Dec. 20, 1960 E. W. HAMILTON 2,965,375

AMUSEMENT RIDES

Filed Dec. 19, 1958 2 Sheets-Sheet 1

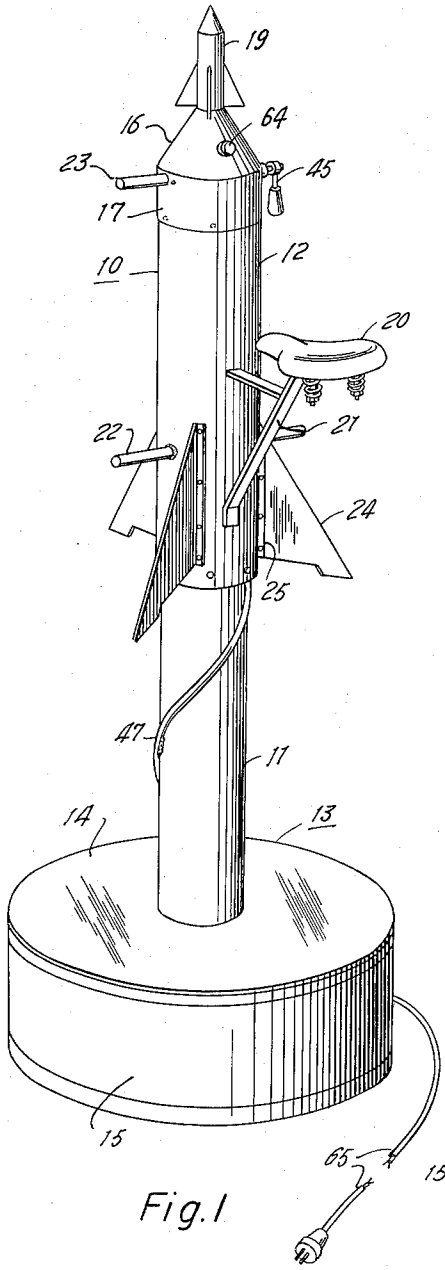



Fig. 1

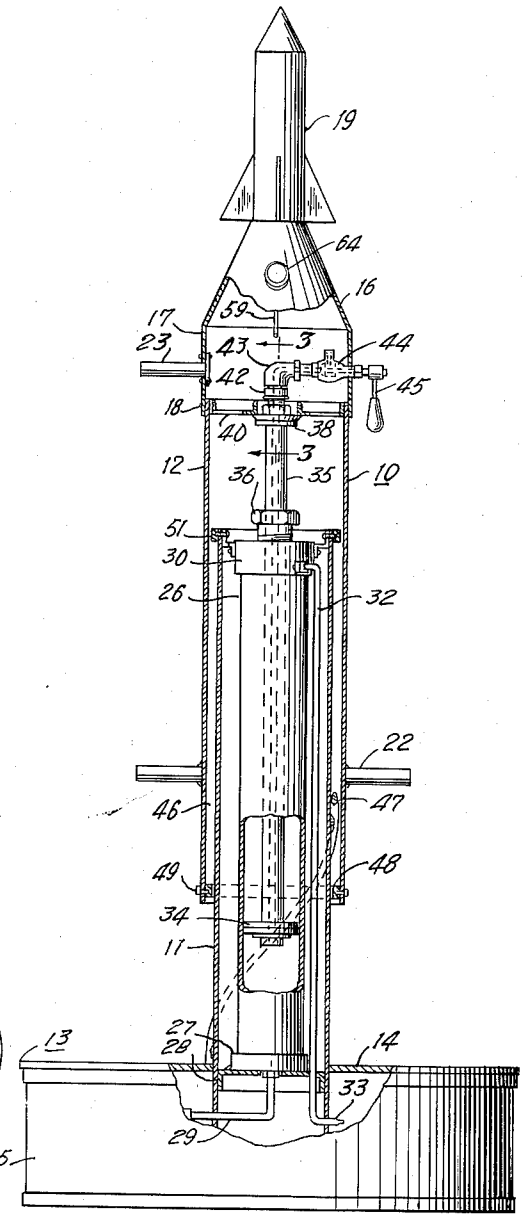



Fig. 2

INVENTOR
Edwin W. Hamilton

BY Ohley & Ohley

ATTORNEYS

Dec. 20, 1960 E. W. HAMILTON 2,965,375

AMUSEMENT RIDES

Filed Dec. 19, 1958 2 Sheets-Sheet 2

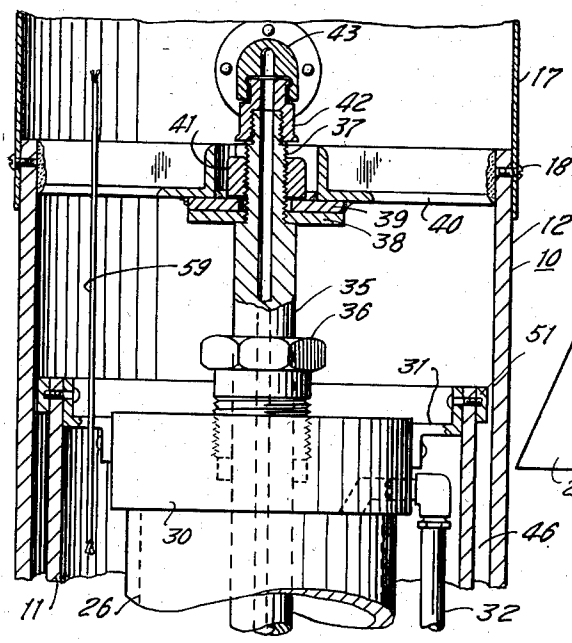



Fig. 3

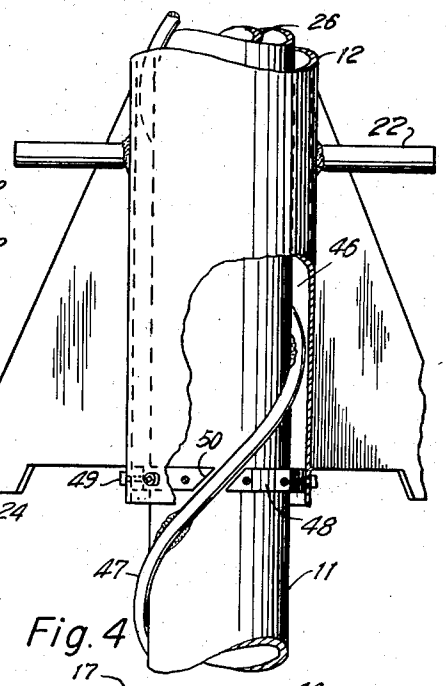



Fig. 4

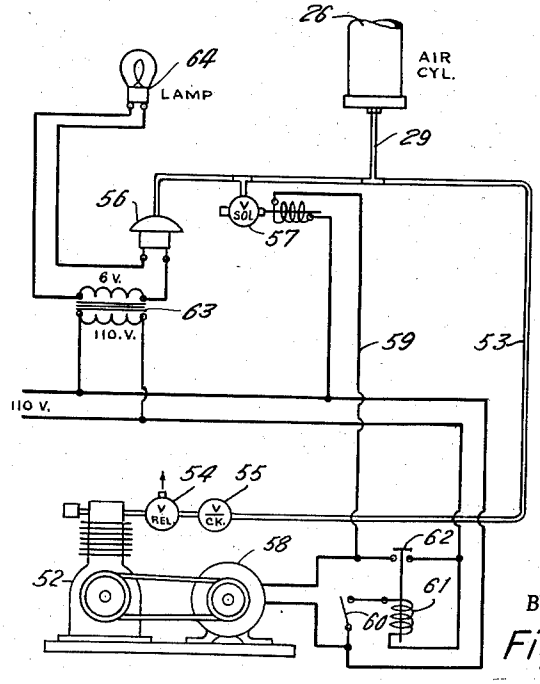



Fig. 5

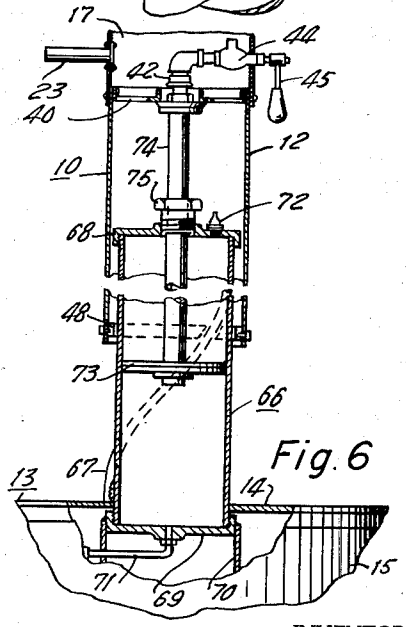



Fig. 6

INVENTOR

Edwin W. Hamilton

BY Ashley & Ashley

ATTORNEYS

United States Patent Office 2,965,375 Patented Dec. 20, 1960



2,965,375

# AMUSEMENT RIDES

Edwin William Hamilton, 671 W. Wood, Abilene, Tex.

Filed Dec. 19, 1958, Ser. No. 781,741

3 Claims. (Cl. 272—7)

This invention relates to new and useful improvements in amusement rides.

One object of the invention is to provide an improved amusement ride which simulates a rocket and which rotates while moving vertically, the movement of the ride being controllable by the rider.

Another object of the invention is to provide an improved amusement ride which may be relatively small so as to be readily transportable and capable of being installed at any desirable location and which has a member for carrying one or more riders and mounted on an upright support for longitudinal and rotational movement relative to the support.

A further object of the invention is to provide an improved amusement ride, of the character described, wherein the upright support includes a cylinder having a piston reciprocable therein for imparting longitudinal movement to the member, said support and member having coacting means for rotating said member during its longitudinal movement whereby the rider is carried upwardly and downwardly through a helical path.

Still another object of the invention is to provide an improved amusement ride, of the character described, having a tubular piston rod reciprocable with the piston for venting the cylinder below said piston and means mounted on the movable member for operation by the rider to control flow through the piston rod and the movement of said member by said rod.

A construction designed to carry out the invention will be hereinafter described, together with other features of the invention.

The invention will be more readily understood from a reading of the following specification and by reference to the accompanying drawings, wherein examples of the invention are shown, and wherein:

Fig. 1 is a perspective view of an amusement ride constructed in accordance with the invention,

Fig. 2 is a longitudinal, sectional view, partly in elevation, of the ride,

Fig. 3 is an enlarged, transverse, vertical, sectional view of the upper portion of the cylinder and the connection of the movable member to the piston rod,

Fig. 4 is a side elevational view, partly in section, showing the coacting means for imparting rotation to the member,

Fig. 5 is a schematic view showing the wiring diagram, and

Fig. 6 is a transverse, vertical, sectional view of a modified cylinder construction.

In the drawings, the numeral **10** designates the carriage or movable member of an amusement ride embodying the principles of the invention and including an upright, cylindrical member or tube **11** which provides a support for said carriage member. The latter includes a sleeve **12** complementary to and telescopingly surrounding the tube **11** in concentric, spaced relationship. A circular base or platform **13**, having a flat, horizontal top plate or wall **14** and an upright side or peripheral wall **15**, concentrically surrounds the lower portion of the tube for maintaining said tube in an upright position. The carriage member **10** is adapted to undergo longitudinal and rotational movement relative to the tube **11** and has the upper end of its sleeve **12** closed by a substantially conical cap **16** which includes a depending skirt or lower end portion **17** complementary and secured to said sleeve by screws **18**. For simulating a second-stage rocket, a cylindrical nose or reduced, upper end portion **19** may project axially from the cap **16**. A suitable seat **20** is mounted on the sleeve by a bracket **21** above and adjacent diametrically-opposed foot rests **22** which extend laterally from said sleeve. The skirt **18** of the cap may carry a similar hand grip or rest **23**. Triangular fins **24**, of rubber or other flexible material, may extend radially and longitudinally from the lower portion of the sleeve and be secured thereto by angle bars **25**.



For supporting and reciprocating the carriage member **10**, a pressure fluid cylinder **26** is disposed longitudinally within the tube **11** in concentric, spaced relation thereto and has its lower end cap or head **27** secured to and supported by a horizontal partition **28** extending transversely of the lower portion of said tube (Fig. 2). Air or other fluid under pressure is supplied to the lower end of the cylinder **26** by a conductor or pipe **29** in the base **13** and extending through the lower portion of the tube into communication with said cylinder through its lower head **27**. A similar head **30** is mounted on the upper end of the cylinder and is fastened to the upper end of the tube by angular brackets **31** (Fig. 3). For venting air or other pressure fluid from the upper end of the cylinder, a pipe or conductor **32** communicates with said cylinder through the head **30** and extends downwardly between the tube and cylinder and through the partition **28** and the lower portion of said tube. When air is employed as the operating fluid, the conductor **32** may have a restricted orifice fitting or whistle **33** on its lower end for actuation by the air exhausted from the upper end of the cylinder.

A piston **34** is slidably mounted in the cylinder **26** and has a tubular piston rod **35** extending axially therefrom through a packing gland **36** carried by the upper head **30**. The upper end of the piston rod **35** projects above the tube **11** and is reduced in diameter and screwthreaded, as shown by the numeral **37** in Fig. 3, for connection with an annular bearing plate or ring **38**. A similar bearing plate or ring **39** rests on the ring **38** and is welded or otherwise secured to the axial portion or hub of a radial spider **40** which extends transversely of and is secured to the upper end of the sleeve **12**. The bearing rings are confined in engagement by a suitable nut **41** screwthreaded on the reduced portion **37** of the piston rod above the ring **39**. A swivel connection **42** is screwthreaded to the upper extremity of the rod and includes a rotatable elbow **43** extending laterally from said rod for connection with an exhaust or vent valve **44**. As shown in Fig. 2, the valve **44** has an operating lever **45** extending through the skirt **17** of the cap **16** opposite the hand grip **23**. Preferably, the lever **45** is spring-pressed and holds the exhaust valve open until said lever is manipulated to close said valve.

Due to the bearing rings **38** and **39**, the carriage member is rotatably supported by the piston rod **35** and is movable therewith longitudinally of the tube **11**. It is noted that the internal diameter of the sleeve **12** is greater than the external diameter of the tube whereby said sleeve is spaced from said tube and an annular space or annulus **46** is provided therebetween. For imparting rotation to the carriage member upon reciprocation thereof, a helical rail or track **47** is welded or otherwise secured to the exterior of the tube and extends upwardly from the base **13** through the annulus **46** to the upper

end of said tube. The track 47 may be in the form of a cylindrical rod having the desired number of convolutions and is adapted to coact with an annular guide element or ring 48 secured to and within the lower end portion of the sleeve by suitable screws 49. As shown most clearly in Fig. 4, a diagonal opening or slot 50 is formed in the guide ring 48 for receiving the track 47 to cause rotation of the carriage member upon longitudinal movement thereof. An annular stop element or ring 51 surrounds and is secured to the upper end of the tube to assist in guiding the carriage member and limiting upward movement thereof.

For supplying air or other fluid under pressure to the cylinder 26, a compressor or pump 52 is adapted to be mounted in the base 13 and is connected to the conductor 29 by a conductor or pipe 53 having a pressure relief valve 54 and check valve 55 mounted therein (Fig. 5). The pipe 53 extends beyond the conductor 29 for actuating a pressure switch 56 and a solenoid vent valve 57 is interposed between the switch and conductor. An electric motor 58 is provided for driving the compressor 52 and is connected in an electrical circuit 59 which includes a manual or coin-operated switch 60, a relay 61, a contact switch 62, a transformer 63 and a signal or lamp 64. Upon closing of the switch 60, the relay 61 is energized for closing the contact switch 62 to complete the circuit to the motor 58. The solenoid valve 57, which is open normally to vent air or pressure fluid from the cylinder 26 below its piston 34, is connected in the circuit 59 and is closed by the closing of the contact switch. As shown in Figs. 1 and 2, the lamp 64 is mounted in the cap 16 and is energized through the transformer 63 by the pressure switch 56 when the fluid in the cylinder below the piston reaches a predetermined pressure. A conventional electrical cord 65 extends from the base 13 for connection with a source of electrical energy (not shown). Although air may be vented to atmosphere, it is necessary to return other pressure fluids to the pump or a reservoir (not shown) in the customary manner.

In operation, the solenoid valve 57 is closed and the motor 58 is energized by closing of the switch 60 to drive the compressor 52 and force air under pressure to the cylinder 26 below its piston 34 through the pipe 53 and conductor 29. Due to the tubular piston rod 35, this air is vented by the valve 44 until said valve is closed by manipulation of its lever 45. Upon closing of the latter valve, the pressure of the air is exerted against the lower surface of the piston and lifts said piston as well as the carriage member 10. The air in the cylinder above the piston is vented through the conductor 32 and actuates the whistle 33. Due to the coaction of the helical track 47 and guide ring 48, the carriage member is rotated upon longitudinal movement thereof and turns relative to the piston rod. When the guide ring engages the stop ring 51, upward movement of the carriage member ceases and the pressure of the air below the piston increases sufficiently to energize the lamp 64. Upon release of the lever 45, the valve 44 opens to again vent the air from below the piston and permit downward movement of the carriage member by gravity. It is noted that the whistle 33 functions as a restriction in the conductor 32 to prevent sudden dropping of the carriage member due to air being drawn too rapidly into the upper portion of the cylinder by downward reciprocation of the piston. The check valve 55 prevents reverse flow through the pipe 53, while the relief valve 54 limits the pressure of the air exerted against the piston. It is pointed out that the switch 60 may be arranged to open automatically after a predetermined time interval so as to de-energize the motor 58 and solenoid valve 57 and permit downward movement of the carriage member even though the valve 44 remains closed.

As shown in Fig. 6, the upright member for supporting the carriage member 10 may be formed by a modified cylinder 66 so as to eliminate the necessity for the separate tube 1. A track 67, similar to the track 47, is welded or otherwise secured to the exterior of the cylinder 66 for coacting with the guide ring 48 of the sleeve 12. The modified cylinder has upper and lower end caps or heads 68 and 69 screwthreaded thereon with its lower head 69 being welded or otherwise secured to an upright tubular support or member 70 within the base 13. A conductor 71, similar to the conductor 29, extends laterally through the member 70 and is connected to the lower head in communication with the lower end of the cylinder. The upper head 68 carries a restricted orifice member or whistle 72 for venting air or other pressure fluid from the upper end of the cylinder. A piston 73, similar to the piston 34, is reciprocable in the cylinder, and has its tubular rod 74 extending through the upper head and its packing gland 75 for rotatable connection with the spider 40 of the carriage member. It is noted that the upper head functions as a stop for engagement by the guide ring 48 to limit upward movement of the carriage member.

The foregoing description of the invention is explanatory thereof and various changes in the size, shape and materials, as well as in the details of the illustrated construction may be made, within the scope of the appended claims, without departing from the spirit of the invention.

What I claim and desired to secure by Letters Patent is:

1. An amusement ride including an upright support having a longitudinal pressure fluid cylinder therein, a piston reciprocable in the cylinder and having a rod projecting above the support, a carriage member rotatably supported by the piston rod with its upper portion extending above and its lower portion telescoping the support for longitudinal and rotational movement relative to said support, means for supplying fluid under pressure to said cylinder for imparting longitudinal movement to the piston, rod and carriage, means for exhausting pressure fluid from said cylinder, and coacting means between the carriage member and support for rotating said carriage member upon longitudinal movement thereof.

2. An amusement ride as set forth in claim 1 wherein the piston rod is tubular and communicates with the cylinder below the piston, and exhaust valve communicating with the upper end of said piston rod for venting pressure fluid from said cylinder below said piston, and means on the carriage member for controlling the exhaust valve, said valve having swivel connection with said piston rod to permit rotation thereof with said carriage member relative to said rod.

3. An amusement ride as set forth in claim 2 wherein the means for exhausting pressure fluid from the cylinder includes a conductor communicating with said cylinder above the piston and having a restriction to limit flow through the conductor and the speed of movement of the carriage member.

**References Cited in the file of this patent**

UNITED STATES PATENTS

| | | |
|---|---|---|
| 703,146 | McAnulty | June 24, 1902 |
| 1,433,695 | Bostwick | Oct. 31, 1922 |
| 1,465,278 | Melchoir | Aug. 21, 1923 |
| 1,857,031 | Schaffer | May 3, 1932 |
| 2,532,444 | Germana | Dec. 5, 1950 |