

W. F. SCHMIDT.

AMUSEMENT DEVICE.

APPLICATION FILED APR. 6, 1908.

935,239.

Patented Sept. 28, 1909.

5 SHEETS—SHEET 1.

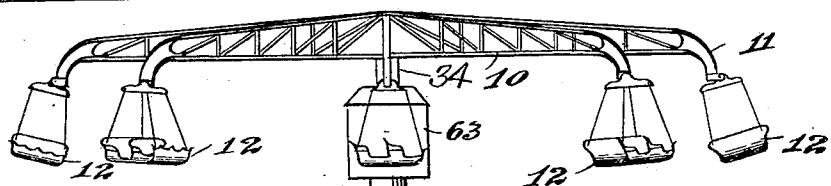
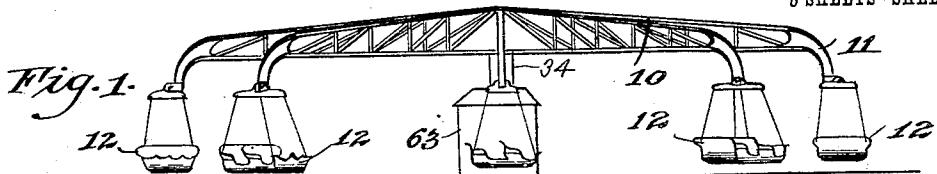
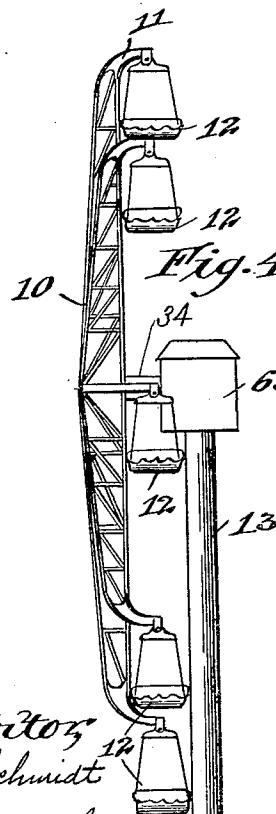
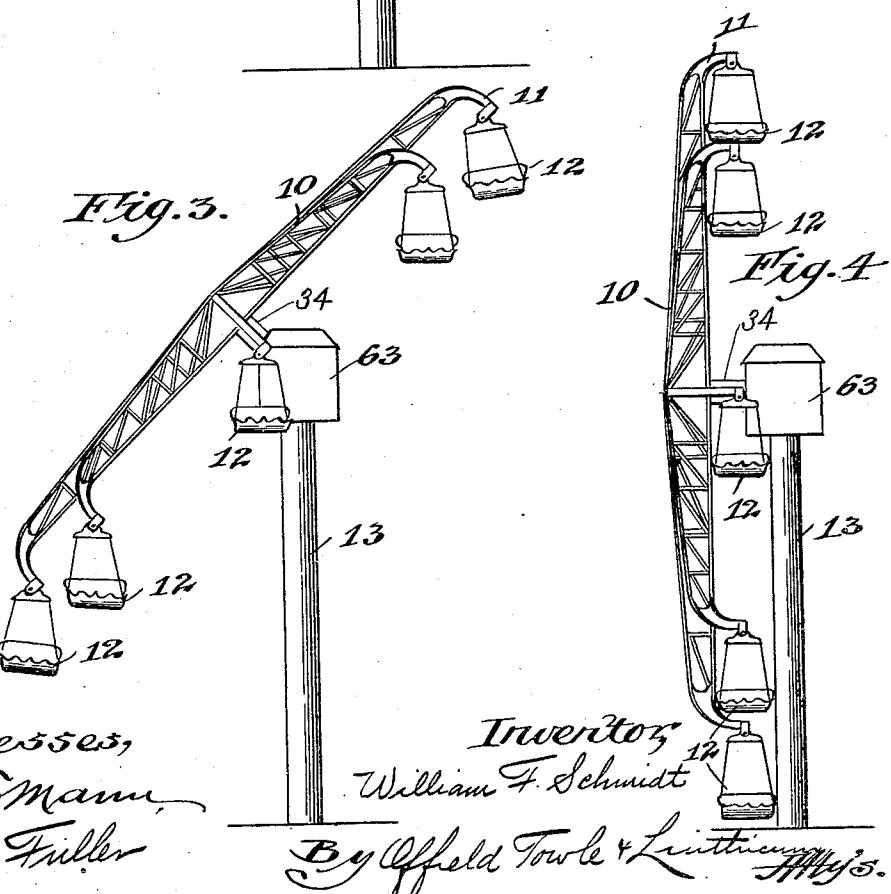


Fig. 2.



Witnesses,
D. C. Mann,
W. M. Fuller

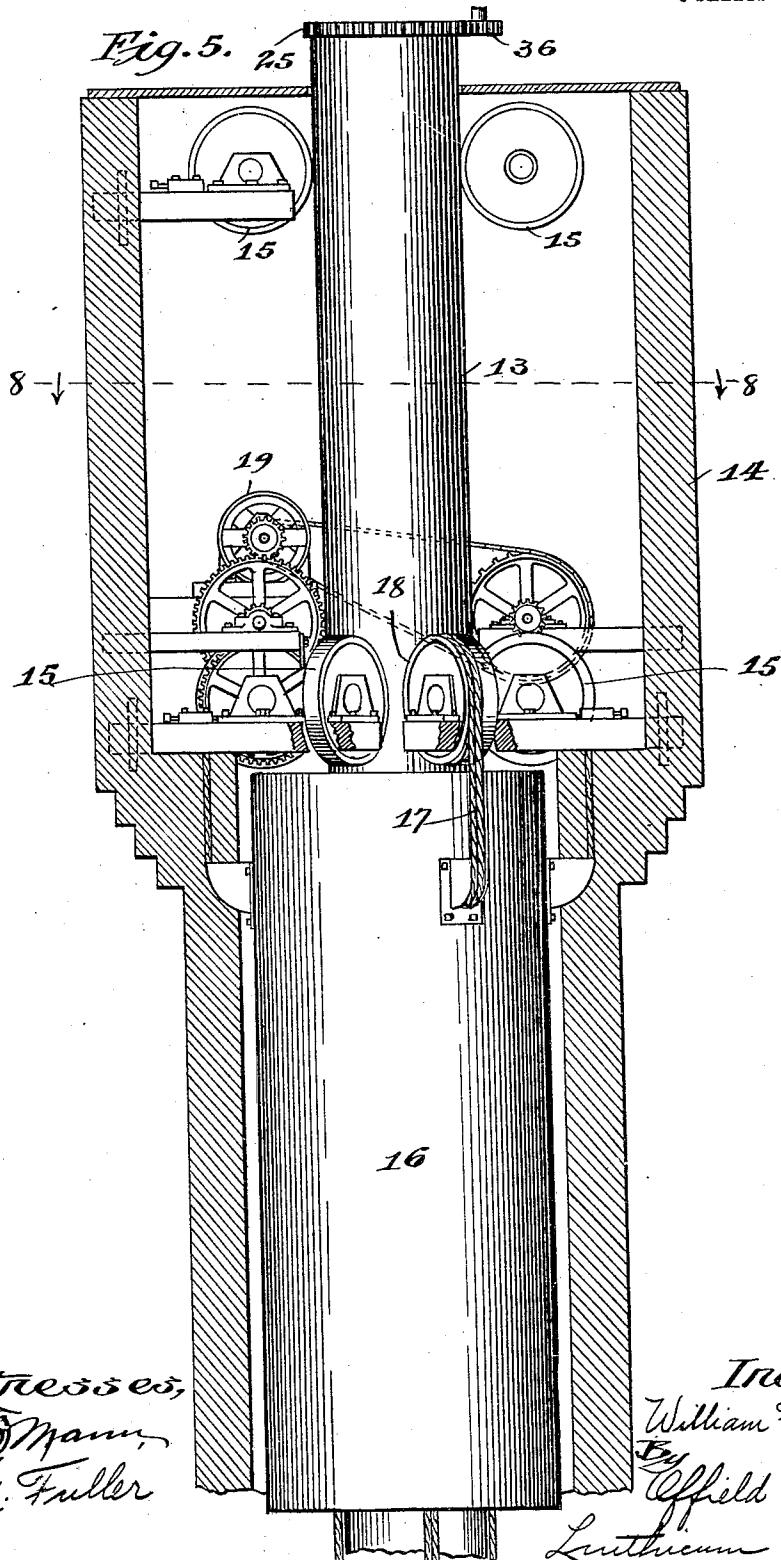
Inventor,
William F. Schmidt
By Offord Towle & Lintz, M. S.

W. F. SCHMIDT,
AMUSEMENT DEVICE,
APPLICATION FILED APR. 6, 1908.

935,239.

Patented Sept. 28, 1909.

5 SHEETS—SHEET 2.



Witnesses,
J. O. Mann,
W. M. Fuller

Inventor,
William F. Schmidt
By Offield Towle
Lithium His.

W. F. SCHMIDT.

AMUSEMENT DEVICE.

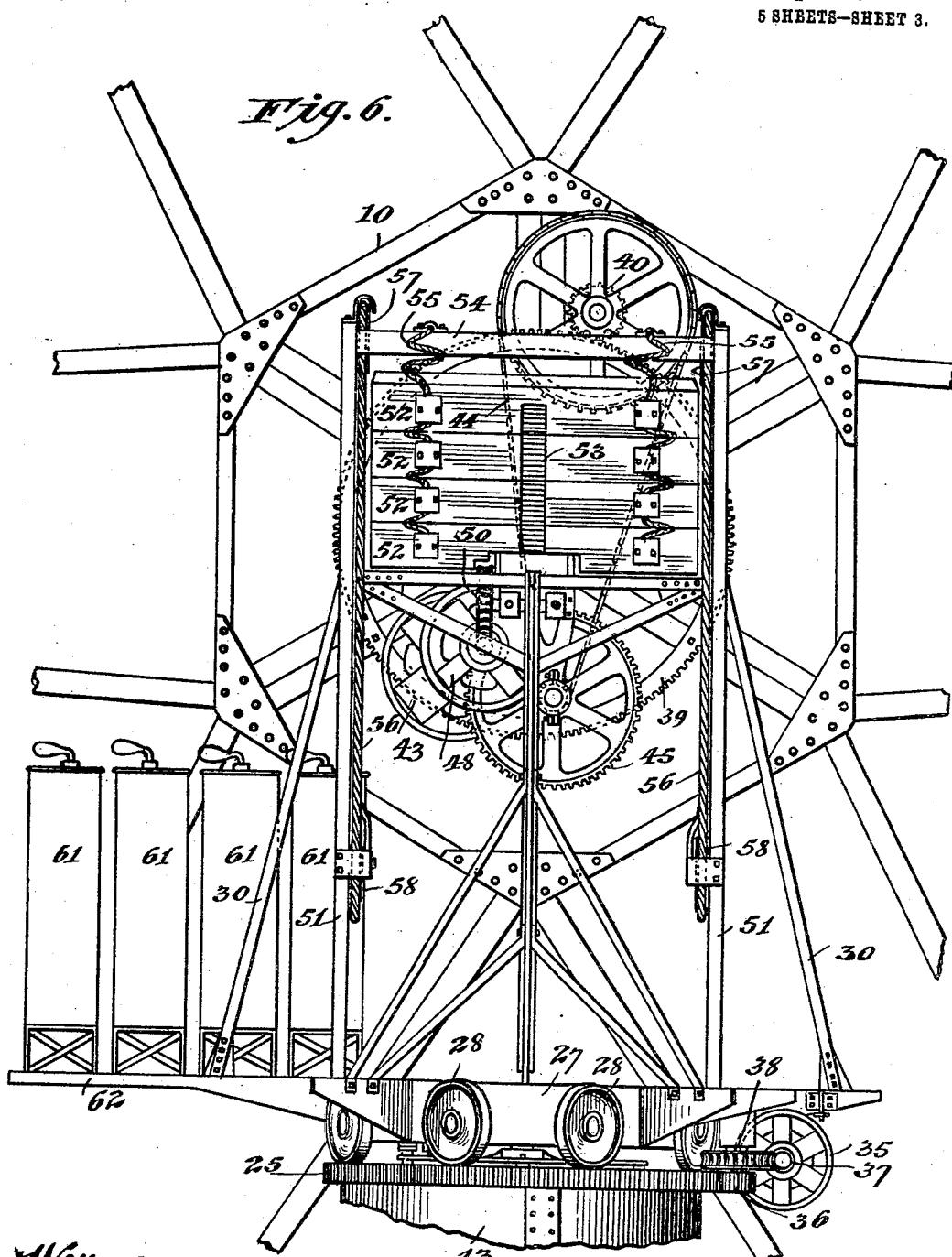
APPLICATION FILED APR. 6, 1908.

935,239.

Patented Sept. 28, 1909.

5 SHEETS-SHEET 3.

Fig. 6.



Witnesses,
S. B. Mann,
W. M. Fuller

Inventor,
William F. Schmidt
By Offield Towle & Linton
St. Louis.

W. F. SCHMIDT.

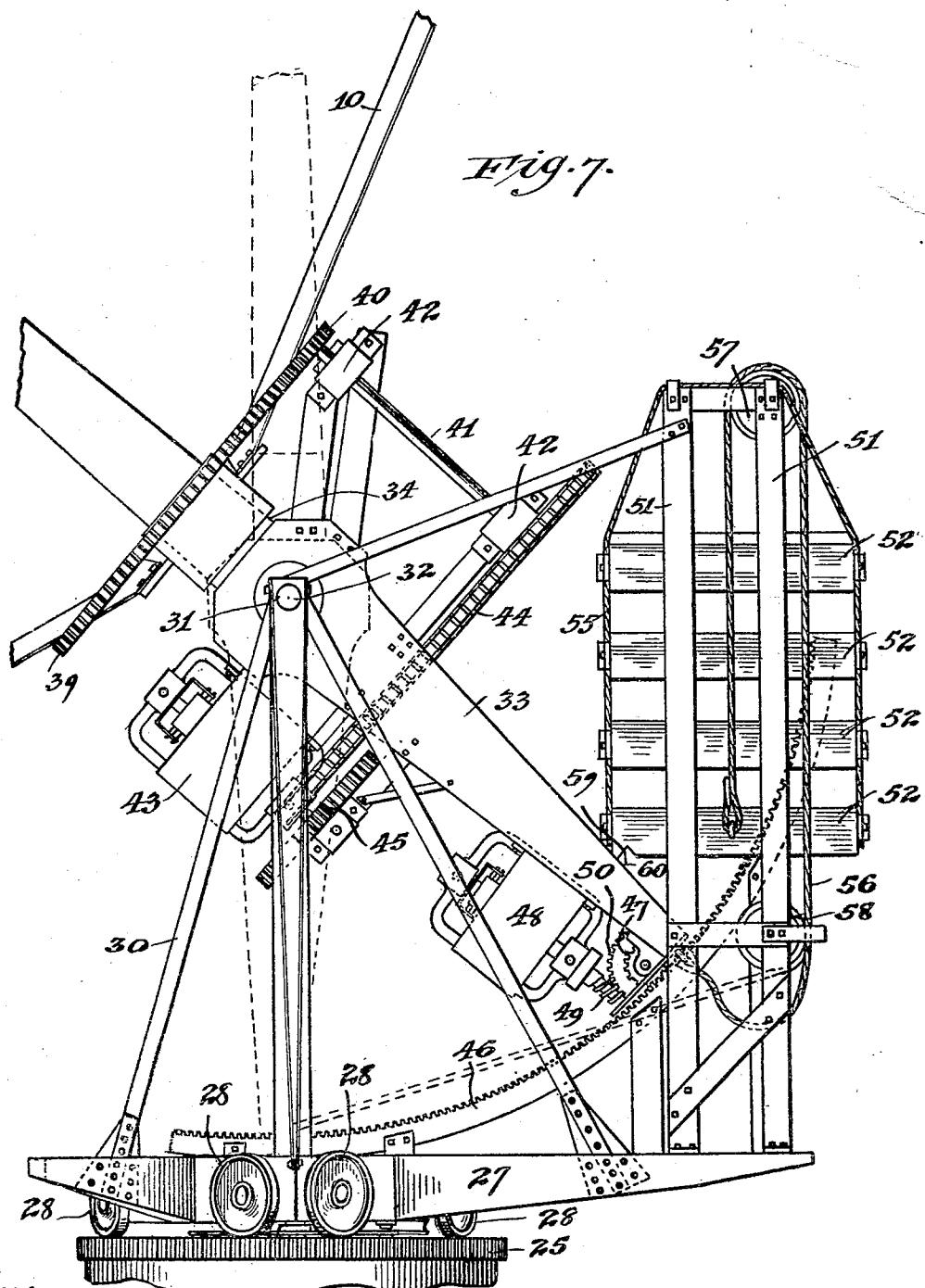
AMUSEMENT DEVICE.

APPLICATION FILED APR. 6, 1908.

935,239.

Patented Sept. 28, 1909.

5 SHEETS—SHEET 4.



W. F. SCHMIDT.

AMUSEMENT DEVICE.

APPLICATION FILED APR. 6, 1908.

935,239.

Patented Sept. 28, 1909.

5 SHEETS—SHEET 5.

Fig. 8.

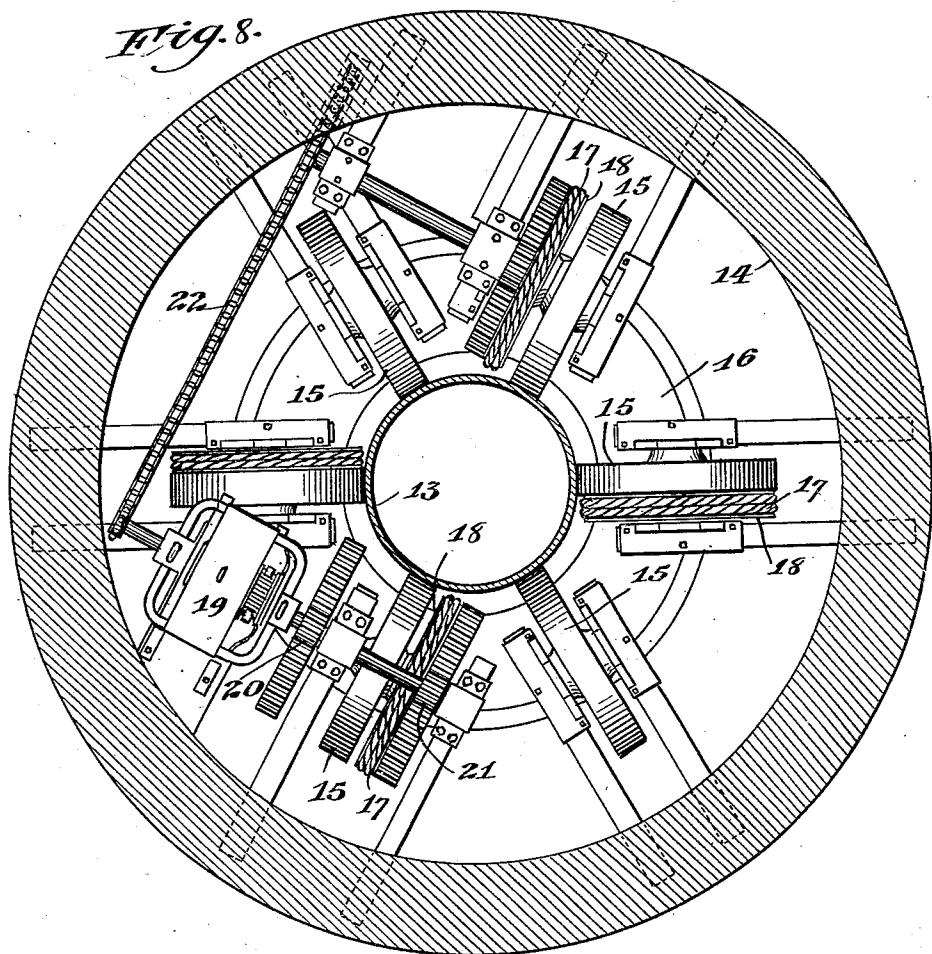
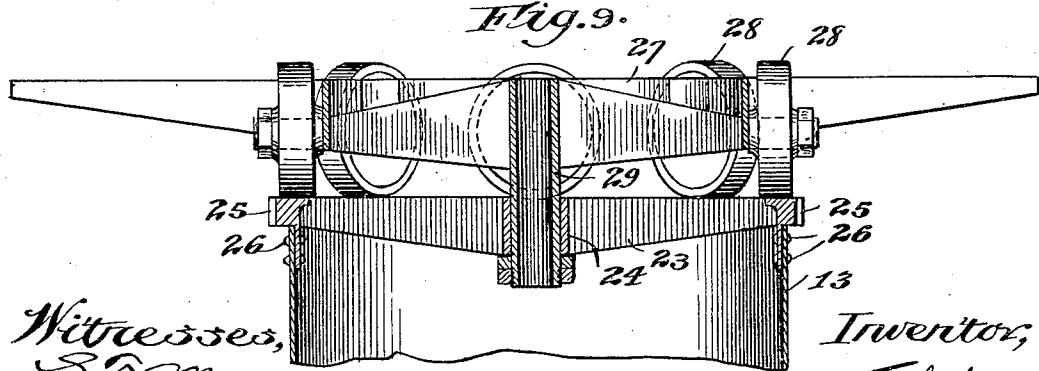


Fig. 9.



Witnesses,

S. D. Mann

W. M. Fuller

Inventor,

William F. Schmidt

By Gifford Towle & Lithium

Attest.

UNITED STATES PATENT OFFICE.

WILLIAM F. SCHMIDT, OF CHICAGO, ILLINOIS.

AMUSEMENT DEVICE.

935,239.

Specification of Letters Patent. Patented Sept. 28, 1909.

Application filed April 6, 1908. Serial No. 425,505.

To all whom it may concern:

Be it known that I, WILLIAM F. SCHMIDT, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Amusement Devices, of which the following is a specification.

My invention relates to amusement devices and especially to those of the merry-go-round or Ferris wheel type.

In my improved construction I provide a comparatively large wheel to which is attached a plurality of cars or carriages adapted to accommodate one or more passengers. This wheel starts from a horizontal position near the ground, which permits the passengers to enter the cars, and is then lifted bodily to some considerable height, the wheel and cars turning about a central standard or post during this elevation. Then the wheel with its attached carriages is turned gradually into a vertical position, rotating about the central standard during this entire interval. When in this vertical position the wheel much resembles the well-known Ferris wheel except that it has the additional rotation about the main standard. After a sufficient interval of rotation of the parts, the movements described above are reversed and the cars or carriages brought to the ground again, whereupon the passengers may alight.

Other features of novelty and improvement will be made apparent from the following detailed description which should be read in connection with the accompanying drawings, forming a part of this specification, and wherein like reference characters refer to the same parts throughout the various views.

On the drawings—Figure 1 represents the rotatable wheel and attached carriages in their lowermost position, that in which the passengers are permitted to enter the cars or carriages; Fig. 2 shows the same wheel and carriages after they have been raised, and illustrates also the manner in which the carriages are thrown outwardly slightly during the rotation due to centrifugal force; Fig. 3 indicates the turning of the wheel during its change from horizontal to vertical position; Fig. 4 illustrates the wheel in vertical position; Fig. 5 is a vertical cross-section of the pit in the ground which is adapted to receive the main central post or shaft. It also illustrates the mechanism for

elevating this shaft and the counter-weight attached thereto; Fig. 6 is a fragmentary side elevation of the top portion of the mechanism while the wheel is in the vertical position shown in Fig. 4; Fig. 7 is a fragmentary side elevation of the upper portion of the device when the wheel is in the inclined position corresponding substantially to that indicated in Fig. 3; Fig. 8 is a cross-section on line 8—8 of Fig. 5; and Fig. 9 is a cross-section through the top portion of the main vertical shaft or post, and illustrates the main carriage rotatable on the top of this shaft, this carriage or truck supporting the main large revoluble wheel.

The main wheel 10, having radiating arms 11, has connected to these arms the plurality of carriages or cars 12, each of which is adapted to accommodate or receive one or more passengers. The wheel 10 is mounted on the top of a main central shaft or standard 13 (Fig. 5) received, in the lowermost position of the wheel, as indicated in Fig. 1, in a pit or well 14 in the ground. To properly position this central post or shaft and maintain it in such position I provide the plurality of rotatable guiding wheels 15 bearing against the outer face of the shaft. In this pit or well I provide a hollow cylindrical counter-weight 16 connected to the lower end of the hollow shaft or post 13 by cables 17 which pass over sheaves 18. A suitably-supported source of power such as an electric motor 19 is geared as at 20 and 21 to the shaft of one of the sheaves 18, and is connected by a sprocket chain 22 and suitable sprocket wheels to the shaft of one of the other sheaves. It is obvious, therefore, that the rotation of the shaft of the motor is transmitted to a plurality of the sheaves and hence to their cable 17, so that the central hollow post or shaft 13 may be raised or lowered.

At the top end of the post or shaft 13 I provide a spider 23 having a central bearing 24 concentric with the axis of the shaft 13 and having a peripheral gear 25, this gear and the spider being rigidly fastened to the shaft 13 as by the rivets 26. Mounted on the top of this shaft is a truck or carriage 27 having a number of supporting rollers or wheels 28 adapted to travel on the top flat face of the gear 25, this truck also having a depending hollow shaft or bushing 29 fitting and rotatable in the bearing 24 and preventing tipping or displacement of the truck 27

and its wheels. Arising from the rotatable truck or carriage 27 are two frameworks 30 providing at their upper ends bearings 31 for the trunnions 32 of a casting 33 which at one side of the bearings 31 forms a shaft 34 on which the latticework frame or wheel 10 is adapted to rotate. To provide for the rotation of the truck or carriage 27 and the main wheel 10 mounted thereon, an electric motor 35 is secured to the truck 27, its shaft being connected to a pinion 36 meshing with the teeth of the non-rotatable gear 25 by means of a worm 37 and a worm-wheel 38. Obviously then the actuation of the electric motor 35 causes the rotation of the carriage 27 and its attached parts on the top of the main supporting post or shaft 13.

In order to revolve the main wheel 10 and its attached carriages on the relatively stationary shaft 34, I affix to the wheel 10 a comparatively large gear 39, with the teeth of which mesh those of a pinion 40 on a shaft 41, the latter being rotatable in bearings 42 suitably mounted on extensions fastened to the casting 33. This shaft 41 is connected to the shaft of an electric motor 43 also secured to the under side of the casting 33 by means of a connecting sprocket chain 44 and suitable sprocket wheels and the speed-reducing gearing 45. Obviously then when the trunnions 32 of the casting 33 turn in the bearings 31 the electric motor and all of the connections between the same and the wheel 10 turn at the same time since they are all mounted on this casting or extensions fastened thereto. To control the turning of this casting and the inclination of the wheel 10 there is fastened to the truck or carriage 27 a toothed quadrant 46, with the teeth of which coöperate those of a gear 47 connected to the shaft of an electric motor 48 mounted on the lower portion of the casting 33 by means of a worm 49 and worm-wheel 50. The rotation of the shaft of the electric motor 48 causes the turning of the pinion 47, and this, because of the meshing of its teeth with those of the rack or curved segment 46, compels the casting 33 and the main wheel and cars secured thereto to turn in the bearings 31, whereby the wheel 10 may be brought from a horizontal to a vertical position and vice versa, as is clearly indicated on sheet 1 of the drawings.

Between standards or posts 51 I place a plurality of counter-weights 52 recessed at 53 (Fig. 6) to accommodate the upper end of the toothed quadrant 46. Over cross-bars 54 connecting the upper ends of the posts 51 I place a pair of cables 55 and to the depending ends of the same I fasten the sides of the counter-weights 52, these weights being spaced apart when free to hang on the cables, as is indicated in Fig. 7, the spaces between the weights preferably being equal. The lowermost weight 52 I connect to the end of

the casting 33 by means of a pair of cables or cords 56, each of which passes around a sheave 57 at the tops of the posts 51 and also around a lower sheave 58 on the same posts. As is shown in Fig. 7, the lower weight 52 is 70 notched at 59 and the casting 33 is provided with a hook or lug 60 adapted, under certain conditions, to engage the notch 59.

In order that the four electric motors 19, 35, 43 and 48 may be conveniently controlled 75 by the operator, I mount four electric controllers 61 on a platform 62 on the carriage or truck 27, the connections between these controllers being omitted for the sake of clearness and because such connections are 80 well understood in the art.

The operation of this amusement device is substantially as follows: Assuming that the main shaft or post 13 is in its lowermost position with the wheel 10 in its lowermost 85 horizontal position, as shown in Fig. 1, the cars are near to the ground so that the passengers may readily enter the same. After the cars or carriages have been loaded, the operator shifts the handle of the controller 90 61 governing the actuation of the motor 19 so that the rotation of the shaft of the latter causes the elevation of the shaft or post 13 and the wheel 10 and its carriages to their uppermost position, as shown in Fig. 2. At 95 substantially the same time that the operator throws the motor 19 into operation he also shifts the handle of another controller so as to cause the actuation of the motor 43, which by its connection with the wheel 10 100 rotates the latter and the carriages about the shaft 34, which at this time is in a vertical position. It is obvious, therefore, that during the elevation of the wheel it is being rotated about the axis of shaft 13. During 105 this position of the parts, since the casting 33 is in a vertical position, the counter-weights 52 are held in elevated position by the cables 56, the weights resting upon one another and their total weight being transmitted to the casting 33 through the cables 56, tending to turn the casting and its trunnions in the bearings 31. After the wheel 10 has been brought to the elevated position 110 shown in Fig. 2 it is desirable to turn the wheel and its shaft gradually so as to bring the wheel into the vertical plane shown in Fig. 4, at the same time continuing the rotation of the wheel around the axis of the main central standard or post. The operator thereupon shifts the handles of the two remaining controllers 61 so as to throw the two motors 35 and 48 into operation. Because of the actuation of the motor 35 and the rotation of the pinion 36 the whole carriage 27 and supported parts are caused to revolve around the top of the shaft 13. The actuation of motor 48 causes the pinion 47 to travel on the toothed quadrant 46, thereby causing the turning of the casting 33 and 115 120 125 130

shaft 34 from a vertical to a horizontal position, which in turn changes the plane of the main wheel 10 from horizontal to vertical. When the casting 33 begins to move 5 from its vertical position it is aided in its turning by the plurality of counter-weights 52 acting thereon through the cables 56, these weights being gradually removed from operative connection with the casting as the 10 position of the latter changes, that is the upper weight 52 would first be taken off, then the second weight, and so on until the lower weight is finally removed, the weights being then supported by their own cables 55. 15 As the casting 33 continues turning and moving upwardly its lug or projection 60 engages with the notch 59 of the lower weight 52, picking up this weight so that it acts as a counter-weight tending to retard 20 the turning of the casting. As the upward movement of the latter continues the other weights are gradually brought to rest on those already temporarily connected with the casting so that this counter-weight 25 gradually increases. In other words, the counter-weight is applied to the casting 33 to facilitate its initial turning, the weight being removed gradually and then applied gradually so as to properly balance the 30 structure as the wheel 10 becomes inclined to some considerable degree. The object of this application and removal of the weights from the casting is to diminish the amount of power necessary to operate the mechanism. To bring the wheel and cars back to 35 position so as to discharge the passengers the operator manipulates the controllers so that the movements of the parts will be the reverse of that set forth above. The parts 40 of the mechanism at the top of the main shaft 13 may, if desired, be inclosed in a casing or housing 63 which I have represented conventionally in Figs. 1 to 4, inclusive.

45 Although I have described in detail the various structural features of my improved mechanism, it is to be understood that the invention is not limited and restricted to these features, because they may be modified 50 within wide limits without departure from the heart and essence of the invention.

I claim:

1. In a device of the character described, the combination of a main shaft or post, a 55 main wheel, cars adapted to accommodate passengers secured to said wheel, said wheel and cars being mounted on said main shaft or post, means to raise and lower said main shaft or post, means to rotate said wheel on

its own axis, means to incline said wheel during its rotation, and means to revolve said wheel around the axis of said main shaft or post during the rotation and inclination of said wheel, substantially as described. 60

2. In a device of the character described, 65 the combination of a vertically-movable shaft or post, a counter-weight for said shaft or post, means to raise and lower said shaft or post, a wheel mounted on the top of said shaft or post, cars adapted to accommodate 70 passengers secured to said wheel, means to rotate said wheel on its own axis, means to rotate said wheel about the axis of said shaft or post, and means to incline said wheel during its rotation on its own axis and its rotation about the axis of said shaft or post, substantially as described. 75

3. In a device of the character described, 80 the combination of a vertical shaft, means to raise and lower said shaft, a truck rotatable on the top of said shaft, means to rotate said truck, a shaft pivoted on said truck, a wheel adapted to turn on said shaft, cars or carriages adapted to accommodate passengers secured to said wheel, a quadrant rack, a 85 pinion coöperating with said rack, and means on an extension of said shaft adapted to turn said pinion whereby the latter due to its coöperation with said rack causes the turning of said shaft on its pivot, substantially as described. 90

4. In a device of the character described, 95 the combination of a pivoted shaft, a wheel adapted to turn on said shaft, cars or carriages adapted to accommodate passengers secured to said wheel, means to turn said shaft on its pivot, a plurality of counter-weights, and means for increasing the number of said counter-weights acting upon said shaft as the same turns on its pivot, substantially as described. 100

5. In a device of the character described, 105 the combination of a pivoted shaft, a wheel rotatable on said shaft, cars or carriages adapted to accommodate passengers secured to said wheel, means to turn said shaft on its pivot, a plurality of counter-weights adapted to act on said shaft, and means to decrease the number of said weights acting on said shaft as the same turns on its pivot and subsequently increase the number of weights 110 acting on said shaft, substantially as described.

WILLIAM F. SCHMIDT.

Witnesses:

FREDERICK C. GOODWIN,
WALTER M. FULLER.