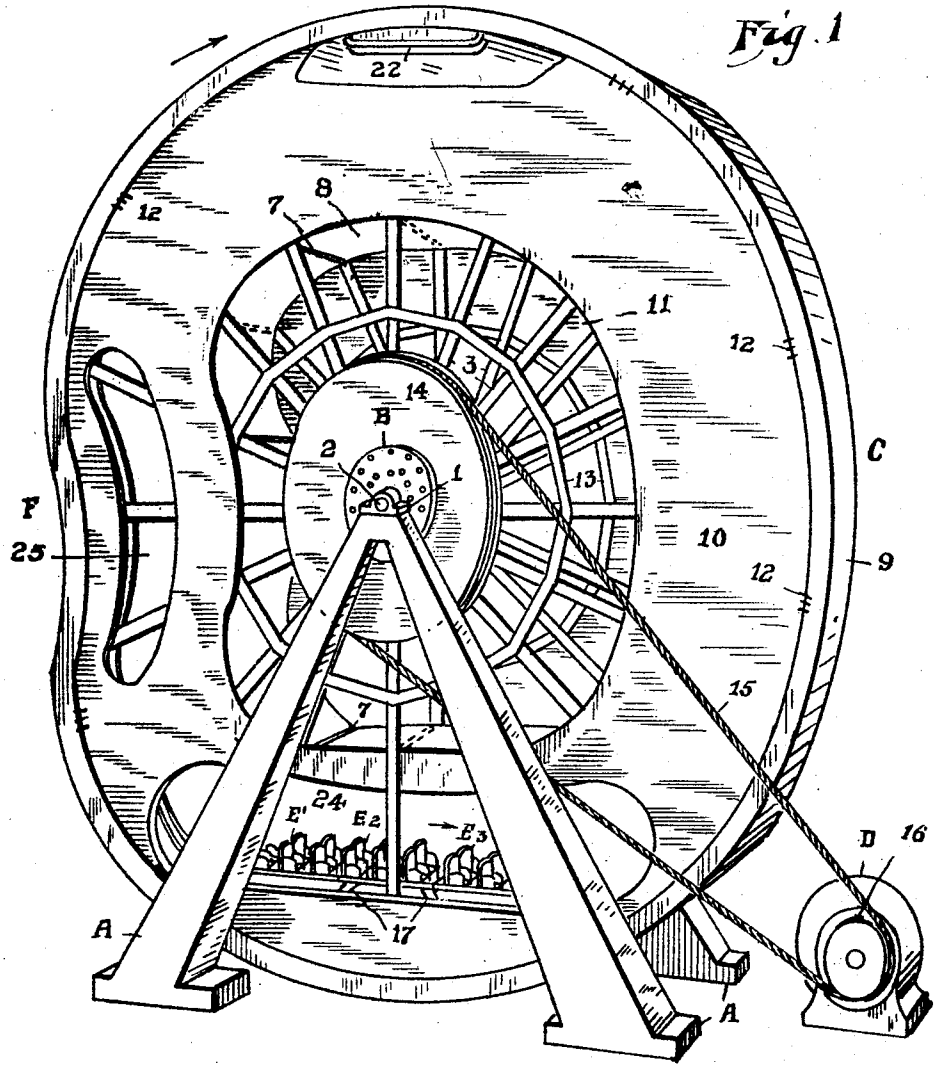
Dec. 8, 1925. 1,564,952

J. A. FISHER

ROTARY AMUSEMENT DEVICE

Filed June 11, 1924 2 Sheets-Sheet 1

Fig. 1



INVENTOR

John A. Fisher,

by Edward A. Laurence

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Filed June 11, 1924 2 Sheets-Sheet 2

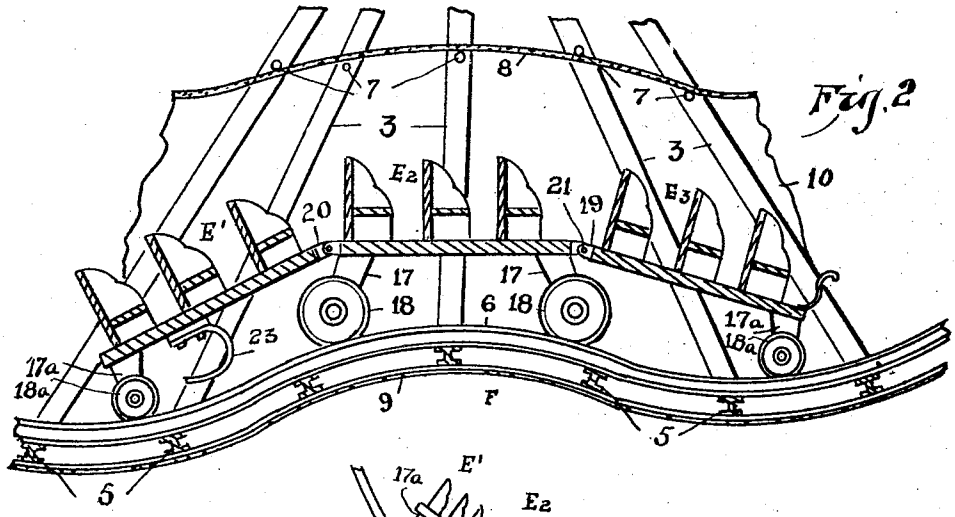

Fig. 2

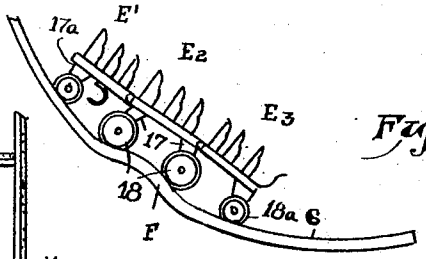

Fig. 3

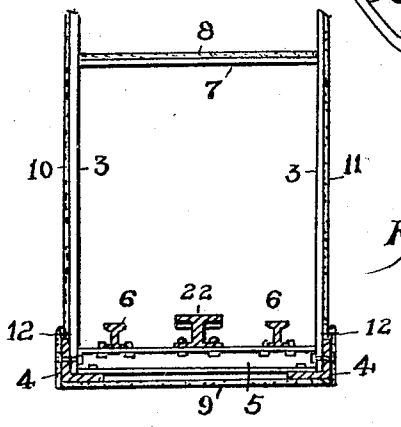

Fig. 5

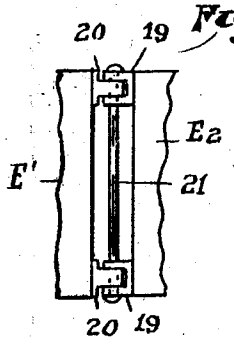

Fig. 6

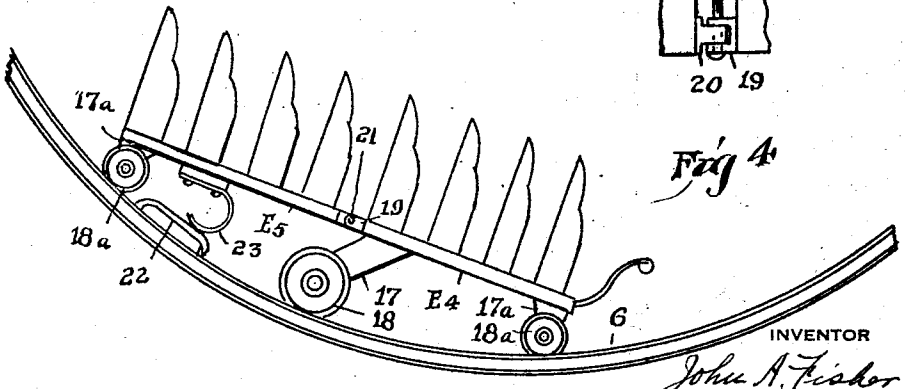

Fig. 4

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Patented Dec. 8, 1925. 1,564,952

UNITED STATES PATENT OFFICE.

JOHN A. FISHER, OF SANDUSKY, OHIO.

ROTARY AMUSEMENT DEVICE.

Application filed June 11, 1924. Serial No. 719,296.

To all whom it may concern:

Be it known that I, JOHN A. FISHER, a citizen of the United States of America, and residing in the city of Sandusky, in the county of Erie and State of Ohio, have invented a new and Improved Rotary Amusement Device, of which the following is a specification.

Generally speaking my invention comprises a continuous track revolving on a horizontal axis and having mounted in the interior thereof a travelling element such as a passenger car, or a plurality of cars preferably connected together as a train.

When the track is at rest, the travelling element occupies the low point of the former, but when the track is in motion friction or the like tends to cause the travelling element to travel with the track and ascend the arcuate path of its movement, which tendency is combated and eventually overcome by the force of gravity, working against the force of friction, and the car returns down the slope passing the low point, and its momentum carries it a short distance up the opposite slope until the forces of gravity and friction, now working in the same direction, reverse its movement.

It is thus evident that the travelling element will oscillate back and forth, with the low point of the track as a center, its travel in the direction of the track's movement being the greater.

Since in the presence of safe speeds this oscillation on a concentric track might not be sufficient or varied enough to be attractive to patrons, I provide means to intermittently accentuate and vary the travel and speed of the element with the revolving track. Such means may take various forms. Thus, for instance, I may provide the track with one or more eccentric or inwardly convexed portions which would tend to increase the friction and resistance to gravity between the travelling element and the track, and therefore tend to carry the car up a greater distance with the track before gravity would be able to overcome the friction and resistance, and reverse the movement of the car. Again, I may provide clutch or other engaging means carried by the track and by the travelling element and intermittently interengaged to cause the element to travel with the track for an appreciable distance. A convenient character of means is a friction clutch device, such, as shown in the drawings, a shoe mounted on the track and adapted to engage a resilient compressive finger or member carried by the travelling element.

By providing the track with an apertured enclosure, an effect may be obtained which will produce the illusion of much greater speed and travel of the car than is actually the fact.

Other novel features of construction and also of arrangement of parts will appear from the following description.

In the accompanying drawings, which are, however, merely intended to illustrate practical emoodiment of the principles of my invention without limiting the scope of the same to the construction shown, Fig. 1 is a perspective of a preferred embodiment of my invention, the passenger train being shown at the low point of the continuous track, the position assumed when the track is at rest; Fig. 2 is a sectional side elevation showing the train engaging the eccentric portion of the track; Fig. 3 is a diagrammatic view showing the train being carried up with the eccentric portion of the track; Fig. 4 is a similar view showing a two-car train being carried up by means of a spring clutch mechanism, which may be used as a substitute for the eccentric portion of the track or as an auxiliary thereto; Fig. 5 is an enlarged, broken cross sectional view of the track structure, and Fig. 6 is a detail showing the preferred manner of coupling together the cars to form a train.

The following is a detailed description of the drawings.

A represents a pair of stands converging upwardly and supporting the bearings 1 in which are journaled the ends of the axle 2 on which is mounted the hub B of the track structure. Said track structure may be of any convenient construction providing a continuous, interior track of any suitable character. Thus, as a convenient embodiment, I have shown the track structure as a large wheel C mounted on the hub B. 3 represents two sets of spokes, one set being fastened to and radiating from each end flange of the hub B. When the track is concentric the spokes 3 are of even length, but, when as shown in Figs 1, 2 and 3, the track is characterized by one or more eccentric portions the spokes 3 are of irregular length. The spokes of each set have their outer ends connected together by the perimetral or rim

bars 4, preferably of angle shape, as shown in Fig. 5, thus bracing the spokes in their proper radial positions. The corresponding spokes of the two sets are connected together at their outer ends by the transverse beams or sleepers 5, preferably I-beams, which are secured to the perimetral bars 4 and to the spokes.

The track supported on the track structure and rotating therewith may be of any suitable character to support a travelling element thereon which is caused to travel because of the movement of the track. Thus, as a convenient form of track I have shown a two-rail track formed of the parallel, continuous rails 6 which are mounted on the inner surfaces of the sleepers 5, thus providing the track structure with a continuous trackway which rotates with the track structure.

Spaced inside of the continuous track at a sufficient distance to provide the necessary head room the corresponding spokes of the two sets of spokes are connected together by the tie-rods 7, the series of tie-rods being disposed, relative to the axis of the track structure, as is the track, either concentric or eccentric thereto.

8 is a strip or length of canvas inserted alternately inside and outside of the rods 7, as shown in Fig. 2, thus forming what may be termed the inner wall of a continuous screen or inclosure which is completed by the outer canvas wall 9, and by the front and rear side walls 10 and 11 which may also be of canvas. The adjacent edges of the walls may overlap and be laced or otherwise connected together, as indicated at 12. If desired, the inner wall 8 or the outer wall 9, or both may be omitted, but I prefer to retain the side walls 10 and 11, as they play an important part in rendering the amusement device attractive to patrons.

The track structure is preferably braced, as by struts 13 connecting together adjacent spokes of the same sets intermediate of their ends.

The track may be rotated by any convenient means. Thus, in the way of illustration, I have shown a sheave 14, mounted concentrically on the track structure, and connected by a cable belt 15 with a pulley 16 on the shaft of a motor D. In the drawings the track is assumed to be rotated clockwise.

A travelling element is mounted on the track, and the same is preferably, but not necessarily, idle or unprovided with propelling means other than the motion of the tracks. This travelling element may take any form suitable for movement on a track. In the case of a railed track the element may, as shown, be provided with wheels which engage the track. The travelling element may be composed of one unit, or two or more units suitably coupled together to form a train.

Thus in Figs. 1, 2 and 3 I have shown the travelling element comprised of three passenger-carrying cars E', E^2 and E^3 connected together in tandem, the center car E^2 being supported by the legs 17 whose lower ends are provided with flanged wheels 18 which engage the rails 6. The inner ends of the front and rear cars are supported at substantially the same distance from the rails as is the center car, as by being hingedly connected thereto, but their outer ends are supported at less height from the rails as by means of shorter legs 17^a or smaller wheels 18^a, or both as shown in Figs. 2 and 3.

In Fig. 4 I show a two-car travelling element or train, composed of the front car E^4 supported at its rear by the long legs 17 and large wheels 18, and at its front end by the short legs 17^a and the small wheels 18^a. The front end of the rear car E^5 is coupled to and supported by the rear end of the front car, and its rear end is supported by the short legs 17^a and the small wheels 18^a.

Where the travelling element is composed of two or more cars or other units, the same are coupled together in such a manner that the travelling element is given the necessary flexibility to readily conform to the track, but without such lateral swinging or swerving as might be dangerous to passengers occupying the cars or cause derailment. Thus, as illustrated in enlarged detail in Fig. 6, the cars may be provided with pieced lugs 19 and 20 which may interlock as shown and through which extends the pivot rod 21. Thus I have shown the cars capable of hinged relative movement on a horizontal axis.

The advantage of supporting the center portion of a travelling element comprised of two or more units at a greater distance than the front and rear ends thereof will be later explained.

It is evident that when the track is at rest the travelling element, either a car or a plurality of cars connected in a train, will stand on the low portion of the track. When the track is revolving, the travelling element will tend to follow up the slope of the track in the direction of revolution, owing to the friction of the wheels on the rails, and the travelling element will thus move in a clockwise direction until the forces of gravitation overcome the forces of friction and resistance, and cause the car to reverse its movement and to run down the slope counterclockwise, the momentum carrying the travelling element past the low point and causing it to travel up the opposite slope until the forces of gravitation and of friction, now working in the same direction.

can reverse its travel. It is thus evident that the car will tend to oscillate back and forth with the low point of the track as a center, the travel clockwise being slightly greater than the counterclockwise travel owing to the fact that in the clockwise travel the force of friction is working against the force of gravity, while in the counterclockwise travel both said forces are working in the same direction.

Where the track is provided with eccentric or inwardly curved portions as shown at F in Figs. 1, 2 and 3, when such eccentric portion reaches the travelling element, the friction and resistance to gravitation is greatly increased, so that the travelling element will follow the track in a clockwise direction, as shown in Fig. 3, in an accentuated degree and for a greater distance, before the force of friction and resistance is again overcome by the force of gravitation and the car reverses its travel. Thus by providing the track with one or more eccentric portions, the travelling element will have imparted to it at intervals a farther travel and an accentuated greater speed, with intervening periods of relative idleness, the oscillatory movement of the car being thus varied in distance travelled and in speed of motion.

As a substitute for an eccentric track I may provide means whereby at proper intervals the car will be temporarily connected or clutched to the track, so that it will follow the same in its travel, thereby obtaining the same effect as above described. Any one of a number of numerous types of temporary connection may be provided. Thus in Fig. 4 I have shown the track provided intermediate of its rails with a shoe 22 which will be engaged once in every revolution of the track by a spring contact finger 23 depending from the travelling element. When the shoe passes under the travelling element, it will engage and compress the spring finger, producing sufficient friction to cause the travelling element to travel with the track until the force of gravitation overcomes the frictional engagement and causes the travel of the car to be reversed. The strength of the spring finger and the weight of the travelling element thus determine the extent of the travel of the element with the track. If desired, as shown in Fig. 1, the track may be provided both with one or more eccentric portions F and also with friction shoes 22; or a friction shoe may be associated with an eccentric portion to increase the travel of the car.

It will be noted that when the travelling element, which is comprised of two or more cars or other units is in its position of rest, as when the amusement device is stopped for loading or unloading passengers, the curvature of the track will cause the front and rear wheels of the travelling element to be raised, and the floors of the two or more cars will be substantially horizontal, as shown in Fig. 1. This is due to the fact that the ends of the train of cars are supported a shorter distance from the rails than the center, thus compensating for the track curvature. If the cars were supported at the same distance from the track at both ends, the train would conform to the curvature of the track and it would be awkward and even dangerous for the passengers to embark or disembark. Furthermore, this manner of supporting the train or plurality of connected cars permits the cars to accommodate themselves to the conformation of the track in travelling therewith or returning in the opposite direction without too much tilting into dangerously inclined positions. It is evident that if two or more coupled cars were supported at their inner and outer ends the same distance from the rails, the end cars would at times be dangerously tilted unless the oscillations were so mild as to be uninteresting and unexciting. The use of two or more cars or other units coupled together not only increases the carrying capacity of the amusement device but adds to its attractiveness and enjoyment.

The device is primarily intended for passenger-carrying purposes, but it may of course be manufactured in diminutive sizes as a toy.

The canvas front wall 10 is provided with an opening or doorway 24 so that the track may be brought to rest with the doorway at its low point to provide access for loading and unloading the car. At other points around the track, such as at the eccentric portion thereof, I may provide visual openings 25 through which the passengers may look out and the spectators may look in, greatly increasing the illusion of travel.

What I desire to claim is:—

1. In an amusement device, the combination of a structure mounted to revolve on a horizontal axis and provided with a vertically disposed and continuous internal track revolving with the structure, a travelling element mounted on said track and tending normally to occupy the low point of the latter, the friction between the track and the travelling element imparting an oscillation to the latter in relation to the low point of the former, and interengaging clutch mechanism carried by the track and the car whereby the track intermittently picks up the travelling element and carries it upwardly for a limited distance and a variable oscillation of the element is thus obtained.

2. In an amusement device, the combination of a structure mounted to revolve on a horizontal axis and provided with a vertically disposed and continuous internal track revolving with the structure, a travelling

element mounted on said track and tending normally to occupy the low point of the latter, the friction between the track and the travelling element imparting an oscillation to the latter in relation to the low point of the former, and interengaging means carried by the track and the element whereby the track at intervals picks up the element and carries it with it a limited distance and the oscillation of the element is thereby increased.

3. In an amusement device, the combination of a structure mounted to revolve on a horizontal axis and provided with a vertically disposed and continuous internal track revolving with the structure, a travelling element mounted on said track and tending to normally occupy the low point of the latter, and an enclosure for said track travelling with the track and provided with an aperture for illusion purposes as described.

4. In an amusement device, the combination of a structure mounted to revolve on a horizontal axis and provided with a vertically disposed and continuous internal track revolving with the structure, a travelling element mounted on said track and tending normally to occupy the low point of the latter, means for imparting a variable oscillation to said element relative to the low point of the track, and an enclosure for said track provided with an aperture for illusion purposes as described.

5. In an amusement device, the combination of a structure mounted to revolve on a horizontal axis and provided with a vertically disposed and continuous internal track revolving with the structure, a travelling element mounted on said track and tending normally to occupy the low point of the latter, means for imparting a variable oscillation to said element relative to the low point of the track, and an enclosure for said track provided with an aperture and travelling with the track for illusion purposes as described.

6. In an amusement device, the combination of a structure mounted to revolve on a horizontal axis and provided with a vertically disposed and continuous track revolving with said structure and disposed solely in a vertical plane, and a travelling element mounted on said track, said element being comprised of a plurality of cars each provided with a passenger carrying platform and said cars being pivotally coupled together so that the traveling element is flexible solely in a vertical plane.

7. In an amusement device, the combination of a structure mounted to revolve on a horizontal axis and provided with a vertically disposed and continuous track revolving with said structure and disposed solely in a vertical plane, a travelling element mounted on said track, said element being comprised of a plurality of cars each provided with a passenger carrying platform and said cars being pivotally coupled together so that the traveling element is flexible solely in a vertical plane, and means for providing a variable oscillatory movement of said element on said track.

8. In an amusement device, the combination of a structure mounted to revolve on a horizontal axis and provided with a vertically disposed and continuous internal track revolving with the structure, and a travelling element mounted on the track and comprised of three cars coupled together in a train in such a manner that the connections are flexible at substantially right angles to the plane of movement, the central car being supported above the track at a higher elevation than the outer ends of the end cars.

9. For use with a continuous, internal track revolving on a horizontal axis, a train of travelling elements comprised of three cars coupled together in tandem and in such a manner that the train may conform itself to the arcuate nature of the track, the end cars having their inner ends supported from the central car while their outer ends are supported from the track and the central car being supported a greater distance above the track than are the outer ends of the end cars.

10. For use with a continuous, internal track revolving on a horizontal axis, a train composed of a plurality of travelling elements coupled together in tandem and in such a manner that the train may conform itself to the arcuate nature of the track, the center of the train being supported a greater distance from the track than the ends thereof.

11. For use with a continuous internal track revolving on a horizontal axis, a train composed of a plurality of travelling elements coupled together in such a manner that the train is flexible to conform to the arcuate nature of the track, the center of the train being supported at a greater distance from the track than the ends thereof.

12. In an amusement device of the character described, the combination of a continuous internal track rotatable about a horizontal axis and disposed solely in a vertical plane, a traveling element mounted on said track and occupying a low portion of the same when said track is at rest, whereby when said track is in motion said traveling element has imparted thereto a limited oscillatory movement, and interengaging members carried by the track and the traveling element whereby the moving track intermittently carries said traveling element along with it to an increased extent thereby magnifying the oscillatory movement of said element.

13. In an amusement device of the character described, the combination of a continuous internal track rotatable about a horizontal axis and disposed solely in a vertical plane, a traveling element mounted on said track and occupying a low portion of the same when said track is at rest, whereby when said track is in motion said traveling element has imparted thereto a limited oscillatory movement, and clutch means adapted to temporarily connect the traveling element to the track at intervals whereby the oscillatory movement of the traveling element is intermittently magnified.

14. In an amusement device of the character described, the combination of a continuous internal track rotatable about a horizontal axis and disposed solely in a vertical plane, and a traveling element mounted on said track and occupying the low portion of the same when said track is at rest, said element being comprised of a plurality of units each provided with a passenger carrying platform and said units being flexibly coupled together in tandem in such manner as to have substantial relative movement in a vertical plane only.

15. In an amusement device of the character described, the combination of a continuous internal track rotatable about a horizontal axis and disposed solely in a vertical plane, and a traveling element mounted on said track and occupying the low portion of the same when said track is at rest, said element being comprised of a plurality of units each provided with a passenger carrying platform and said units being flexibly coupled together so as to have relative movement on horizontal axes only.

16. In an amusement device of the character described, the combination of a continuous internal track rotatable on a horizontal axis and disposed solely in a vertical plane, a traveling element mounted on said track and occupying the low portion thereof when said track is at rest, said element being comprised of a plurality of units coupled together in tandem in such manner as to have relative movement in a vertical plane only, whereby the movement of the track results in a limited oscillatory movement of the traveling element, and means whereby said oscillatory movement is intermittently magnified.

17. In an amusement device of the character described, the combination of a continuous internal track rotatable on a horizontal axis and disposed solely in a vertical plane, a traveling element mounted on said track and occupying the low portion thereof when said track is at rest, said element being comprised of a plurality of units each having a passenger carrying platform and said units being coupled together in tandem in such manner as to have relative movement in a vertical plane only whereby the movement of the track results in a limited oscillatory movement of the traveling element, and means whereby the friction between the moving track and the traveling element is increased at intervals whereby the oscillatory movement of said traveling element is intermittently magnified.

18. In an amusement device of the character described, the combination of a continuous internal track rotatable on a horizontal axis and disposed solely in a vertical plane, a traveling element mounted on said track and occupying the low portion thereof when said track is at rest, said element being comprised of a plurality of units coupled together in tandem in such manner as to have relative movement in a vertical plane only whereby the movement of the track results in a limited oscillatory movement of the traveling element, and means carried by the track and adapted to be temporarily engaged by the traveling element at intervals whereby the oscillatory movement of said traveling element is intermittently magnified.

19. In an amusement device of the character described, the combination of a continuous internal track rotatable on a horizontal axis and disposed solely in a vertical plane, a traveling element mounted on said track and occupying the low portion thereof when said track is at rest, said element being comprised of a plurality of units coupled together in tandem in such manner as to have relative movement in a vertical plane only whereby the movement of the track results in a limited oscillatory movement of the traveling element, and clutch means adapted to temporarily connect the traveling element to the track at intervals whereby the oscillatory movement of the traveling element is intermittently magnified.

20. In an amusement device, the combination of a continuous internal track rotatable about a horizontal center and disposed in a vertical plane, and a train mounted to run on said track and comprised of a plurality of units, the center of said train being elevated a greater distance from the track than the ends thereof, whereby compensation is provided for excess tilting of the end units of said train as the same ascends the track.

21. In an amusement device of the character described, the combination of a continuous internal track rotatable on a horizontal axis, and a train mounted on said track and to which an oscillatory movement is imparted by the movement of the track, said train being comprised of a plurality of load bearing platforms hinged closely together in tandem so as to be flexible on horizontal axes solely, and wheels supporting said platforms from the track.

22. In an amusement device of the character described, the combination of a continuous internal track rotatable on a horizontal axis, and a train mounted on said track and to which an oscillatory movement is imparted by the movement of the track, said train being comprised of a plurality of load bearing platforms hinged closely together in tandem so as to be flexible on horizontal axes, and wheels supporting said platforms from the track, the center of the train being supported higher from the track than the end thereof.

23. In an amusement device of the character described, the combination of a continuous internal track rotatable on a horizontal axis and a train mounted on said track and to which oscillatory movement is imparted by the movement of the track, said train being comprised of a load bearing platform supported by wheels engaging the travel and a second load bearing platform hinged to the end of the first mentioned platform, one end of the second platform being supported by its attachment to the first named platform while the other end is supported by wheels engaging the track.

24. In an amusement device of the character described, the combination of a continuous internal track rotatable on a horizontal axis and a train mounted on said track and to which oscillatory movement is imparted by the movement of the track, said train being comprised of a load bearing platform supported by wheels engaging the track and a second load bearing platform hinged to the end of the first mentioned platform, one end of the second platform being supported by its attachment to the first named platform, while its other end is supported at a less distance from the track by wheels.

25. In an amusement device of the character described, the combination of a continuous internal track rotatable on a horizontal axis and a train mounted on said track and to which oscillatory movement is imparted by the movement of the track, said train being comprised of a load-bearing platform supported by wheels engaging the track and a pair of load bearing platforms connected in tandem to the front and rear ends of the first named load bearing platform, the inner ends of said second named platforms being coupled directly to and supported by the ends of the first named platform while the other ends of the second named platforms are supported by wheels engaging the track.

26. In an amusement device of the character described, the combination of a continuous internal track rotatable on a horizontal axis and a train mounted on said track and to which oscillatory movement is imparted by the movement of the track, said train being comprised of a load-bearing platform supported by wheels engaging the track and a pair of load bearing platforms connected in tandem to the front and rear ends of the first named load bearing platform, the inner ends of said second named platforms being hingedly connected on horizontal axes to and supported by the ends of the first named platform while the other ends of the second named platforms are supported by wheels engaging the track.

27. In an amusement device of the character described, the combination of a continuous internal track rotatable on a horizontal axis and a train mounted on said track and to which oscillatory movement is imparted by the movement of the track, said train being comprised of a load-bearing platform supported by wheels engaging the track and a pair of load bearing platforms connected in tandem to the front and rear ends of the first named load bearing platform, the inner ends of said second named platforms being coupled to and supported by the ends of the first named platform while the other ends of the second named platforms are supported at a less distance from the track by wheels engaging the latter.

Signed at Sandusky, O., this 19th day of May, 1924.

JOHN A. FISHER.