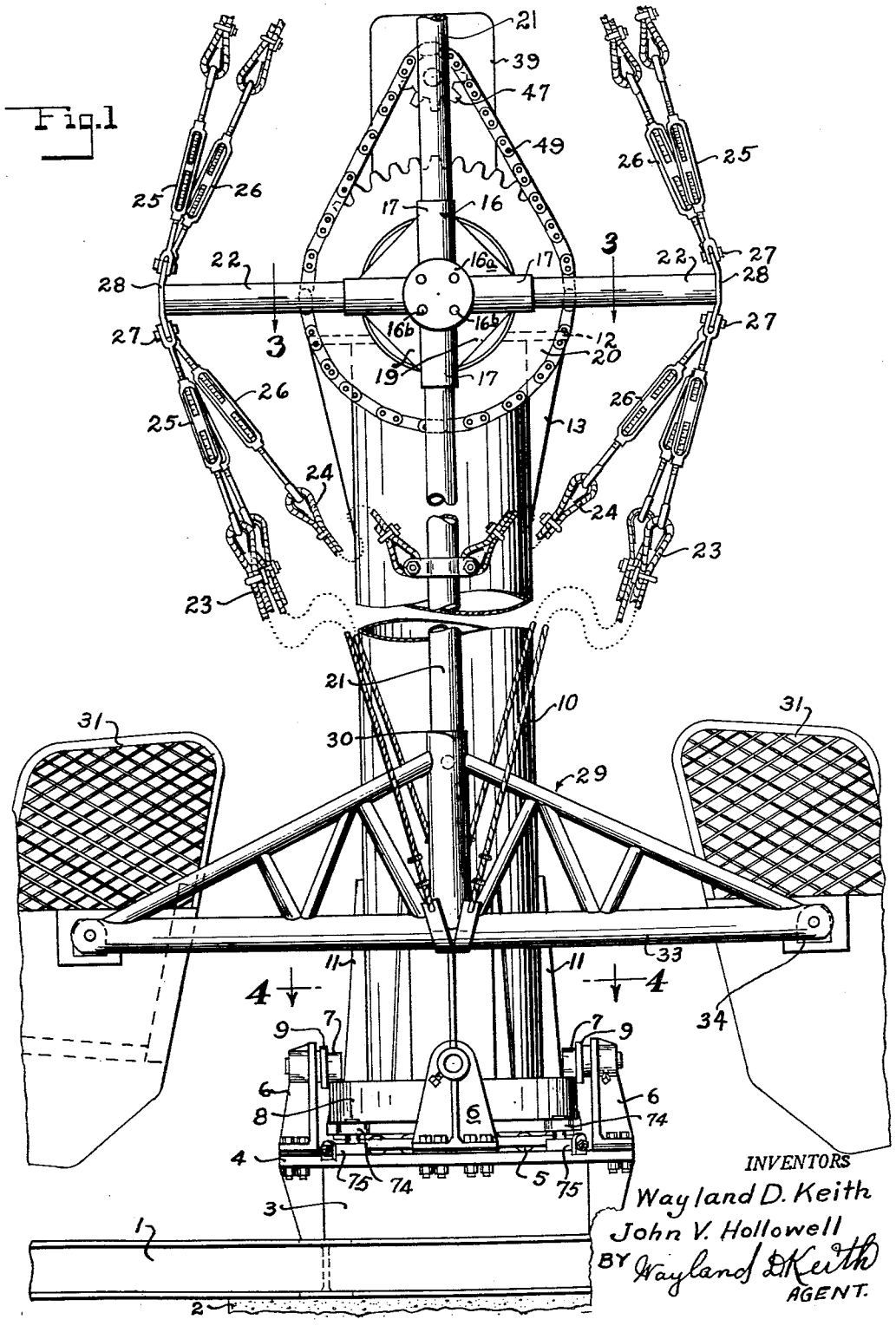
Jan. 2, 1962 W. D. KEITH ETAL 3,015,488

AMUSEMENT RIDES

Original Filed Aug. 14, 1950 4 Sheets-Sheet 1

Fig. 1



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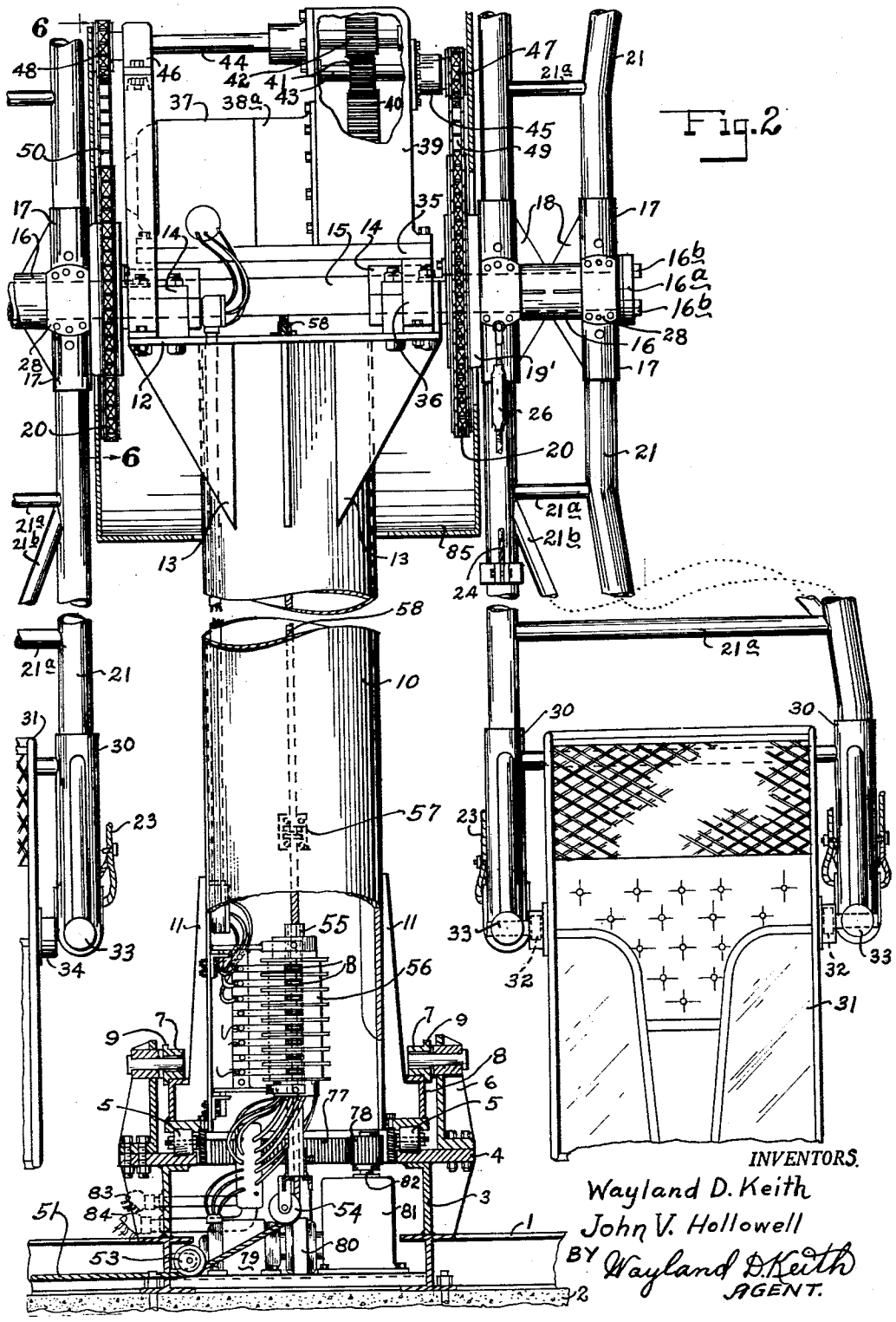
AMUSEMENT RIDES

Original Filed Aug. 14, 1950 4 Sheets-Sheet 2

Fig. 2



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AMUSEMENT RIDES

Original Filed Aug. 14, 1950 4 Sheets-Sheet 3

Fig. 3

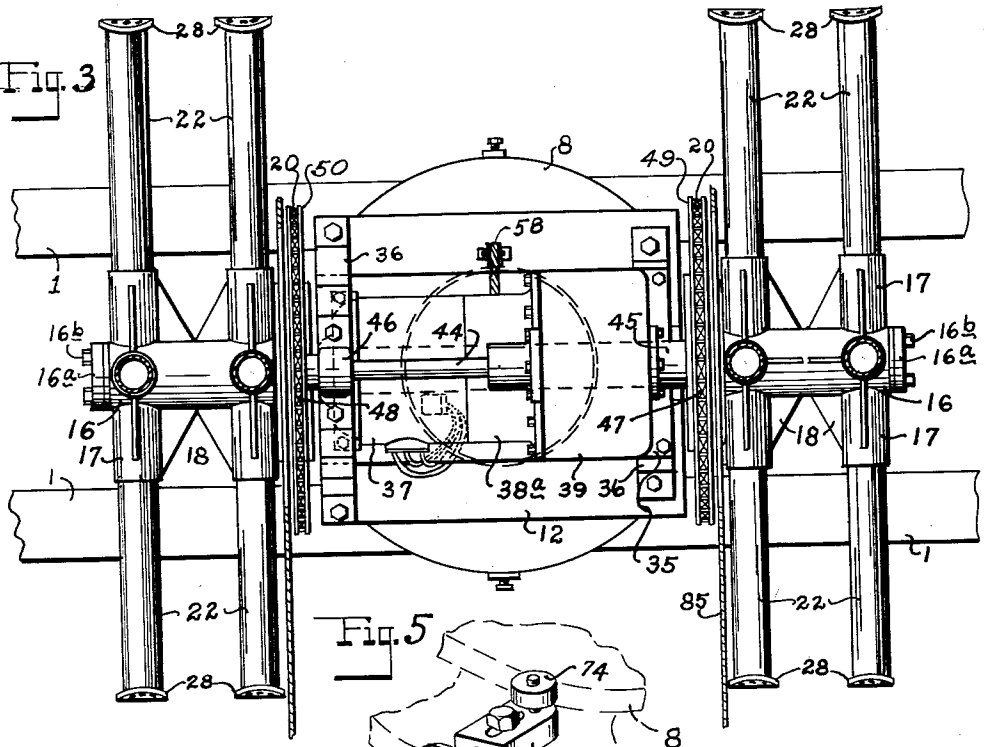


Fig. 5

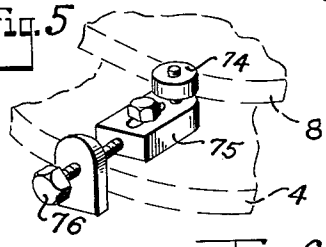


Fig. 4

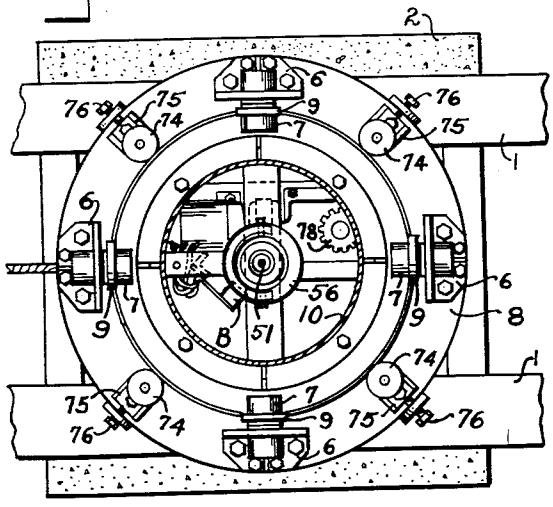
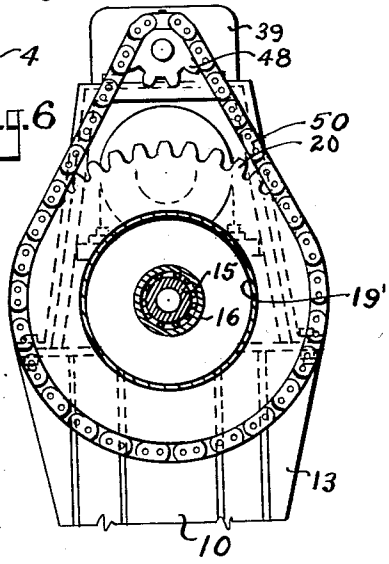


Fig. 6



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AMUSEMENT RIDES

Original Filed Oct. 25, 1954 4 Sheets-Sheet 4

Fig. 7

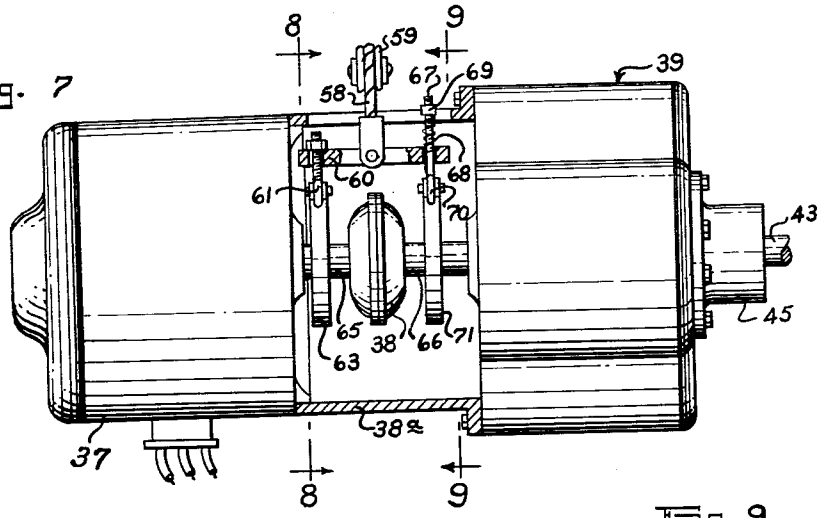


Fig. 8

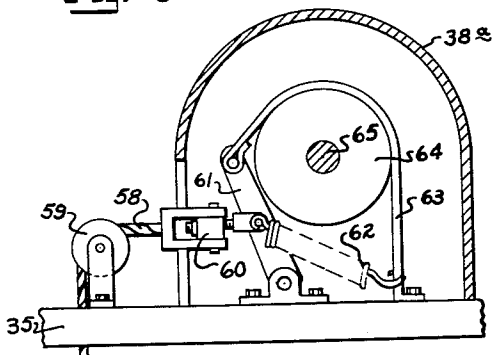
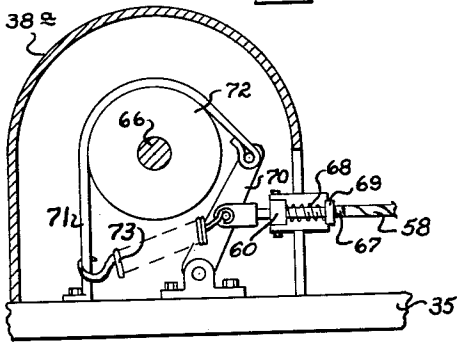


Fig. 9



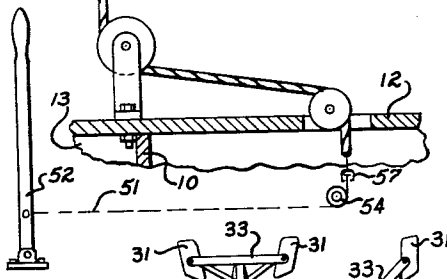


Fig. 10

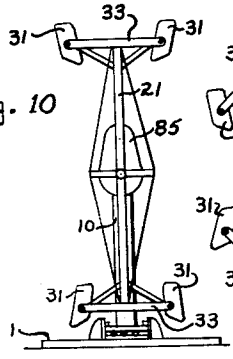


Fig. 11

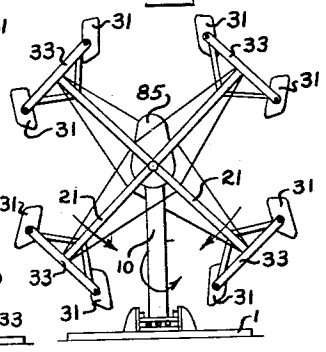
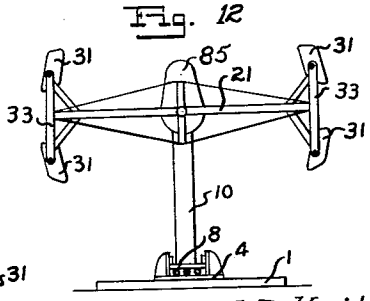


Fig. 12



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3,015,488

AMUSEMENT RIDES

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Application Oct. 25, 1954, Ser. No. 464,328, now Patent No. 2,883,013, dated Apr. 21, 1959, which is a continuation of abandoned application Ser. No. 179,104, Aug. 14, 1950. Divided and this application Dec. 31, 1957, Ser. No. 706,421

19 Claims. (Cl. 272—36)

This application is a divisional application of our prior application Ser. No. 464,328, filed Oct. 25, 1954, for Amusement Rides, now Patent No. 2,883,013, which in turn is a continuation of our application Ser. No. 179,104, filed August 14, 1950, now abandoned for Amusement Rides.

This invention relates to improvements in amusement rides and more particularly to amusement rides which operate about both the horizontal and vertical axes.

Various rides of this character have been proposed heretofore, but the mechanical movement of these rides, for the most part, have failed to furnish to the amusement seeker, the thrills and sensations they seek in that type of amusement.

An object of this invention is to provide an amusement ride in which the vertical axis may be rotated in either direction independently of, or in cooperation with the rotation of the arms about a horizontal axis, with the arms each rotating in a different direction, and which arms may be rotated about a horizontal axis in either direction.

Another object of this invention is to provide an amusement device in which the arms are adapted to rotate about a horizontal axis while the horizontal axis is turned about a vertical axis and while these two movements are being performed, a pair of cars, two on each end of each arm, rotate about themselves.

Another object of this invention is to provide an amusement ride in which each end of each arm cradles a pair of cars thereon, the occupants of which cars, at certain times during movement, face each other, and at other times, ride back to back.

Yet another object of this invention is to provide an amusement ride in which the stem rotates and which stem is held in journaled, guided relation by upright members, which obviates the necessity of using guy wires or the like.

With these objects in mind and others which will become manifest as the description proceeds, reference is to be had to the accompanying drawings, in which:

FIG. 1 is a side elevational view of the device embodying the invention, with parts broken away and shortened to show the details of construction;

FIG. 2 is a front elevational view of the device embodying the invention, with parts broken away and shown in section to illustrate the details of construction;

FIG. 3 is a sectional view taken on the line 3—3 of FIG. 1, looking in the direction indicated by the arrows;

FIG. 4 is a sectional view taken on the line 4—4 of FIG. 1, looking in the direction indicated by the arrows;

FIG. 5 is a perspective view of a centering bearing;

FIG. 6 is a sectional view taken on the line 6—6 of FIG. 2, looking in the direction indicated by the arrows;

FIG. 7 is a plan view of the device embodying the invention, partly in section and with parts broken away to show the details of the braking mechanism;

FIG. 8 is a sectional view taken on the line 8—8 of FIG. 7, looking in the direction indicated by the arrows;

FIG. 9 is a sectional view taken on the line 9—9 of FIG. 7, looking in the direction indicated by the arrows;

FIG. 10 is a diagrammatic view of the amusement ride shown in loading position;

FIG. 11 is a diagrammatic side elevational view of the device embodying the invention, showing the arms in a position 45 degrees from that shown in FIG. 10; and

FIG. 12 is a diagrammatic view of the device embodying the invention, showing the arms in a position 90 degrees from that shown in FIG. 10.

With more detailed reference to the drawing the numeral 1 designates a base constructed of structural members such as H-beams or the like, and which base may be secured to a foundation 2 of concrete or the like, or it may be of sufficient size and weight to obviate the necessity for a foundation. Upstanding ring member 3 is secured to the base 1, as by welding or the like and has a rotary table base 4, which rotary table base is secured on the upper end of the ring member 3 and which ring member has a bearing raceway therein to receive thrust bearings 5. Secured at spaced intervals around the periphery of rotary table base 4 are brackets 6 upon which are journaled bearings 7 which act as both radial and thrust bearings on the side and top of the rotary table 8 and to assist in the centering of the rotary table 8, because the annular flange 9 is in bearing relation with the outer periphery of the rotary table 8. The bearings 7 serve as a hold-down element to prevent the stem 10, which is welded or otherwise secured to the rotary table 8, from toppling over as result of unbalanced loads.

Ribs 11 are provided on the lower end of stem 10 and are secured thereto and to rotary table 8 so as to reinforce these members at the point of interconnection.

The upper end of the stem 10 has a platform 12 thereon, which platform is secured to the end of the stem and to ribs 13. Mounted on the platform 12 are clamp members 14 which secure shaft 15 against rotation or other movement. The shaft 15 projects horizontally outward from platform 12 and has hubs 16 journaled thereon, which hubs have sockets 17 radially spaced therearound, as at present illustrated, four sockets are shown, but it is to be understood that any suitable number may be used. The sockets 17 are braced by gusset plates 18 and 19, which gusset plates are secured to the cylindrical portion of the hub 16 and to the socket members 17, as by welding or other suitable means.

The inner end of each of the hub members 16 may carry a member 19' on which sprockets 20 are secured, by welding or other suitable means.

Bifurcated arm members 21 are telescoped into a pair of sockets 17 in end to end relation, as will best be seen in FIGS. 1 and 2. Pairs of truss posts 22 are telescoped into other of the sockets 17 of hubs 16 and which truss posts 22 extend sufficiently high to enable cables 23 and 24 to converge at an angle near the outer extremity of arm 21 and to a portion of the arm intermediate the length thereof, respectively, to hold the arm against flexing under load. The cables 23 and 24 carry turnbuckles 25 and 26, respectively, which turnbuckles are secured to the respective plates by bolts 27, which plates 28 are secured to the outer respective ends of the truss posts 22.

The outer end of each arm carries a T-member, generally designated at 29, which is braced, and has socket members 30 spaced apart so as to telescope on the outer end of the bifurcated arm member 21. A T-member of truss construction is mounted on the end of arm 21. A pair of beams 33 of the truss construction are parallel and extend outward in each direction from the arm 21 and are spaced apart laterally and each has an inturned knob 32, which knobs form axles or pivot members on the respective ends thereof to form a journal mounting for the respective cars 31. The axes of the respective

pairs of inturned knobs being parallel, bearing brackets **34** are secured to each side of each car and are fitted over inwardly projecting knobs **38** so as to serve as a journal but will permit the cars to be maintained in an upright position at all times, regardless of the position of the arms.

The arms **21** are preferably of tubular construction and have transverse and diagonal braces **21***a* and **21***b* at spaced intervals therealong so as to give each of the arms rigidity. The inner ends of the arms converge to form parallel portions that will fit in sockets **17**, which ends are closer together than the outer ends of the arms. The outer ends of the arms are substantially parallel and are spaced apart a sufficient distance to cradle car **31** therebetween, which car will seat two or three people with comfort. However, by having the arms converge into a parallel portion toward the hub, the shaft **15** may be maintained to a minimum length to facilitate handling.

A second platform **35** is mounted on standards **36**, which standards rise above platform **12**. This second platform **35** carries a motor **37**, a fluid drive unit **38** and a gear reducing unit, generally designated at **39**. The gear reduction unit **39** has a gear **40** driving a pinion **41**, which in turn drives a second pinion gear **42**. Pinion gears **41** and **42** are of equal diameter and give a one to one ratio of shafts **43** and **44**. The outer end of the shaft **43** is journaled in bearing **45** and the outer end of shaft **44** is journaled in a bearing **46**. Each of the shafts **43** and **44** carries sprockets **47** and **48**, respectively, of the same diameter, which sprockets drive through chains **49** and **50** to sprockets **20** which are secured to the hub **16** through brake hub **19'**.

With the pinions **41** and **42** in mesh and driven by gear **40**, the pinions will be caused to rotate in opposite directions, which will, in turn, cause arms **21** to rotate in opposite directions about a horizontal axis formed by the shaft **15**.

The hubs **16** are maintained against longitudinal movement by cap plates **16***a* having cap screws **16***b* passing therethrough and screw threaded into the end of horizontal shaft **15**. A brake cable **51** extends from lever **52** over pulleys **53** and **54** (FIG. 2) upward through the pipe **55** on which the electrical slip ring commutator **56** is positioned. The cable **58** connects to a swivel coupling **57**, which cable **58** rotates with the stem, while the cable **51**, below the swivel coupling **57**, is maintained against rotation. The brake cable **58** continues upward over a pulley **59** to a "singletree" equalizer **60**, and upon the initial pull of the brake cable **58**, brake lever **61** will be moved against tension of brake release spring **62** to cause brake band **63** to engage brake drum **64** positioned on shaft **65** intermediate motor **37** and fluid drive coupling **38**. This will slow or seize the shaft and cause one of the impeller blades within the fluid coupling **38** to slow or stop, thereby causing the opposed impeller blade within the fluid coupling **38** to generate a reactionary pressure to slow shaft **66** a graduated amount so as to retard the speed of arms **21** without causing any reactionary shock to the occupants of the cars, which cars are mounted on the arms, or to the material in the arms.

At the opposite end of the "singletree" member **60** is connected a bolt member **67** which has a spring **68** positioned intermediate the "singletree" and a nut **69**, so as to permit travel of the end of the "singletree" to which the bolt **69** connects, after the opposite end of the "singletree" has stopped. The bolt **67** connects with a lever **70**, which lever connects to brake drum **72**. A brake band release spring **73**, much stronger than the brake band release spring **62**, is connected to brake lever **70** so as to maintain brake lever **70** against movement until brake band **63** has engaged brake drum **64** against rotation. Upon movement of brake lever **70**, positive braking action is imparted by brake band **71** to brake drum **72**, through gear reduction unit **39**, to hold shaft **66** against rotation, which will hold arms **21** in fixed position.

It will be appreciated that a slowing action may be accorded by brake band **63** first engaging to cause the fluid in fluid coupling **38** to retard the impeller connected to shaft **66** in a manner well understood in the art of fluid couplings. However, upon further movement of brake cable **58**, brake band **71** is engaged in a varying amount according to the pressure applied to the braking system. The brake may be applied suddenly for emergency action, or gradually, as desired.

Radial bearings **74** are mounted on adjustable brackets **75** on the upper face of the rotary table base. Screws **76** are provided for adjusting these bearings for contact relation with rotary table **8**, as will best be seen in FIGS. 1 and 4. Secured to the lower face of the stem **10** is an internal ring gear **77** which is in mesh with pinion **78**. A motor **79** is mounted in the base and drives through coupling **80**, through gear reduction unit **81**, which gear reduction unit has an upwardly extending shaft **82** on which is positioned pinion gear **78**.

The electrical circuits are housed in conduits **83** and **84** which conduits pass into the interior of the rotary table and up to slip ring commutator **56**, which is arranged to transfer the current from the stationary base member through brushes B in a manner well known in the art.

A housing **85** is provided for enclosing the mechanism at the upper end of the stem so as to protect such mechanism.

Operation

In the operation of the device, the current is directed either through conductors within conduits **83** or **84** to the respective motors **37** and **79** in a manner well known in the art. Both of the motors may be of the reversible type so that the arms may be rotated in reverse directions, and the stem may be rotated in reverse directions.

Arms **21** on shaft **15** are so geared as to rotate in opposite directions from each other with respect to the vertical axis of the stem **10**.

To load the cars of the ride, the arms **21** are positioned in an upright manner, as illustrated in FIGS. 1, 2, and 10. In this manner four cars can be loaded simultaneously with the occupants in the adjacent cars in back to back relation. When the cars have been loaded, these arms may be rotated in the manner as shown in FIGS. 11 and 12 until the loaded cars are above the ride with the occupants of adjacent cars face to face, as illustrated in the upper portion of FIG. 10. At this point brake lever **52** may be actuated to hold the arms in the upright position until the four lowermost cars are likewise loaded. It is to be pointed out that the adjacent cars on each end of each arm face in outward directions at the lower positions, and when the arms begin to ascend, the leading car swings about as illustrated in FIGS. 11 and 12 and the lower car swings below, as the arms **21** rotate about the horizontal axis **15**, the adjacent cars on each end of each arm literally rotate about each other in an orbit, with all the cars rotating about axis **15** as a second axis. Then by rotating the vertical stem **10** about a vertical axis, the arms and cars are rotated about a third orbit with the cars rotating in these three separate orbits, the speed of the cars is constantly changing, as well as the direction of movement thereof, which gives a thrill to the riders that cannot be obtained in a ride with a single rotary movement.

With the stem rotating about a vertical axis and the arms **21** rotating about a horizontal axis, the speed thereof can be varied during each movement to give a variation of speeds and movements, however, it may be pointed out that by moving the arms at a speed of one to one with the rotation of the stem **10**, the path of the end of the arm will describe a pattern somewhat similar to the pattern of the stitching on a base ball cover, however, the cars **31** describe separate and independent orbital movements which will be generated in cycloidal and epicycloidal patterns by the rotation of the arms.

By having the fluid drive **38** interposed between the motor **37** and gear reduction unit **39**, this enables the motor to be started "across the line" and the fluid coupling will give a gradual starting action to the arms, which gradual starting action is characteristic of fluid coupling drives. Brake bands **63** and **71** are positioned around the respective brake drums **64** and **72** and with both brake bands connected through a "singletree" to a common brake cable **58**, the braking system is established. A weak brake return spring **62** is positioned on brake band **63** and a strong brake return spring **73** is positioned on brake band **71** and in this manner, upon the application of brake lever **52**, brake cables **51** and **58** will be tightened and brake band **63** will stop or slow motor shaft **65**, yet the inertia of the arms **21** will cause driven shaft **66** to rotate, rotating the impeller within the fluid coupling **38** to impinge the fluid in a manner so as to retard shaft **66** in approximately the same proportion as it was originally accelerated by the starting of the motor **37**. This will obviate shock to the passengers of the cars and to the machinery of the ride as well as alleviate strain on the various parts due to the inertia of the arms and the load thereon.

In the moving of brake lever **52** to a position to cause brake band **63** to lock brake drum **64**, only a portion of the travel of the brake lever will be used, so upon further movement of the lever, spring **68** will be thoroughly compressed and brake lever **70**, to which band **71** is connected, will move against tension of stout spring **73** to engage brake drum **72**, so as to cause a slowing or positive stopping of arms **21**. With the brake lever **52** in a position to fully engage brake band **71** the arm **21** can be held fixed in any position, whether the stem is rotating or not.

Having thus described the invention, what is claimed is:

1. In an amusement riding device, a base, an upright standard mounted on said base, a transversely disposed shaft mounted on said standard a spaced distance above said base, said transversely disposed shaft having a pair of arms mounted thereon and extending in opposite directions therefrom for rotation about the axis of said shaft, pairs of cars, a pair of said cars being pivotally mounted on parallel axes on each outer end of the respective arms, the respective cars of each said pair of cars being freely journaled to pivot about said parallel axes and adapted to face in opposite directions and having said parallel axes spaced apart and being parallel to said transversely disposed shaft mounted on said standard and lying in a plane which is perpendicular to a plane passing through the axis of said transversely disposed shaft mounted on said standard, and means for rotating said arms about the axis of said shaft.

2. In an amusement riding device, a base, an upright standard mounted on and rising above said base, a transversely disposed shaft mounted on said upright standard a spaced distance above said base, at least one arm mounted on said transversely disposed shaft for rotation about the axis thereof, a car pivotally mounted near the outer end of said arm, power means, a fluid coupling interposed between and connected in driving relation between said power means and said arm for rotating said arm about the axis of said shaft, brake applying means, a brake element interposed between said power means and said fluid coupling for applying braking action to said arm through said fluid coupling by impinging the fluid in said fluid coupling, which brake element is operably connected to said brake applying means, a second brake element interposed between said fluid coupling and said arm for applying positive braking action to said arm, said brake applying means also being operatively connected to said second mentioned brake element for applying braking action thereto after applying braking action to said first mentioned braking element to further retard the rotation of said arm.

3. In an amusement riding device, a base, an upright standard mounted on said base, a horizontal, transversely disposed shaft mounted on said standard a spaced distance above said base, a lateral arm mounted on said transversely disposed shaft for rotation about the axis of said shaft and extending outwardly from the axis thereof, pivot members, having a pair of parallel axes, mounted on said arm near the outer end thereof, said respective axes of said pivot members on said arm being equidistant from the axis of said horizontal, transversely disposed shaft and being parallel thereto, the axes of said pivot members being spaced apart less than the radial distance between said horizontal transversely disposed shaft and the axis of either of said pivot members, cars freely journaled on said pivot members, one on each of said parallel axes for rotation about the respective axes thereof and about each of the other of said axes, and means for rotating said arm about the axis of said horizontal transversely disposed shaft.

4. A device as defined in claim 3, wherein said cars mounted on said pivots face in opposite directions, when said arm is rotated about the axis of said horizontal transversely disposed shaft, the passengers in the respective cars on said arm will face each other during a portion of the travel of said arm and will face away from each other during the other portion of the travel of said arm.

5. In an amusement riding device a base, an upright standard mounted on said base, a horizontally disposed shaft mounted on said standard a spaced distance above said base, a hub mounted near each end of said horizontally disposed shaft, each of said hubs having opposed sockets formed therein, an arm fitted in each of said opposed sockets and extending radially outward therefrom, a T-member, having a bar portion, mounted on the distal end of each arm, the bar portion of which T-member extends outward in each direction from said distal ends of said arms at a right angle thereto and to a plane passing longitudinally through said arm and through the axis of said horizontally disposed shaft, which bar portions of the respective T-members each has a pivot member near each outer end thereof, the axes of which pivot members are horizontally disposed and are in parallel relation to each other and with said horizontally disposed shaft, the axes of which pivot members are spaced apart a distance to pivotally receive a car between pairs of said pivot members for simultaneous, unimpeded rotation of said cars about said respective parallel axes, and means for rotating said arms about the axis of said horizontally disposed shaft mounted on said standard.

6. In an amusement riding device, a base, an upright standard mounted on said base, a horizontal, transversely disposed shaft mounted on said standard a spaced distance above said base, an outstanding radial arm member mounted on said shaft near each end thereof for rotation about the axis of said horizontal, transversely disposed shaft, pairs of parallel, horizontally disposed, axially aligned pivot members mounted on each of said arms with the axes of said pivot members being spaced apart less than the radial distance between said horizontal, transversely disposed shaft and the axis of a pair of axially aligned pivot members, a car freely journaled on each pair of said horizontally disposed, axially aligned pivot members for rotation about the axis of the respective pivot members, and means for rotating said arms about said axis of said horizontal, transversely disposed shaft.

7. In an amusement riding device, a base, an upright, rotatable standard mounted on said base, a horizontal, transversely disposed shaft mounted on said standard a spaced distance above said base, a pair of arms mounted on an end of said horizontal, transversely disposed shaft and extending in opposite directions therefrom, which arms are adapted to rotate about the axis of said shaft, pairs of pivot members mounted near the outer end of each said arms, the axes of each said pair of pivot members being parallel, said respective parallel axes of said pivot mem-

bers on each said arms being equidistant from the axis of said horizontal, transversely disposed shaft and being parallel thereto, the axes of said pivot members being spaced apart less than the radial distance between said horizontal, transversely disposed shaft and the axis of either of said pivot members, cars freely journaled on said pivot members, one on each of said parallel axes for rotation about the respective axes thereof and about the other of the parallel axes on the respective ends of each arm and about the axis of said horizontal, transversely disposed shaft mounted on said standard, means for rotating said arms about the axis of said horizontal, transversely disposed shaft, and means for rotating said standard.

8. In an amusement riding device, a base, an upright standard mounted on said base, a transversely disposed shaft mounted on said upright standard a spaced distance above said base, said transversely disposed shaft having an arm mounted near each outer end thereof, said arms extending in opposite directions from said transversely disposed shaft, a transverse frame member extending outward in opposite directions from each outer end of each arm at a right angle to each said arm, each said transverse frame member on each said arm having a pivot member on each end thereof, the axes of which pivot members are in parallel relation with said transversely disposed shaft, a car pivotally mounted on each of said pivot members so the pivotal axis of the respective cars are substantially parallel and are parallel with the axis of said transversely disposed shaft, and means for rotating said arms about the axis of said transversely disposed shaft.

9. An amusement riding device as defined in claim 8, wherein said means for rotating said arms about the axis of said transversely disposed shaft rotates said arms in opposite directions.

10. In an amusement riding device, a base, an upright standard rotatably mounted on said base, a horizontally disposed shaft mounted on said standard a spaced distance above said base, at least one arm mounted on said horizontally disposed shaft for rotation about the axis of said shaft, a pair of cars, said cars being freely pivotally mounted on spaced apart parallel axes on said arm near an outer end thereof which parallel axes are parallel to said shaft and are spaced apart at least the amount of the greatest length of said cars, which length is taken on a plane passing through the pivot mounting points of said cars, the respective cars of each of said pairs being adapted to be positioned to face in opposite directions, means for rotating said arm about the axis of said shaft, and means for rotating said horizontally disposed shaft about the axis of said upright standard.

11. In an amusement riding device, a base, an upright standard rotatably mounted on said base, a horizontally disposed shaft mounted on said upright standard a spaced distance above said base, said horizontally disposed shaft having an arm mounted thereon near each end thereof for rotation of said arms about the axis of said horizontally disposed shaft, pair of cars being pivotally mounted on spaced parallel axes, one of said cars being pivotally mounted on each of said spaced parallel axes near the outer end of the respective arms, which parallel axes are parallel to said horizontally disposed shaft mounted on said standard, means for rotating said arms about the axis of said shaft, and means for rotating said transversely disposed shaft about the axis of said upright standard.

12. In an amusement riding device as defined in claim 11 wherein said means for rotating said arms about the axis of said horizontally disposed shaft rotates said arms in opposite directions simultaneously with the rotation of said upright standard.

13. In an amusement riding device, a base, an upright standard rotatably mounted on said base, a horizontally disposed shaft mounted on said upright standard a spaced distance above said base, said horizontally disposed shaft having an arm mounted near each end thereof for rotation about the axis of said horizontally disposed shaft, pairs of cars, said cars being freely pivotally mounted on spaced apart, parallel axes near each outer end of said arms, which parallel axes are parallel to said horizontally disposed shaft mounted on said standard, means for rotating said arms about the axis of said shaft, and means for rotating said horizontally disposed shaft about the axis of said standard, said car pivots being spaced apart transversely of said arms a greater distance than the length of the respective cars and less than the distance from the axis of said horizontally disposed shaft to the axis of any of said cars to enable said cars to freely rotate about their respective axes.

14. In an amusement riding device, a base, an upright standard mounted on said base, a horizontal shaft mounted on said standard a spaced distance above said base, an arm member mounted on said horizontal shaft for rotation about the axis of said shaft, a pair of parallel, horizontally disposed pivot members mounted on each of said arms and spaced apart less than the radial distance between said horizontal shaft and one of said pivot members, the axes of said pivot members being parallel with respect to said horizontal shaft, a car freely journaled on each of said horizontally disposed pivot members for rotation about the respective axes thereof, said pair of horizontally disposed pivot members being spaced apart a distance greater than the maximum length of one of said cars, and means for rotating said arms about said axis of said horizontal shaft.

15. In a passenger car support member for an amusement riding device, an upstanding support member, a horizontal member forming a horizontal axis mounted on said upstanding support member to support said horizontal member a spaced distance above the ground, a hub mounted on said horizontal member for rotation about the axis of said horizontal member, an arm mounted on said hub for rotation therewith, a lateral member mounted near the outer end of said arm and lying in a plane at a right angle to a medial plane taken longitudinally through said arm, a pair of spaced apart axles forming pivots mounted on said lateral member near the distal ends thereof, with the axes of said pivots being in parallel relation to each other and being in parallel relation with said horizontal axis of said hub, cars freely journaled on said axles forming said pivots, one on each of said parallel axes for rotation about the respective axes thereof and about the adjacent car on the other of said parallel axes upon rotation of said arm about said horizontal axis, said pair of pivots being spaced apart less than the radial distance between the horizontal axis of said hub and the axis of one of said axles, which spaced apart distance of said pivots is greater than the maximum length of one of said cars.

16. An amusement ride car supporting apparatus as defined in claim 15; wherein said lateral member is tubular, an outstanding tubular socket being secured mediate the ends of said lateral tubular member, which socket is adapted to receive an end of said arm therein, and means attachably securing said outstanding tubular member to said arm so as to form a T-member.

17. A passenger car suport member for an amusement riding device comprising; an upstanding support member, a horizontal member forming a horizontal axis mounted on said upstanding support member to support said horizontal member a spaced distance above the ground, a hub mounted on said horizontal member for rotation about the axis of said horizontal member, an arm mounted on said hub for rotation therewith, a pair of spaced apart lateral members, an outstanding member secured to each of said lateral members mediate the ends thereof and perpendicular thereto, means attachably securing said outstanding members to said arm near the outer end thereof so said lateral members will be positioned at a right angle to a medial plane taken longitudinally through said arm, a pair of spaced apart, axially aligned axles forming pivot members on said lateral members near the respective dis-

tal ends thereof, the axes of said pivot members being in parallel relation to each other and being in parallel relation with said horizontal axis of said hub, said pivot members of each pair of axially aligned pivot members being spaced apart sufficiently to journal a car therebetween, a car freely journaled on each axially aligned pair of pivot members for rotation about the respective axes of said pivot members and about the adjacent car on the other of said parallel axes upon rotation of said arm about said horizontal axis, said axially aligned pivot members on said lateral members being spaced apart a distance less than the radial distance between the horizontal axis of said hub and the axis of one of said axles, which spaced apart distance of said pivots is greater than the maxium length of one of said cars.

18. In a passenger car support member for an amusement riding device, an upstanding support member, a horizontal member forming a horizontal axis mounted on said upstanding support member to support said horizontal member a spaced distance above the ground, a hub mounted on said horizontal member for rotation about the axis of said horizontal member, an arm comprising at least two outwardly extending members secured in spaced apart relation, said members comprising said arm being attachably connected to said hub for rotation therewith, said members comprising said arm lying in a plane, which plane passes longitudinally through said members and through the axis of said hub, two lateral members rigidly secured together in spaced apart relation, a socket member secured perpendicular to each of said lateral members mediate the length thereof and extending outwardly from the respective lateral members in the same direction, which socket members register with the outer ends of the respective members forming said arms which members are received therein and attachably secured thereto, a pair of spaced apart axles forming pivots on each of said lateral members near the distal end thereof, the axes of said pivots being in parallel relation and being in parallel relation with the horizontal axis of said hub, said pivots on respective adjacent ends of said lateral members being axially aligned, which pivots extend inward toward each other a distance less than one-half the distance between said lateral members, a car freely journaled on said pivots, one on each of said parallel axes for rotation about the respective axis thereof and about the adjacent car on the other of said parallel axes upon rotation of said arm about said horizontal axis, said pairs of spaced apart axes of said pivots on said respective lateral members being spaced apart less than the radial distance between the horizontal axis of said hub and the axis of one of said pivots, which spaced apart distance between said pivots is greater than the maximum length of one of said cars.

19. An amusement ride supporting apparatus as defined in claim 18, wherein said axles on said lateral members have the adjacent ends thereof spaced apart a distance to pivotally mount a passenger car thereon and therebetween for swinging movement of said car therebetween when said cars are arranged in tandem relation.

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