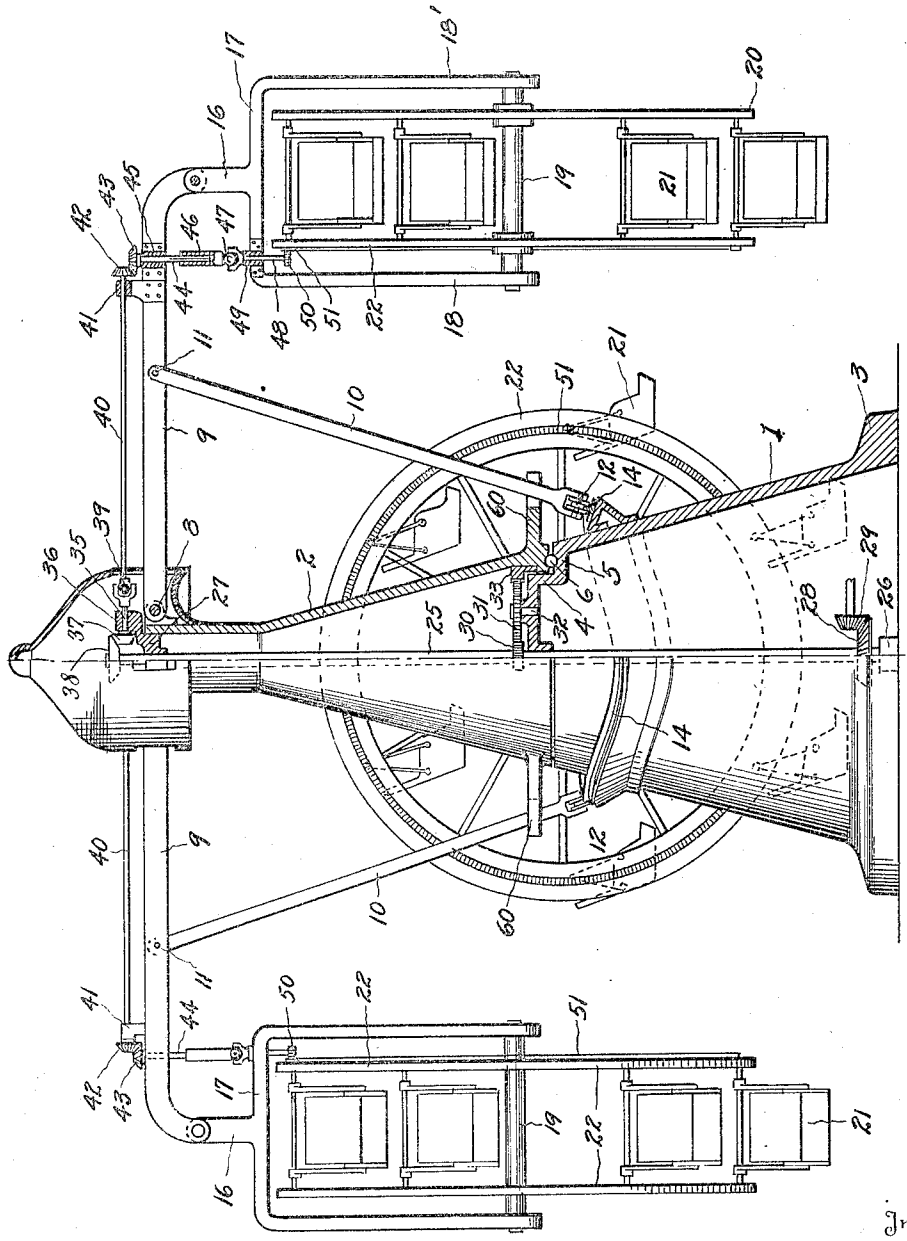
J. C. WELCH.

AMUSEMENT DEVICE.

APPLICATION FILED JULY 28, 1919.

1,346,576. Patented July 13, 1920.



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AMUSEMENT DEVICE.

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Application filed July 28, 1919. Serial No. 313,902.

To all whom it may concern:

Be it known that I, JESSE C. WELCH, a citizen of the United States, and resident of the city of Tacoma, county of Pierce, State of Washington, have invented certain new and useful Improvements in Amusement Devices, of which the following is a specification.

My invention relates to improvements in amusement devices and more particularly to a device wherein the principles of a merry go-round and Ferris wheels are combined in a novel manner; the object of the invention being to provide an amusement device of this character wherein, rotary, revoluble and oscillatory movements are utilized to produce a novel and exhilarating sensation.

A further object resides in the arrangement, construction and combination of a series of Ferries wheels, suspended from arms which extend radially from a supporting member and to provide means to simultaneously rotate the wheels, revolve the same about the support and oscillate the supporting arms so as to impart an upward and downward movement to the wheels during their rotary and revoluble movement.

In accomplishing this object I have provided improved details of construction, the preferred forms of which are illustrated in the accompanying drawing, wherein—

1 and 2 designate respectively lower and upper sections of a cone shaped supporting standard; the section 1 being provided at its lower end with an annular extension 3 whereby it may be anchored to any suitable foundation, and at its upper end is provided with a central extension 4 which fits within the lower end of the upper section 2 and an annular shoulder 5 adjacent the extension wherein the said upper section seats. The shoulder 5 carries anti-friction members, of any suitable character, indicated herein by the balls 6, which facilitate operation of the upper section.

Pivotally fixed to the upper end of the standard, as at 8, are radially extending arms 9 which are supported in an extended manner by means of inclined braces 10 which are pivotally fixed thereto at their upper ends by means of pins 11 and at their lower ends are provided with grooved rollers 12 which are mounted on and adapted to move along a track 14 that is supported from and encircles the base section 1.

Each of the arms 9 is curved downwardly at its outer end and has a hanger 16 suspended therefrom, which comprises a horizontal beam 17 from the ends of which arms 18—18′ depend. These arms support a horizontal axle 19 on which a Ferris wheel 20 is mounted. The wheels may be of the usual type wherein seats 21 are suspended between annular side members 22, as shown.

In order that the wheels may be revolved about the supporting standard and at the same time rotate on their axes, I have provided driving members comprising a main shaft 25 which extends vertically and coaxially within the sections 1 and 2 and is revoluble at its lower and upper ends respectively within bearings 26 and 27; the latter bearing being fixed within the upper end of the section 2 and turns therewith. At its lower end this shaft is provided with a bevel gear 28 wherein a driving gear 29 meshes to drive the shaft. The gear 29 may be driven from any suitable power device (not shown) such as an electric motor.

Mounted on the shaft 25 approximately midway between the bearings 26 and 27, is a gear 30 which meshes with a relatively large idler gear 31 which revolves on a shaft 32 that is fixed in the end of the lower section 1, and at its outer periphery travels in an internally toothed ring 33 which is fixed within the lower end of the upper section 2.

It is apparent that with this driving connection, rotation of the shaft 25 drives the gear 30 which transmits a slower rotary motion to the section 2 through the connection of the idler gear 32, and movement of the said sections revolves the Ferris wheels thereabout.

Each of the Ferris wheels is individually driven from the shaft 25 by a driving connection which comprises a short shaft section 35 supported in a bearing 36 preferably formed integral with the bearing 27, and having a bevel gear 37 fixed thereon at its inner end which travels in mesh with a bevel gear 38 that is fixed on the upper end of the shaft 25. At its outer end each shaft 35 is connected through a universal joint 39 with a shaft 40. The shaft 40 has a telescopic connection with the outer member of the joint 39 and extends from the joint along an arm 9 and is supported adjacent its outer end in a bearing 41 and carries a bevel gear 42 which meshes with a similar gear 43 fixed on the upper end of a shaft 44 mounted

in a bearing 45. The shaft 44 telescopes within a link 46 which is connected by a universal joint 47 with a continuing shaft section 48 mounted in a bearing 49 fixed on the hanger member 17.

At its lower end the shaft 48 has a gear pinion 50 fixed thereon which meshes with an annular ring gear 51 fixed concentrically on the wheel frame.

With this connection it will be seen that as the shaft 25 rotates, power will be transmitted to each Ferris wheel through the shafts 35, 40, 44 and 48 to rotate the wheels on their axes. It is also seen that the universal joint connections permit a certain flexibility that is necessary in the driving connection due to the swinging of the wheels toward and from the central support when the device is in operation and the vertical movement that will now be described.

The track 14 which encircles the base member of the standard and on which the rollers 12 at the ends of the arm supporting braces 10 travel is continuous and is given alternately an upward and then downward slope so that as the section 2 rotates and the braces moved therewith, the latter will be given an oscillatory motion which is transmitted through the arms 9 to the suspended Ferris wheels; the braces 10 are carried along the track by means of arms 60 which extend rigidly from the base of the upper section and have slotted ends wherein the lower ends of the braces move.

With the device so constructed it is apparent that the Ferris wheels will be revolved about the supporting standard and will at the same time rotate on their axes. Also that an upward and downward motion is transmitted thereto by the brace construction which may be varied to a desired degree accordingly as the pivot points of the upper ends of the braces are moved along the arms 9.

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

1. An amusement device of the character described comprising a central standard, arms pivotally connected at their inner ends to the standard and extending radially therefrom, hangers pivotally suspended from the outer ends of said arms, and adapted to swing radially toward and from the standard, Ferris wheels revolubly mounted in said hangers, an undulatory track encircling the standard and members having pivotal connection at their outer ends with said arms and movable at their inner ends along said track to actuate the outer ends of the arms vertically as the standard revolves.

2. An amusement device of the character described comprising a central standard having a stationary base section and an upper section revoluble thereon, arms pivotally connected with the latter section and extending radially therefrom, hangers fixed to the outer ends of said arms, Ferris wheels rotatably mounted in said hangers, a continuous track varying in height at different points, mounted on and encircling the stationary standard section, brace members having pivotal connection at their upper ends with said arms and rollers at their lower ends mounted on said track, guides for said arms extending from said upper section, means for simultaneously rotating said Ferris wheels and upper standard section and for moving said braces along said track in accordance with the movement of said section for the purpose set forth.

3. An amusement device of the character described, comprising a central standard having a stationary base section and an upper section revoluble thereon, arms pivotally connected with the latter section and extending radially therefrom, hangers fixed to the outer ends of said arms, Ferris wheels rotatably mounted in said hangers, a continuous track varying in height at different points, mounted on and encircling the stationary standard section, brace members having pivotal connection at their upper ends with said arms and rollers at their lower ends mounted on said track, guides for said arms extending from said upper section, a drive shaft extending coaxial within the standard sections and having driving connection with the upper standard section, flexible driving connections operatively connecting said drive shaft with said Ferris wheels and means for turning the drive shaft to simultaneously rotate the Ferris wheels and upper standard section to revolve said wheels about said section and to move said braces along said track accordingly as said wheels revolve, for the purpose set forth.

4. An amusement device of the character described, comprising a central tubular standard having a stationary base section and an upper section revoluble thereon, arms extending radially from the latter section, hangers fixed to said arms, carriages mounted in said hangers, a drive shaft extending coaxially within the standard sections, a gear wheel on said shaft, an internally toothed gear ring mounted within said upper standard section, an idler gear mounted on the lower stationary standard section and operating in mesh with the said gear wheel and gear ring and means for revolving the drive shaft to revolve the upper standard section.

Signed at Tacoma, Washington, this 18th day of July, 1919.

JESSE C. WELCH.