

Aug. 6, 1946.

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2,405,108

AMUSEMENT DEVICE FOR CARNIVALS

Filed Feb. 17, 1945

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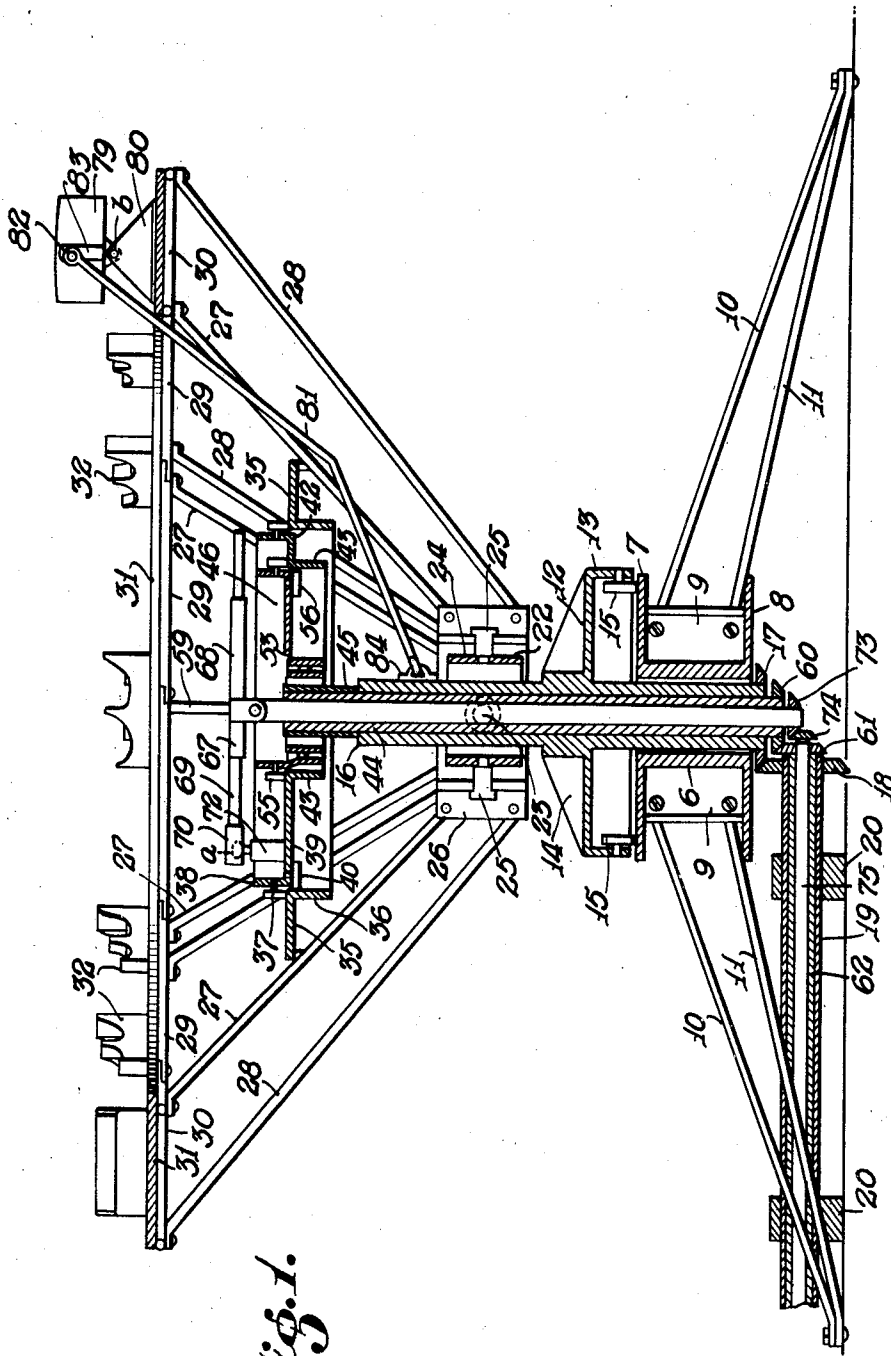


Fig. 1.

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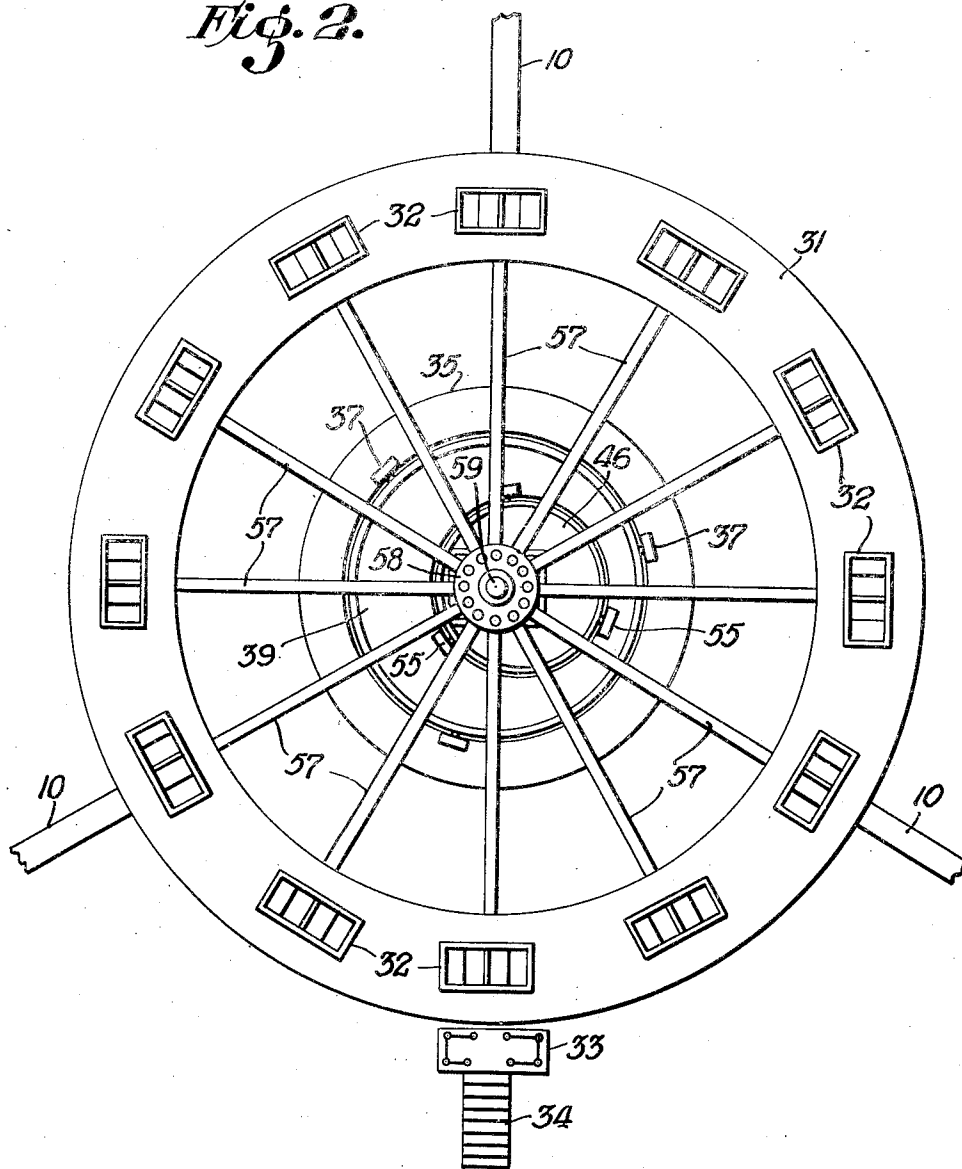
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Fig. 2.



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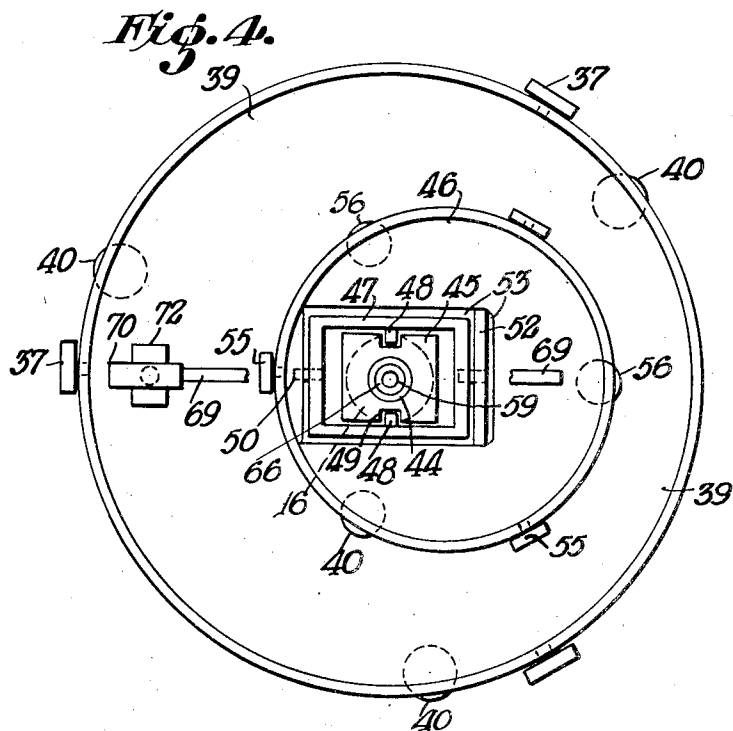
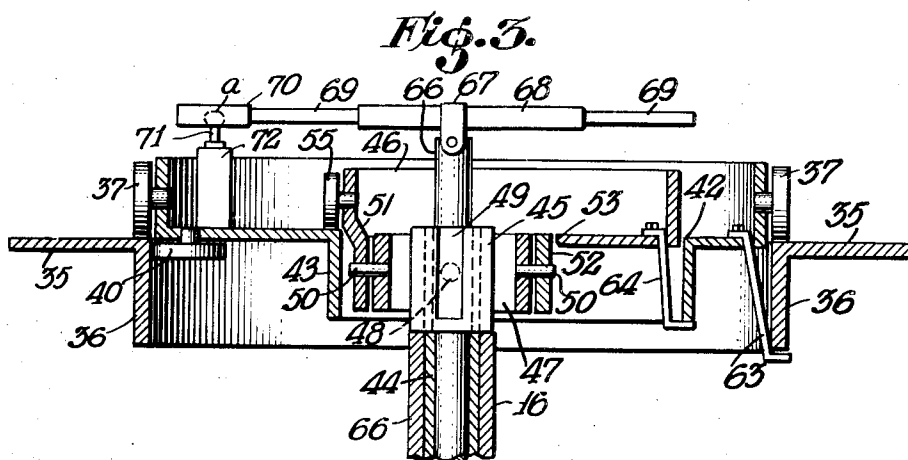
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UNITED STATES PATENT OFFICE

2,405,108

AMUSEMENT DEVICE FOR CARNIVALS

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9 Claims. (Cl. 272—50)

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My invention has reference to an amusement device for carnivals, amusement parks, and other places where people congregate for pleasure, and is provided with special features for attracting the public to its allurements. It is of the character of a round-about and kindred devices, but the rotating part of the invention is so arranged and controlled that it can be given the usual spinning operation for a time, and then changed to a gyratory action, simulating that of a top when it is nearly exhausted and running down. Its approach to the appearance and operation of a large top is such that the name of "The Top" has been adopted as the proper one by which the device can be exploited and operated.

It is a well-known fact that some of the older amusement devices lose their attraction after a time, on account of the sameness of movement, and are replaced by those possessing more or less of a thrill, and some amount of risk, such as the figure eight, Ferris wheel, air-plane rides, and others of that type. The present invention has for its object to provide means for a diversion of that kind, without additional risk to the rider, however, and with a greater degree of enjoyment in the use of the machine.

The device consists of a base and central column mounted thereon to rotate, and a superstructure, or spinning part, in the form of a large top, and supported from said column for universal movement in the tipping of said superstructure from side to side. This spinning part will be hereinafter referred to at times as the "top," and will be understood to refer to the movable superstructure. One of the novel features by means of which the movement of the top is controlled consists of a pair of rotary members mounted in the upper part of the superstructure, one within the other, and provided with motive power extending upwardly through said column. These rotary members have an eccentric movement with relation to each other, and are both frequently referred to herein as "eccentrics."

Another feature of the invention consists of a pair of rotary shafts, one within the other, and both contained for operation within said column, connected at their upper ends with said eccentrics in a manner to permit free and universal movement of the eccentrics to cause the same to conform to the movement of the top. Means is also provided for driving said shafts independently of each other, and of said column. The showing of the superstructure includes an upper platform or deck, for the support of small cars for the use of passengers, and also a means for holding said cars rockingly, with means for giving a rocking

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movement thereto contrary to the incline of the top, to counteract the same, and keep the car on an even keel.

The above-named, and other features and advantages of the invention will be more fully understood from the following specification, reference being had to the accompanying drawings, in which,

Fig. 1 shows a device embodying the invention, in side elevation, partly in medial vertical section. Fig. 2 is a top plan view thereof.

Fig. 3 is a detail of the eccentric apparatus for controlling the top, in vertical section.

Fig. 4 is a plan view thereof.

The machine is supported on a base, including a drum-like portion consisting of a cylinder 6, united by a pair of circular plates 7 and 8, between which are held vertically disposed radial fins 9, to which are secured pairs of rods 10 and 11, which are united at their outer ends, forming ground supports, and inclined upwardly and inwardly, so as to support the drum at a little distance above the ground. The legs thus formed are preferably three in number, which results in a better balancing effect for the machine. The base just described is intended for use with pieces of amusement which are being transported frequently, and for permanent use in a park a more substantial foundation can be provided, such as masonry.

Just above the base is supported a rotor 12, of circular form, provided with an annular flange 13, and radial ribs 14 on the upper face of the plate 12, for reinforcement thereof. Internally of the flange 13 are rollers 15, bearing on the upper face of the flange 7, for anti-friction effect. Within the rotor 12 is a hollow column 16, rotatable therewith, and shown as being integrally formed with the rotor. Fixed to the lower end of the column 16 is a bevel gear 17, driven by a similar gear-wheel 18 on the end of a hollow shaft 19, mounted in bearings 20. By means of power applied to the shaft 19, not shown in the drawings, movement can be imparted to said shaft and to the column 16, to give a rotary movement thereto and to the rotor 12.

The column 16 is projected upwardly a little distance above the rotor 12, and supported thereby is a gimbal apparatus, consisting of an inner ring 22 connected with the shaft 16 by trunnions 23 at opposite sides thereof, and an outer ring 24, connected with the ring 22 by trunnions 25, lending a universal movement to the device. Projecting outwardly from said outer ring are radial vanes 26, to which are attached the inner ends of pairs of rods 27 and 28, to the upper ends of

which are secured frame pieces 29 and 30, forming a pair of circular frames. Upon said frames is mounted a platform 31, for the support of a plurality of cars 32, fitted with seats for the use of passengers. The seating and unseating can be carried on by means of a platform 33 at one side of the machine, with steps 34 leading thereto.

Fixed to the inner row of rods 27 is a circular track 35, provided with a downwardly extending annular flange 36, which track forms a runway for rollers 37 on the outer face of a flange 38 of an eccentric 39 of slightly less diameter than that of the flange 36. Other rollers 40 on the lower face of the eccentric bear against the inner wall of the flange 36. The floor of the eccentric has an opening 42 at one side thereof and an annular extension 43 below the same, into which is projected the upper end of a hollow shaft 44, rotatable in the column 16, and provided at its upper end with a head 45, rectangular in cross-section. Connected with the head 45 is a smaller eccentric 46, by means of a frame 47, from which a pair of trunnions 48 project outwardly for a sliding engagement with a pair of vertical channels 49 in the sides of the head 45. The frame 47 is rockingly mounted by means of a pair of trunnions 50 with a pair of plates 51 and 52 at opposite ends of an opening 53 in the floor of the eccentric 46. This part 46 is eccentrically mounted with reference to the shaft 44, and is capable of an eccentric movement within the eccentric 39, so as to vary the relative positions thereof.

On the outer face of the eccentric 46 are rollers 55, bearing on the floor of the eccentric 39, and other rollers 56 beneath the eccentric 46 bear against the inner face of the extension 43. It will be obvious that the connections between the shaft 44 and eccentric 46 are of such a character as to permit a freedom of movement of said eccentric in any direction, so as to conform to similar movements which may be desired for the eccentric 39.

The lower end of the shaft 44 projects beyond the lower end of the column 16, at which point it is fitted with a bevel gear wheel 60, in mesh with a similar wheel 61 on the end of a hollow shaft 62 rotatable within the shaft 19, through which power can be applied for giving a rotary movement to the shaft 44, and to the eccentric 46, for the purpose hereinafter set forth.

Any tendency of the eccentric 39 to lift above its normal relation with the track 35 is prevented by a plurality of hooks 63 depending from the eccentric, and engaging the lower edge of the flange 36, and similar hooks 64 prevent a separation of the eccentric 46 and the eccentric 39.

The frame of the machine is provided with additional bracing, shown in Fig. 2, consisting of radial rods 57 secured at their inner ends to an annular plate 58, having loose connections at their inner ends with a center pole 59, forming an upward extension of the shaft 66. The rods pass outwardly beneath the platform 31 and are attached to the frame pieces 30. These rods are omitted in Fig. 1.

Rotatable within the shaft 44 is a shaft 66, on the upper end of which is rockingly mounted a yoke 67 fixed to a tubular member 68 in which is telescopically held a rod 69. On the opposite end of said rod is a head 70, connected by a pin 71 with a fixture 72 on the floor of the eccentric 39, the upper end of said pin having a ball-and-socket connection with the head at *a*. Upon the shaft 66 being rotated the eccentric 39 is caused to turn to effect a change in the angle of the

top's axis, and in the slope of the upper platform. For the purpose of giving a rotary movement to the shaft 66 the lower end thereof has fixed thereto a bevel gear 73, in mesh with a similar wheel 74 on the end of a shaft 75, rotatable within the shaft 62, to which shaft 75 power can be applied for rotating the same, not shown in the drawings.

It will be obvious that the connections between the upper end of the shaft 66 and eccentric 39 are such as to permit of a universal and flexible action of the eccentric in any direction, to conform with the various slopes and angles required of it. The spinning of the top, as well as the operations of the two eccentrics, are carried on independently of each other. When the longer radii of the eccentrics 39 and 46 are in line with each other, as in Fig. 4, the upper frame of the top and platform thereon will be held in a level position, and when it is desired to give an inclination to the top's axis, so that a gyratory movement may be had, the eccentrics are turned so that such radii are out of alignment, and may be brought into parallel relation with each other, at which point the inclination would be the greatest.

To cause an alternating gyratory movement of the top, changing from a level to an inclined position, and return, it is necessary to turn one of said eccentrics while it is spinning at a less rate of speed than that of the top. By turning the radii of the eccentrics in line with each other and causing the same to revolve at a rate of speed less than that of the spinning of the top, the top will be given a gyratory movement, with a wobbling movement of the top's axis from side to side. In all movements of the device the column 16 and shafts 44 and 66 retain their vertical positions.

At the right side of Fig. 1 is shown a special arrangement for one of the passenger cars, which will off-set the sloping effect of the platform, and tend to hold the same on an even keel. It shows a car 79 rockingly supported as at *b* on a base 80, carried by the platform 31. A curved rod 81 is connected at one end with a pivot 82 on a plate 83 fixed to the back of the car, and at the other end with a bracket 84 fixed to the column 16. As the platform is inclined by the gyratory movement of the top the rod exerts a force on the car above the rocking point, tending to hold the same in a level position. This position is retained through any changes in the slope of the platform. Part or all of the cars employed can be similarly equipped.

Some devices of the class mentioned have a considerable amount of the operating mechanism on the ground beneath the machine or in space prepared within the earth, which is inconvenient for a portable machine. This difficulty is obviated in the present invention by the positioning of the control devices within the superstructure, where it occupies no additional space, and has a more direct driving power.

The rods made use of in the superstructure and other parts of the machine are preferably formed of tubular pieces of suitable size and strength, with ample fastening means at the points of junction thereof.

What I claim and desire to secure by Letters Patent, is:

1. An amusement device for carnivals, comprising a suitable base, a central column mounted on said base, to rotate, a top-like structure supported on said column, a pair of eccentrics mounted in the upper part of the superstructure, one within the other, and operatively connected with

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the superstructure, to hold the same in a level position or change same to an inclined position, means for rotating the eccentrics independently of each other, and means for rotating said column.

2. An amusement device comprising a suitable base, a central column mounted on said base, a top-like structure mounted above said base, with gimbal connections permitting a gyratory movement of the superstructure, a frame carried by said superstructure, with a plurality of passenger cars thereon, eccentrics mounted in said superstructure and operatively connected therewith, to control the position thereof, means for rotating said superstructure, and means for rotating said eccentrics independently of each other.

3. An amusement device for carnivals, comprising a base, and supporting legs therefor, a column mounted on said base to rotate, a superstructure mounted on said column with gimbal connections, an eccentric in said superstructure, operatively connected therewith, and rotatable therein, a smaller eccentric rotatable within the first-named eccentric, a shaft rotatably mounted in said column and operatively connected with the smaller eccentric, to give rotation thereto, a shaft rotatably mounted in said first-named shaft, operatively connected with the first-named eccentric, means for independent rotation of the first-named shaft, means for independent rotation of the last-named shaft, and means for rotation of said column.

4. An amusement device for carnivals, comprising a suitable base, a rotor supported on said base, a vertical column connected with said rotor, to rotate therewith, a top-like superstructure carried by said column, with connections permitting a gyratory movement of the superstructure, a circular track in said superstructure, an eccentric operatively connected with said track, to control the positioning thereof, a smaller eccentric rotatable within the first-named eccentric, a shaft rotatably supported in said column and extending into said smaller eccentric, connections between said shaft and said smaller eccentric of a universal joint character, a second shaft rotatable in the first-named shaft, and extending to a point within the first-named eccentric, connections between said second shaft and the first-named eccentric, permitting freedom of movement of the eccentric, means for rotation of the first-named shaft, means for independent rotation of the last-named shaft, and means for rotation of said column.

5. An amusement device comprising a base, a rotor supported thereon, a hollow column centrally of the base and operatively connected with the rotor, to rotate therewith, a top-like superstructure carried by said column with connections of a gimbal character permitting a gyratory movement to the superstructure, a pair of eccentrics in said superstructure, operatively connected therewith, to control the positioning thereof, a shaft rotatable within said column and connected with one of said eccentrics, a second shaft rotatable within the first-named shaft and connected with the other of said eccentrics, and a triple-drive shaft in proximity to the base, with gear connections below the base between one of said triple shafts and said column, and between the other shafts and said first and second shafts, respectively.

6. An amusement device for carnivals, comprising a portable base, a rotor supported on said base, a hollow column connected with said rotor, 75

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to revolve therewith, a top-like superstructure carried by said column, with connections permitting a gyratory movement of the superstructure, a circular track in said superstructure, an eccentric operatively connected with said track, to control the positioning thereof, a smaller eccentric rotatable within the first-named eccentric, a shaft rotatable within said column, connections between said smaller eccentric and said shaft permitting a free up and down movement of the eccentric, and a universal rocking movement thereof, a second shaft rotatable within the first-named shaft, and extending to a point within the first-named eccentric, connections between said second shaft and the first-named eccentric permitting a free rocking movement of the eccentric, to conform to the movements of the smaller eccentric, means for rotation of the first-named shaft, means for rotation of the second-named shaft, and means for the rotation of said column.

7. An amusement device for carnivals, comprising a base, a rotor mounted thereon, a hollow column connected with said rotor, a top-like superstructure supported from said column for gyratory movements, and provided with a passenger deck, a circular track in said superstructure provided with an annular flange, an eccentric of slightly less diameter than said track and flange, provided with rollers bearing on said track and flange, a second eccentric rotatable within the first-named eccentric, and provided with anti-friction devices engageable with the first-named eccentric, to hold the same in operable position, a hollow shaft rotatable in said column, connections between said shaft and said second eccentric, to give a free-floating control thereto, a second shaft rotatable in said hollow shaft, connections between said second shaft and said first-named eccentric, permitting a free rocking movement thereof, means for rotating said first-named shaft, means for rotating said second shaft, and means for rotating said hollow column.

8. An amusement device for carnivals, comprising a base, a rotor mounted thereon, a column mounted thereon rotatable with said rotor, a top-like superstructure supported by said rotor, with connections permitting a gyratory movement to the superstructure, a deck for said superstructure, a passenger car rockingly mounted on said deck, means for holding said car from tipping when the deck is inclined, a pair of eccentrics in said superstructure, operatively connected therewith, to control the positioning of the superstructure, means for rotating the superstructure, and means for operating said eccentrics, for the purpose named.

9. An amusement device for carnivals, comprising a base, a rotor on said base, a hollow column rotatable with said rotor, a top-like superstructure supported by said column, with connections permitting a gyratory movement to the superstructure, a platform on said superstructure, and one or more cars on said platform rockingly mounted, connections between said cars and column, preventing the cars from tipping upon the platform being inclined, means for rotating said column, a pair of eccentrics in said superstructure, operatively connected therewith, for the positioning of the superstructure, a shaft in said column operatively connected with one of said eccentrics, a second shaft in said column, operatively connected with the other eccentric, and means for rotating said shafts independently of each other.

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