T. W. PRIOR & F. A. CHURCH.

AMUSEMENT DEVICE.

APPLICATION FILED APR. 23, 1917.

1,302,088.

Patented Apr. 29, 1919.

4 SHEETS—SHEET 1.

Fig. 1.

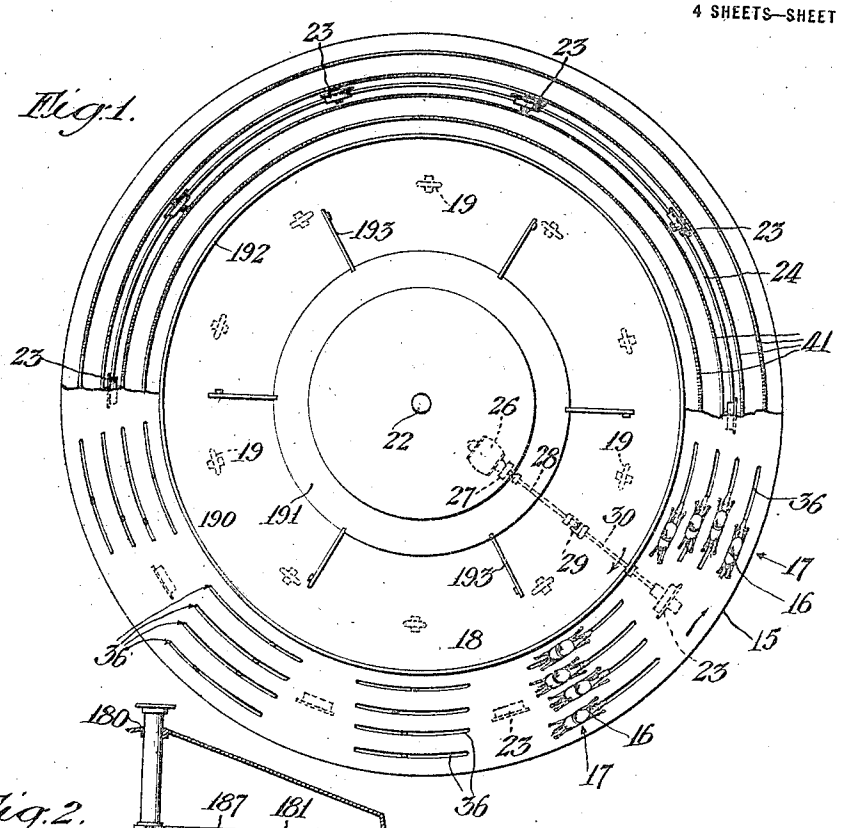
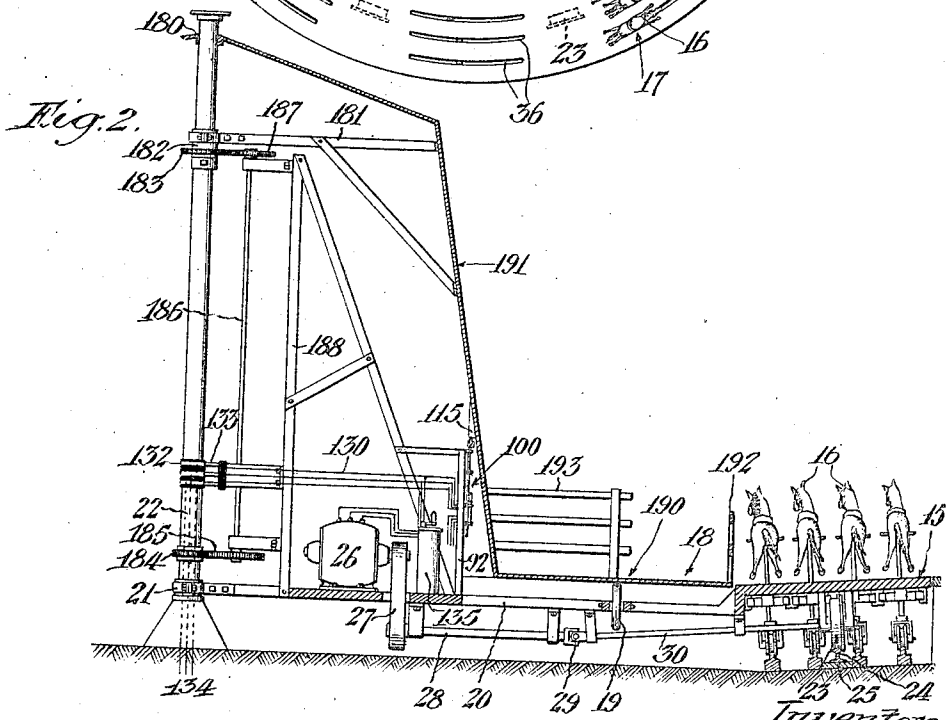


Fig. 2.



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4 SHEETS—SHEET 2.

Fig. 3.

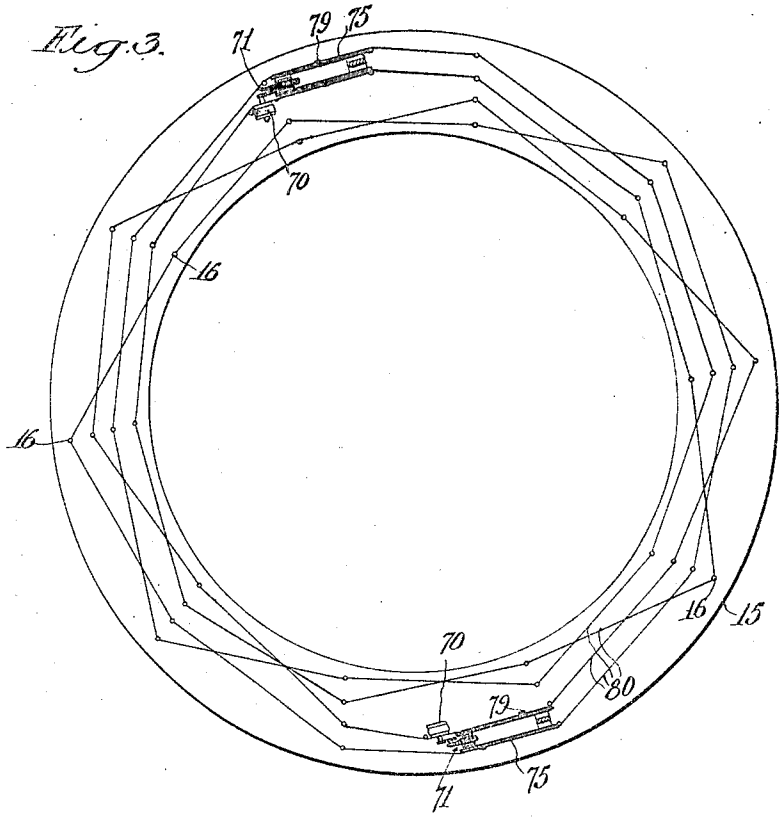


Fig. 4.

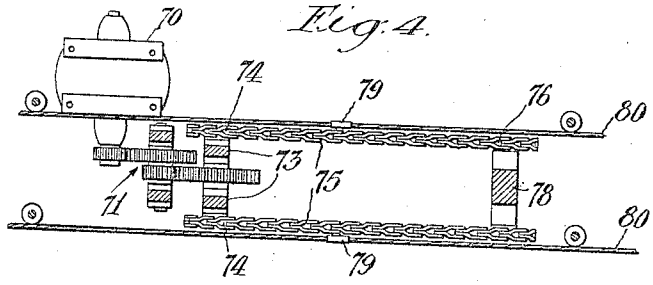
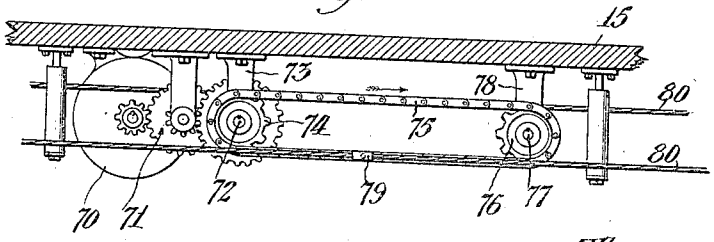


Fig. 5.



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4 SHEETS—SHEET 3.

Fig. 6.

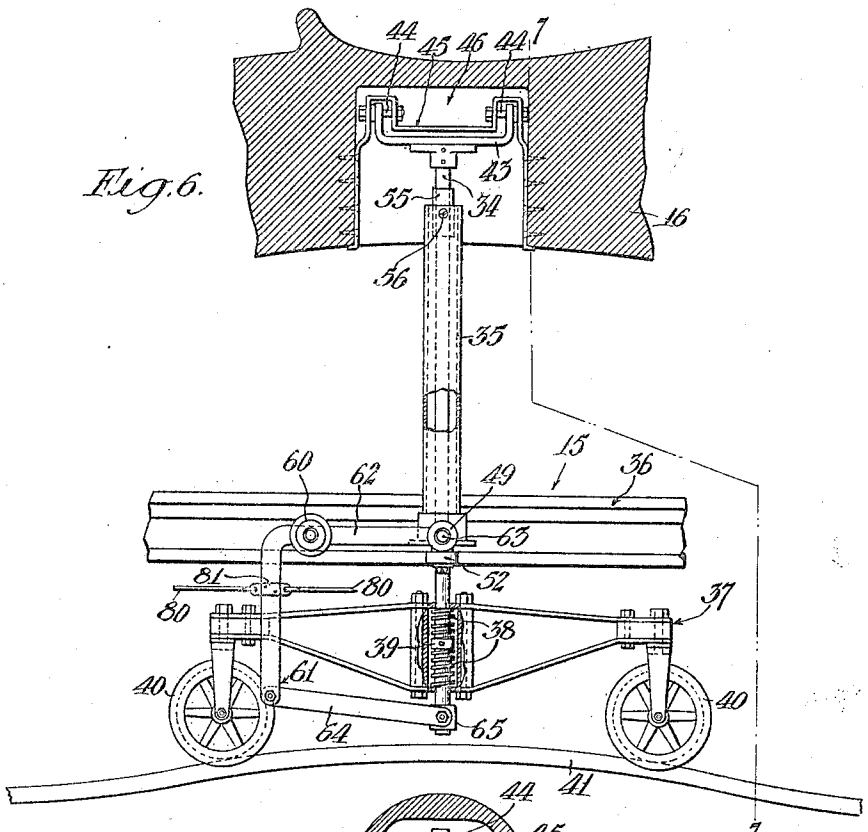


Fig. 7.

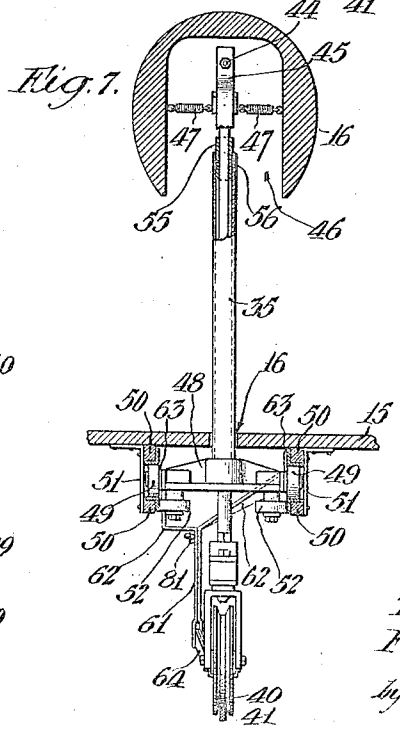
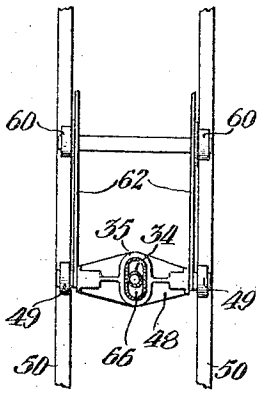


Fig. 11.



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4 SHEETS—SHEET 4.

Fig: 8.

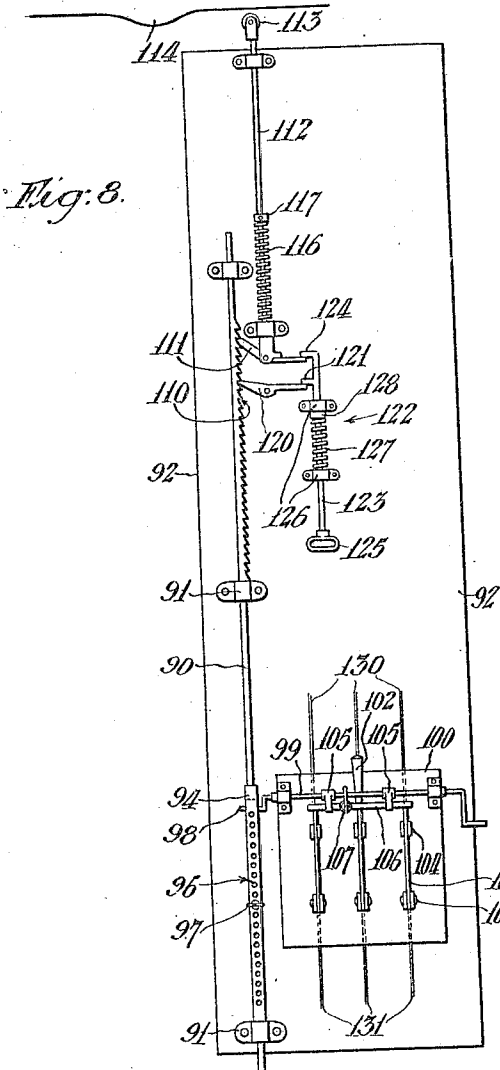


Fig: 9.

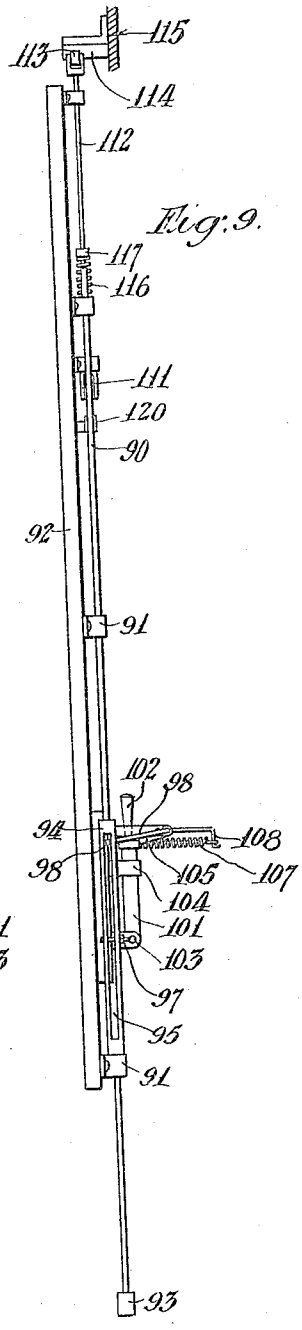
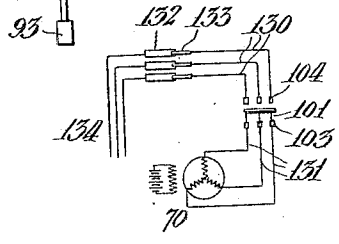


Fig: 10.



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UNITED STATES PATENT OFFICE.

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AMUSEMENT DEVICE.

1,302,088. Specification of Letters Patent. Patented Apr. 29, 1919.

Application filed April 23, 1917. Serial No. 164,071.

To all whom it may concern:

Be it known that we, THOMAS W. PRIOR and FREDERICK A. CHURCH, both citizens of the United States, residing at Venice, in the county of Los Angeles and State of California, have invented a new and useful Amusement Device, of which the following is a specification.

Our invention relates to amusement devices, being more particularly what is known as a merry-go-round, and is of the type shown and described in Letters Patent of the United States No. 1,082,764, granted to us on December 30th, 1913, in which the rider supports change their relative position during the movement of the platform.

In merry-go-rounds it is well known that the outer edge of the platform travels faster than the inner edge, due to the large diameter of the outer edge of the platform, and one of the principal objects of our present invention is to so construct a merry-go-round of the class described that an illusion is created in such a way that the riders adjacent the inner edge of the platform are given the impression of traveling as fast as the riders on the outer edge of the platform.

Other objects of the invention are to produce a simplified form of construction for the various parts of the device, so that the device as a whole may be easily constructed and simply operated.

Other objects and advantages will appear hereinafter from the following description.

Referring to the drawings, which are for illustrative purposes only:

Figure 1 is a diagrammatic plan view illustrating a form of our invention, a portion of such view being broken away.

Fig. 2 is a vertical sectional view through one-half of the device shown in Fig. 1, showing the parts enlarged.

Fig. 3 is a diagrammatic plan view illustrating the rider support connections.

Fig. 4 is an enlarged sectional plan view showing one of the motors and connections for operating the rider supports.

Fig. 5 is a side elevation of the device shown in Fig. 4.

Fig. 6 is a vertical view, partly in section, on an enlarged scale, showing a rider support.

Fig. 7 is a sectional view on line 7—7 Fig. 6.

Fig. 8 is a diagrammatic face view of an electric controlling device.

Fig. 9 is a side elevation of the device shown in Fig. 8.

Fig. 10 is a diagrammatic view of the electrical connections of the parts shown in Figs. 8 and 9.

Fig. 11 is a plan view, partly in section, of the pilot device.

15 designates an outer platform or rider platform circular in form and having arranged thereon a plurality of rider supports 16 arranged in a series of groups 17, in the present instance each group having four rider supports therein. Arranged within the platform 15 is an inner platform or scenery platform 18 supported on a series of wheels 19 rotatably mounted on the frame 20 of the rider platform. The frame 20 extends inwardly from the platform 15 and is provided with a bearing 21 rotatably mounted on a center post or mast 22 arranged in the center of the platforms 15 and 18. The rider platform 15 is supported on a series of flanged wheels 23 mounted on the underside of the platform 15 which travel on a circular track 24 secured in any suitable manner to a suitable foundation 25. One or more of the wheels 23 is driven by means of a motor 26 carried on the frame 20, the motor being connected by a belt 27 to a shaft 28 connected by a universal joint 29 to a shaft 30, to which the wheel 23 is secured in any well known manner.

Each rider support 16 is mounted on a rod 34 vertically slidable in a hollow post or standard 35 which extends through a slot 36 concentrically arranged in the rider platform with respect to the center post 22, each rider support having its individual post 35 and an associated slot 36 in the rider platform. Each rod 34 is vertically slidably mounted in a truck 37, being elastically held against such sliding movement by means of coiled springs 38 which engage therebetween a collar 39 secured to the rod 34. Each truck 37 is provided with two grooved wheels 40 which run upon a circular track 41 mounted upon the foundation under the platform, the elevation of the track being undulating as shown in Fig. 6, so that the truck traveling over the track 41 imparts a rocking movement to its associated rider support, as hereinafter described. The upper end of the rod 34 is rigidly connected to a fork 43, the ends

of which are mounted on bolts 44 extending longitudinally of the rider support and mounted in a frame 45 secured within a cavity 46 formed in the underside of the rider support. This connection permits a sidewise pivotal movement or swinging movement of the rider support on its supporting rod, the rider support being elastically held in its central position on the rod 34 by means of coiled springs 47 connected to the fork 43 and the inner walls of the cavity 46 at the opposite sides of the rod 34. The post 35 is mounted on a carriage 48 supported by rollers 49 journaled on the carriage, which rollers run between guide tracks 50 secured by means of suitable brackets 51 to the underside of the platform 15.

52, 52 designate guide rollers journaled on the carriage 48 which engage the inner face of the tracks 50 to prevent lateral displacement of the carriage. The upper end of each rod 34 slidably extends through a bushing 55, which bushing 55 is pivotally mounted by means of pins 56 in the upper end of its associated post 35.

60 designates flanged pilot wheels arranged forward of the carriage 48 which engage in the guide tracks 50, the pilot wheels being mounted on a frame 61 consisting of bars 62 pivotally connected at their rear ends on the axle 63 of the rollers 49 and pivotally connected at their lower ends to the forward end of bars 64, which bars are pivotally connected at their rear end to a block 65 secured to the lower end of the rod 34. The undulations of the track 41 cause the truck 37 to tilt, which tilting motion causes the upper end of the rod 34 to swing back and forth, and as the bushing 55 is pivotally connected to the post 35, as heretofore described, the upper end of the post swings back and forth on the carriage 48. The rod is also permitted to swing, to some extent, in the post 35, as the post 35 is substantially elliptical in cross section, allowing space between the rod and the walls of the post, as indicated at 66 in Fig. 11.

The racing feature of the ride is accomplished in the following manner: It is to be noted that the rider supports 16 are arranged in groups 17, as heretofore referred to. In the present instance there are four rider supports in each group. The relative position of the rider supports in each group is changed during the ride so that the riders in the respective groups are unable to tell which rider in the group will be ahead at the finish of the ride. The position of the rider supports is changed by means of devices carried on the underside of the platform 15. In the form shown, two motors 70 are secured to the underside of the platform, as diagrammatically illustrated in Fig. 3. Each motor 70, through the medium of the chain of gears 71, drives a shaft 72 journaled in brackets 73, which brackets are secured to the underside of the platform 15. Each shaft 72 has secured thereto two sprocket wheels 74 which in turn drive sprocket chains 75, the sprocket chains running over idlers 76 on a shaft 77 mounted in a bracket 78, which bracket is secured to the underside of the platform 15. Each chain 75 has a lug 79 secured thereto, to which is secured a cable 80, there being two cables 80 driven through the mechanism just described by each motor 70. Each cable 80 is attached to one of the rider supports 16 in each group of rider supports on the platform, such attachment being through the medium of a clip 81 secured to the bar 62 on the rider support heretofore referred to.

As shown in Fig. 3, it is to be noted that the cables 80 are attached to rider supports having different positions in the respective groups of rider supports, that is, one cable 80 may be attached; first to a rider support in the first group; second, from the outside of the platform, and then connected to the third rider support from the outside in the next group, then to the inner side support in the next group, and so on, the particular arrangement of attaching the cable to the rider supports in the various groups being arranged as may be desired, it simply being necessary that each cable is attached to one rider support in each group on the platform. By this arrangement, the movement of the sprocket chains 75 causes the cables attached thereto to move forward and back so that a forward and back movement is imparted to the respective rider supports with relation to each other, so that during the ride the rider supports are continuously changing their relative position.

It is understood that the racing feature of the ride does not necessarily have the same duration as the movement of the platform, that is, the platform may be started, after which the racing feature is started. The length of time of the racing feature is controlled electrically and is of predetermined length, the controlling device being illustrated in Figs. 8, 9 and 10 of the drawings, and consists of a vertical rod 90 slidably supported in brackets 91 on a board 92, the lower end of the rod being weighted as indicated at 93. A portion 94 of the rod 90 is substantially square in cross section, which portion is provided with a vertical slot 95 and a series of perforations 96 extending transversely therethrough. 97 designates a pin which may be placed in the perforations 96, there being one perforation for each revolution of the platform, and, as shown in Fig. 8, if the pin 97 is in the tenth perforation from the top, the racing feature will have a duration of ten revolutions of the platform 15, as hereinafter more fully described.

Extending into the upper portion of the slot 95 is a trip 98 formed on the end of a shaft 99 supported on a switch board 100. 101 designates a blade switch having a handle 102 pivotally mounted at 103 on the switch board 100, and 104 designates the contact terminals of the line. Secured to the shaft 99 are two dogs 105 which engage the connecting bar 106 of the blade 101 of the switch, the dogs 105 holding the switch in closed position against the action of the coil spring 107 which is mounted on a support 108 secured in any suitable manner to the switch board 100. The upper portion of the rod 90 is provided with a series of teeth 110 adapted to be engaged by a pivoted dog 111 secured to the lower end of a rod 112, the upper end of the rod 112 being provided with a roller 113 adapted to be engaged by a cam or lug 114 secured in any suitable manner to a portion of the scenery platform, as indicated at 115, in Fig. 2. The rod 112 is held elastically in its upper position by means of a coiled spring 116 which engages against a collar 117 secured to the rod 112. As the roller 113 and the rod 112 are depressed by the lug 114, the dog 111 is moved downwardly and engages the next tooth on the rod 90, and as the lug 114 passes from engagement with the roller 113 the coil spring 116 raises the rod 112, and through the medium of the dog 111 raises the rod 90 the equivalent of the distance between the perforations 96 and the square portion of the rod 90, thereby bringing the pin 97 nearer the trip 98. The rod 90 is supported during the downward movement of the rod 112 by means of a pivoted dog 120, which dog in turn is supported by means of a lug 121 formed on a resetting mechanism 122, which resetting mechanism consists of a bar 123 having a lug 121 formed thereon, an upper lug 124 which engages the dog 111, a handle 125, brackets 126 supporting the bar 123, and a coil spring 127 which acts against a fixed collar 128 on the bar 123 to hold the bar in its upper position, that is, the position shown in Fig. 8. When the lug 114 has operated the mechanism as above described a sufficient number of times to bring the pin 97 into engagement with the trip 98, the trip 98, is moved upwardly, thereby swinging the dogs 105 out of engagement with the bar 106 of the switch, and the switch is opened by means of the coil spring 107, thereby breaking the circuit between the surface lines 130 and the feed lines 131 to the motor 70, as diagrammatically illustrated in Fig. 10. This stopping of the motor 70 stops the racing feature of the ride, that is, the rider supports are no longer moved with respect to each other through the medium of the cables 80 and remain in fixed relative position during the remainder of the ride. The service lines 130 are connected through rings 132 and brushes 133 to the power lines 134, this connection of rings and brushes being necessary, due to the fact that the motors 26 and 70 are carried on moving parts, the mast 22, carrying the ring 132, being stationary. The duration of the ride in the present instance is controlled by an electric controller 135 which may be of any suitable form, such controller being in the circuit between the motor 26 and the service line 130.

As heretofore referred to, the scenery platform 18 is rotated in the reverse direction to the rider platform 15. This is carried out in the following manner: The scenery platform 18 being freely movable on the wheels 19 at the bottom or lower portion, it is also freely rotatable at 180 on the mast 22. 181 designates a frame on the inside of the platform 18, the inner end of which is bolted or secured in any suitable manner to the hub 182 of a gear 183, the gear 183 being loosely mounted on the mast 22. 184 designates a gear fixed to the mast 22 which drives a gear 185 secured to a shaft 186 mounted upon a frame support 188 secured to the frame 20 of the outer platform 15. 187 designates a gear secured to the shaft 186 which engages the gear 183 fixed to the frame 181 of the inner platform 18. As the outer platform 15 is driven or rotated on the mast 22, the gear 185 is rotated, which in turn rotates the gear 187, the gear 187 rotating the gear 183, which in turn being secured to the frame 181 of the inner platform causes the inner platform to travel in the reverse direction to the outer platform, the ratio of the gears 184 and 185 and the gears 183 and 187 being so proportioned as to cause the inner platform to travel as just described.

The scenery platform consists of a horizontal portion 190 which may be designated the foreground and a substantially vertical inclined portion 191 which may be designated the background, a fence 192 being arranged along the outer edge of the platform 18 adjacent to the outer platform 15, and there also being arranged radially disposed short fences 193 which blend off at their inner ends into scenery which may be painted upon the background 191, such scenery not being illustrated in the drawings. The effect of the arrangement of the fences 192 and 193, and the scenery on the background of the scenery platform, being such as to create the illusion to the riders of traveling over a race course.

In starting the ride, the controller 135 is operated to place the large motor 26 in circuit, the large motor being geared as heretofore described to run the platform 15 carrying the rider supports. After the platform 15 has obtained its momentum, the racing feature of the ride is started through

the setting of the switch 101, as heretofore described, which racing feature continues until the pin 97 engages the trip 98, thereby throwing out the switch and breaking the circuit to the motors 70. The ride continues, after the completion of the racing feature, until the controller 135 is operated to cut the large motor 26 out of circuit. During the rotation of the outer platform 15 in one direction, the inner or scenery platform 18 is slowly moved in the opposite direction as heretofore described. This is for the purpose of creating an illusion to the riders that the horses on the inner side of the rider platform are moving as fast as those on the outer side.

In ordinary merry-go-rounds the riders on the outside or greatest diameter of the platform move through a greater distance than those on the inner side, and in passing objects they apparently move much faster, but by moving the inner platform slowly in the opposite direction the riders on the inner side of the rider platform may be caused to pass objects on the scenery platform, such as the fences, at the same rate of speed as the riders on the outer side of the rider platform pass stationary objects on the outside of the platform, and by this movement of the scenery platform the riders on the platform have the illusion that they are moving at the same speed as those on the outer portion of the rider platform.

We claim as our invention:

1. An amusement device comprising an outer rotatable platform, rider supports on said outer platform, means for moving said rider supports backward and forward with respect to the platform during its rotation, means for driving said outer platform, an inner rotatable platform, stationary objects on said inner platform, and means for driving said inner platform in the opposite direction to the outer platform.

2. An amusement device comprising an outer rotatable platform, movable rider supports on said outer platform, means for driving said outer platform, means for moving each said rider supports backward and forward with relation to each other, an inner rotatable platform, stationary objects on said inner platform, and means for driving said inner platform in the opposite direction to the outer platform.

3. An amusement device comprising an outer rotatable platform, rider supports on said outer platform, means for varying the position of the rider supports backward and forward with respect to each other during the rotation of the outer platform, means for driving said outer platform, an inner rotatable platform, stationary objects on said inner platform, and means for driving said inner platform in the opposite direction to the outer platform, said inner platform consisting of a horizontal portion terminating at its inner endge in a substantially vertical portion, said inner platform having a representation of scenery thereon.

4. An amusement device comprising an outer rotatable platform, a mast, a frame rotatably connecting said outer platform to said mast, means for driving said outer platform, an inner rotatable platform, a series of wheels on said frame for supporting said inner platform thereon, a gear fixed to said inner platform loosely mounted on said mast, a second gear fixed to said mast, and connections carried on said frame between said first named gear and said second gear whereby said inner platform is rotated in the opposite direction to the outer platform.

5. An amusement device comprising an outer rotatable platform, a circular track under said platform, a series of wheels mounted on said platform adapted to support the platform on said track, means for driving said outer platform, a plurality of rider supports on said platform, a plurality of undulating tracks under said outer platform, means on said rider supports engaging said undulating tracks for supporting said rider supports and adapted to impart a rocking movement to said rider supports, an inner rotatable platform, and means for driving said inner platform in the opposite direction to said outer platform.

6. An amusement device comprising an outer rotatable platform, an inner rotatable platform, means for rotating said platforms in opposite directions, a plurality of groups of rider supports on the outer platform, and means for varying the position in the line of travel of the rider supports in each group.

7. An amusement device comprising an outer rotatable platform, an inner rotatable platform, means for rotating said platforms in opposite directions, a plurality of groups of rider supports on the outer platform, means for varying the position of the rider supports in each group, said last named means comprising a series of cables, each cable being attached to one rider support in every group, and means for moving said cables back and forth.

8. An amusement device comprising an outer rotatable platform, an inner rotatable platform, means for rotating said platforms in opposite directions, a plurality of groups of rider supports on the outer platform, means for varying the position of the rider supports in each group, said last named means comprising a series of cables, each cable being attached to one rider support in every group, means for moving said cables back and forth, and means for rocking said rider supports during the rotation of the outer platform.

9. An amusement device comprising an outer rotatable platform, a series of groups

of rider supports on said outer platform, means for rotating said outer platform, means for varying the position of the rider supports in each group forward and rearward of each other during the rotation of the outer platform, means for automatically stopping such movement of the rider supports with respects to the platform, and means for rocking the rider supports through the rotating movement of the platform.

10. An amusement device comprising an outer rotatable platform, a series of groups of rider supports on said outer platform, means for rotating said outer platform, means for varying the position of the rider supports in each group forward and rearward during the rotation of the outer platform, means for automatically stopping such movement of the rider supports with respect to the platform, means under the platform for rocking and supporting the rider supports throughout the rotating movement of the platform, an inner rotatable platform, and means for driving said inner rotatable platform in the opposite direction to the outer rotatable platform throughout the rotation of the outer platform.

In testimony whereof, we have hereunto set our hands at Los Angeles, California, this 12th day of April, 1917.

THOMAS W. PRIOR.
FREDERICK A. CHURCH.