No. 890,558. PATENTED JUNE 9, 1908.

W. P. DAMERON.

AMUSEMENT DEVICE.

APPLICATION FILED JUNE 13, 1906.

5 SHEETS—SHEET 1.

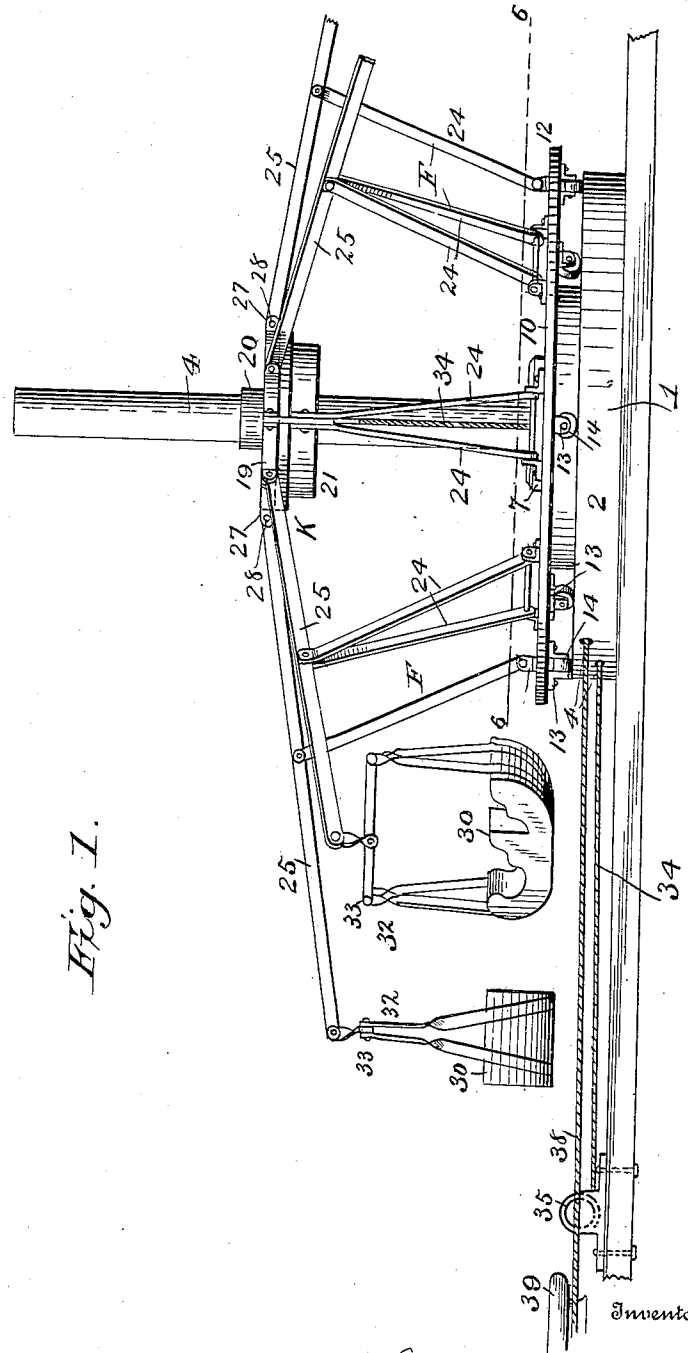

Fig. 1.

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5 SHEETS—SHEET 2.

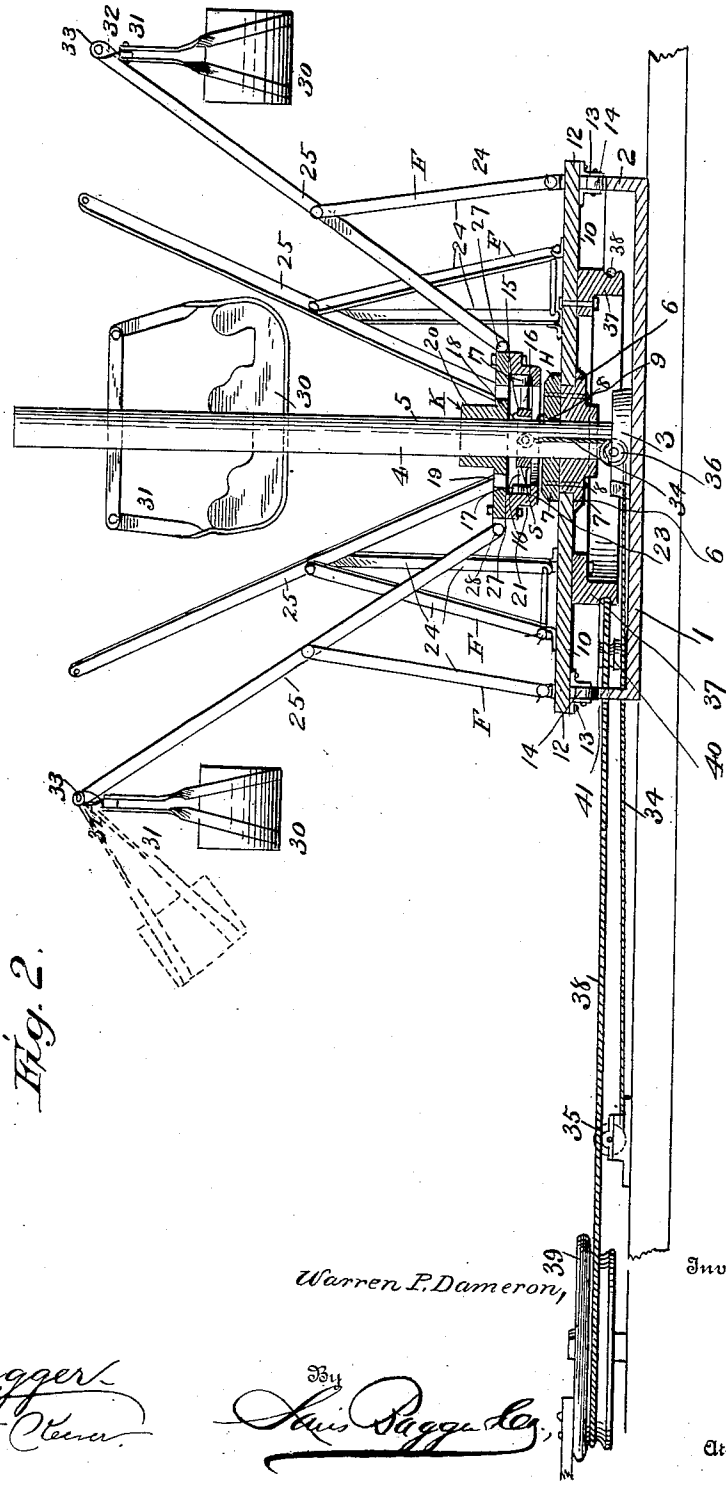

Fig. 2.

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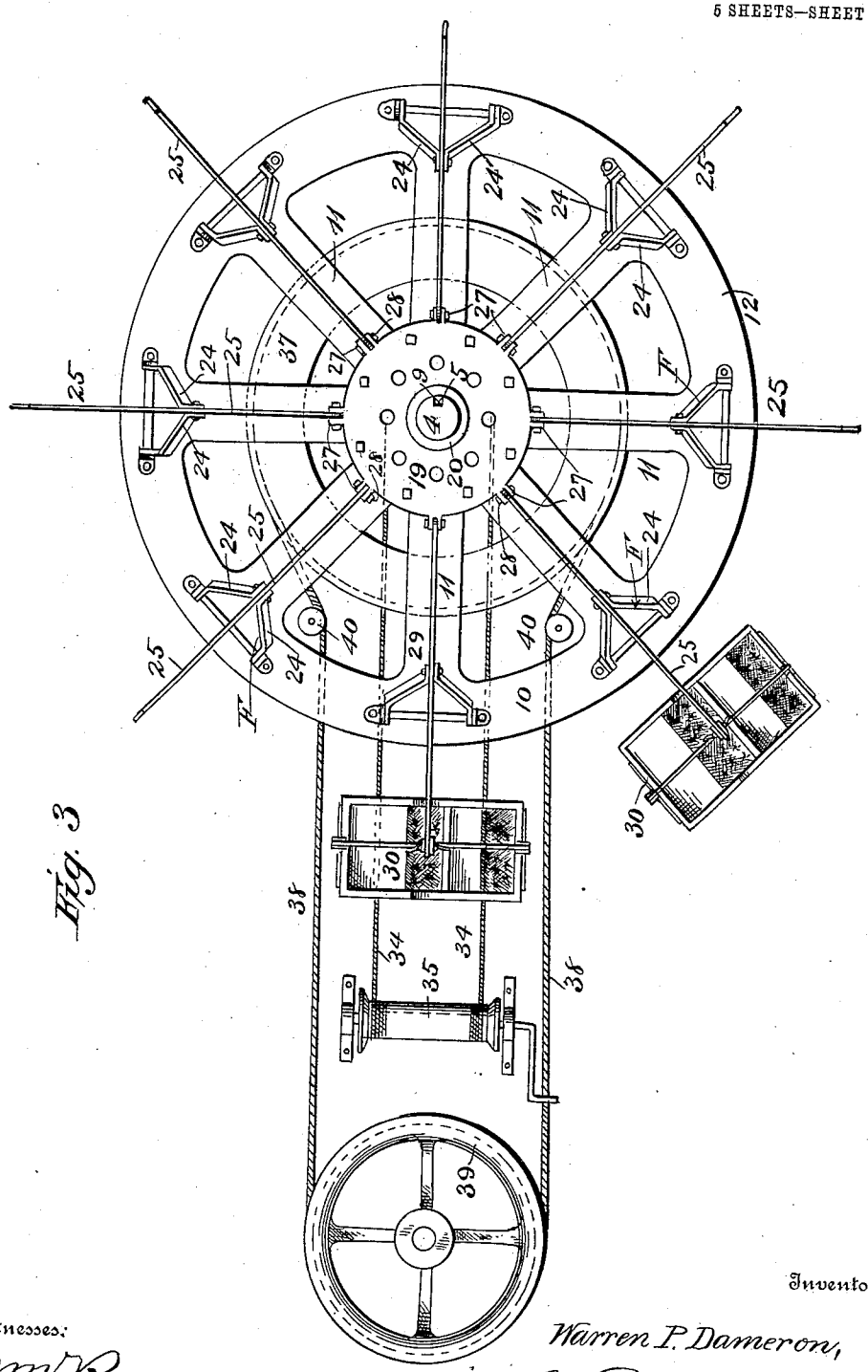

Fig. 3

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5 SHEETS—SHEET 4.

Fig. 4.

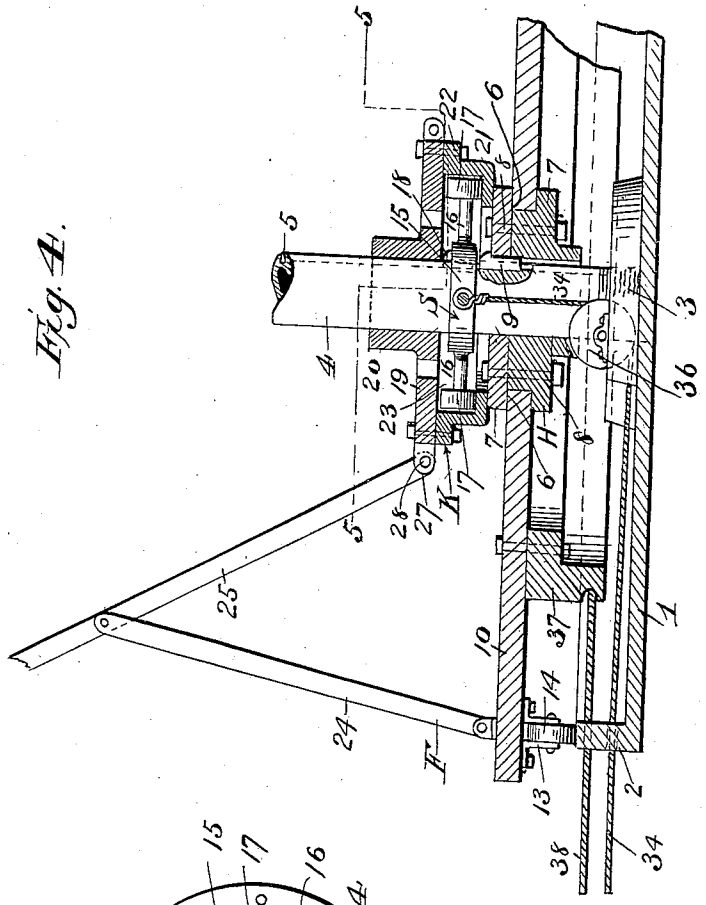
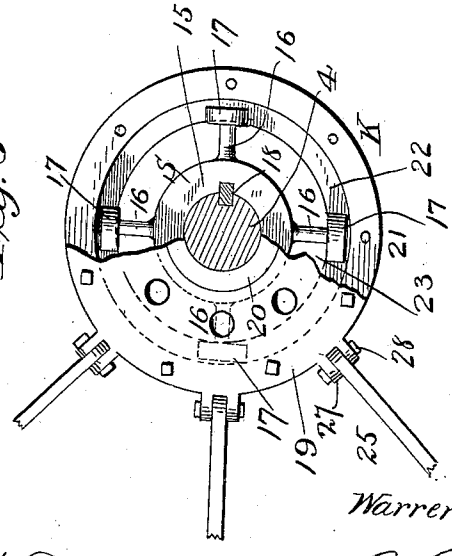


Fig. 5



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5 SHEETS—SHEET 5.

Fig. 6.

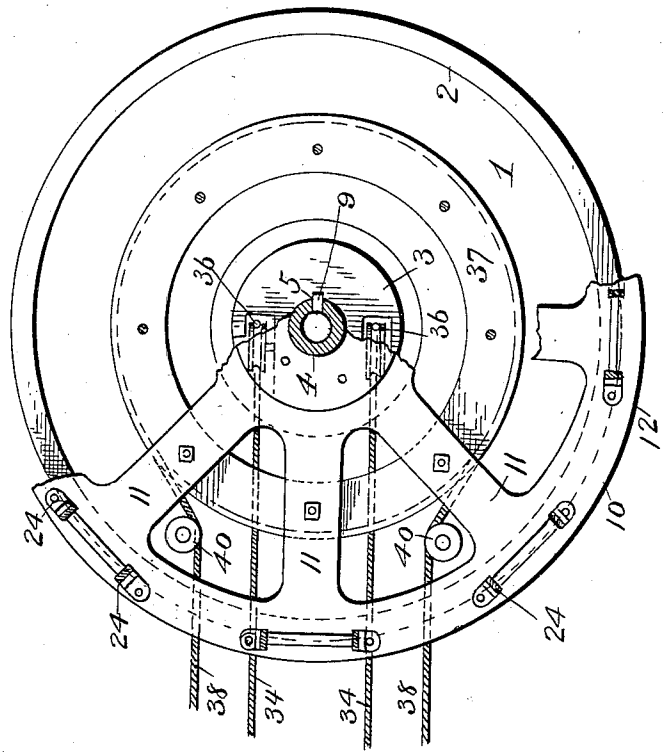
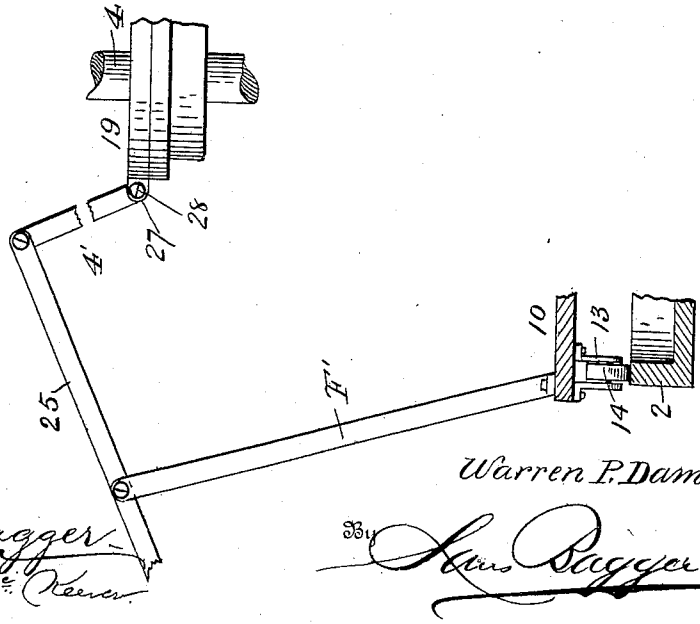


Fig. 7.



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UNITED STATES PATENT OFFICE.

WARREN P. DAMERON, OF SPRINGFIELD, MISSOURI.

AMUSEMENT DEVICE.

No. 890,558. Specification of Letters Patent. Patented June 9, 1908.

Application filed June 13, 1906. Serial No. 321,499.

To all whom it may concern:

Be it known that I, WARREN P. DAMERON, a citizen of the United States, residing at Springfield, in the county of Greene and State of Missouri, have invented certain new and useful Improvements in Amusement Devices, of which the following is a specification.

This invention relates to amusement devices, of that class which are generally known as merry-go-rounds, and an object of the invention is to present a device of this class in which provision shall be made not only for carrying cars in which passengers are seated around a circle, but also for imparting to the said cars a vertical reciprocatory or teetering motion.

A further object of the invention is to provide an improved means for producing the said motion, said means including levers or walking beams at the outer end of which the cars are supported, the inner ends of said levers or walking beams being connected with a hub that is mounted for rotation upon and adapted to slide vertically upon a mast or upright.

Further objects of the invention are to simplify and improve the general construction and operation of devices of this character.

With these and other ends in view which will readily appear as the nature of the invention is better understood, the same consists in the improved construction and novel arrangement and combination of parts which will be hereinafter fully described and particularly pointed out in the claims.

In the accompanying drawings has been illustrated a simple and preferred form of the invention; it being, however, understood that no limitation is necessarily made to the precise structural details therein exhibited, but that changes, alterations and modifications within the scope of the invention may be resorted to when desired.

In the drawings—Figure 1 is a side elevation of an amusement device constructed in accordance with the principles of the invention; the same being shown in normal stationary position with the cars lowered. Fig. 2 is a vertical sectional view of the device showing the same with the cars in an elevated position. Fig. 3 is a top plan view, showing the parts of the device in a position occupied in Fig. 2. Fig. 4 is a vertical sectional view, enlarged, of the vertically movable hub and related parts. Fig. 5 is a horizontal sectional view taken on the plane indicated by the line 5—5 in Fig. 4. Fig. 6 is a horizontal sectional view of the apparatus taken substantially on the plane indicated by the line 6—6 in Fig. 1. Fig. 7 is a sectional detail view illustrating a modification.

Corresponding parts in the several figures are denoted by like characters of reference.

In the embodiment of the invention, as illustrated in the drawings, there is provided a base 1, which has been shown of circular shape and provided at its outer edge with a vertical flange 2. The base 1 is provided with a centrally disposed boss 3, in which is secured a mast or upright 4, the latter consisting of a metallic shaft or rod which may be tubular, if desired, the lower end of said shaft being threaded into the boss 3, where it is thus securely mounted. The shaft 4 is provided with a groove or key-way 5, extending preferably through its entire length. The shaft or upright 4 carries near its lower end a hub H, having an annular groove 6; said hub being preferably composed of two separate members 7, 7, assembled as by means of screws or bolts 8. The hub H is secured against rotation upon the shaft 4 by means of a key or spline 9 engaging the groove 5. The hub H affords a bearing for the base wheel 10, said base wheel being cored to fit the groove 6 of the hub, upon which it is thus mounted for rotation. The base wheel 10 has been shown as provided with radial spokes 11 and with a peripheral rim 12, upon the under side of which are secured brackets 13, constituting bearings for wheels or travelers 14 that move upon a track which is formed by the upper edge of the flange 2, at the periphery of the base. It will be seen that, by the construction described, the base wheel is free to rotate upon the hub H, while the latter remains stationary upon the mast or upright formed by the shaft 4, which latter is likewise stationary.

Fitted upon the shaft 4, for slidable movement upon said shaft, is a spider S, consisting of a hub 15 having a plurality of radial arms 16, provided near their outer ends with antifriction members, such as wheels 17. The spider S while capable of sliding upon the shaft is prevented from rotating upon the latter by means of a key or spline 18 that slidably engages the groove 5.

K designates a revoluble member which is fitted upon the shaft 4 and which comprises

a disk 19 having a shaft engaging hub 20, and a ring 21, which is bolted upon or otherwise detachably connected with the disk 19, and which carries a flange 22 spaced from said disk. The latter, in conjunction with the flanged ring 21, forms a cage having an interior annular undercut groove 23 that affords a track for the antifriction members 17, at the outer ends of the arms 16 of the spider S.

Under the construction described, it will be seen that the spider S is free to slide upon the shaft 4, but is prevented from rotating upon the latter; on the other hand the cage K encompassing the spider is not only free to slide but also to rotate upon said shaft. The position of the cage upon the shaft is capable of being regulated by adjustment of the spider, which is brought about by means presently more fully described. It will also be seen that the presence of the antifriction members 17 at the outer ends of the arms of the spider S, will operate to permit the cage or revoluble member K to rotate freely whether subjected to pressure in an upward or downward direction.

Upon the rim 12 of the base wheel 10, there are pivoted a plurality of fulcrum members F, each of said members being shown as being composed of two inclined bars or uprights 24, converging upward in approximate A-shape. The pivots of the fulcrum members are tangential to the axis of the shaft 4, and the upper free ends of the fulcrum members will thus be free to move radially with relation to the axis of the shaft. At the upper ends of the fulcrum members there are pivoted levers or walking beams 25, the inner ends of which are pivotally connected with the disk 19, the said member being shown as provided with brackets 27, for the reception of the pivotal pins or connecting members 28. The fulcrum members 24 constitute links which permit the revoluble member K to move vertically upon the shaft 4, thus rocking or vibrating the levers or walking beams 25 upon their fulcra 29, at the upper ends of said links or fulcrum members.

The cars or vehicles in which passengers are carried are suspended at the outer extremities of the levers or walking beams 25. Said cars, which are designated 30, are preferably provided with bails or suspending members 31, having straps 32, for the passage of pins or bolts 33, whereby they are pivotally connected with the levers 25, said pins or connecting members being tangential to the axis of the shaft 4, so that when the apparatus is in motion, the cars or vehicles shall be free to swing in an outward direction as they will be impelled to do under the impulse of centrifugal action. The cars or vehicles may obviously be of any desired construction and ornamental design.

The fulcrum members and the levers or walking beams serve to establish a connection between the base wheel 10 and the cage K, so that said base wheel and cage will rotate in unison. The cars or vehicles, at the outer ends of the levers or walking beams, are sufficiently heavy to normally overbalance the combined weight of the cage K and the spider S, so that, when the apparatus is stationary, the cars will occupy the lowered position indicated in Fig. 1 of the drawings.

For the purpose of manipulating the parts of the device so as to elevate the cars to the position shown in Fig. 2 of the drawings, means are provided which will now be described.

Suitably attached to and connected with the spider S are flexible members, such as wire cables 34, the opposite ends of which are attached to a drum or winding member 35, supported for rotation in suitable bearings at a distance from the base of the apparatus; the flexible members 34 are guided over pulleys 36, which are journaled in brackets or bearings upon the base 1, adjacent to the lower end of the shaft or upright 4. The flexible members 34 are of such length as to determine the extent to which the cars 30 may be lowered; in other words, when said cars are at the lowermost limit of their movement, the cables will be entirely unwound from the drum 35, and further movement of the spider S in an upward direction upon the shaft 4 will thus be checked, thus checking further downward movement of the cars which are suspended at the outer extremities of the levers or walking beams. By rotating the drum 35 so as to wind the flexible members 34 thereon, the spider S will be carried in a downward direction upon the shaft 4, carrying with it the revoluble member or cage K, and depressing the inner extremities of the levers or walking beams, thus elevating the outer ends of the latter and the cars carried thereby, as indicated in Fig. 2 of the drawings.

The base wheel 10 has been shown as carrying upon its under side an annularly grooved band wheel 37, over which is guided an endless band or cable 38, which is carried around a suitably driven band wheel 39, at a short distance from the base of the machine; said endless cables being preferably guided over horizontal pulleys 40, upon the base 1, and through apertures 41, in the flange 2 of said base. The band wheel 39 may be driven in any suitable convenient manner.

From the foregoing description taken in connection with the drawings hereto annexed, the operation of this invention will be readily understood. It will be seen that the rotary portion of the apparatus is independent of the mechanism for producing the vi-

bratory or teetering movement. The flexible members 34, which are connected with the spider S, are guided through apertures 42, in the hub H, which latter, as well as the spider S, is prevented from rotating upon the shaft 4, by means provided for the purpose. It follows that the said flexible members may at any time be wound upon the drum 35 for the purpose of adjusting the position of the spider, without regard to whether the rotary part of the apparatus is stationary or in motion. It is obvious that by providing a simple mechanical means for the purpose, the drum 35 may be operated simultaneously with the driving wheel 39, so as to alternately wind and unwind the flexible members 34; but this operation may be performed manually, if desired, or by means which are entirely independent of the means for operating the rotary part of the apparatus.

Under the modification illustrated in Fig. 7 of the drawings, the fulcrum members, here designated F′, are secured fixedly upon the base wheel, and the inner ends of the levers as walking beams 25 are connected with the disk 19 of the member K by means of intermediate link as 4, 4; by this construction substantially the same results are attained as by the construction shown in the remaining figures of the drawings.

By the mechanism herein described, an amusement device is produced possessing the general characteristics of the class of devices which are generally known as merry-go-rounds, but possessing also the characteristics of a teetering apparatus, the cars or vehicles being capable of being subjected to up and down or vertical reciprocatory movement of a considerable extent, thereby adding to the exhilaration produced by the rapid rotary movement. The cars, moreover, are free to swing in an outward direction under the impulse of centrifugal action, the movement being thereby facilitated and the racking strain upon the apparatus reduced to a minimum. The general construction of the apparatus is simple and is, therefore, safe and free from the danger sometimes attending supports of this character.

I claim—

1. In a device of the character described, a base wheel, means for rotating said wheel, fulcrum members carried thereby, levers or walking beams pivoted upon the fulcrum members, means including a sleeve pivotally connected with the walking beams, a winding drum, and suitable flexible connections for actuating the walking beams independently of the rotation of the base wheel, and passenger vehicles carried by the levers or walking beams.

2. In a device of the character described, a base wheel supported for rotation in an approximately horizontal plane, means for rotating said wheel, fulcrum members pivoted upon the base wheel, levers or walking beams pivoted upon the fulcrum members, means including a sleeve pivotally connected with the walking beams, a winding drum and suitable flexible connections for actuating the walking beams independently of the rotation of the base wheel, and passenger vehicles carried by the levers or walking beams.

3. In a device of the character described, a base wheel supported for rotation in an approximately horizontal plane, means for rotating said wheel, fulcrum members carried thereby, levers or walking beams pivoted upon the fulcrum members, passenger vehicles carried at the outer ends of the levers or walking beams, a vertically movable member rotatable upon the axis of the base wheel, a winding drum, flexible connections between the winding drum and the vertically movable member, and connections between said vertically movable and rotatable member and the inner ends of the levers or walking beams.

4. In a device of the character described, a rotatable member, a plurality of levers or walking beams carried thereby, a vertically slidable member supported for rotation upon the axis of the rotatable member, means including a winding drum and flexible connections for effecting adjustment of the vertically slidable member, and connections between said vertically slidable member and the levers or walking beams.

5. In a device of the character described, an upright, a base wheel supported for rotation, a spider vertically slidable upon the upright, a cage rotatable upon the spider, levers or walking beams carried by the base wheel, and connections between said levers or walking beams and the cage.

6. In a device of the character described, an upright, a base wheel supported for rotation, a spider vertically slidable upon the upright, a cage rotatable upon the spider, fulcrum members upon the base wheel, levers or walking beams pivoted upon the fulcrum members, and connections between said levers or walking beams and the cage.

7. In a device of the character described, an upright, an annularly grooved hub supported thereon, a base wheel rotatable upon the grooved hub, a spider vertically slidable upon the upright, a cage rotatable upon the spider, fulcrum members upon the base wheel, levers or walking beams pivoted upon the fulcrum members, connections between said levers or walking beams and the cage, and flexible hoisting members connected with the latter and guided through the hub upon which the base wheel is mounted for rotation.

8. In a device of the character described, an upright, a hub supported thereon, a base wheel rotatable upon the hub, a spider slidable upon the upright, a cage rotatable upon

the spider, levers or walking beams carried by the base wheel and connected at their inner ends with the cage, passenger vehicles suspended at the outer free ends of the levers or walking beams, a hoisting drum, flexible hoisting elements connecting the drum with the cage and guided through the hub upon which the base wheel is supported for rotation, and additional guiding means for the flexible hoisting elements.

9. In a device of the character described, an upright, a hub supported thereon, a base wheel rotatable upon the hub, a spider slidable upon the upright and having arms carrying antifriction rollers, a cage rotatable upon the spider and having an undercut groove engaging the anti-friction rollers, walking beams carried by the base wheel and connected at their inner ends with the cage, and hoisting members connected with the cage and guided through the hub supporting the base wheel.

10. In a device of the character described, an upright, an annularly grooved hub supported thereon, a base wheel rotatable upon the hub, a spider slidable upon the upright and having arms carrying antifriction rollers, a cage rotatable upon the spider in engagement with the rollers, fulcrum members pivoted upon the base wheel, walking beams pivoted upon the fulcrum members and connected at their inner ends with the cage, passenger vehicles carried at the outer ends of the walking beams, and flexible hoisting means connected with the cage and guided through the hub supporting the base wheel.

11. In a device of the class described, a mast or upright, a turntable supported for rotation about said upright, a sleeve or follower slidable upon the upright, a ring or collar rotatable upon said sleeve, links pivoted upon the turntable, levers or walking beams pivoted upon said links and having their inner ends pivotally connected with the rotatable collar, and passenger vehicles suspended at the outer extremities of the levers or walking beams.

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

WARREN P. DAMERON.

Witnesses:
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HOMER J. MILLARD.