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PATENTED JUNE 23, 1908.

S. E. CHAPMAN & C. D. CROMLEY.

AMUSEMENT DEVICE.

APPLICATION FILED SEPT. 5, 1907.

3 SHEETS—SHEET 1.

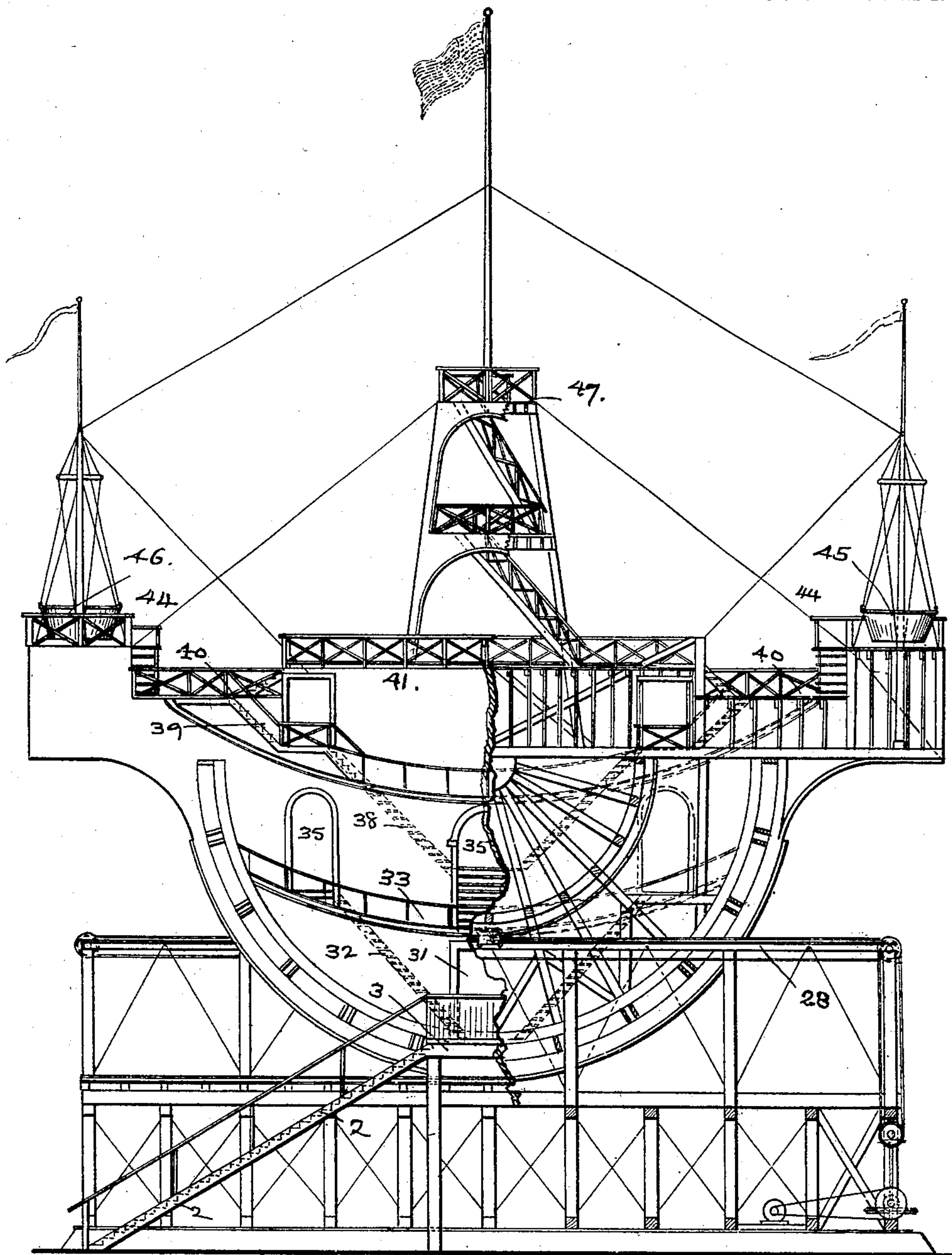


Fig. 1.

WITNESSES

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INVENTORS

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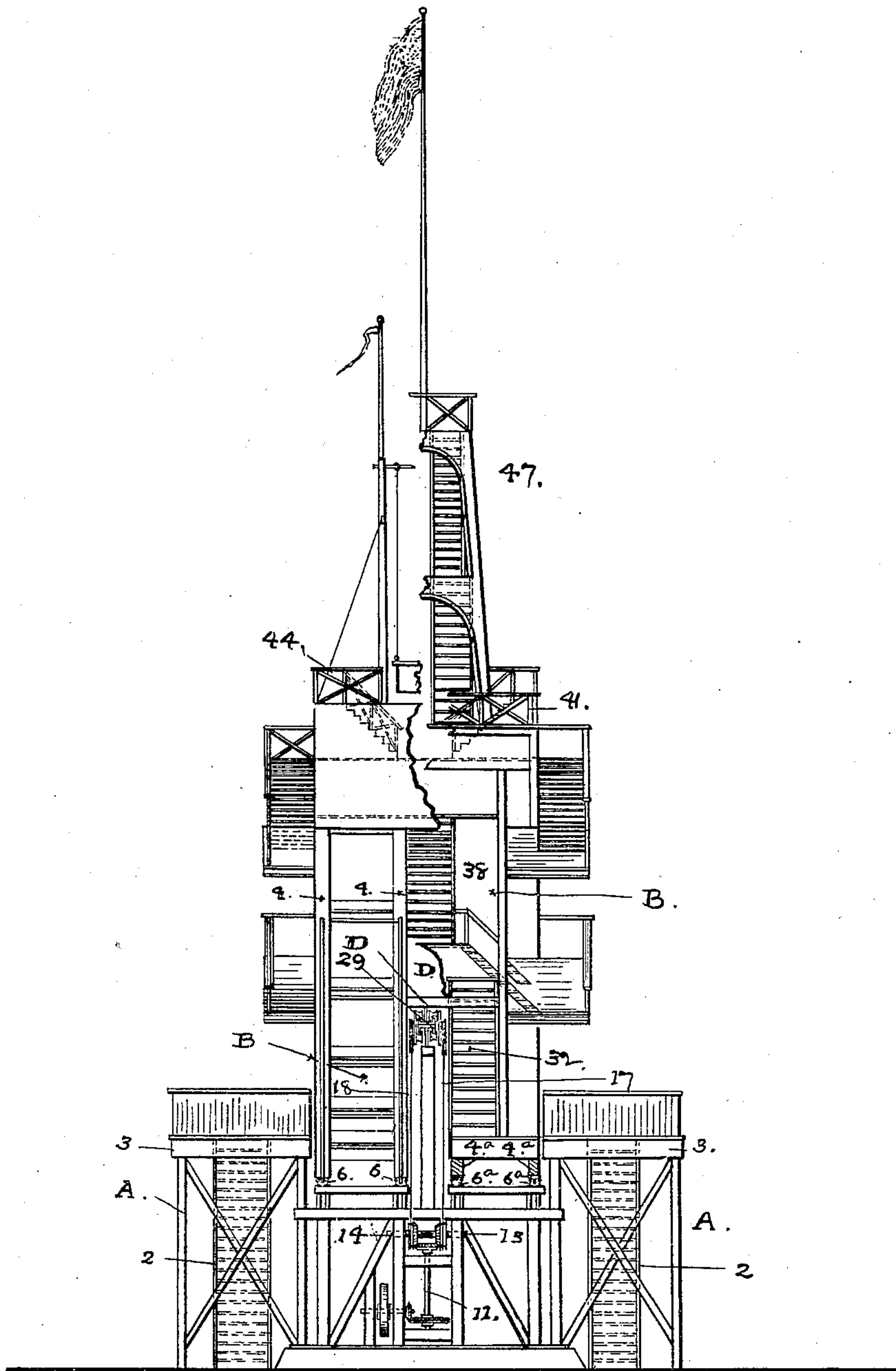


Fig. 2

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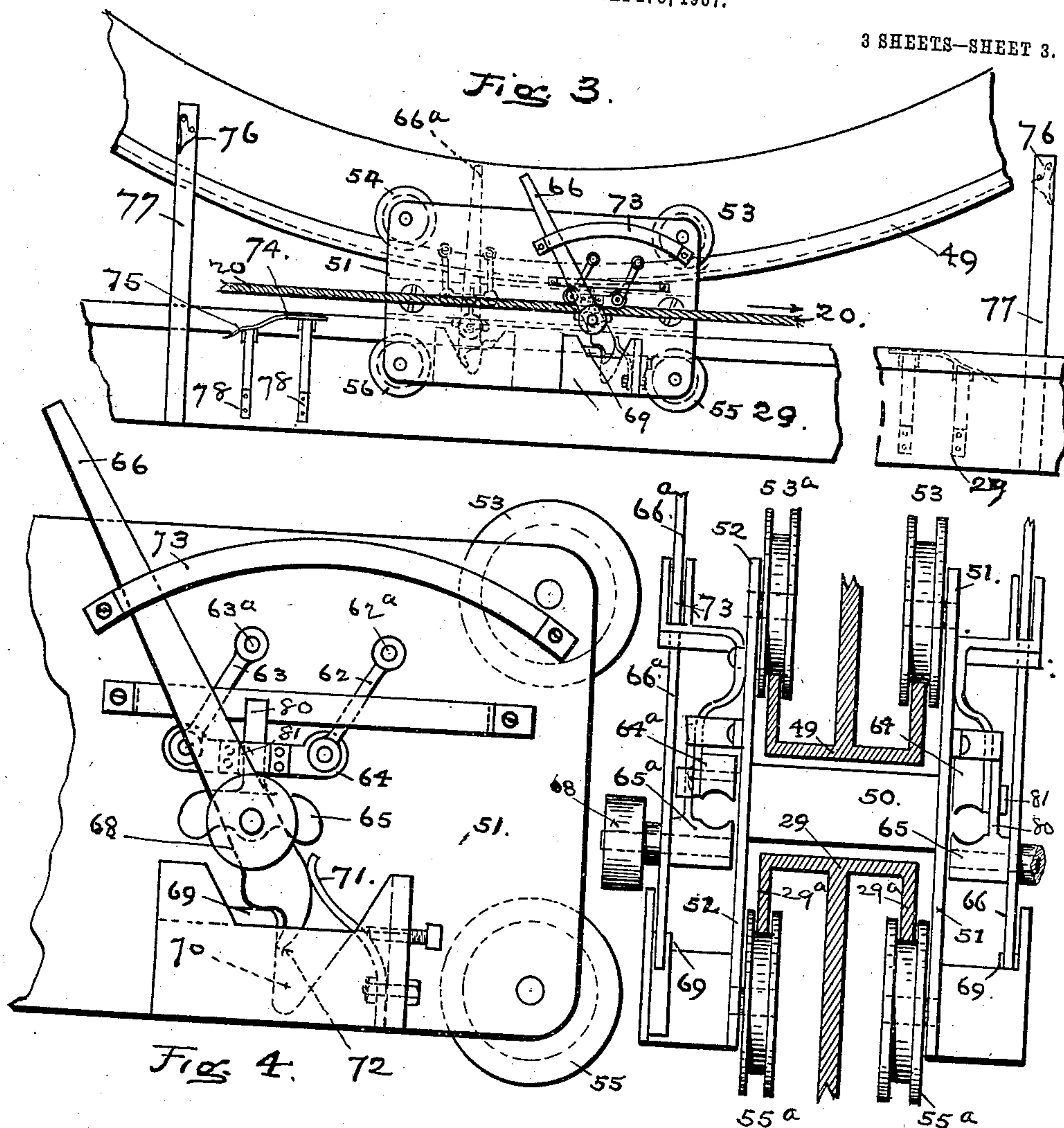
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UNITED STATES PATENT OFFICE.

SAMUEL E. CHAPMAN, OF OAKLAND, AND CHARLES D. CROMLEY, OF ALAMEDA, CALIFORNIA,
ASSIGNORS, BY DIRECT AND MESNE ASSIGNMENTS, TO THE ROCKER-SWING COMPANY,
A CORPORATION OF CALIFORNIA.

AMUSEMENT DEVICE.

No. 891,793.

Specification of Letters Patent.

Patented June 23, 1908.

Application filed September 5, 1907. Serial No. 391,471.

To all whom it may concern:

Be it known that we, SAMUEL E. CHAPMAN, a resident of Oakland, county of Alameda, and CHARLES D. CROMLEY, a resident of Alameda, and State of California, and both citizens of the United States, have invented new and useful Improvements in an Amusement Device, of which the following is a specification.

10 This invention relates to the production of a rocking car or structure for recreation grounds, capable of holding a considerable number of persons, and having imparted to it a rocking-motion by mechanism operated
15 by an engine or motor. The said mechanism being automatic in its operation, is adapted to set the structure in motion and to augment the inertia or momentum to a sufficient degree to overcome the force of
20 gravity and keep the structure in motion as long as desired.

The nature of our said invention and the manner in which we proceed to construct, produce and carry out the same is explained
25 at length in the following description, and afterward pointed out in the claims at the end of this specification; the accompanying drawing that forms a part thereof being referred to by figures and letters.

30 Figure 1 of the said drawing is a side-elevation, with a part broken away to more clearly show the construction. Fig. 2 is an end-elevation with a part broken away to show the inner construction when viewed
35 from the end. Fig. 3 is a side-elevation of the gripping-mechanism, by means of which the rocking-motion is communicated to the car from the continuously traveling cables. Fig. 4 is an enlarged elevation of part of the
40 gripping-mechanism. Fig. 5 is an end-elevation of the same, on an enlarged scale. Fig. 6 is a diagram of the cable-driving mechanism.

45 The structure, or rocking-car, as we have termed it, consists generally of the stationary frame-work A preferably constructed of wood and iron and properly braced to give the required strength and stiffness; and the movable frame-work B, provided with
50 curved rockers 4, which are arranged and adapted to rest and move on a horizontal track on the stationary frame-work, at a distance from the ground.

On each side longitudinally of the stationary frame-work A are arranged stair-cases
55 2 leading upward from the ground to landing-platforms 3. These platforms are built close up to the sides of the car B, and are placed at proper height to afford safe and
60 convenient access and entrance to the car B at one side from one platform, and a like safe exit from the opposite side of the car by the other platform.

The rails on which the rockers 4 are arranged to rock, are composed of a set of bearing-rails 6—6 on one side of the longitudinal
65 central well or opening D in the car, and a similar set of rails 6^a—6^a on the opposite side, the two sets being laid parallel and in planes coinciding with the two sets of rockers
70 4—4, 4^a—4^a on the car. Guard-rails fixed along the outside and the inside of each track-rail are employed for safety; so that each rocker is confined and prevented from
75 moving sidewise off its rail. The two sets of rails and rockers insure the safe and stable position of the car on the stationary frame-work at all times, and especially when the
80 car is moving at the greatest rate of motion it is capable of attaining.

The well or space D separating the two sets of rockers and track-rails before mentioned, is of sufficient width to accommodate the mechanism by which the car B is set in
85 motion from a state of rest and is likewise kept in motion against the tendency of gravity to bring it again to a state of rest. This actuating mechanism contains several novel points, including the feature of automatically throwing itself in and out of action
90 through the variations in the speed or velocity of the car at the periods of reversal in the rocking motion.

The power, or driving-means is derived from two endless traveling cables 20—22,
95 supported by sheaves 19—19^a, 21—23 and arranged to travel in the well or space D parallel with the rails and rockers, but one in the opposite direction to the other. Such motion in opposite directions is imparted to
100 the two cables from a stationary motor 7 of any well-known kind, through the arrangement of sheaves and driving-pulleys and belts illustrated in Fig. 1, and in the detail Fig. 6.

The motor-shaft gives motion to a counter-
105 shaft by pulleys and a belt 8, and the counter-

shaft is connected by bevel-pinion 9 and gear 10 into an upright shaft 11 carrying on the upper end a beveled gear 12. Two short horizontal shafts 13—14, carrying two cable-sheaves 15—16, receive motion from the upright shaft through beveled gears and are driven by it in opposite directions by reason of the driver 12 being situated between the two beveled gears. One sheave is thus caused to travel in one direction, while the other sheave travels in the opposite direction.

From the sheaves 15—16, driving-belts 17—18 transmit their motion to corresponding sheaves 17^a—18^a in the well or space D above the plane of the track; and the sheave last mentioned in turn give motion to the cable-carrying sheaves 19—21, on which the cables 20—22 run to and return over the sheaves 19^a—23 at the opposite end of the stationary frame-work. The arrangement of this cable-driving mechanism is such that, as long as the motor is working, the upper side of cable 20 is continually traveling in one direction fore and aft at the same time that the upper side of cable 22 on the opposite side is traveling in the reverse direction, and at the same rate of speed. Consequently, by temporarily connecting it with the upper side of one moving cable the car B will be rocked in the direction in which the cable is traveling; or, if the car be connected to the upper side of the other cable, the rocking motion will take place in the opposite direction. Motion is imparted to the car, therefore, by alternately gripping, or making connection with one cable and then with the other, and then letting go the cable at the end of the rocking-motion and allowing the car to return by gravity; each cable being seized, or connection made with it, at the moment that the car has reached the end of its movement in one direction and is about to return by gravity.

The means whereby such alternate connecting and disconnecting of the car with the cables are effected, is shown in detail in Figs. 3, 4 and 5.

Within the well or space D, and at an elevation above the plane of contact between the rockers and the rails, is placed a girder 29, supported from the stationary-frame below in a horizontal position fore and aft, so that the frame-work of the car which is astride of it, will clear the sides of the girder.

Upon the semi-circular bottom which forms the floor of the car overlying the well or space D, a semi-circular rail 49 is fixed to the car-frame in a plane with and directly over the stationary girder 29. The rail 49 is in cross-section the shape of an inverted T, having side-flanges standing in a plane with the direction of the rocking-motion and clear of the web or support on each side. The bottom of the rail 49, also, clears the top-face of the stationary girder 29 below, and

sufficient space between the rail and girder is provided for the cross-bar 50 of the cable-gripping device, Figs. 4, 5 and 6.

The gripping-device consists of two separate grips, one composed of the jaws 64—65 on one side, and the jaws 64^a—65^a on the opposite side of a skeleton truck or carriage, the frame of which is composed of two side-plates 51—52 united by the cross-bar 50 and provided with flanged wheels 53—53^a, 54—54^a on the top, and others 55—55^a, 56—56^a on the bottom of each plate at the four corners.

Being set at proper distance apart to let in the straight stationary rail 29 and the curved rail 49 between them, the side-plates 51—52 are connected to both rails by the flanged wheels which are so mounted on the carriage that the upper wheels 53—53^a, 54—54^a, will remain on and travel along the standing-flanges of the rail 49 on the car-body, but the lower wheels 55—55^a, 56—56^a, will engage and run along the depending flanges 29^a of the fixed rail 29, while the carriage is moved longitudinally in either direction along the fixed rail. As the curvature of the upper rail 49 is concentric with the rockers of the car, it will be seen, that as the carriage is attached by one set of gripping-jaws to one moving cable, it will be drawn along the fixed girder 29 in the same direction in which the cable is traveling, or, by connecting the carriage with the oppositely moving cable by the other set of jaws, the car will be rocked in the opposite direction. In either case the gripper-carriage imparts motion to the car by being drawn along the curved rail 49.

The wheels connecting the gripper-carriage to both rails 29—49 have double flanges to prevent them from leaving the rails. The gripping-device on the outer face of each side-plate of the carriage consists of two jaws, one of which is suspended by means of links 62—63 pivotally attached to the plate at two points 62^a—63^a, so as to be always parallel with the line of the cable, and, at the same time movable vertically to a limited extent toward or away from the cable.

The lower gripping-jaw 65 is also movable towards and away from the cable; but instead of being attached directly to the side-plate of the carriage, it is mounted on a lifting-lever 66 which is loosely attached to the carriage so as to swing in a plane parallel with the side-plate, and to be movable in a vertical direction to a limited extent.

The lower end of the lever 66 rests loosely on a bench 69 in an open socket 70 on the side-plate, and is held to a seat thereon by a stiff spring-bar 71, the foot of the lever being provided with a curved toe 72 that extends below the plane of the fulcrum-point formed by the bench 69. With such bearing-point for a center, the lever is movable at the upper end in an arc parallel with the side-plate, the extent of such movement in either direc-

tion being limited by the curved stirrup, or segment, 73.

The result of this construction is that the two gripping-jaws are caused to take the cable when the foot of the lever 66 is resting on the fulcrum-point 69, and when the cable traveling between the jaws is moving in the proper direction to bring to a perpendicular the toggles 62—63 that carry the upper jaw. The jaws are thus brought together and tightened upon the moving cable, and the gripper-carriage is drawn along the flanged rails in the direction of the travel of the cable, until the strain thus thrown upon the lever 66 which carries the lower jaw becomes greater than the resistance exerted by the spring-bar 71 against the lower end of the lever 66. When that point is reached, the foot of the lever will be pulled off the bench 69, and being deprived of that support, the foot of the lever will drop into the recess below the bench, thereby loosening the grip of the jaws upon the cable; but the carriage will continue to move in the same direction with the cable until the rocker reaches the end of its arc and begins to recover its equilibrium. Then, as the reverse motion takes place, the gripping-jaws 64^a—65^a on the opposite side of the carriage take hold of, and grip the other cable which will be traveling in the same direction as the rocking-car, and the carriage will be drawn along the rails 29—49 in the opposite direction to its previous travel, until the strain exerted on the lever 66^a by the cable is sufficiently strong to overcome the resistance of the spring-bar 72, when the foot of the lever 66^a will be pulled from its seat on the bench 69, and the jaws will be separated.

The operation of restoring the lever to position is effected automatically in a simple manner by mounting a roller 68 loosely on the side of the lever in proper position to engage and run over a guide-rail 74 having an inclined portion 75 placed at the required point alongside of the stationary rail 29 to present the incline 75 in the path of the roller 68 when the lever occupies its lowest position off the fulcrum-point.

By contact with this guide-rail the lever is raised to position and its toe is set on the bench 69—and in this setting operation the required angular position is given to the lever by a yielding-stop 76, presented in the path of the upper end of the lever—as seen in Fig. 3—by being fixed on a post 77 standing along side of the stationary-rail 29. This stop 76 is of such character that it will yield when struck by the lever 66 from one direction, but it will present a rigid stop to the lever when the latter is carried past it in the opposite direction.

The lever 66, for example, will pass the stop in the return movement of the gripper-carriage after it has released its grip on the cable 20; but when the carriage again

changes its direction of travel towards the right, the end of the lever will be arrested by the stop 76 at the same time that the roller 65 is running over the lifting-rail. The last named member 74 is capable of a limited movement sidewise to let the roller pass when the carriage returns, previous to the resetting operation. For that purpose the rail is attached to the side of the fixed rail 29 by spring legs or supports 78, yielding in one direction, but holding the rail rigidly when the roller strikes the incline 75 and runs on the elevated portion.

A short post 80 on the lower jaw fitted to play loosely in a socket 81 on the upper jaw serves to keep the jaws in line; the post being of proper length to allow the jaws to separate without pulling the post out of the socket.

The jaws 64^a—65^a and the parts of the gripping-means on the opposite side of the carriage are the same in construction and operation as the mechanism above described, excepting that the jaws and other parts are oppositely set to those on the other side, so as to act in the required direction to grip the other cable 22, which is continually traveling in the opposite direction to the cable 20.

With the lever 66 set in position on the fulcrum-point 69, it will be seen that the lever carrying the lower jaw and the links carrying the upper jaw, together form a toggle which, under the strain of the traveling cable, causes the jaws to take hold and firmly grip the cable. Being connected by that means to the cable 20, the carriage will be drawn along the straight rail 29 in the same direction as the cable is moving, and as the effect upon the curved rail engaged by the upper wheels of the gripper-carriage will be to draw the curved rail towards the straight-rail, the car will be rocked in the same direction. That movement will continue until the resistance due to the weight of the car becomes greater than the pulling force exerted by the cable upon the gripping jaws, when the spring-bar 71 will no longer be able to hold the foot of the lever upon the fulcrum-point 69, and it will be pulled off that support, and the lever will drop and the lower jaw will be carried down with it. The effort of the car to return to a state of equilibrium as soon as it has reached the end of the arc of movement and is disconnected from the cable produces a return-movement on the rockers, and the gripper-carriage moving with the car thereupon will slide on the cables without taking hold, until the rocking movement becomes less rapid than the cable which is traveling in the same direction as the car. Then, if the setting-lever be in position on its fulcrum, the jaws will take hold of the cable and the power will be con-

nected to the car through the gripped cable,
 with the effect to act on the car. Oper-
 ating in this manner alternately and in
 opposite directions in its travel, the grip-
 5 ping-carriage connects the car first to one
 continually-traveling cable, and then to the
 other, in such manner that sufficient power
 is applied to the car at the proper periods to
 produce a rocking motion of uniform quality.
 10 The rocking car B is built preferably with
 a hemispherical bottom and vertical sides,
 and with decks at different altitudes, much
 like the deck of an ocean steamer. The bot-
 tom and sides of the structure are inclosed,
 15 and are provided with door-openings 31 com-
 municating from the stair-case landings 3 and
 3^a in the lower compartment or hold; and
 from the hold, stair ways 32 are provided,
 leading up to the second floor or deck 33,
 20 from which the doors 34—35 open on the
 balconies and the stair-cases 39, leading to
 a higher tier of balconies 40—41.

Upon the longitudinal ends of the hurri-
 cane deck we mount swings 45 and 46, the
 25 pivotal points of which are located at a con-
 siderable height above the deck.

In the center of the deck an observation-
 tower 47 affords an elevated look-out. This
 tower being located directly over the center
 30 of motion of the car, will afford a standing
 place for those who would be unpleasantly
 affected by the rocking motion at the outer
 ends where the swings are situated.

Having thus described our invention, what
 35 we claim and desire to secure by Letters Pat-
 ent, is:—

1. An amusement-device comprising a sta-
 tionary frame-work, a rocking-body there-
 on, two traveling-cables having continuous
 40 movement longitudinally of the stationary-
 frame, and one traveling in the opposite di-
 rection to the other, and cable-gripping
 mechanism on the rocking-body adapted to
 alternately connect the rocking-body to and
 45 disconnect it from the traveling cables at
 those periods in the movement of the rock-
 ing-body when the motion becomes less
 rapid than that of the cable which is moving
 in the same direction.

50 2. In an amusement-device the combina-
 tion of the supporting frame-work, the rock-
 ing-body mounted on rockers thereon, and
 means for imparting motion to said rocking-
 body comprising endless traveling cables
 55 having movement one in the contrary direc-
 tion to the other and longitudinally of the
 supporting frame-work, and gripping-means
 operating to alternately connect the rocker-
 body to and disconnect it from that one of the
 60 cables which is traveling in the same direc-
 tion as the rocking-body is rocking.

3. In a structure of the character de-
 scribed, a stationary support, track-rails
 thereon, the movable structure mounted for
 65 rocking motion on the said support, in com-

bination with the continually traveling end-
 less cables moving in opposite directions one
 to the other longitudinally of the stationary-
 support, and the cable-gripping mechan-
 70 ism comprising a fixed rail on the station-
 ary-support having depending flanges, the
 curved rail on the rocking structure concen-
 tric with the rocking motion provided with
 standing-flanges, and a gripper-carriage hav-
 ing flanged wheels to engage and ride on the
 75 flanges of the fixed rail and the movable rail,
 respectively, two sets of gripping-jaws on the
 carriage adapted to act on the traveling ca-
 bles in contrary manner one to the other and
 only when the gripper-carriage is moving
 80 with the rocking-structure in the same direc-
 tion as the cable, means operating to throw
 off each gripping-device at the moment when
 the rocking-structure has completed its
 movement in the direction coinciding with
 85 the direction of the travel of the gripped ca-
 ble, and means for resetting the gripping-
 device.

4. In a structure of the character de-
 scribed, the stationary-structure having lon-
 90 gitudinally set guide-rails, the movable
 structure mounted thereon for rocking mo-
 tion, having two sets of rockers, in combina-
 tion with two endless traveling cables ex-
 tending longitudinally through the space be-
 95 tween the said sets of rockers, and having
 motion imparted to them in contrary direc-
 tions one to the other, the flanged rail on the
 stationary structure, the curved rail on the
 movable structure having standing flanges,
 100 and means for connecting the movable struc-
 ture to and disconnecting it from one or the
 other of the endless traveling cables accord-
 ing to the direction in which the cable and
 the movable structure are moving, compris-
 105 ing the gripper-carriage having flanged
 wheels adapted to ride on the flanges of the
 fixed rail and the curved rail, and oppo-
 sitely-acting sets of gripping jaws on the said
 carriage so arranged and operated that one set
 110 of the jaws will take hold of that one cable
 which is traveling through them in the same
 direction in which the movable structure is
 rocked, but the other set of jaws will slide
 loosely on the remaining cable traveling in
 115 the opposite direction; and means for alter-
 nately setting and throwing off the gripping-
 jaws in the movements of the gripper-car-
 riage.

5. In a structure of the character de-
 120 scribed, a stationary frame-work and a rock-
 ing car thereon; in combination with two
 endless traveling cables moving in opposite
 directions one to the other, a fixed rail on the
 stationary frame-work, a curved rail on the
 125 rocking-car, and cable-gripping mechanism
 for alternately connecting the rocking-car to
 and disconnecting it from one or the other of
 the traveling cables according to the direc-
 130 tion in which the rocking-car requires to be

rocked to set in motion and maintain rocking motion thereof, comprising the gripper-carriage having side-plates embracing the said fixed and movable rails, the flanged wheels thereon, and a separate gripping-device on each side-plate so arranged and operated as to take hold of the traveling cable moving through the gripping-device in the same direction in which the rocking-car is moving, but to release the cable when the direction of the car is reversed with relation to the travel of the cable, and means on the stationary structure operating to throw off the gripping-device and release the cable at the end of the rocking motion.

6. In an amusement device, the combination of a supporting frame, a rocking body mounted therein and supported thereby, a longitudinally movable carriage having en-

gagement respectively with the said supporting frame and the rocking body, and means for imparting to the carriage to and fro movements.

7. In an amusement device, the combination of a stationary track, a body having a curved surface arranged to rock to and fro on said track, a fixed rail extending parallel with the track, a curved rail on the body concentric with the rocking surface thereof, and means between the two rails and movable backward and forward thereon for causing the body to rock.

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