

L. W. WITRY.

COMBINED CHARGING AND FEEDING DEVICE FOR GASOLINE ENGINES.

APPLICATION FILED AUG. 14. 1908.

935,718.

Patented Oct. 5, 1909.

Fig. 1.

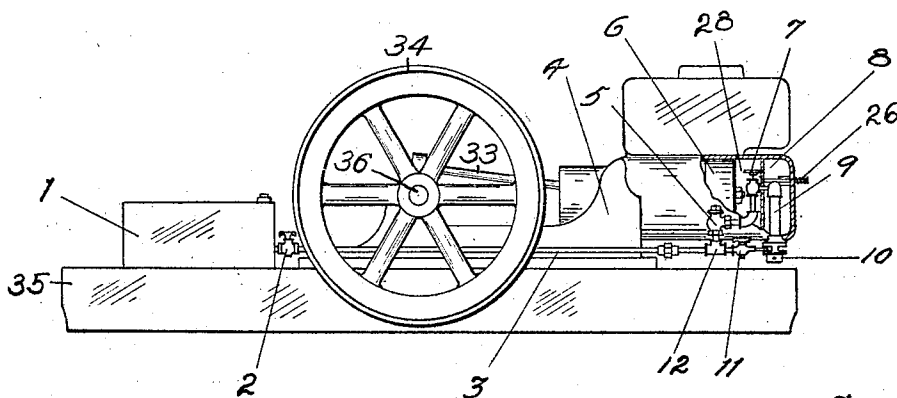


Fig. 2.

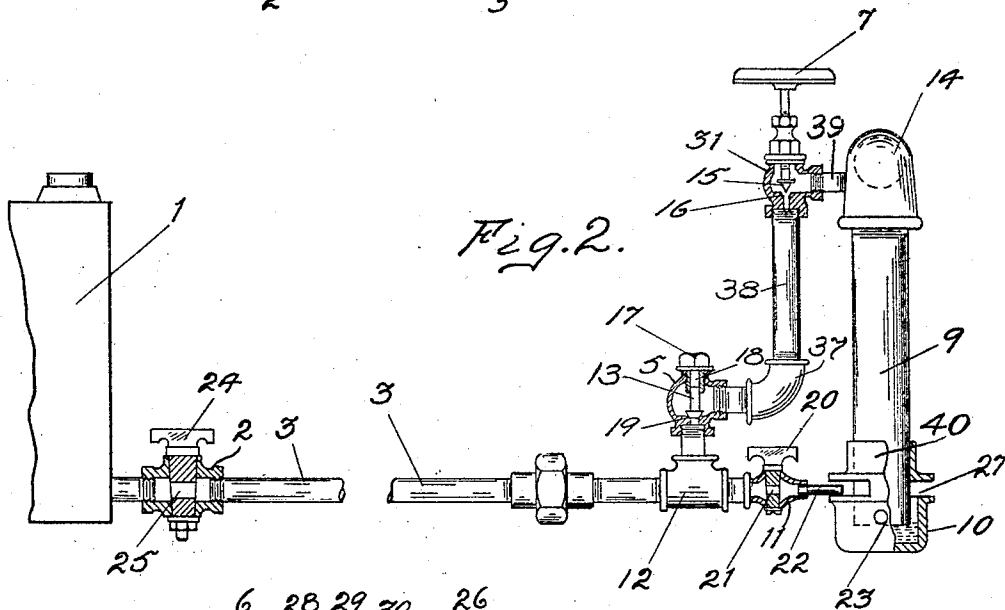
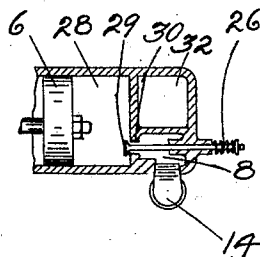


Fig. 3.



WITNESSES:

G. B. Burr.

A. D. Young.

INVENTOR

Louis W. Witry

BY

G. C. Kennedy.

ATTORNEY

UNITED STATES PATENT OFFICE.

LOUIS W. WITRY, OF WATERLOO, IOWA, ASSIGNOR TO WATERLOO GASOLINE ENGINE COMPANY, OF WATERLOO, IOWA.

COMBINED CHARGING AND FEEDING DEVICE FOR GASOLINE-ENGINES.

935,718.

Specification of Letters Patent.

Patented Oct. 5, 1909.

Application filed August 14, 1908. Serial No. 448,503.

To all whom it may concern:

Be it known that I, LOUIS W. WITRY, a citizen of the United States of America, and a resident of Waterloo, Blackhawk county, Iowa, have invented certain new and useful Improvements in Combined Charging and Feeding Devices for Gasolene-Engines, of which the following is a specification.

My invention relates to improvements in charging and feeding devices for gasolene engines, and the objects of my improvements are, first, to provide a sure and rapidly-acting charging device for a gasolene engine, and second, to so combine the said charging with a regular feeding device that the latter will be set automatically to supplying the engine with gasolene vapor as soon as said charging device has effected its function of providing for the starting thereof. These objects I have accomplished by the means which are hereinafter fully described and claimed; and which are illustrated in the accompanying drawings, in which:

Figure 1 is a side elevation of a gasolene engine equipped with my said improved combined charging and feeding device. Fig. 2 is an enlarged detail in partial section, with parts shown broken away, of said charging and feeding device. Fig. 3 is a longitudinal section of the rear part of the engine cylinder, showing the gas inlet chamber and its retractile valve.

Similar numbers refer to similar parts throughout the several views.

The engine 4 rests on a base 35, and has the usual moving parts consisting of the piston 6, the pitman 33, crank-shaft 36, and fly-wheel 34 mounted on said shaft.

The compression-chamber 28 of the cylinder is separated from a rear water-cooling chamber 32 and an adjoining mixing-chamber 8. A communication between the compression and mixing chambers is effected by means of an inlet-port 30 covered by a retractile valve 29 whose head is within said compression-chamber and is kept ordinarily over and closing said port by means of a tension spring 26, the latter being coiled about the end of the valve-stem outside of the cylinder and bearing against the latter. The air and gas are both introduced into the chamber 8 through an inlet in said cylinder wall into which is inserted the elbow coupling 14, and the latter communicates with both said chamber 8 and the depending

tube 9, the lower end of the latter being ordinarily open to the surrounding atmosphere. The open lower end of the tube 9 dips within but is spaced away from the bottom and concentric sides of the cup 10, the said cup having a small orifice 23 just above the lower edge of said tube 9.

The numeral 1 designates a tank for gasolene whose top should be of sufficient height above the base 35 to afford enough head to the oil therein that the latter may quickly overcome the friction in the long pipe 3 especially in cool weather, and the level of such oil in the tank should be high enough as to keep the different parts of the feeding device charged at all times as will be hereinafter described.

The pipe 3 leads from the tank 1 to a T-coupling 12, and the latter has a communication with an angle check-valve chamber 5, whose valve 19 operates to prevent the oil above it from returning back into the pipe 3 and tank 1. The stem 13 of said check-valve moves in a cylindrical bearing 18 depending from the removable cap 17. The valve-chamber 5 communicates with the valve-chamber 31 by means of an elbow-coupling 37 and pipe 38. The valve-chamber 31 contains a regulating or throttle-valve 15 for the gasolene, the said valve operated by a hand-wheel 7 to bring it to a desired distance from its seat 16. The valve-chamber 31 communicates with the elbow-coupling 14 by means of a short pipe 39. A chamber 2 is inserted in the pipe 3 to contain an ordinary stop-cock 25 manually operated by means of a thumb-piece 24, when it is desired to shut off the flow of gasolene at times when inspection or repairs of the feeding or charging device is necessary.

The cup 10 is suspended from a hanger-ring 40 which is secured about the lower end of the tube 9, and said hanger has openings 27. A valve-chamber 11 is in communication with the pipe 3 by way of the T-coupling 12, and contains an ordinary stop-cock 21 adapted to be manually operated by means of the thumb-piece 20. A short nozzle 22 leads from said valve-chamber 11 to and is adapted to deliver gasolene into the cup 10 through one of the openings 27.

When it is desired to operate the engine, the fly-wheel 34 is rotated to draw a charge of mingled gas and air through the port 30, chamber 8, and tube 9. The stop-cocks 25

and 21 having been previously opened, the cup 10 has been permitted to fill with gasolene until the gasolene appears at the orifice 23, when the cock 21 is shut off. The position of the orifice 23 is such that it permits the level of gasolene in the cup 10 to rise merely to or slightly above the lower edge of the tube 9. As by the means described a charge of gas and air is drawn into the cylinder by the moving piston, from the cup 10 and the openings 27, as the air from the openings 27 is sucked through the gasolene covering the lower end of the tube 9 such air is quickly and thoroughly impregnated with a proper amount of gasolene vapor, which moves into the cylinder through the opened valve 30. The firing of this preliminary charge suffices to start the engine, which thereafter draws gasolene vapor through the chambers 8, and 31 from the chamber 5 regularly, and automatically. Provision is made in the cup 10 for only enough gasolene below the orifice 23 to supply a preliminary charge, and thereafter air only is drawn through the tube 9 from the openings 27 to mix in the chamber 8 with the vapor drawn therein from the chambers 31, 5 and the pipe 3.

It will be seen that this combined device is quickly started, runs thereafter automatically, and dispenses with pumps, floats and overflow cup.

Having described my invention, what I claim as new, and desire to secure by Letters Patent, is:

1. A combined charging and feeding device for a gasolene engine, composed in combination with a cylinder and a movable piston therein, said cylinder having an inlet-port and retractile means for closing the latter, of a mixing-chamber discharging into said port, a receptacle open to the atmosphere, a tube communicating between said receptacle and said mixing-chamber, a vessel containing a fluid hydrocarbon under a desired amount of head, means of communication between said vessel and said mixing-chamber, and means for regulating the level of the hydrocarbon in said receptacle.

2. A combined charging and feeding device for a gasolene engine, composed in combination with a cylinder and a movable piston therein, said cylinder having an inlet-port and retractile means for closing the latter, of a mixing-chamber discharging into said port, a receptacle open to the atmosphere, a tube communicating between said receptacle and said mixing-chamber, a vessel containing a fluid hydrocarbon under a desired amount of head, means of communication between said vessel and said mixing-chamber provided with means for the regulation of the passage of the hydrocarbon therethrough, and means of communication between said vessel and said receptacle.

3. A combined charging and feeding device for a gasolene engine, composed in combination with a cylinder and a movable piston therein, said cylinder having an inlet-port and retractile means for closing the latter, of a mixing-chamber discharging into said port, a receptacle open to the atmosphere, a tube communicating between said receptacle and said mixing-chamber, said tube having its open end adapted to dip slightly below the level of the contents of said receptacle, a vessel containing a fluid hydrocarbon under a desired amount of head, means of communication between said vessel and said mixing-chamber, and means of communication between said vessel and said receptacle, said receptacle being provided with means for regulating the level of its contents.

Signed at Waterloo, Iowa, this 27th day of July, 1908.

LOUIS W. WITRY.

Witnesses:

W. A. WADE,
GEO. C. KENNEDY.