

No. 883,585.

A. M. SWEETWOOD.
MERRY-GO-ROUND.

PATENTED MAR. 31, 1908.

APPLICATION FILED JUNE 26, 1907.

4 SHEETS—SHEET 1.

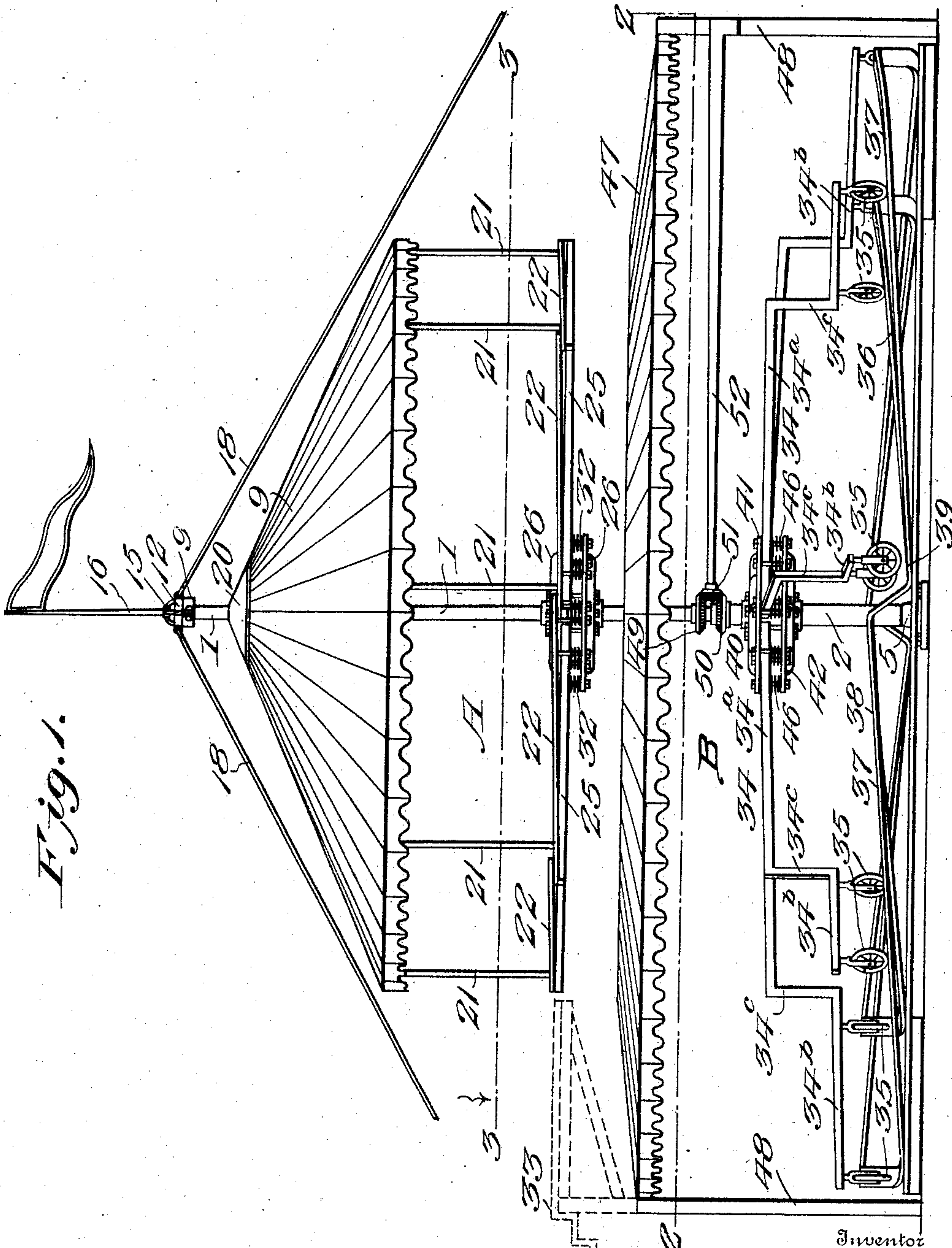


Fig. 1.

Witnesses

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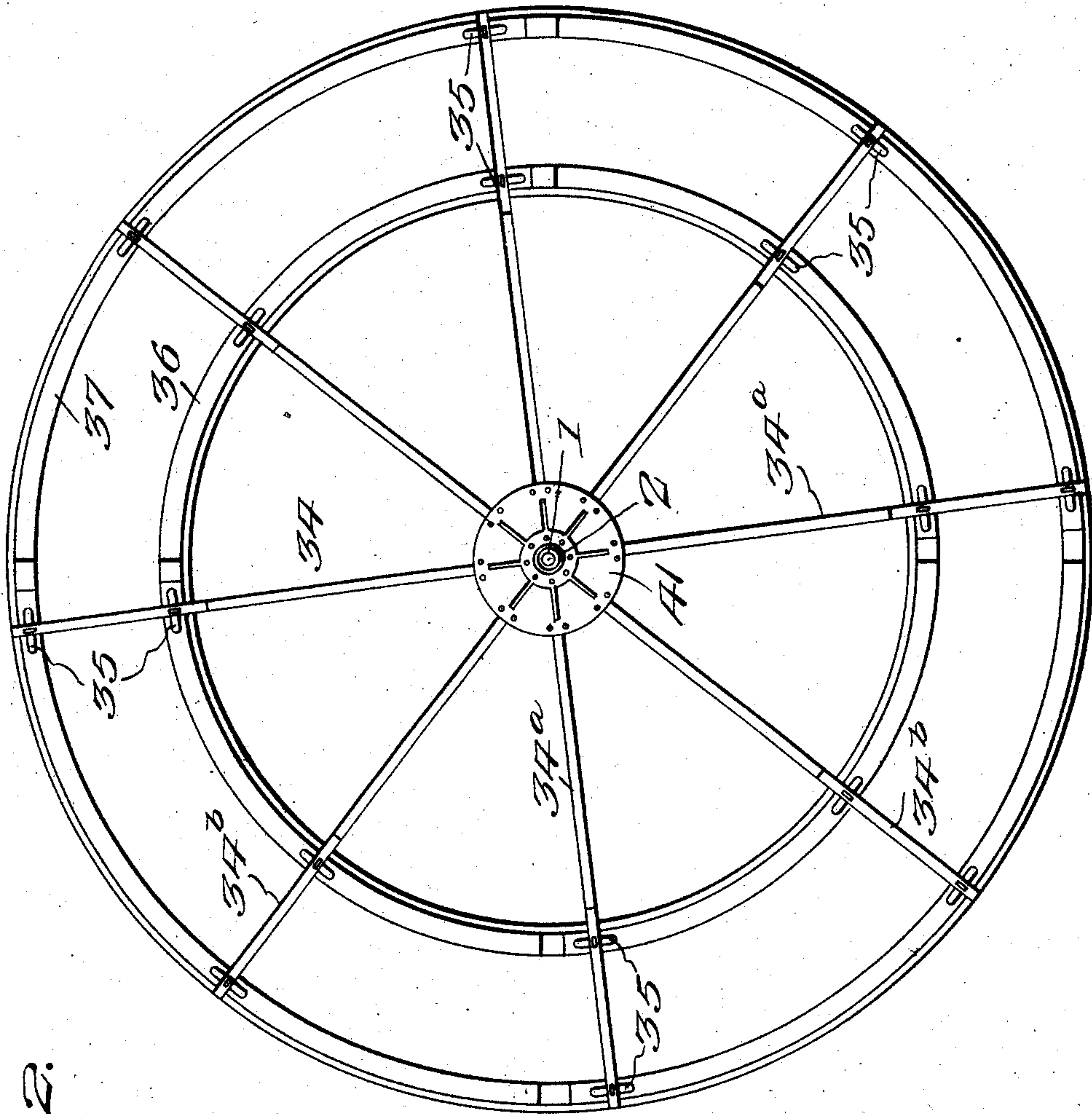


Fig. 2.

Witnesses

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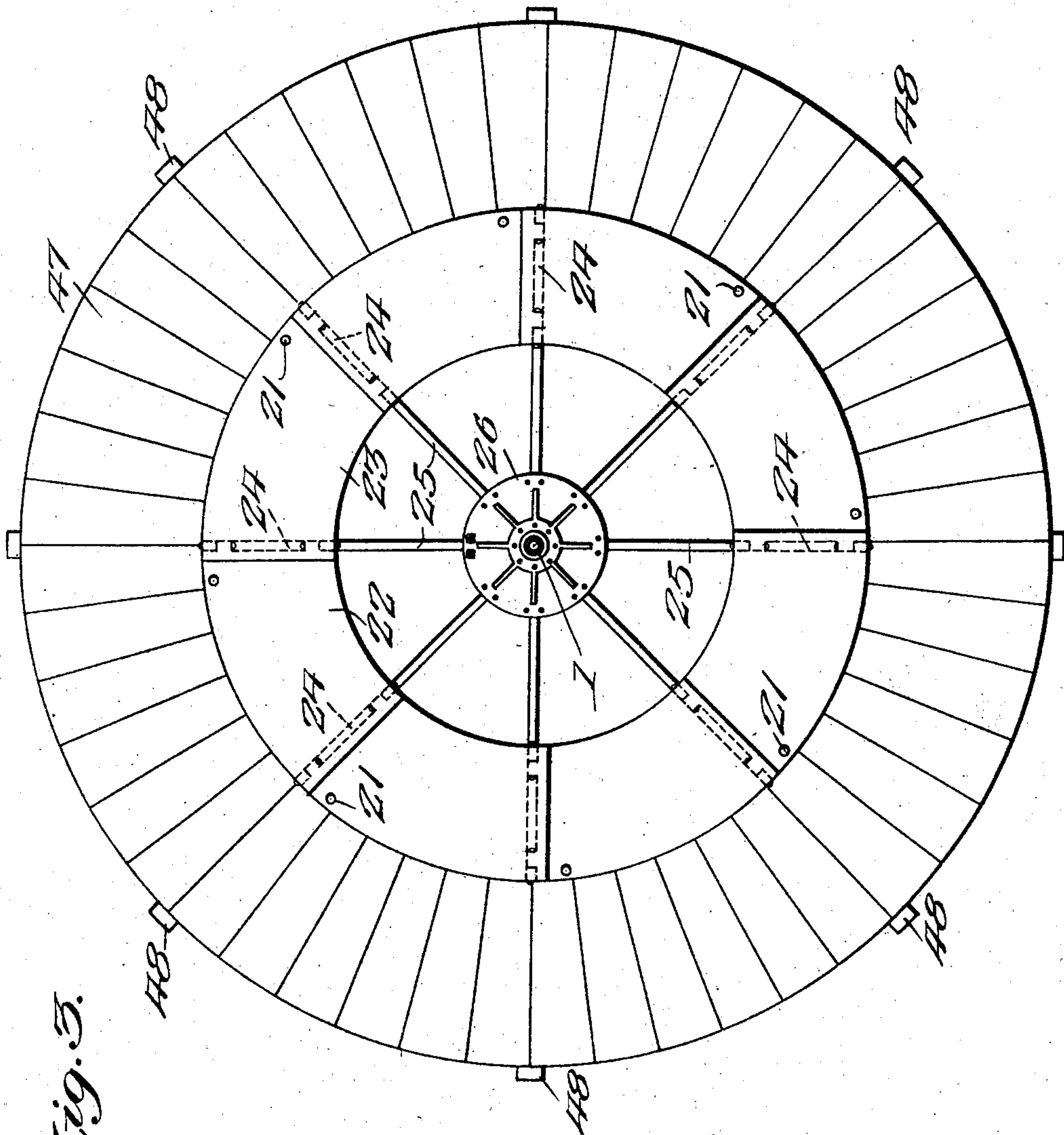


Fig. 3.

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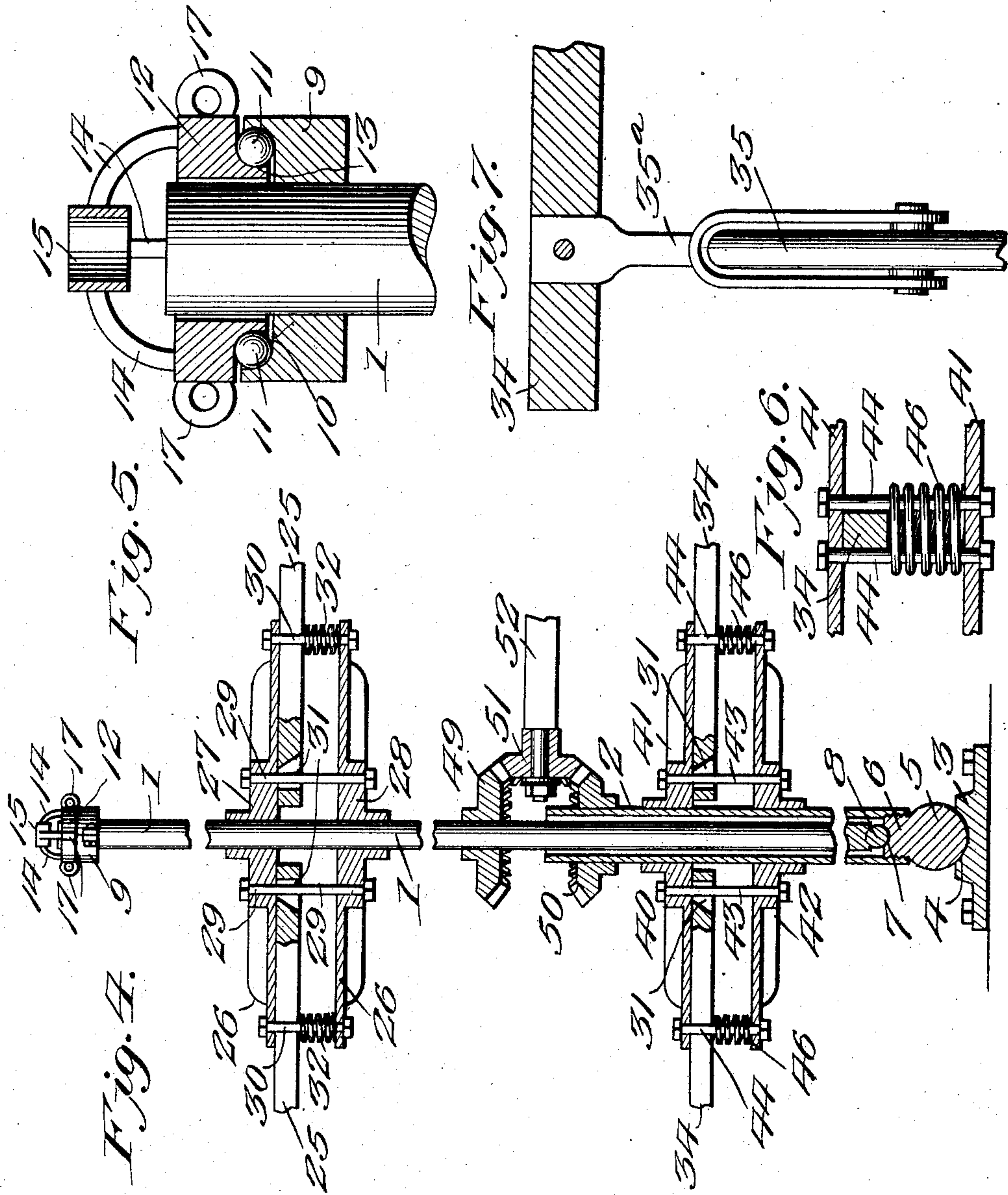
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UNITED STATES PATENT OFFICE.

ADDISON M. SWEETWOOD, OF BRADNER, OHIO.

MERRY-GO-ROUND.

No. 883,585.

Specification of Letters Patent.

Patented March 31, 1908.

Application filed June 26, 1907. Serial No. 380,986.

To all whom it may concern:

Be it known that I, ADDISON M. SWEETWOOD, a citizen of the United States, residing at Bradner, in the county of Wood and State of Ohio, have invented new and useful Improvements in Merry-Go-Rounds, of which the following is a specification.

This invention relates to improvements in merry-go-rounds, one object of the invention being to provide an apparatus of this character embodying upper and lower carrier frames arranged to rotate in opposite directions.

A further object is to provide a construction wherein the lower carrier is formed of a series of pivotally mounted sections on which the cars, horses, or other seat supports are mounted, and which are arranged to travel on an undulatory track as the apparatus revolves, and to have an up and down or rising and falling motion simulating the motion of a vessel giving what I term an "ocean wave" effect.

A further object of the invention is to construct the undulatory track in such a manner as to provide alternating ascending and descending portions, and to arrange the seat supports so that they will be free for movement between the ascending portions of the track, and to provide yielding spring cushioning means for said supports, permitting them to rise and fall and to vibrate in a vertical plane when unsupported, thereby increasing the "ocean wave" effect referred to.

A still further object of the invention is to provide a construction of upper carrier comprising a platform composed of a series of spring supported yielding sections adapted to vertically vibrate in the operation of the apparatus to add to the zest and exhilaration thereof, and to further so construct and arrange the parts as to cause the oppositely rotating action of the two carriers to visually create the impression of the rotation of the apparatus at a very rapid rate of speed.

A still further object of the invention is to construct the apparatus as an entirety in such a manner as to permit it to have a slight lateral swaying motion, thus preventing undesirable rigidity, and in which connecting and supporting means of novel and improved construction are provided to increase the strength and stability of the parts.

With these and other objects in view the invention consists of the novel construction, combination and arrangement of parts here-

inafter fully described and claimed, reference being had to the accompanying drawings, in which:—

Figure 1 is a side elevation of a merry-go-round embodying my invention, Fig. 2 is a sectional plan view on line 2—2 of Fig. 1, Fig. 3 is a sectional plan view on line 3—3 of Fig. 1, Fig. 4 is a central vertical section through the shafts and supporting heads, Fig. 5 is a similar view of the guy connection or cap piece upon the upper end of the central shaft, Fig. 6 is a detail cross section through a pivoted supporting arm of one of the carriers, showing the mode of yieldingly supporting the same, Fig. 7 is a detail view showing the construction and mode of mounting the rollers or wheels upon the supporting arms of the lower carrier.

Referring to the drawings, the numeral 1 designates the main or central shaft of the apparatus, which is journaled at its lower end in a hollow drive shaft 2, journaled in turn at its lower end in a base or bearing block 3. The block 3 is provided with a socket or concavity 4 in which turns a bearing ball 5 having a plug 6 threaded into the lower end of the shaft 2, the upper surface of said plug being formed with a concavity 7 receiving a bearing ball 8 formed or welded upon the lower end of the shaft 1, by which the two shafts are journaled for rotation upon a common support.

The shafts 1 and 2 respectively support upper and lower oppositely rotating carriers A and B, and are geared for rotation in reverse directions in the manner hereinafter described. Arranged upon the upper end of the shaft 1 is a guy connection or cap piece comprising a collar 9 suitably fixed to rotate with said shaft and formed to provide in its upper surface a cup 10, in which is disposed a series of bearing balls 11. A second collar 12 is arranged above the collar 9 and loosely encompass the shaft and has its lower face formed to provide a cone 13 projecting into the cup and coacting therewith to form a raceway for the bearing balls. Arms 14 project upwardly from the collar 12 and carry a socket piece 15, forming a spider to support a suitable crown ornament, such as a flag 16, the staff of which is inserted in said socket. Eyes 17 are provided upon the collar 12 for the attachment of the upper ends of guy rods or wires 18, which extend downwardly and outwardly beyond the apparatus and are suitably anchored at their lower ends into

the ground, thus supporting the shafts in an effective manner. These guys are relied upon as the main supports for the apparatus as an entirety, and, owing to their slight yielding character and the fact that the shafts are pivotally supported from the bearing plate 3 by the bearing member 5, it will be understood that the device will be permitted to have a slight lateral vibratory or oscillatory motion, thus preventing undesirable rigidity without impairing the stability of the structure.

The upper rotary carrier 1 comprises a top canopy 19 secured at its upper end to the shaft 1 by a crown piece 20 and having depending from the rim of the frame thereof, which may be of any of the usual constructions, a series of annularly arranged hanger rods 21, supporting at their lower ends the sections of an annular platform 22. The respective segments or sections 23 of this platform have a lapping arrangement at their ends, the ends of each platform section being respectively arranged beneath and above the ends of the two adjacent sections, thus permitting the sections to have free independent vertical movement. The sections are mounted at one end upon the hanger rods 21 and are pivotally connected at their opposite ends in any preferred manner, as at 24, upon the outer ends of a series of radial supporting arms 25 yieldingly connected at their inner ends with the shaft 1. As shown, a head 26 is mounted upon the shaft and comprises upper and lower disks or spiders 27 and 28 coupled by inner and outer annular rows of bolts 29 and 30. The arms 25 extend at their inner ends between said disks and are formed with flared openings 31 to pivotally engage the inner bolts 29. The outer bolts 30 are arranged in pairs, and between the bolts of each pair extend the arms 25, which are guided in their pivotal movement thereby. A coiled cushioning spring 32 surrounds each pair of bolts 30 and is disposed between the arm 25 and the lower disk 28, by which the arm is yieldingly supported and is adapted to rise and fall or swing in a vertical plane. Cars, horses and other figures of different kinds may be mounted upon the platform sections 23, and, as the carrier A rotates, the jolting motion of the parts will be sufficient to cause the said platform sections to vibrate in a vertical plane, which action is permitted by the pivotal connections of said arms with the head 26, and the cushioning springs 32. A flight of steps 33, or other means, may be provided for the ascent and descent of the passengers passing to and from the carrier A, thus allowing easy access to the same from the ground without interfering with the inlet and exit of passengers to and from the lower carrier B.

The lower carrier B comprises a series of seat supports consisting of radially arranged

supporting arms 34 extending from the lower hollow driving shaft 2, said arms being provided at their outer ends with wheels or rollers 35 to run upon an annular trackway formed of inner and outer rails 36 and 37, supported upon the ground or a suitable base-platform concentric with said shaft. These track rails are of serpentine or undulatory form, being provided with corresponding upwardly inclined and depressed portions 38 and 39; alternating in arrangement around the same.

The inner and outer ends 34^a and 34^b of each arm 34 are arranged in different substantially parallel planes, one above the other, and are connected by risers or uprights 34^c, the outer end 34^b being provided with a pair of the wheels or rollers 35 to run upon the respective rails and serving to support the car, an animal figure, or other type of seat support employed. As illustrated in Fig. 7, each wheel 35 is journaled upon a yoked bracket 35^a fixed to the arm in any suitable manner.

The arms 34 are yieldingly connected and supported from the shaft 2 in like manner to the way in which the arms 25 of the upper carrier are connected and yieldingly supported from the shaft 1. By reference to Fig. 4, it will be seen that a head 40 is mounted upon the shaft 2 and comprises upper and lower spaced spiders or disks 41 and 42, connected by inner and outer annular series of bolts 43 and 44, the bolts 44 being arranged in pairs. The arms 34 extend between the disks 41 and 42 and between the pairs of bolts 44, by which they are guided in their pivotal movements, the inner extremities of the arms being formed with flared openings 45 pivotally engaging the bolts 43. Coiled cushioning springs 46 surround the bolts 44 of each pair and yieldingly support and cushion the arms 34, thus permitting said arms to have vertical play or vibratory motion. The construction of the track and relative arrangement of the seat supporting arms is such that the wheels or rollers 35 travel on the upwardly inclined portions 38 of the track and at the limit of downward movement of the arms lie above and out of contact with the depending portions 39 of the track, so that in the rotation of the carrier the rollers in traveling up the inclined track portions 38 will elevate the arm, which, upon passing the highest point of the elevated portions, will be unsupported above the lowest portions 39 until, in the continued rotation of the carrier, the rollers reach a point about midway of the distance between the depressed portions and highest portions of the track, when they will again come in contact with the track. Hence it will be apparent that as soon as the wheels pass the highest portion of a track elevation, the arms will be permitted to drop or descend sud-

denly under the weight of the cars and their occupants, such movement being permitted by the yielding action of the springs 46, which by their reaction or rebounding, will then expand and force the arms upwardly, which action will continue alternately until the wheels again engage the track, thereby producing a yielding vibratory up and down bouncing action, vertical vibration or oscillation of the arms and seat supports carried thereby, whereby in connection with the limited lateral oscillatory motion of the apparatus as a whole, the motion of a vessel upon the waves of the ocean is closely simulated.

At the upper portions of the base of the apparatus and covering the carrier B is an annular canopy 47, the frame of which is supported by an annular series of posts 48, suitably anchored upon a base frame, constituting a bottom stationary platform, or in the ground. In practice, rotary motion may be imparted directly to the shaft 2 from any suitable type of motor by any preferred type of driving mechanism, not shown, and in order to transfer motion to the shaft 1 from the shaft 2 beveled gears 49 and 50 are arranged upon said shafts and mesh with an intervening transmission pinion 51 journaled upon a supporting bar 52 extending from one of the posts 48. By this construction, it will be seen that the two shafts will be rotated in reverse directions and will impart corresponding reverse rotary movement to the two carriers A and B, such opposite motion giving the visual impression of the operation of the apparatus at a much higher rate of speed than it may actually in practice operate. In their movement in a circular path, the seat supports of the lower carrier will be alternately raised and lowered in their travel in passing over the inclined planes and depressions of the annular trackway and bounced or oscillated by the action of the springs, thus creating an "ocean wave" effect, whereby added interest and amusement is afforded. By the mode of pivotally mounting the supporting arms upon the respective heads on the shafts, a cushioning action is secured to prevent too violent jolting or jarring and avoid liability of injury to the parts of the mechanism.

Having thus described the invention what is claimed as new, is:—

1. In a merry-go-round, the combination of a bottom bearing, a hollow shaft pivotally and rotatably mounted upon said bearing, a second shaft journaled for rotation in the hollow shaft, carriers supported by the respective shafts, the apparatus as a whole as thus constructed being adapted to have universal lateral vibration, gearing for driving the shafts, and means connected to the upper end of the internal shaft for limiting such vibration.

2. In a merry-go-round, a bottom bearing, a hollow shaft having a rounded journal turning in said bearing, a central shaft journaled at its lower end within the hollow shaft, carriers supported by the shafts gearing between said shafts to rotate them in reverse directions, and means connected with the upper end of the central shaft to support the apparatus in an upright position.

3. In a merry-go-round, the combination of a hollow driving shaft journaled for universal lateral oscillation, a center shaft journaled in said driving shaft, gearing between said shafts for rotating them in reverse directions, carriers upon the respective shafts, means connected with the central shaft for limiting the lateral vibratory motion of the apparatus, seat supports upon the respective carriers, and spring cushioning means associated with said support for permitting the same to vibrate vertically.

4. In a merry-go-round, a rotary shaft, arms pivotally mounted from the shaft and extending radially therefrom, cushioning springs associated with the pivotal connections to permit the arms to vibrate vertically, and an annular platform comprising a series of sections, each supported at one end by the frame structure of the apparatus and pivotally connected at its opposite end with one of the radial arms.

5. A merry-go-round comprising co-axially journaled shafts mounted for universal lateral vibration, means for limiting such vibration, upper and lower carriers supported by said shafts, means for imparting reverse rotation to the shafts, and means for permitting the seats of the respective carriers to have a yielding vertical vibratory motion.

6. In a merry-go-round, a rotary shaft, an annular trackway around the shaft provided with alternately arranged elevated and depressed portions, seat supports pivotally mounted upon the shaft and provided with rollers to travel said trackway, and cushioning springs associated with said supports, the arrangement being such that the wheels travel over the depressed portions of the trackway without contacting therewith.

7. A merry-go-round comprising a hollow driving shaft, a central shaft journaled therein and extending thereabove, a carrier on the hollow shaft including yielding spring cushioned seat supports and means for effecting a vibratory action thereof, a carrier upon the central shaft having a platform composed of pivoted sections yieldingly and pivotally supported from said shaft, and means for rotating said shafts in reverse directions.

In testimony whereof, I affix my signature in presence of two witnesses.

ADDISON M. SWEETWOOD.

Witnesses:

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