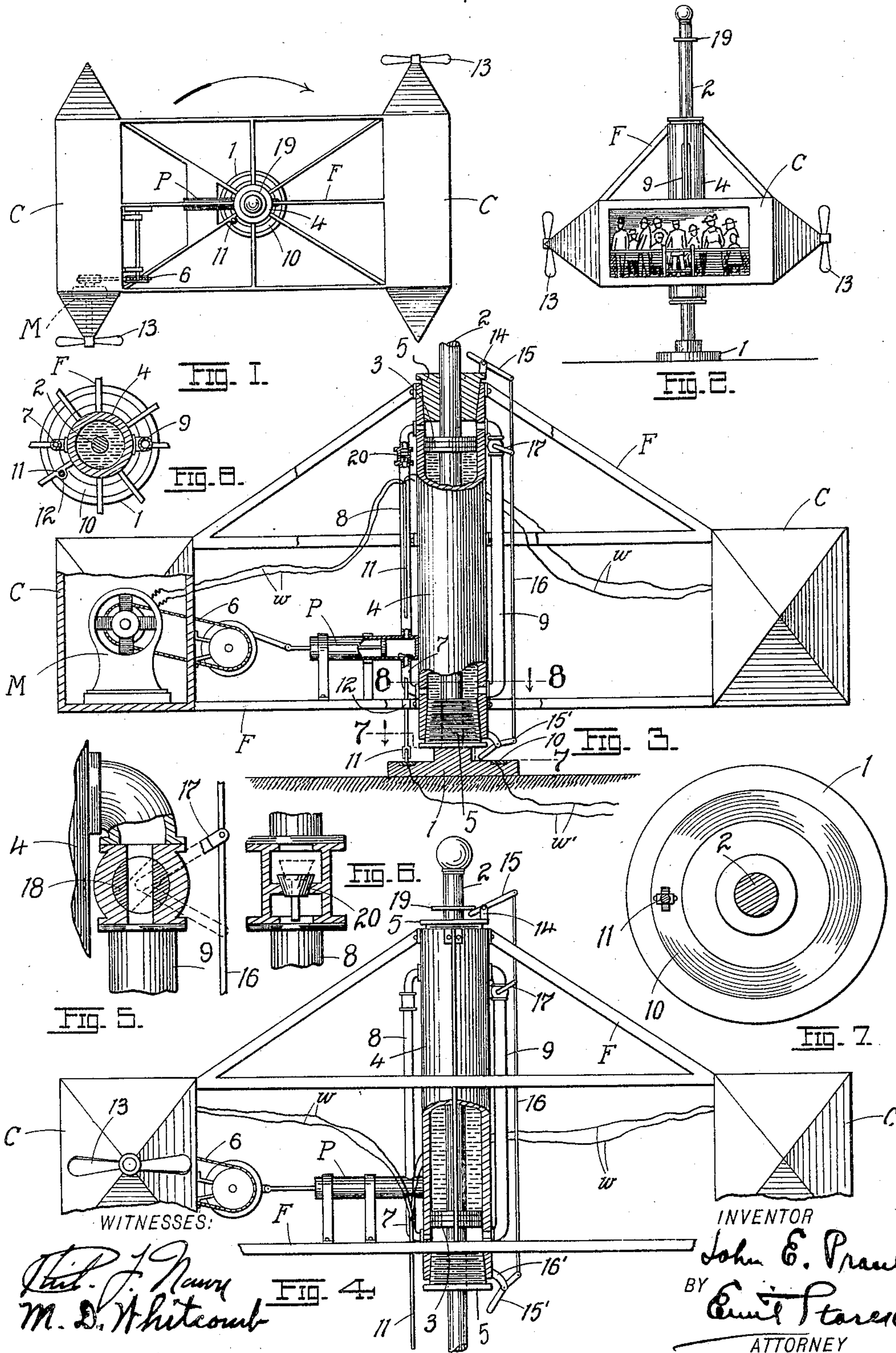


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PATENTED MAY 30, 1905.

J. E. PAUL.
MERRY-GO-ROUND OR CAROUSEL.

APPLICATION FILED JAN. 11, 1904.



UNITED STATES PATENT OFFICE.

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MERRY-GO-ROUND OR CAROUSEL.

SPECIFICATION forming part of Letters Patent No. 791,046, dated May 30, 1905.

Application filed January 11, 1904. Serial No. 188,509.

To all whom it may concern:

Be it known that I, JOHN E. PRAUL, a citizen of the United States, residing at St. Louis, State of Missouri, have invented certain new and useful Improvements in Merry-go-Rounds or Carousels, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

My invention has relation to improvements in merry-go-rounds or carousels; and it consists in the novel construction and arrangement of parts more fully set forth in the specification and pointed out in the claims.

In the drawings, Figure 1 is a diagrammatic plan view of the invention. Fig. 2 is an elevation thereof, showing the cars partly elevated. Fig. 3 is an enlarged combined vertical section and elevation showing the device in its lowest position. Fig. 4 is a similar view with cars in their highest position. Fig. 5 is an enlarged sectional detail showing cut-off valve in the equalizing-pipe open, the dotted parts showing same closed. Fig. 6 is an enlarged sectional detail of the check-valve in the discharge-pipe leading from the pump. Fig. 7 is a horizontal section on the broken line 7 7 of Fig. 3, and Fig. 8 is a horizontal section on the line 8 8 of Fig. 3.

The object of my invention is to construct an electrically-propelled carousel which during its rotation shall be at the same time reciprocated vertically, so as to impart a sensation akin to that of flying, the combination of movements thus affording amusement and a novel sensation to the parties in the car.

In detail the invention may be described as follows:

Referring to the drawings, 1 represents a suitable base from which projects centrally a staff or piston-rod 2, having a stationary piston 3. Adapted to reciprocate along the piston and rod is a cylinder 4, provided with suitable terminal packing rings or heads 5 of any conventional form and construction. Disposed symmetrically about and carried by the cylinder is a suitable truss-frame F, whose opposite ends are provided with passenger-cars C C of any approved design, each car being

provided with an electric motor M, operating, through the medium of a drive-chain 6, a force-pump P, the discharge-cylinder of which is connected to the cylinder 4 by intake and discharge pipes 7 8, respectively, the former communicating with the bottom of the cylinder 4 and the latter with the top thereof and on opposite sides of the stationary piston. Similarly connected with the opposite ends of the cylinder 4 is an equalizing conducting-pipe 9 for conveying the liquid in the cylinder from one side of the piston to the opposite side thereof, as presently to be seen.

The base 1 is provided with an annular rail or trolley-band 10 for the travel of the gravitating trolley-pole 11, the latter loosely playing through a lug 12 of the frame F, Fig. 8, the conducting-wires *w w* leading directly to the motors M. The current is supplied to the trolley-band 10 by wires *w' w'*, leading from any source of electric supply. (Not shown.) Each motor actuates at the same time a suitable propeller or blade 13, by the rotation of which motion is imparted to the cars and the merry-go-round as a whole on the same principle as the propulsion of an airship, the travel of the cars being in the direction as indicated by the arrow in Fig. 1.

The operation of the device may be described as follows: As the cars travel in the horizontal plane indicated in Fig. 1, the pump P, it must be remembered, is operating continuously. The pump at the same time (assuming that the cylinder 4 is in its lowest position, as indicated in Fig. 3) forces the fluid or oil contained in the cylinder 4 from below the piston 3, discharging it into the cylinder above the piston, thus gradually raising the cylinder during the horizontal rotation of the latter. Now the upper end of the cylinder 4 has mounted thereon on a bracket 14 a tripping-lever 15, whose long arm is pivotally coupled to the upper end of a connecting-rod 16, the lower end of the rod being likewise coupled to the end of the adjacent arm of a lever 15', pivoted to a bracket at the base of the cylinder. At a suitable point the rod 16 is coupled to the arm 17 of a two-way cut-off valve 18, mounted in the

equalizing-pipe 9, the said valve being closed during the upward vertical travel of the cylinder. As the latter reaches its highest point the short arm of the lever 15 strikes the tappet-disk 19 on the piston 2, the disk thus tripping the lever, raising the rod 16, and rocking the valve 18 to an open position, Figs. 4, 5. With the valve 18 open the oil in the cylinder above the piston 3 immediately discharges (under the weight of the moving parts) through the pipe 9, flowing into the cylinder under the piston, and the cylinder 4 and cars C C carried thereby thus drop to their lowest position. The cross-section of the pipe 9 is greater than that of the pipe 8, so that, though the pump P is constantly operating, the efflux from above the piston is greater than the influx. As the parts settle to the bottom the inner arm of the lever 15' strikes the base 1, Fig. 3, thus tripping the valve 18 to a closed position, whereupon the pump forces the oil above the piston and again raises the cylinder. Thus the merry-go-round while rotating in a horizontal plane is automatically reciprocated vertically up and down, the pleasure-seekers experiencing the sensation of flying or sailing in an airship. With the vertical reciprocations of the cylinder 4 and cars C C the trolley of course plays freely in the opening of the lug 12, so that the trolley-wheel is always on contact with the band 10.

The pipe 8 is of course provided with an ordinary check-valve 20, obviously necessary.

It is to be understood, of course, that the cars C C describe a number of revolutions about the axis of the rod 2 for a given reciprocation of the cylinder in one direction, so that the effect is like traveling upward or downward along a spiral or inclined plane, the passengers being at first elevated and then gradually lowered during a number of revolutions of the cars.

I do not wish to be limited to the details here shown, as they may in a measure be departed from without in any wise affecting the nature or spirit of my invention. In lieu of cars C C any other mode of conveyance or vehicle may be substituted.

Having described my invention, what I claim is—

1. In a carousel, a suitable stationary rod, a piston thereon, a gradually-reciprocating cylinder, a series of vehicles or cars carried by

the cylinder, means for automatically reciprocating the cylinder along the rod, and simultaneously imparting a series of rotations in a horizontal plane to the cars for a single reciprocation of the cylinder in one direction, substantially as set forth.

2. In a carousel, a suitable vertical staff, a piston thereon, a cylinder mounted on the staff, a series of cars carried by the cylinder, a pump, intake and discharge pipes leading from the pump to the cylinder on opposite sides of the piston, an equalizing-pipe connecting the opposite ends of the cylinder, a valve on said equalizing-pipe, means for automatically closing said valve for the lowest position of the cylinder and opening the same for the elevated position thereof, and suitable means for imparting rotation to the cylinder and simultaneously operating the pump and reciprocating the cylinder, substantially as set forth.

3. In a carousel, a staff, a piston thereon, a cylinder mounted on the staff, a trolley-band, a trolley-pole having one end permanently contacting with the band, means to supply electric energy to the band, a series of cars, a motor on the cars, electric connections leading from the trolley to the motor, a propeller for each motor, a pump operated by the motor, and suitable connections between the pump and cylinder for reciprocating the latter during the rotation of the cylinder about the staff, substantially as set forth.

4. In a carousel, a suitable staff, a piston thereon, a cylinder mounted on the staff, a pump for forcing the cylinder upwardly along the staff, an equalizing-pipe connecting the opposite ends of the cylinder, a valve in said pipe, an arm projecting from said valve, a lever pivotally mounted at either end of the cylinder, a connecting-rod between the levers coupled to said arm, a tappet at the upper end of the staff for tripping the upper lever and opening said valve, means for tripping the lower lever for closing the valve when the cylinder has descended to its lowest position on the staff, and means for rotating the cylinder during its reciprocations, substantially as set forth.

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

JOHN E. PRAUL.

Witnesses:

EMIL STAREK,
MARY D. WHITCOMB.