

Jan. 17, 1928.

1,656,805

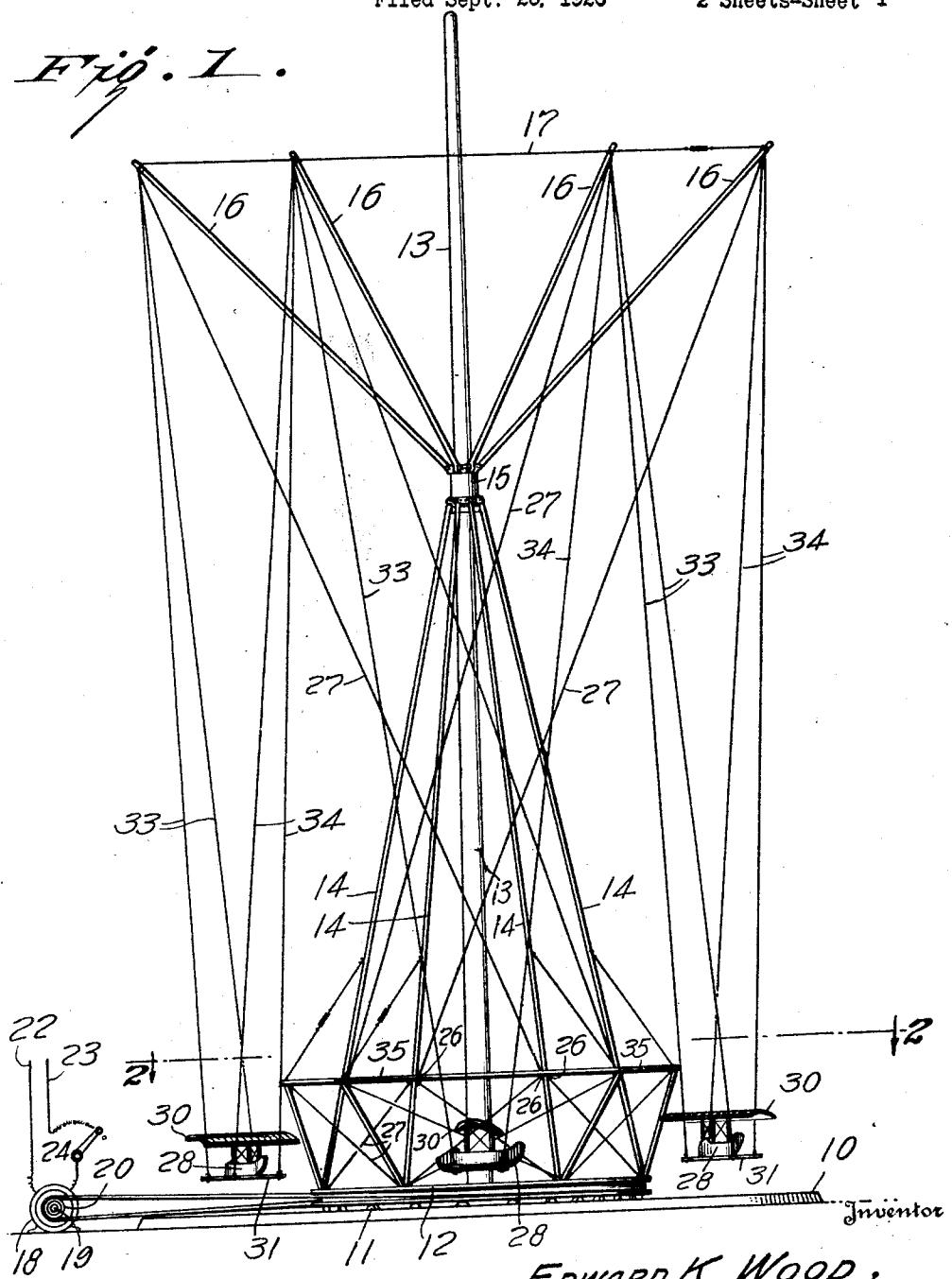
E. K. WOOD

AMUSEMENT APPARATUS

Filed Sept. 23, 1926

2 Sheets-Sheet 1

Fig. 1.



EDWARD K. WOOD,

By Townshend & Townshend
Attorneys

Jan. 17, 1928.

1,656,805

E. K. WOOD *

AMUSEMENT APPARATUS

Filed Sept. 23, 1926

2 Sheets-Sheet 2

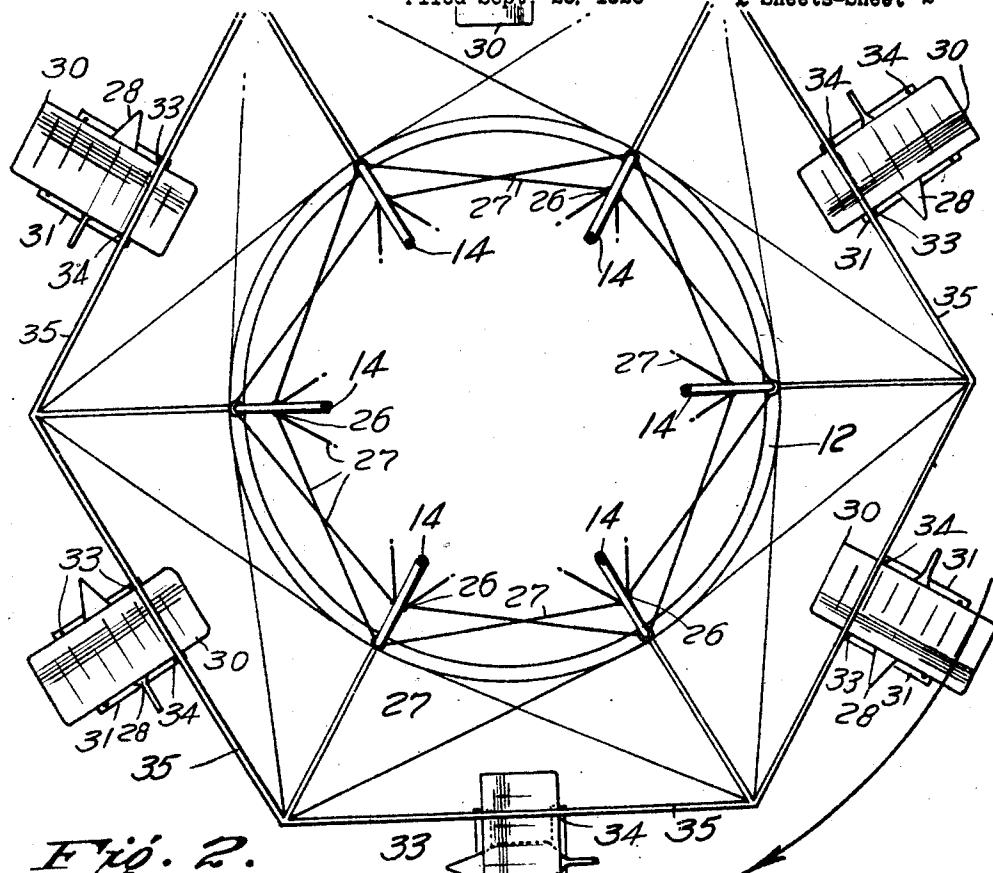


Fig. 2.

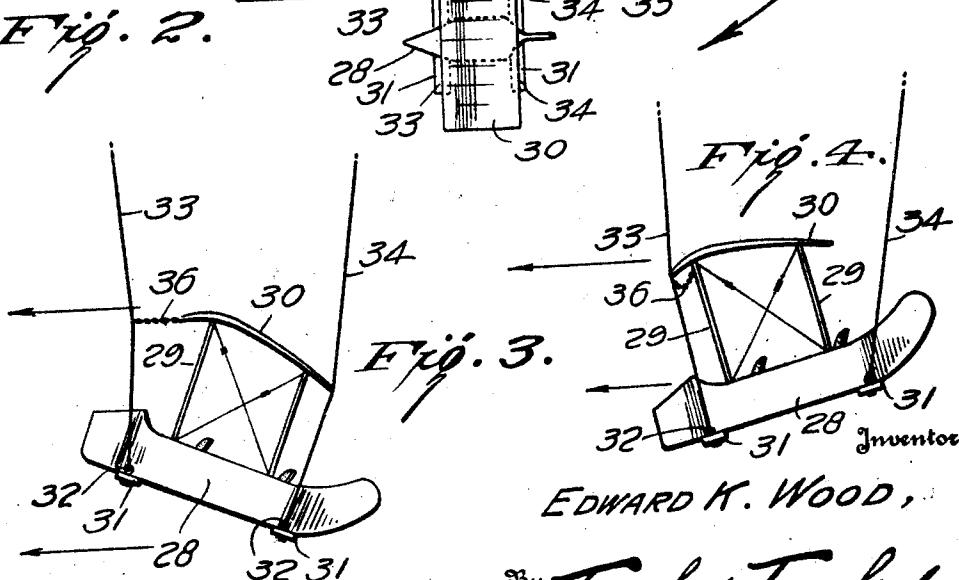


Fig. 3.

EDWARD K. WOOD,

334 *Townshend & Townshend*
Attorneys

UNITED STATES PATENT OFFICE.

EDWARD K. WOOD, OF WILMINGTON, CALIFORNIA, ASSIGNOR TO WILBERT MELVILLE,
OF WASHINGTON, DISTRICT OF COLUMBIA.

AMUSEMENT APPARATUS.

Application filed September 23, 1926. Serial No. 137,315.

This invention relates to amusement apparatus of the type wherein a central rotating structure has suspended therefrom a plurality of passenger carrying devices arranged 5 in such manner that centrifugal force carries the carrier devices outwardly of the structure.

The primary object of the invention is the provision of an amusement apparatus of this 10 character wherein the suspended passenger carrying devices are caused selectively to assume positions in planes inclined to the horizontal, the selective positioning being controllable by operation of the central supporting structure, thereby to simulate the banking and nose diving action of aero-planes.

Another object of the invention is the provision in an apparatus of this character, of 20 a rotatable central supporting structure equipped with a plurality of passenger carrying devices suspended therefrom for rotation therewith, in which the speed of rotation of the central structure may be accelerated or 25 retarded relative to the speed of rotation of the passenger carrying devices.

A further object of the invention is the provision in an apparatus of this character, of means for automatically controlling the 30 degree of inclination selectively assumed by passenger carrying devices suspended from a central rotating structure.

A still further object of the invention is the provision in an apparatus of this character, of a central rotating supporting structure having a plurality of passenger carrying devices suspended therefrom, with means on 35 the passenger carrying devices for limiting vertical inclination of the device.

40 Other objects of the invention include means for limiting the inward swing of passenger carrying devices relative to a central supporting structure from which they are suspended; and a novel structural arrangement for carrying out the above noted 45 objects. Other objects will be apparent from the description to those skilled in the art to which the present invention pertains.

In its general aspects the present invention 50 comprises an amusement apparatus formed of a stationary base upon which is rotatably supported a platform or annular member, at the center of which is seated and suitably

anchored a vertical mast. Suitable means are provided for rotating the platform upon 55 the base. The platform or annular member together with its mast forms part of what is termed the central supporting structure. The mast is suitably braced by stanchions or guy cables connected between the mast and 60 spaced points adjacent the periphery of the platform. Above the platform the mast carries a sleeve loosely arranged about the mast and which forms a means for anchoring the upper ends of a series of radially disposed 65 compression brace members connected between the sleeve and points spaced about the periphery of the platform.

The upper end of the sleeve serves to anchor the lower inner ends of a series of radially disposed upwardly and outwardly inclined compression members arranged in respectively vertical alignment over the lower compression members and suitably braced by inter-connection between their upper ends. 70 From the upper ends of these top brace bars are freely suspended, preferably by cables, a plurality of passenger carrying devices preferably in the form of miniature aeroplanes 75 capable of seating several passengers. The upper and outer ends of the top compression members are suitably guyed to the platform and lower compression members so that the entire structure rotates as a unit.

The passenger carrying devices are so connected to their suspension members that a speeding up of the central rotating structure will exert a pull upon certain of the suspension members to incline upwardly the bodies of the carriers. Conversely, a reduction in 80 speed of the central rotating structure will exert a pull upon other of the suspension members for effecting a downward inclination of the bodies of the passenger carrying devices. This movement takes place while 85 the entire central structure and suspended carriers are being rotated, and is selectively controlled by the acceleration or retardation of the speed of rotation at which the central structure is driven. The carriers will be 90 swung outwardly relative to the central structure by action of centrifugal force 95 thereby assuming a greater speed of travel than the central supporting structure.

In the accompanying drawings Figure 1 is 100 105 an elevation of the apparatus.

Figure 2 is a horizontal section on the line 22 of Figure 1.

Figure 3 is an elevation of one of the passenger carrying devices as inclined upwardly during operation of the apparatus.

Figure 4 is an elevation of a passenger carrying device as inclined downwardly during operation.

In detail the invention consists of a rigid 10 stationary base 10 having rotatably supported thereon by means of a series of rollers 11 a circular platform or annular member 12 having the vertical mast 13 rising therefrom at its center and suitably anchored 15 in the platform for rotation therewith.

A series of compression members in form 20 of legs 14 are radially disposed about the platform having their lower ends suitably anchored at points spaced equi-distantly 25 about the periphery of the platform. These legs 14 are preferably six in number and are inwardly inclined toward the mast 13, having their upper ends suitably anchored to a sleeve 15 fitted loosely over the mast toward the upper portion thereof.

An equal number of upwardly and outwardly inclined compression members in the 30 form of arms 16 are arranged at the top of the structure having their lower inner ends suitably anchored to the sleeve 15 and arranged with their upper ends disposed in a common horizontal plane. The upper ends of the arms 16 are interbraced and inter-connected across the top of the apparatus by 35 means of cables 17 connected between the ends of the arms by any suitable arrangement so that the arms are mutually supported at their upper ends. Each of the arms 16 extend outwardly over one of the legs 40 14 being disposed in a common vertical plane therewith.

The platform 12 and its associated mast 13, legs 14, and arms 16, are rotated by any suitable power means which, in the present instance, is shown as an electric motor 18 having a shaft 19 provided with a pulley 20 over which a belt 21 is arranged for peripheral engagement with the platform 12 to rotate same upon operation of the motor. 45 The motor is supplied with current taken from the leads 22 and 23 and the speed of rotation is regulated through a conventional controller 24 arranged in the motor circuit. Adjacent their lower ends each of the legs 14 is provided with oppositely projecting eye bolts 26 and the outer ends of each of the arms 16 are guyed to the leg structure by means of cables 27 connected to the ends of the arms 16 at their upper ends and extending diagonally downward through the eye bolt 26 of one of the legs 14 spaced from the leg member which is disposed directly beneath the arm from which the particular cable is extended. 60 From the eye bolt 26 the cable 27 is diagonally extended in a reverse direction and anchored to the platform 12 at the base of one of the leg members 14.

This guy cable arrangement provides for a rotation of the superstructure comprising the arms 16 in unison with the leg and platform structure. Thereby any torsional strain on the superstructure is eliminated as the function of the cables 27 is to exert a pulling action in the direction of rotation, upon the outer ends of the arms 16, this pulling action being transmitted from the platform structure.

Passenger carrying devices, preferably in the form of miniature aeroplanes having a fuselage body 28, upright struts 29 and a top wing member 30, are provided for seating persons desiring to ride on the apparatus. The bottoms of the bodies 28 are substantially flat and are provided adjacent each end with cross planks 31 which project laterally from opposite sides of the body. At each side of the body each of the cross planks 31 has anchored therein an eye bolt 32 for connection with suspension members in the form of cables 33 and 34 arranged in pairs with the cables 33 extending upwardly from the forward end of the body and the cables 34 extending upwardly from the rear end of the body. The front cables 33 are connected at their upper ends to the outer end of one of the superstructure arms 16 while the rear cables 34 are connected at their upper ends to the end of another of the arms 16 next adjacent to the arm to which the front cables are connected. By this arrangement each of the passenger carrying devices 28 is suspended between adjacent arms 16 of the superstructure and hangs normally outwardly of the platform 12 as best illustrated in Figure 1. In the normal inoperative position of the apparatus all of the passenger carrying devices have their bodies disposed in a common horizontal plane adjacent to and around the periphery of the platform.

The passenger carrying devices are freely supported from the outer ends of the arms 16 so that upon rotation of the central supporting structure, as the speed of rotation increases the miniature aeroplanes will fly outwardly of the central structure during rotation under the action of the centrifugal force. As a means of maintaining the carriers 28 in properly spaced position and also for effecting a guard against undue inward swing of the carriers, the central supporting structure is provided with a hexagonal guard member 35 suitably supported upon the legs 14 and the platform 12 adjacent the platform to extend preferably beyond the edge of the platform as best shown in Figure 1. By this arrangement any undue inward swing of the carriers 28 will be prevented by the engagement of the

supporting cables 33 and 34 against the adjacent flat face of the guard member 35.

The essential feature of the present invention comprises a means for causing the miniature aeroplanes to bank, dip and dive during their rotation about the central structure. This arrangement permits of a series of thrills which may be enjoyed by passengers, as in practice, the planes are caused to incline from the horizontal at decidedly sharp angles. This result is accomplished by accelerating or retarding the speed of rotation of the central supporting structure relative to the speed of rotation of the suspended carriers while the apparatus is in operation.

Assuming that the apparatus is in operation with the carriers rotating outwardly of the central structure at a considerably greater velocity than that at which the central structure is moving, the retarding of the speed of rotation of the central structure by proper manipulation of the power control, will cause an upward pull to be exerted upon all of the rear cables 34 due to the fact that while the velocity of the carriers is unchanged, the velocity of the upper ends of the arms 16 is lessened. This action will elevate the rear ends of each of the passenger carrying devices causing the miniature aeroplanes to assume the position of a nose dive. Conversely, a speeding up of the central structure relative to the speed at which the carriers are traveling will exert a pull upon the front cables 33 thereby elevating the front ends of each of the carriers for a sharp upward inclination simulating a banking of a plane.

In order to prevent too great an inclination of the bodies of the passenger carrying devices, the wing members 30 are projected laterally considerably beyond each side of the carriers so that upon an upward inclination such as illustrated in Figure 3, the rear of the wing member 30 will engage against the rear cables 34 which effectively checks any further inclination of the carriers. Conversely, in a nose dive, the front edge of the wing member 30 will engage against the front cables 33 and prevent undue inclination in that direction.

In order to prevent too quick an elevating action at the front end of the carriers when the central structure is speeded up, the forward edge of the wing members 30 is flexibly connected to the front cables 33 by means of chain connectors 36 coupled to the front cables as best shown in Figure 3. This arrangement also prevents any undue lagging of the carriers relative to the accelerated central structure.

It will be apparent that it is within the power of a person operating the apparatus from the motor control to cause the passenger carrying devices to dip, bank, zoom

and dive at will and in varying degrees dependent upon the speeding up or retarding of the speed of rotation of the central supporting structure as described.

The present disclosure illustrates one practical embodiment of the principles of my invention, and I desire it to be understood that the invention is not to be limited thereby, but that any desired changes and modifications may be made in the structural details as will fall within the scope of the invention as claimed.

I claim:

1. In an amusement apparatus, a passenger carrying device comprising a body, suspension cables secured to said body adjacent each end thereof, a supporting structure to which said cables are attached, means for selectively exerting a pull on said cables for inclining upwardly an end of said body, means for rotating said supporting structure and suspended passenger carrying device in unison, a stop member on said body for engagement against said cables upon elevation of either end of said body, and means for preventing elevation of an end of said body beyond a predetermined degree.

2. In an amusement apparatus, a rotary supporting structure, a passenger carrying device having a body, suspending cables carried by said rotary supporting structure and having their lower ends connected with the body at opposite sides thereof and adjacent front and rear ends thereof, and a plane supported from the body above the same and adapted to have contacting engagement with said cables to limit longitudinal tilting of the passenger carrying device in a vertical plane when in motion.

3. In an amusement apparatus, a rotary supporting structure, a passenger carrying device having a body, suspending cables carried by said rotary supporting structure, and having their lower ends connected with the body at opposite sides thereof and adjacent front and rear ends thereof, a plane supported from the body above the same and adapted to have contacting engagement with said cables to limit longitudinal tilting of the passenger carrying device in a vertical plane when in motion, and flexible means connecting the suspending cables for one end of the body with said plane to assist in limiting tilting of the passenger carrying device in one direction.

4. In an amusement apparatus, a rotary supporting structure, a passenger carrying device having a body, cross bars secured beneath said body adjacent its front and rear ends and projecting from opposite sides thereof, a plane supported from the body above the same and extending transversely thereof, and suspending cables carried by the rotary supporting structure and having their lower ends secured to the ends of said

- cross bars and permitting the passenger carrying device to have swinging movement radially of the supporting structure and rocking movement in a vertical plane when the amusement apparatus is in operation, said plane being disposed between the front and rear cables and adapted to contact therewith to limit rocking movement of the body.
10. 5. In an amusement apparatus, a rotary supporting structure, a passenger carrying device having a body, suspending cables

carried by said rotary supporting structure and having their lower ends connected with the body at opposite sides thereof and adjacent front and rear ends thereof, and means carried by said body above the same between the front and rear cables and adapted to contact therewith to limit vertical tilting of the body when in motion. 15

In testimony whereof I have affixed my signature. 20

EDWARD K. WOOD.