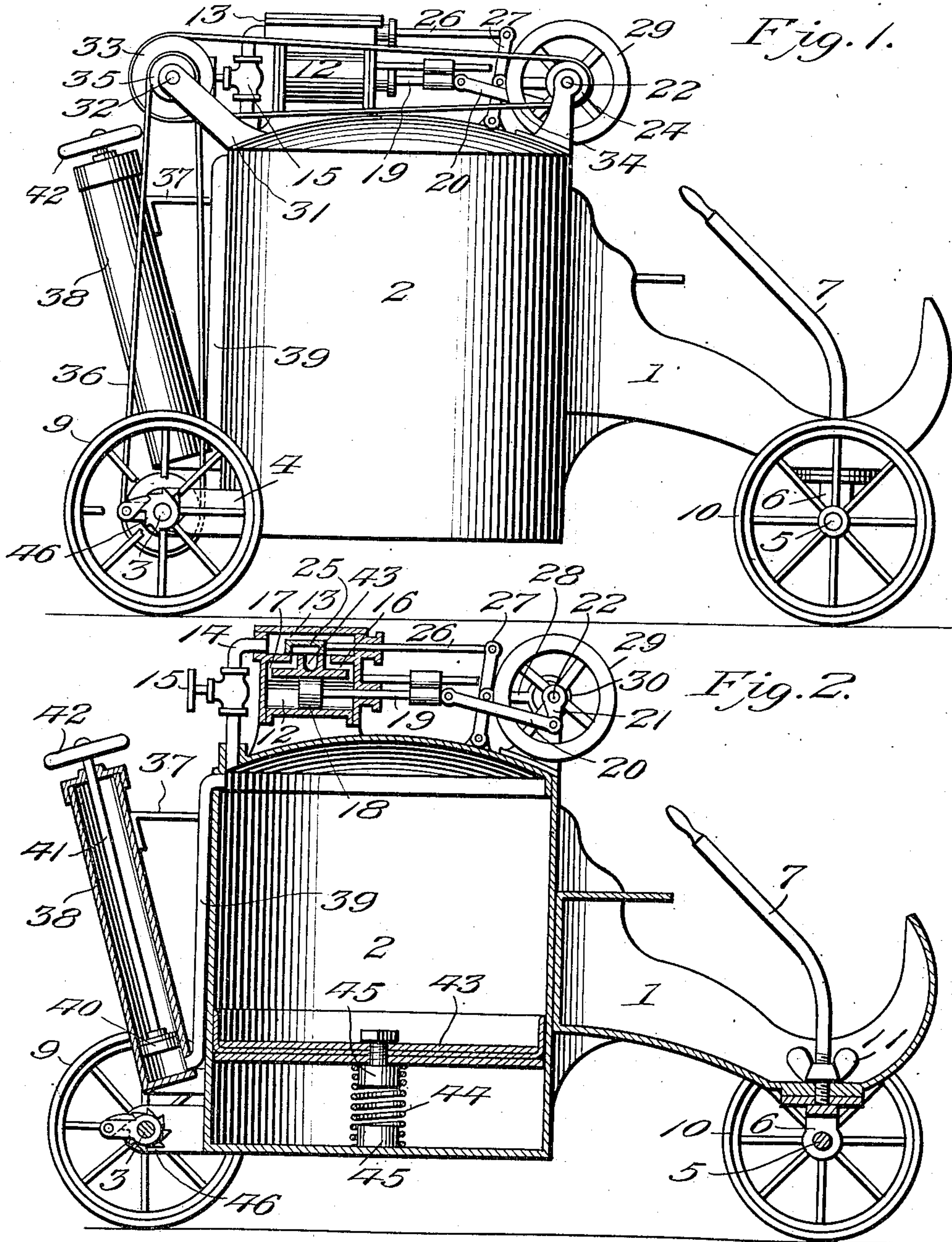


No. 819,653.

PATENTED MAY 1, 1906.

G. O. HAWKE.  
TOY MOTOR VEHICLE.  
APPLICATION FILED NOV. 11, 1905.



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# UNITED STATES PATENT OFFICE.

GEORGE O. HAWKE, OF GREENFIELD, INDIANA.

## TOY MOTOR-VEHICLE.

No. 819,653.

Specification of Letters Patent.

Patented May 1, 1906.

Application filed November 11, 1905. Serial No. 286,948.

*To all whom it may concern:*

Be it known that I, GEORGE O. HAWKE, a citizen of the United States, residing at Greenfield, in the county of Hancock and State of Indiana, have invented new and useful Improvements in Toy Motor-Vehicles, of which the following is a specification.

This invention relates to toy motor-vehicles designed for operation by compressed air, and has for its objects to produce a comparatively simple inexpensive device of this character which will be highly attractive and amusing, one in which the air-compressing member or pump constitutes a fixture upon the tank, thus permitting ready replenishing of the latter, one wherein the supply of air for driving the motor may be readily controlled, one in which power will be positively and directly transmitted from the motor to the vehicle-wheels, and one wherein the steering-lever may be fixed in adjusted position for properly guiding the vehicle in its travel.

A further object of the invention is to provide a device of this character wherein the vehicle will be positively driven when turning in either direction and one wherein a constant pressure will be maintained on the air fed from the storage vessel to the motor.

With these and other objects in view the invention comprises the novel features of construction and combination of parts more fully hereinafter described.

In the accompanying drawings, Figure 1 is a side elevation of a toy embodying the invention. Fig. 2 is a vertical longitudinal section centrally through the same.

Referring to the drawings, 1 designates the vehicle, equipped with an air tank or reservoir 2 and having a rear drive shaft or axle 3, journaled for rotation in bearings 4, and a front shaft or axle 5, journaled in a bearing 6, having swivel connection with the vehicle through the medium of a steering member or lever 7, on which the bearing 6 is fixed, there being fixed upon the rear shaft 3 a belt-pulley 8 and a pair of transporting-wheels 9 and upon the front shaft 5 a pair of transporting-wheels 10, while threaded on and for fixing the lever 7 against rotation is a clamping member or nut 11.

Sustained upon the top of the tank 2 is an engine-cylinder 12, having an air-chest or valve-chamber 13 connected with the tank 2 by means of a supply pipe or duct 14, equipped with a controlling-valve 15, there being ar-

anged for reciprocation in the cylinder 12, which communicates with the chest 13 through the medium of ports or passages 16 17, a piston 18, the rod 19 of which is connected by a pitman-link 20 with a crank-arm 21, fixed on the engine-shaft 22, on which is also fixed a fly-wheel 23 and a belt-pulley 24, while arranged in the chest 13 is a slide-valve 25, the stem 26 of which is pivoted to an operating-lever 27, in turn pivoted to the top of the tank and connected by an arm 28 and strap 29 with an eccentric 30 on the shaft 22.

Fixed to the top of the tank 2 is a bracket-arm 31, carrying a stub-shaft 32, on which is journaled a belt-pulley 33, connected with the pulley 24 by means of a belt 34, there being fixed for rotation with the pulley 33 a second pulley 35, connected, by means of a belt 36, with the pulley 8, whereby the drive shaft or axle 3 will be driven from the engine-shaft 22 during operation of the engine, as will be readily understood.

Extending rearwardly from the tank 2 is a bracket 37, to which is fixed a pump-cylinder 38, to the lower end of which is connected a pipe or duct 39, which enters the tank at a point adjacent the top of the latter, there being arranged in said cylinder an air-compressing member or pump 40, carried by a rod 41, equipped at its outer end with a hand-wheel 42 for permitting convenient operation of the pump to supply air under pressure to the tank 2, in which latter there is arranged a compressing member or piston 43, acted upon by a spring 44, disposed between the bottom of the tank 2 and the piston and engaged at its ends with suitable bearing-lugs 45, provided on said parts, it being noted in this connection that as the air is pumped into the tank 2 the piston 43 is moved downward against the action of spring 44, which is thereby compressed.

The wheels 9 are engaged with the axle 3 by means of a pawl-and-ratchet connection 46 of usual form to permit free forward rotation of the shaft independently of the wheels, whereby positive operation of the vehicle when turning in either direction is insured.

In practice, supposing the tank to be filled with air or other fluid under pressure and the parts of the motor to be in the positions illustrated in Fig. 2, the fluid will when valve 15 is opened enter valve-chest 13, from which it will pass through the port 16 into cylinder 12 and move the piston 18 forwardly, while at the same time the valve 25 will move rearwardly



for closing the port 16 and admitting a charge of air through port 17 for driving the piston rearwardly, as is usual, it being understood that throughout the operation of the motor the air is alternately admitted through the passages 16 17 to opposite sides of the piston and is exhausted in the usual manner through the valve 25 and port 43. During operation of the piston the shaft 22 will be driven and will transmit power through the medium of the belts 32 36 and their pulleys to the drive-wheels 9 for propelling the vehicle, which may be steered by means of the lever 7, it being apparent that after the latter has been properly set to guide the vehicle it may be fixed by means of the nut 11. As the air is drawn from the tank 2 for operating the engine the piston 43 moves upward under the action of spring 44, thus maintaining a uniform pressure on the air remaining in the tank. It is to be particularly observed that the valve 15 serves not only for starting or stopping the motor, and consequently the vehicle, but may be also employed for regulating the supply of air to the engine to control the speed of the vehicle. Further, it will be noted that owing to the pump being fixed upon the vehicle it may be readily manipulated for replenishing the supply of air within the tank 2 when circumstances require.

From the foregoing it is apparent that I produce a comparatively simple inexpensive device admirably adapted for the attainment of the ends in view, it being understood that in attaining these ends minor changes in the details herein set forth may be resorted to without departing from the spirit of the invention.

Having thus described my invention, what I claim is—

In a device of the class described, a vehicle having a drive-shaft provided with ground-wheels, a compressed-air reservoir carried by the vehicle, a motor including a cylinder connected for communication with the reservoir, a piston arranged in the cylinder for operation by the compressed air, said piston being operatively connected with the drive-shaft, an air-compressor carried by the vehicle and connected with and for supplying air to the reservoir, and a spring-operated piston movably mounted in the reservoir for maintaining pressure on the air therein.

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

GEORGE O. HAWKE.

Witnesses:

LENNA C. HAWK,  
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