

G. A. ROSQUIST.
AMUSEMENT DEVICE.
APPLICATION FILED AUG. 2, 1909.

952,843.

Patented Mar. 22, 1910.

3 SHEETS—SHEET 1.

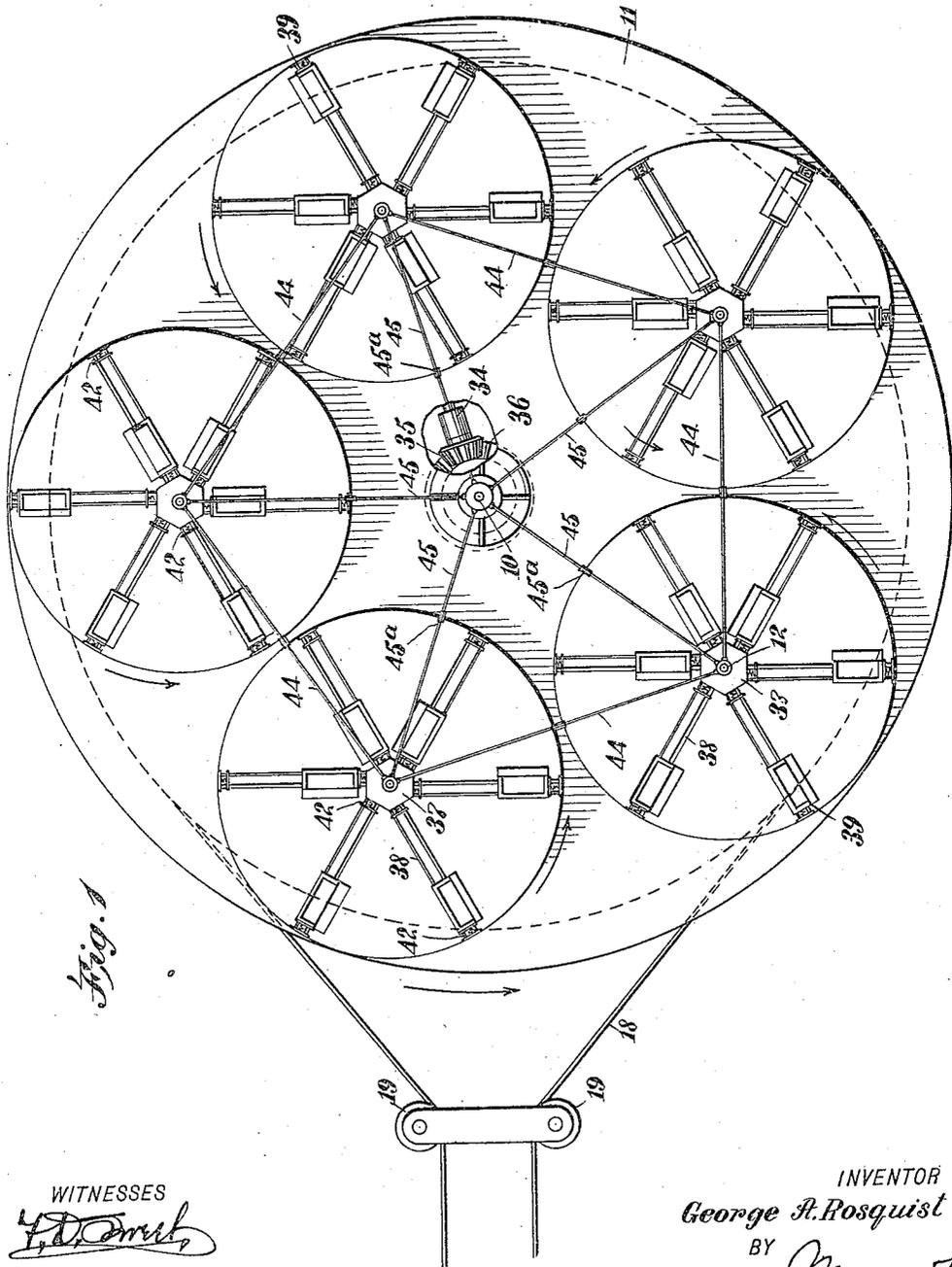


Fig. 1

WITNESSES

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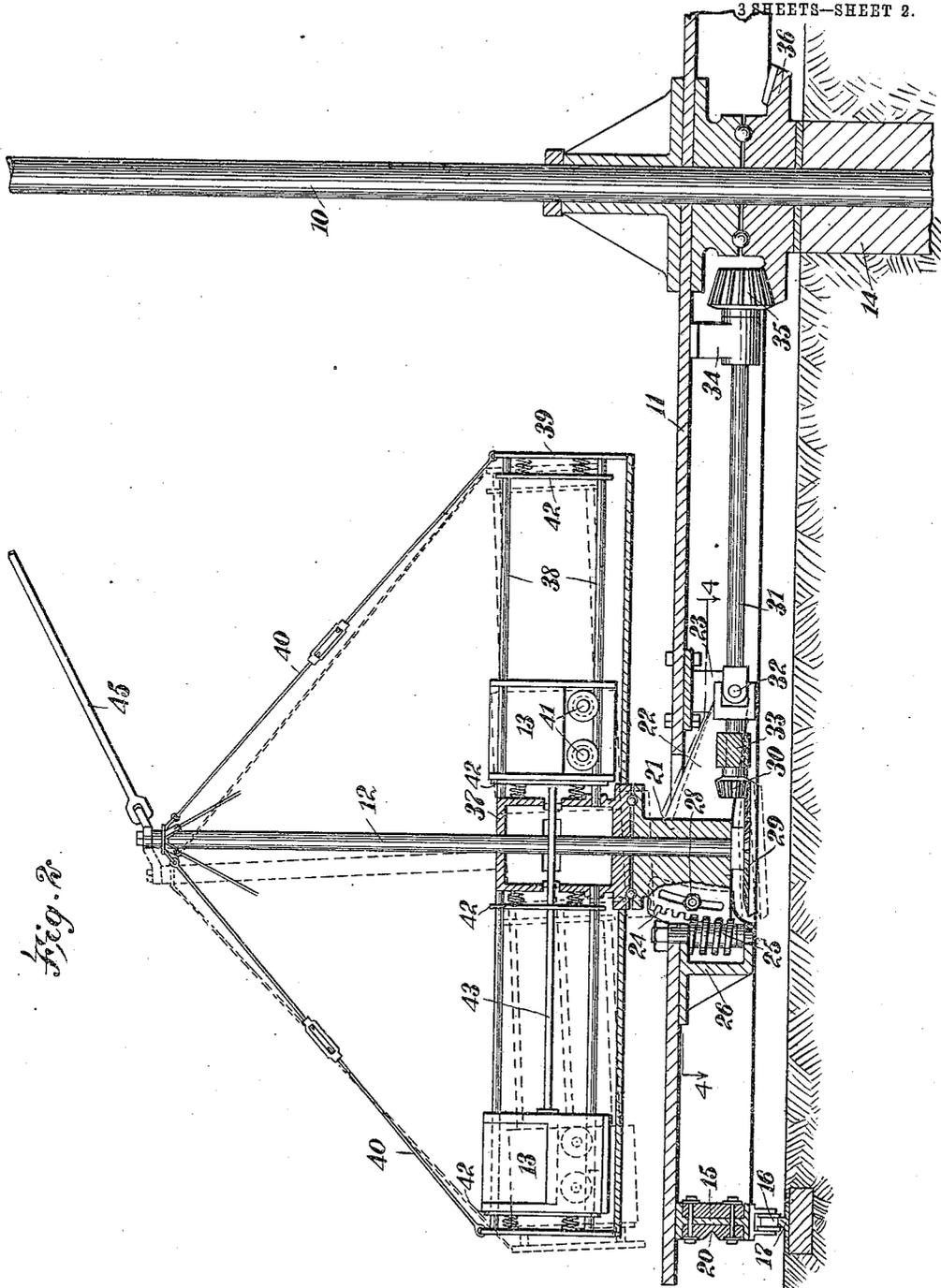


Fig. 2.

WITNESSES

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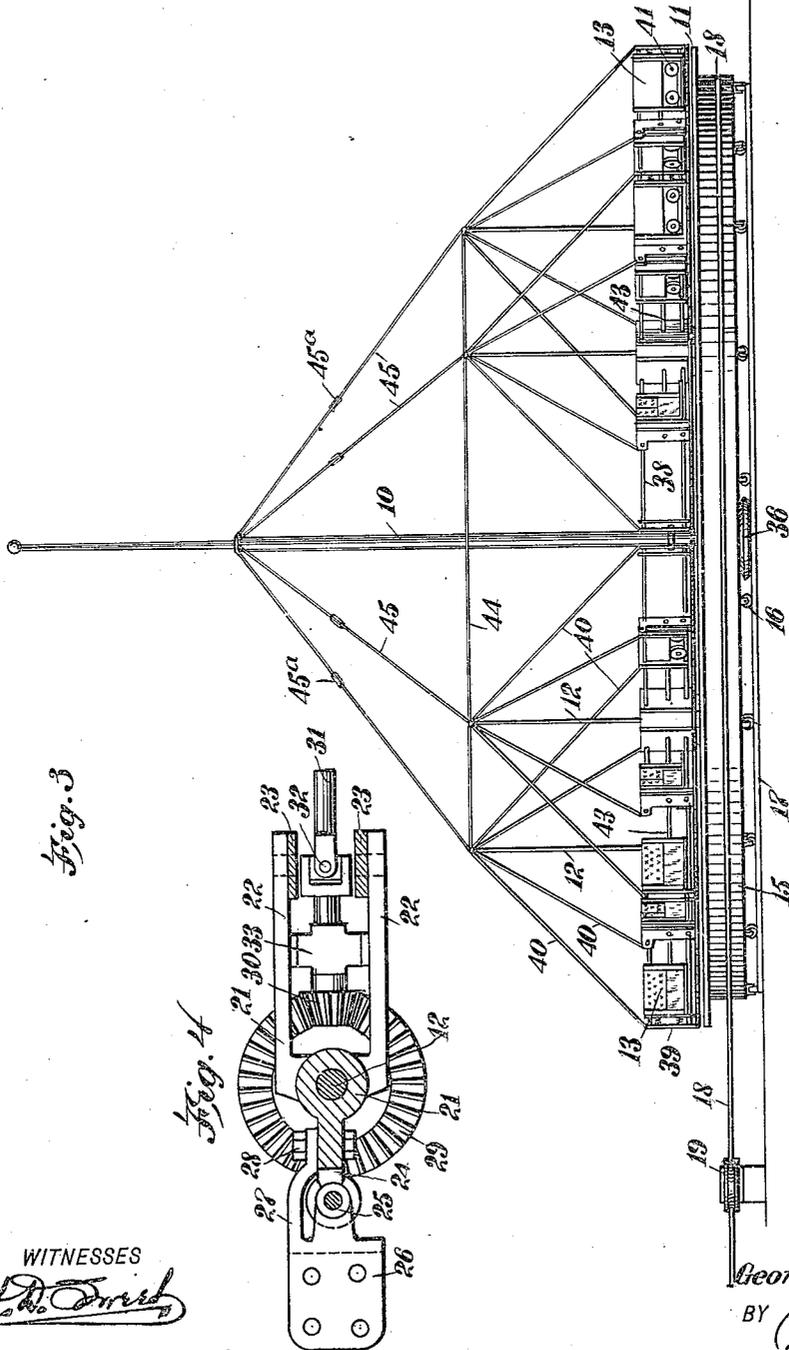


Fig. 3

Fig. 4

WITNESSES

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UNITED STATES PATENT OFFICE.

GEORGE A. ROSQUIST, OF NEW YORK, N. Y.

AMUSEMENT DEVICE.

952,843.

Specification of Letters Patent. Patented Mar. 22, 1910.

Application filed August 2, 1909. Serial No. 510,728.

To all whom it may concern:

Be it known that I, GEORGE A. ROSQUIST, a citizen of the United States, and a resident of the city of New York, borough of Brooklyn, in the county of Kings and State of New York, have invented a new and Improved Amusement Device, of which the following is a full, clear, and exact description.

This invention relates to that type of amusement device in which there are provided cars or seats adapted to hold one or more people and movable about a central axis. Apparatus of this character has been constructed in which a seat is so supported as to rotate about an axis and to move with the axis around a second or central axis, so that the car moves in a curve somewhat resembling an epicycloid or a hypocycloid dependent upon the relative directions of rotation in respect to the two axes.

The special object of my invention is to so mount the cars or seats in respect to their axes that they may have not only a rotating movement but may also have a radial movement. This radial movement may be brought about by special mechanical means, but preferably I rely upon centrifugal force. The speed and time of this radial movement are preferably controlled by varying the angle of the axis about which the car rotates, in respect to the main central axis.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures, and in which—

Figure 1 is a top plan view of an apparatus constructed in accordance with my invention; Fig. 2 is a vertical section along a radial plane; Fig. 3 is a side elevation of the apparatus shown in Fig. 1; and Fig. 4 is an enlarged sectional detail showing the mechanism for varying the angle of the secondary axis, and taken on the line 4—4 of Fig. 2.

My improved apparatus includes a central shaft 10, a member 11 rotatable about said shaft, a plurality of secondary shafts 12 carried by said member and substantially parallel to the central shaft and rotatable about the same, and a plurality of seats or cars 13 rotatable about each secondary shaft and movable radially in respect thereto. In the specific form illustrated, the central shaft 10

extends vertically from a base or socket 14, and the member 11 is in the form of a large circular platform. Adjacent the periphery of the platform, there is provided a depending flange 15 having a plurality of rollers 16 upon its under edge and movable along a track 17. The platform may be rotated in any suitable manner, but in the form illustrated, the depending flange 15 constitutes a drum and a cable 18 passes from any suitable source of power around this drum and between guide pulleys 19. The drum may be provided with a peripheral groove 20 for receiving the cable and preventing it from slipping off the lower edge. The secondary shafts 12 are carried by the member or platform 11 and are approximately parallel to each other and to the central shaft, but are so supported that they may be tilted to bring their upper ends nearer to or farther from the central shaft, as may be desired.

As illustrated, each shaft 12 extends through a base 21 disposed within an aperture in the platform, and each base has two arms 22, 22 extending toward the center shaft and pivoted to depending lugs 23, 23. The base at the outer side, that is, the side opposite to the arms 22, 22, is provided with rack teeth 24 in the arc of a circle having the pivots in the lugs 23 as a center. Engaging this curved rack bar is a worm wheel 25 supported in a bracket 26 carried by the platform. By rotating the worm wheel, the outer end of the base 21 may be raised or lowered to swing the secondary shaft 12 in a radial plane in respect to the central shaft. The bracket 26 is provided with an arm 27 extending into engagement with the base 21 adjacent the rack bar, and the latter is provided with a slot through which a bolt 28 extends. This bolt serves to lock the base and the bracket 26 rigid in respect to each other, so as to prevent any accidental rotation of the worm wheel. When it is desired to vary the position of a secondary shaft, the bolt 28 must first be loosened before the worm wheel can be turned.

The tops of the several secondary shafts 12 are preferably connected together by tie-rods 44 and the top of each shaft 12 is connected to a collar on the central shaft by a tie-rod 45. This tie-rod includes a turnbuckle 45^a, by means of which the length of the tie-rod

may be varied as the angularity of the shaft is adjusted.

For driving each secondary shaft, the latter is provided with a bevel gear wheel 29 upon its lower end and in mesh with a bevel pinion 30 on a shaft 31 extending toward the central shaft 10. This shaft 31 is formed of two sections connected by a universal joint 32 disposed between the two bracket lugs 23, 23, so that the adjustment of the base 21 will not in any way interfere with the driving connections between the shaft 31 and the bevel gear 29. One section of the shaft is journaled in a cross bar 33 carried by the base, while the other section is journaled in one or more depending brackets 34 carried by the platform 11. At the inner end of the shaft 31 there is a bevel pinion 35 which meshes with a stationary bevel gear 36 concentric with the central shaft but held against rotation. As the bevel gear 36 cannot rotate and the shaft 31 is carried bodily around the central shaft by the rotation of the platform 11, it is evident that the shaft 31 will be caused to rotate and the rotation of this shaft 31 will rotate the shaft 12 in the same direction that the member or platform 11 is rotated.

Secured to each shaft 12 above the base thereof, is a member comprising a central hub 37 and a plurality of outwardly-extending car guides or supports 38. These car guides or supports are arranged in diametrically opposite pairs and each car guide or support is preferably formed of two parallel rods. The two rods of each pair may be connected by a transverse member 39 at their outer ends, and may be supported by a tie-rod 40 leading to the upper end of the shaft 12. A car or seat 13 is mounted upon each pair of rods 38, and is provided with rollers 41, to facilitate the radial movement of the car along its supporting rods or guides. The seat may be of any character desired, but it is preferably constructed to carry two people who sit facing the direction in which the car is traveling. The seat may have a back portion and may have the supporting wheels 41 mounted beneath the seat portion. The car is radially movable along the rods 38, and at each end of the rods are buffers 42 to reduce the shock when the car suddenly stops at the end of its radial movement. Each car 13 is connected to its diametrically opposite car by a rod 43, which pulls each car in toward the shaft as its opposite car is thrown outwardly away from the shaft. This radial movement is caused by the additional effect of centrifugal force upon the cars when they are at different points about their path around the axis of the shaft 12 and the axis of the shaft 10. This additional effect may be more readily understood from an inspection of Fig. 1.

When the car is traveling about its shaft

12 and is adjacent the periphery of the platform 11, it will be advancing along the periphery by reason of the travel of the platform, and also by reason of its travel around its shaft 12. The car will thus be traveling at a very high rate of speed and centrifugal force will tend to throw it outwardly to a position at the maximum distance from its shaft 12. As it continues rotating about its shaft, it comes in toward the center shaft 10 and the action of centrifugal force continues to decrease until the car is at a point at a minimum distance from the central shaft. The car will now be advancing by reason of the rotation of the platform 11, but will be traveling in the opposite direction due to its rotation about its shaft 12. The car will therefore approximately stand still and centrifugal force will have no effect upon it. As each car is secured to its diametrically opposite car by the rod 43, each car is pulled in toward its shaft when the action of centrifugal force on the car is less than the action of centrifugal force on the diametrically opposite car. Each car is at the maximum distance from its shaft 12 during about one-half of each revolution and is pulled in closely adjacent the shaft during the remaining half of the revolution. With the shaft 12 parallel to the shaft 10, the cars will be moved solely by centrifugal force, but in case this force is too violent or in case at slow speed it is not sufficient to bring about the desired movement, the radial movement may be retarded or increased by the tilting of the shaft 12.

By swinging the shaft from the position shown in solid lines to the position shown in dotted lines in Fig. 2, the cars may be at a lower level when adjacent the periphery of the platform 11, and thus, even though the apparatus be rotated at very low speed, the cars will tend to swing away from their shaft 12 as they approach the periphery of the platform 11. Thus, the cars may be moved solely by the action of gravity and without taking advantage of centrifugal force if the apparatus is run at a slower speed. By tilting the shaft 12 in the opposite direction, that is, by bringing the upper end of each toward the central shaft, the cars when thrown outwardly by centrifugal force will have to be raised to the higher level and against the action of gravity. This will retard the action of centrifugal force if the latter be too strong.

Having thus described my invention, I claim as new and desire to secure by Letters Patent:

1. A device of the class described, including a rotatable member, a second member carried thereby at one side of the axis of the first-mentioned member and rotatable about its own axis, and a car carried by said

second-mentioned member and radially movable in respect to the axis of said second-mentioned member.

2. A device of the class described, including a rotatable member movable about its own axis and movable bodily about a central axis, and a car carried by said rotatable member and movable radially in respect thereto.

3. A device of the class described, including a rotatable member movable about its own axis and movable bodily about a central axis, and a car carried by said rotatable member and movable radially in respect thereto by the action of centrifugal force.

4. A device of the class described, including a rotatable member movable about its own axis and movable bodily about a central axis, and two cars carried at diametrically opposite points by said rotatable member, said cars being secured together and movable simultaneously along radial lines.

5. A device of the class described, including a rotatable member movable about its own axis and movable bodily about a central axis, and two cars movable along the same diameter and at opposite sides of the axis of said member, said cars being secured together and movable simultaneously in the same direction along said diameter.

6. A device of the class described, including a rotatable member movable about its own axis and movable bodily about a central axis, and two cars movable along the same diameter and at opposite sides of the axis of said member, said cars being secured together and movable simultaneously in the same direction along said diameter by the action of centrifugal force.

7. A device of the class described, including a rotatable member movable about its own axis and rotatable bodily about a central axis, a car carried thereby, and means for tilting one axis in respect to the other.

8. A device of the class described, comprising a rotatable member movable about its own axis and movable bodily about a central axis normally substantially parallel to the first-mentioned axis, a car carried by said member, and means for tilting the first-mentioned axis in respect to the central axis, to bring them out of parallelism.

9. A device of the class described, comprising a rotatable member movable about its own axis and movable bodily about a central axis normally substantially parallel to the first-mentioned axis, a car carried by said member, and means for tilting the first-mentioned axis in respect to the central axis, to bring them out of parallelism, said car being radially movable in respect to its own axis, the radial movement being controlled by said tilting of the axis.

10. In combination, a central vertical axis, a secondary axis movable about the central

axis and substantially parallel thereto, a car movable about the secondary axis and free to move radially in respect thereto, and means for tilting the secondary axis out of a vertical position to control said radial movement.

11. In combination, a substantially vertical shaft, a member rotatable about said shaft and including a plurality of outwardly-extending substantially horizontal guide rods, and cars carried by said guide rods and movable about said shaft and movable radially along said guide rods.

12. In combination, a substantially vertical shaft, a member rotatable about said shaft and including a plurality of outwardly-extending substantially horizontal guide rods, cars carried by said guide rods and movable about said shaft and movable radially along said guide rods, and means for tilting said shaft to a vertical position to control said radial movement.

13. A device of the class described, including a rotatable member having a hub portion, a plurality of substantially radial guiding and supporting rods, a car mounted on said rods and rotatable about said hub portion and radially movable along said guide rods, and bumpers adjacent opposite ends of said guide rods for cushioning the car at the ends of its radial movement.

14. A device of the class described, including a rotatable member having a plurality of substantially radially disposed guides arranged in opposite pairs, a car upon each guide and movable radially thereof and to rotate therewith, and means for connecting each car with the car upon the opposite guide of the pair, to insure the simultaneous radial movement of the two cars in the same direction.

15. A device of the class described, including a rotatable member having a plurality of substantially radially disposed guides arranged in opposite pairs, a car upon each guide and free to move radially thereof under the action of centrifugal force and to rotate therewith, and means for connecting each car with the car upon the opposite guide of the pair, to insure the simultaneous radial movement of the two cars in the same direction.

16. A device of the class described, including a pivoted base, a substantially vertical shaft mounted therein, a member rotatable with said shaft, a plurality of cars carried by said member and movable radially in respect to said shaft, and means for tilting said base to move said shaft toward or from a substantially vertical position.

17. A device of the class described, including a pivoted base, a substantially vertical shaft mounted therein, a member rotatable with said shaft, a plurality of cars carried by said member and movable radially in re-

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spect to said shaft, means for tilting said
base to move said shaft toward or from a
substantially vertical position, and means
carried by said base for transmitting mo-
5 tion to said shaft.

18. A device of the class described, includ-
ing a pivoted base, a substantially vertical
shaft mounted therein, a member rotatable
with said shaft, a plurality of cars carried
10 by said member and movable radially in
respect to said shaft, and means for tilting
said base to move said shaft toward or from

a substantially vertical position, said base
and said shaft being rotatable about a cen-
tral axis, and said shaft being rotatable in 15
synchronism with the movement about said
axis.

In testimony whereof I have signed my
name to this specification in the presence of
two subscribing witnesses.

GEORGE A. ROSQUIST.

Witnesses:

JOHN F. GRANT,
CLAIR W. FAIRBANK.