweeps, whereby said passenger carriers are at all times maintained at an angle inwardly inclined from the vertical, said second set of tie members being joined to said passenger carriers and to said second rotatable member by means of universal joints.

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