Dec. 27, 1955 G. D. LYLES 2,728,574

COMBINATION MERRY-GO-ROUND AND FERRIS WHEEL

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Fig. 1

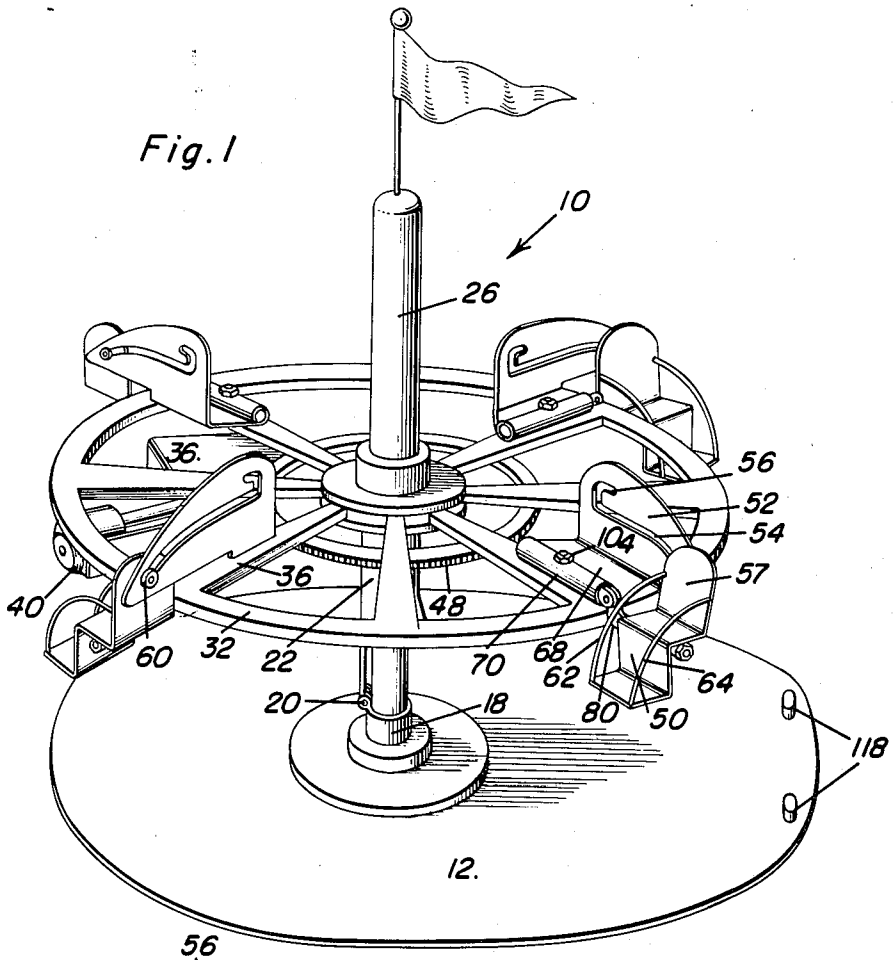


Fig. 2

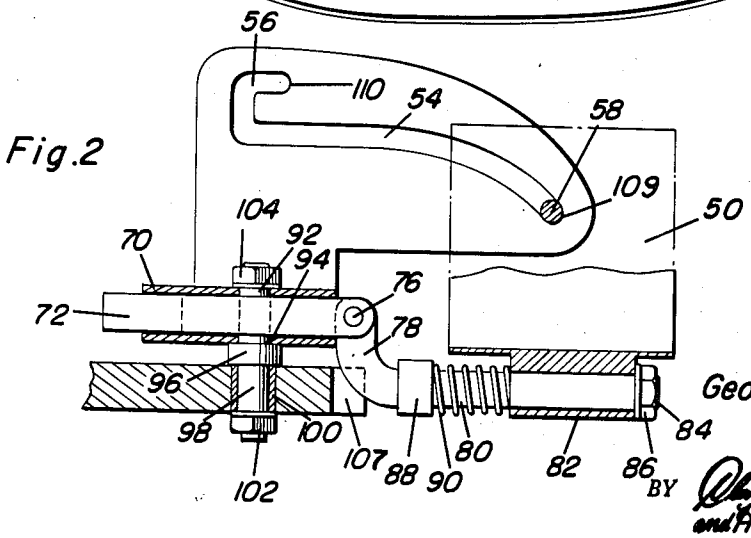


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Fig. 3

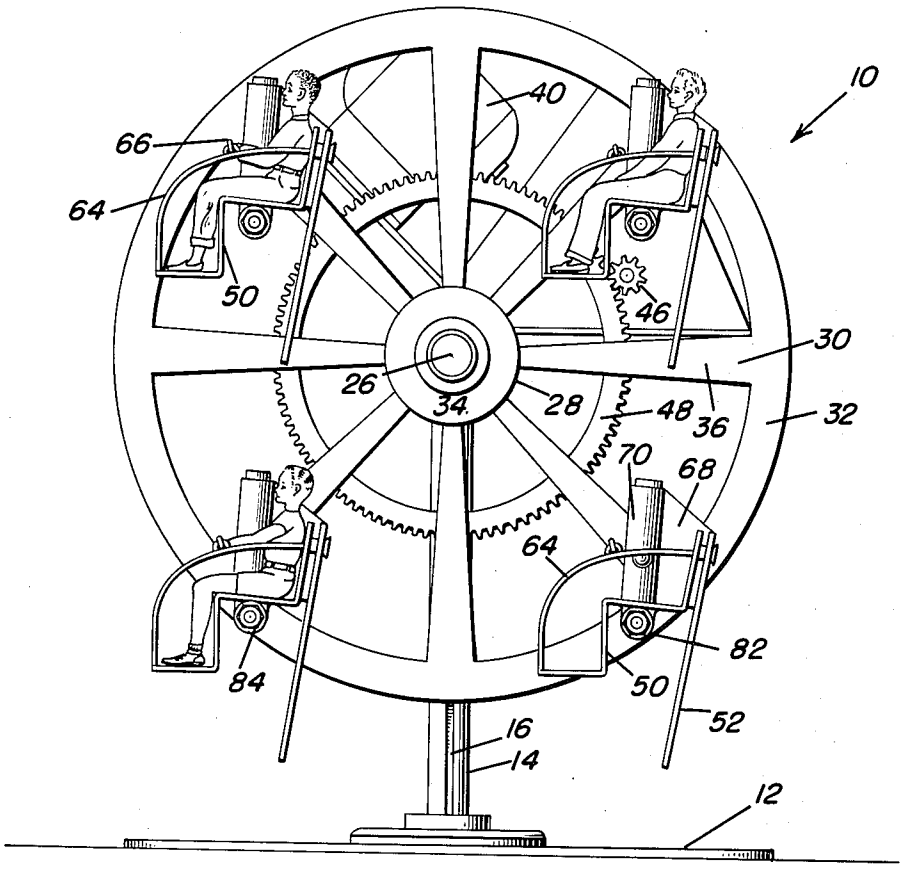


Fig. 4

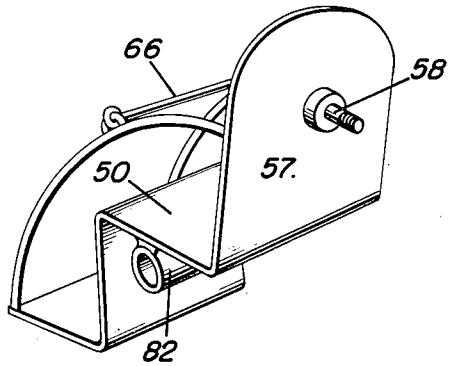


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Fig. 5

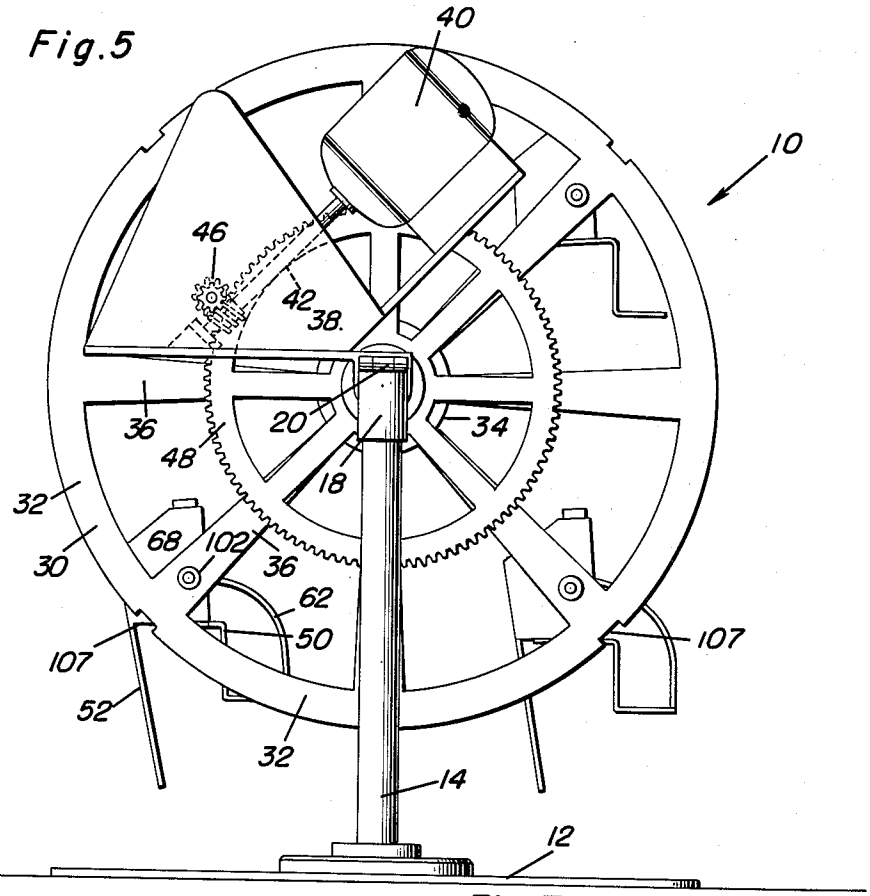



Fig. 6

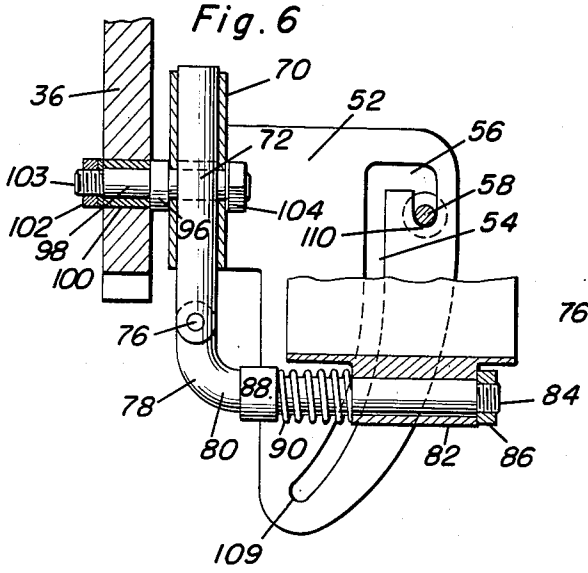



Fig. 7

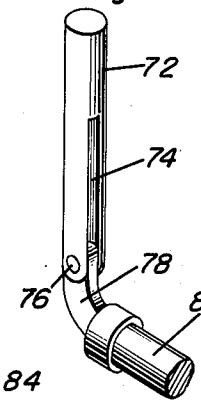
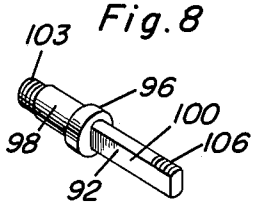



Fig. 8

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COMBINATION MERRY-GO-ROUND AND FERRIS WHEEL

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Fig.9

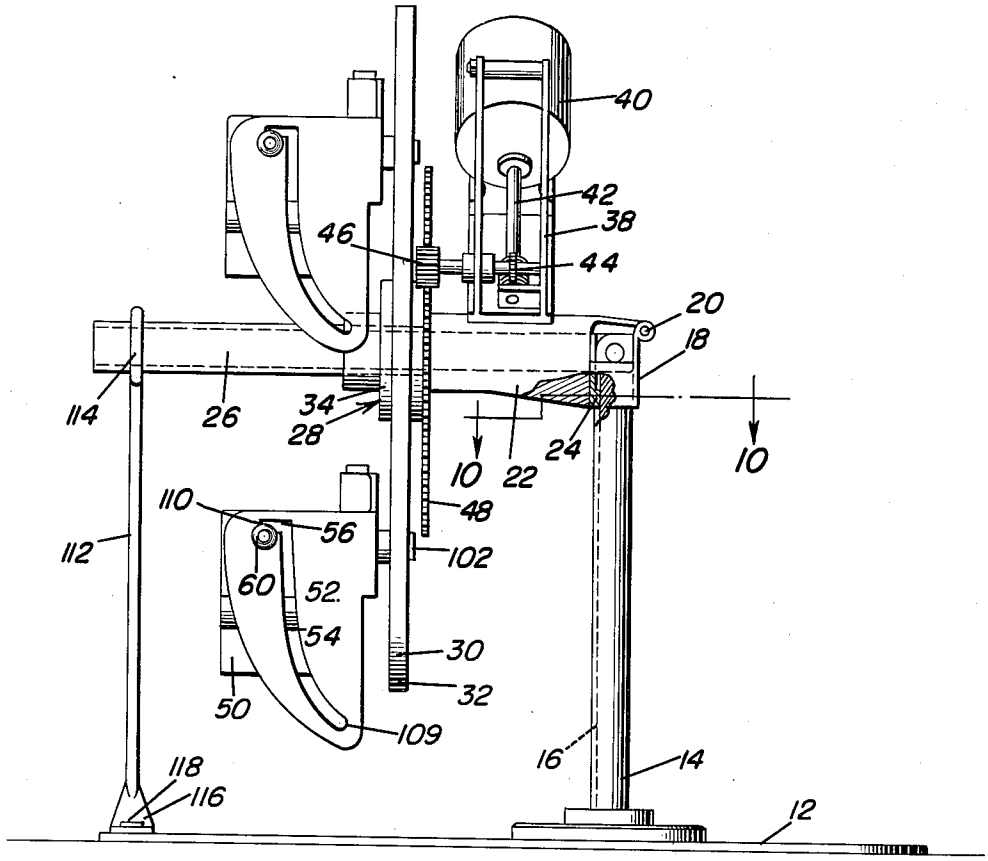
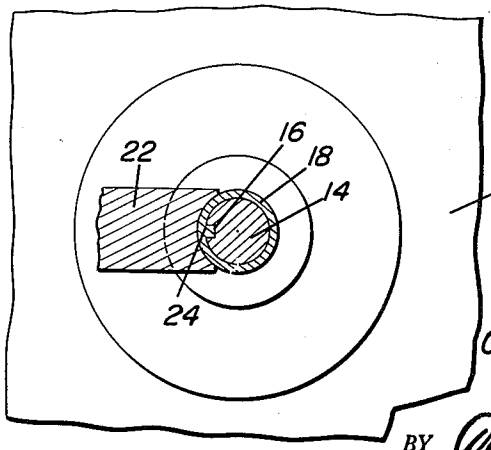



Fig.10

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United States Patent Office 2,728,574 Patented Dec. 27, 1955



2,728,574

# COMBINATION MERRY-GO-ROUND AND FERRIS WHEEL

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Application June 15, 1953, Serial No. 361,654

18 Claims. (Cl. 272—48)

This invention relates to amusement devices, and more particularly to a combination merry-go-round and Ferris wheel.

The primary object of this invention is to provide an amusement and entertainment device for use as a carnival ride that is capable of being arranged for selective use as a merry-go-round and as a Ferris wheel.

One of the particular novel features of this invention is the arrangement of parts of the vertical supporting members for the rotating wheel assembly whereby the rotating wheel assembly can be arranged for rotation about a horizontal axis or, selectively, about a vertical axis. This structure involves a vertically extending standard on which there is slidably mounted a sleeve formed of two sleeve sections hingedly attached to each other, the upper of the two sleeve sections having a shaft on which the wheel assembly is mounted attached thereto. The sleeve sections and the shaft are capable of being slidably positioned about the standard to convert the amusement device from a Ferris wheel to a merry-go-round.

Another important feature of the construction of this invention resides in the support plates rotatably attached to the wheel assembly and provided with arcuate slots therein within which guide pins attached to seats may be inserted. This will permit the seats to be maintained in an upright position no matter whether the amusement device was used as a Ferris wheel or as a merry-go-round.

It is within the concept of this invention to construct the combined merry-go-round and Ferris wheel for full scale use by a desired number of occupants of the seats, but this device may be made in miniature for use as a highly attractive toy for children.

Still further objects of this invention reside in the provision of a combined merry-go-round and Ferris wheel that is strong and durable, capable of being readily and easily converted from a merry-go-round to a Ferris wheel using a minimum amount of time and labor, and which is relatively inexpensive to manufacture, thereby making this device a highly remunerative attraction for use by carnivals and amusement parks.

These, together with the various ancillary objects and features of the invention which will become apparent as the following description proceeds are attained by this combined merry-go-round and Ferris wheel, a preferred embodiment of which has been illustrated in the accompanying drawings, by way of example only, wherein:

Figure 1 is a perspective view of the combined merry-go-round and Ferris wheel comprising the present invention shown arranged for use as a merry-go-round;

Figure 2 is an enlarged sectional detail view illustrating the arrangement of parts of the seat assembly structure when the device is used as a merry-go-round;

Figure 3 is a side elevational view of the amusement device shown in use as a Ferris wheel;

Figure 4 is a perspective view of one of the seats;

Figure 5 is another side elevational view of the device as appearing along the line of sight opposed from the view shown in Figure 3;



Figure 6 is a sectional detail view illustrating the seat assembly as arranged for use on the device as a Ferris wheel;

Figure 7 is a perspective view of a piston and crank arm forming elements of the seat assembly;

Figure 8 is a perspective view of the support pins which mount the seat assembly for rotary movement relative to the wheel assembly;

Figure 9 is an end elevational view of the device showing the combined merry-go-round and Ferris wheel as arranged for use as the Ferris wheel; and

Figure 10 is an enlarged sectional detail view as taken along the plane of line 10—10 in Figure 9 and showing the arrangement of parts for preventing relative rotation of the sleeve and the vertically extending standard.

With continuing reference to the accompanying drawings wherein like reference numerals designate similar parts throughout the various views, reference numeral 10 is used to generally designate the amusement device comprising the present invention which, as is shown in Figure 1, is adapted for use as a merry-go-round yet which may be converted to a Ferris wheel, as is shown in Figures 1, 3 and 9 and as may be desired by the operator of this device. The combined merry-go-round and Ferris wheel is, of course, mounted on a suitable base 12 which may be either an enlarged plate or which may be a cast foundation, or which may be of any convenient construction as may be desired. Extending upwardly from the base 12 is a vertically extending standard 14 having a slot or keyway 16 therein which is elongated and which extends substantially the entire height of the standard 14.

Concentric with and slidable over the standard 14 is a lower sleeve section 18 which has hingedly secured thereto, as at 20, an upper sleeve section 22. The lower sleeve section 18 carries a key 24 adapted to ride in the keyway 16 and which prevents relative rotation of the sleeve 18, and hence, of the sleeve 22 relative to the standard 14, no matter whether the device is used as a Ferris wheel or as a merry-go-round. Carried by the upper sleeve section 22 is a tubular and hollow shaft 26 which extends substantially through the upper sleeve 22. The shaft 26 is adapted to slidably embrace the standard 14 when the device is arranged as is shown in Figure 1 for use as a merry-go-round.

Rotatably mounted on the shaft 26 is a wheel assembly 28 which includes a relatively rigid and strong wheel 30 preferably constructed with a peripheral rim 32, a hub 34, and spokes 36 connecting the rim 32 to the hub 34. Mounted on the upper sleeve 22 by means of a frame 38 is a motor 40, preferably electrically actuated and of relatively light weight which drives a shaft 42 and through a suitable gear assembly 44 actuates a drive gear 46 which engages a comparatively large ring gear 48 rigidly attached to the hub 34 of the wheel assembly 28. Inasmuch as the shaft 26 is in fixed relationship relative to the sleeve section 22, the motor 40 and the connecting gear train will continuously maintain its relative relationship with the ring gear 48 and hence, the drive mechanism remains identical, no matter whether this device is used as a merry-go-round or as a Ferris wheel.

Any desired number of seats 50 are adapted to be mounted on the wheel assembly 28. The mounting means utilized are such that the seats 50 are maintained in a substantially upright position no matter whether the amusement apparatus is utilized as a merry-go-round or as a Ferris wheel. The mounting means include support plates 52 having slots 54 therethrough which are arcuate in shape and which terminate as at 56 in hook-like portions. The seats 50 are provided with backs 57 having pins 58 attached thereto, the pins 58 being adapted to extend through the slots 54, the pins 58 being held in

position by retaining threaded collars 60. The chairs 50 are provided with side rails 62 and 64 and a locking safety bar 66 extends between the side rails 62 and 64. The support plates 52 are attached by means of connecting plates 68 to tubular cylinders 70 which are spaced from and attached to the spokes 36 of the wheel 30. Slidably positioned within the cylinders 70 are pistons 72, the pistons 72 being provided with elongated slots 74 therein which bifurcate the outer ends of the pistons 72. A pin 76 extends between the bifurcated portions of each of the pistons 72 and rotatably mounts the arcuate end 78 of a crank arm 80 on the piston 72. The other end of the crank arms 80 extend inwardly through the openings formed in tubular members 82 depending beneath the seats 50. The free ends of the crank arms 80 are threaded as at 84 for reception of a nut or stop member 86 which prevents the crank arms 80 from being withdrawn out of the tubular members 82. On the crank arms 80 there are collars 88 and coil springs 90 bias the collars and the tubular members 82, the coil springs 90 being concentric with the crank arms 80. The coil springs 90 thus continuously urge the arcuate portions 78 of the crank arms 80 away from the tubular members 82 and hence urge the pistons 72 inwardly of the cylinders 70. A pin 92 extends trough suitable aligned apertures 94 in the cylinder 70 and through the slots 74 in the pistons 72. The pin 92 includes a spacer portion 96 adapted to hold the cylinders 70 in spaced relation relative to the wheel 32, the pin 92 having a portion 98 extending through suitable portions of the spokes 36. Bearings 100 which may be formed of a suitable metal or which may be formed from races of ball bearings, roller bearings or otherwise as desired mount the pin 92 for rotary movement relative to the spoke 36 and hence to the wheel 32. A nut 102 or other stop member is threadedly secured on the threaded end portion 103 of the pin 92 and a nut 104 is threadedly secured on the threaded end of the upper portion 106 of the pin 92. It is to be noted that the upper portion 106 is flattened so that the pins 92 can fit within the slots 74. It is to be noted that the peripheral edge of the wheel rim 32 is provided with notches 107 therein. These notches are provided to hold the arcuate portions 78 of the crank arms 80 and cooperate with the arcuate end portions 109 of the slot 54 to hold the chairs 50 against any sizeable motion relative to the wheel assembly 28 when the device is utilized as a merry-go-round. However, when the amusement device is used as a Ferris wheel, the pin 58 is moved along the slot 54 by raising the seat 50 while compressing the spring 90. When the pin 58 is confined within the hook section 56, it will be lockingly held by gravity in the lower confines of the hook section, as indicated at 110, thereby stabilizing the seat 50 so that it can rotate about the horizontal axis of the pin 92 to permit the seat 50 to continuously maintain a substantially upright position.

As can be seen best in Figure 9, a support for the free end of the shaft 26 when the device is used as a Ferris wheel may be provided, and it is generally indicated at 112. This support includes a loop-like portion 114 through which the shaft 26 extends, the support member 112 having a base portion 116 provided with apertures therethrough through which beads 118 attached to the base 12 may extend.

The safety of the occupant of this amusement device is provided by the notches 107 in the wheel rim 32 which prevent any undue oscillatory movement of the seats 50. Likewise, the springs 90 continuously hold the pin either against the end portion 109 of the slot or against the hook-like end portion 110 of the slot when the device is used as a Ferris wheel. This prevents collapse of the seat from the position for use as a merry-go-round to the position when the device is used as a Ferris wheel and vice versa.

Since from the foregoing, the construction and advantages of this combined merry-go-round and Ferris wheel are readily apparent, further description is believed to be unnecessary.

However, since numerous modifications and changes will readily occur to those skilled in the art after a consideration of the foregoing specification and accompanying drawings, it is not intended to limit the invention to the precise embodiment shown and described, but all suitable modifications and equivalents may be readily resorted to which fall within the scope of the appended claims.

What is claimed as new is as follows:

1. A combination merry-go-round and Ferris wheel comprising a vertically extending standard, a sleeve slidably positioned on said standard, said standard having an elongated vertically extending keyway therein, said sleeve being formed of a lower sleeve section and an upper sleeve section hingedly secured to said lower sleeve section, a key carried by said lower sleeve section engaged in said keyway preventing relative rotation of said sleeve and said standard, a shaft secured to said sleeve, a wheel assembly journaled on said shaft, and drive means engaging said wheel assembly for rotating said wheel assembly relative to said shaft, said drive means being carried by said upper sleeve.

2. A combination merry-go-round and Ferris wheel comprising a vertically extending standard, a sleeve formed of two sleeve sections hingedly secured to each other, at least one of said sleeve sections positioned about said standard, a shaft secured to said sleeve, a wheel assembly journaled on said shaft, and drive means engaging said wheel assembly for rotating said wheel assembly relative to said shaft, said shaft being tubular in construction, the internal diameter of said shaft being greater than the external diameter of said standard enabling said shaft to be slidably positioned about said standard.

3. A combination merry-go-round and Ferris wheel comprising a vertically extending standard, a sleeve slidably positioned on said standard, said standard having an elongated vertically extending keyway therein, said sleeve being formed of a lower sleeve section and an upper sleeve section hingedly secured to said lower sleeve section, a key carried by said lower sleeve section engaged in said keyway preventing relative rotation of said sleeve and said standard, a shaft secured to said sleeve, a wheel assembly journaled on said shaft, and drive means engaging said wheel assembly for rotating said wheel assembly relative to said shaft, said drive means being carried by said upper sleeve, said shaft being tubular in construction, the internal diameter of said shaft being greater than the external diameter of said standard enabling said shaft to be slidably positioned about said standard.

4. A combination merry-go-round and Ferris wheel comprising a vertically extending standard, a sleeve slidably positioned on said standard, said standard having an elongated vertically extending keyway therein, said sleeve being formed of a lower sleeve section and an upper sleeve section hingedly secured to said lower sleeve section, a key carried by said lower sleeve section engaged in said keyway preventing relative rotation of said sleeve and said standard, a shaft secured to said sleeve, drive means for rotating said wheel assembly relative to said shaft, said drive means being carried by upper sleeve, said wheel assembly including a driven gear, said drive means including a motor, a shaft rotatably driven by said motor having a drive gear thereon, said drive gear engaging said driven gear.

5. A combination merry-go-round and Ferris wheel comprising a vertically extending standard, a sleeve slidably positioned on said standard, said standard having an elongated vertically extending keyway therein, said sleeve being formed of a lower sleeve section and an upper sleeve section hingedly secured to said lower sleeve section, a key carried by said lower sleeve section engaged in said keyway preventing relative rota-

tion of said sleeve and said standard, a shaft secured to said sleeve, a wheel assembly journaled on said shaft, and drive means engaging said wheel assembly for rotating said wheel assembly relative to said shaft, said drive means being carried by said upper sleeve, a plurality of seats, and support means mounting said seats in said wheel assembly so that said seats are capable of being maintained in a substantially upright position.

6. A combination merry-go-round and Ferris wheel comprising a vertically extending standard, a sleeve slidably positioned on said standard, said standard having an elongated vertically extending keyway therein, said sleeve being formed of a lower sleeve section and an upper sleeve section hingedly secured to said lower sleeve section, a key carried by said lower sleeve section engaged in said keyway preventing relative rotation of said sleeve and said standard, a shaft secured to said sleeve, drive means for rotating said wheel assembly relative to said shaft, said drive means being carried by said upper sleeve, a plurality of seats, and support means mounting said seats in said wheel assembly so that said seats are capable of being maintained in a substantially upright position, said support means including a plurality of circumferentially spaced support plates, said support plates having arcuate slots therein, said seats having pins attached thereto engaged in said slots, tubular support cylinders carried by said wheel assembly, said support plates being secured to said cylinders, pistons in said cylinders, support pins extending through said cylinders and through elongated slots in said pistons, said pins being journaled in said wheel assembly, said seats having tubular support members attached thereto, crank arms mounted in said support members and pivotally attached to said pistons, collars on said crank arms, and spring means concentric with said crank arms resiliently urging said collars and said support members apart.

7. A combination merry-go-round and Ferris wheel comprising a wheel assembly mounted for rotation selectively about a horizontal axis and about a vertical axis, a plurality of seats, and support means mounting said seats in said wheel assembly so that said seats are capable of being maintained in a substantially upright position, said support means including a plurality of circumferentially spaced support plates, said support plates having arcuate slots therein, said seats having pins attached thereto engaged in said slots, tubular support cylinders carried by said wheel assembly, said support plates being secured to said cylinders, pistons in said cylinders, support pins extending through said cylinders and through elongated slits in said pistons, said pins being journaled in said wheel assembly, said seats having tubular support members attached thereto, crank arms mounted in said support members and pivotally attached to said pistons, collars on said crank arms, and spring means concentric with said crank arms resiliently urging said collars and said support members apart.

8. A combination merry-go-round and Ferris wheel comprising a vertically extending standard, a sleeve formed of two sleeve sections hingedly secured to each other, at least one of said sleeve sections positioned about said standard, a shaft secured to said sleeve, a wheel assembly journaled on said shaft, and drive means engaging said wheel assembly for rotating said wheel assembly relative to said shaft, said wheel assembly including a driven gear, said drive means including a motor, a shaft rotatably driven by said motor having a drive gear thereon, said drive gear engaging said driven gear.

9. A combination merry-go-round and Ferris wheel comprising a vertically extending standard, a sleeve slidably positioned on said standard, said standard having an elongated vertically extending keyway therein, said sleeve being formed of a lower sleeve section and an upper sleeve section hingedly secured to said lower sleeve section, a key carried by said lower sleeve section engaged in said keyway preventing relative rotation of said sleeve and said standard, a shaft secured to said sleeve, a wheel assembly journaled on said shaft, and drive means engaging said wheel assembly for rotating said wheel assembly relative to said shaft, said drive means being carried by said upper sleeve, said shaft being tubular in construction, the internal diameter of said shaft being greater than the external diameter of said standard enabling said shaft to be slidably positioned about said standard, said wheel assembly including a driven gear, said drive means including a motor, a shaft rotatably driven by said motor having a drive gear thereon, said drive gear engaging said driven gear.



10. A combination merry-go-round and Ferris wheel comprising a vertically extending standard, a sleeve slidably positioned on said standard, said standard having an elongated vertically extending keyway therein, said sleeve being formed of a lower sleeve section and an upper sleeve section hingedly secured to said lower sleeve section, a key carried by said lower sleeve section engaged in said keyway preventing relative rotation of said sleeve and said standard, a shaft secured to said sleeve, a wheel assembly journaled on said shaft, and drive means engaging said wheel assembly for rotating said wheel assembly relative to said shaft, said drive means being carried by said upper sleeve, said shaft being tubular in construction, the internal diameter of said shaft being greater than the external diameter of said standard enabling said shaft to be slidably positioned about said standard, said wheel assembly including a driven gear, said drive means including a motor, a shaft rotatably driven by said motor having a drive gear thereon, said drive gear engaging said driven gear, a plurality of seats, and support means mounting said seats in said wheel assembly so that said seats are capable of being maintained in a substantially upright position.

11. A combination merry-go-round and Ferris wheel comprising a vertically extending standard, a sleeve slidably positioned on said standard, said standard having an elongated vertically extending keyway therein, said sleeve being formed of a lower sleeve section and an upper sleeve section hingedly secured to said lower sleeve section, a key carried by said lower sleeve section engaged in said keyway preventing relative rotation of said sleeve and said standard, a shaft secured to said sleeve, a wheel assembly journaled on said shaft, and drive means engaging said wheel assembly for rotating said wheel assembly relative to said shaft, said drive means being carried by said upper sleeve, said shaft being tubular in construction, the internal diameter of said shaft being greater than the external diameter of said standard enabling said shaft to be slidably positioned about said standard, said wheel assembly including a driven gear, said drive means including a motor, a shaft rotatably driven by said motor having a drive gear thereon, said drive gear engaging said driven gear, a plurality of seats, and support means mounting said seats in said wheel assembly so that said seats are capable of being maintained in a substantially upright position, said support means including a plurality of circumferentially spaced support plates, said support plates having arcuate slots therein, said seats having pins attached thereto engaged in said slots, tubular support cylinders carried by said wheel assembly, said support plates being secured to said cylinders, pistons in said cylinders, support pins extending through said cylinders and through elongated slots in said pistons, said pins being journaled in said wheel assembly, said seats having tubular support members attached thereto, crank arms mounted in said support members and pivotally attached to said pistons, collars on said crank arms, and spring means concentric with said crank arms resiliently urging said collars and said support members apart.

12. A combination merry-go-round and Ferris wheel comprising a vertically extending standard, a sleeve formed

of two sleeve sections hingedly secured together, at least one of said sleeve sections positioned about said standard, a shaft secured to said sleeve, a wheel assembly journaled on said shaft, and drive means engaging said wheel assembly for rotating said wheel assembly relative to said shaft, a plurality of seats, and support means mounting said seats in said wheel assembly so that said seats are capable of being maintained in a substantially upright position.

13. A combination merry-go-round and Ferris wheel comprising a vertically extending standard, a sleeve formed of two sleeve sections hingedly secured together, at least one of said sleeve sections positioned about said standard, a shaft secured to said sleeve, a wheel assembly journaled on said shaft, and drive means engaging said wheel assembly for rotating said wheel assembly relative to said shaft, a plurality of seats, and support means mounting said seats in said wheel assembly so that said seats are capable of being maintained in a substantially upright position, said support means including a plurality of circumferentially spaced support plates, said support plates having arcuate slots therein, said seats having pins attached thereto engaged in said slots, tubular support cylinders carried by said wheel assembly, said support plates being secured to said cylinders, pistons in said cylinders, support pins extending through said cylinders and through elongated slots in said pistons, said pins being journaled in said wheel assembly, said seats having tubular support members attached thereto, crank arms mounted in said support members and pivotally attached to said pistons, collars on said crank arms, and spring means concentric with said crank arms resiliently urging said collars and said support members apart.

14. A combination merry-go-round and Ferris wheel comprising a wheel assembly mounted for rotation selectively about a horizontal axis and about a vertical axis, a plurality of seats, and support means mounting said seats in said wheel assembly comprising seat support members journaled in the wheel assembly to rotate about an axis normal to the plane of the wheel, seat support arms attached to the seats and pivoted to the seat support members, said seats being adapted to selectively pivot to a substantially upright position when the wheel assembly is rotating about a horizontal axis or about a vertical axis, and means for locking the seats in substantially upright position.



15. A combination merry-go-round and Ferris wheel comprising a wheel assembly mounted for rotation selectively about a horizontal axis and about a vertical axis, a plurality of seats, and support means mounting said seats in said wheel assembly comprising tubular support cylinders journaled in said wheel assembly to rotate in a plane parallel to the wheel, pistons in said cylinders, seat supporting arms attached to the seats and pivotally attached to said pistons.

16. The invention according to claim 15 in which means are provided for locking the seats in substantially upright position when the wheel assembly is rotating about a horizontal axis or about a vertical axis.

17. A combination merry-go-round and Ferris wheel comprising a wheel assembly mounted for rotation about a horizontal axis and about a vertical axis, a plurality of seats, and support means mounting said seats in said wheel assembly comprising tubular support cylinders, pistons in said cylinders, support pins extending through said cylinders and through elongated slits in said pistons, said pins being journaled so that the tubular support cylinders may rotate in a plane parallel to the wheel in said wheel assembly, seat supporting arms attached to the seats and pivotally attached to said pistons.

18. The invention according to claim 17 in which means are provided for locking the seats in substantially upright position when the wheel assembly is rotating about a horizontal axis or about a vertical axis.

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