Feb. 19, 1924. 1,484,144

G. W. MARSH

FUEL CONSUMPTION INDICATOR AND CYLINDER PRIMER

Filed June 1, 1920

Fig. 1.

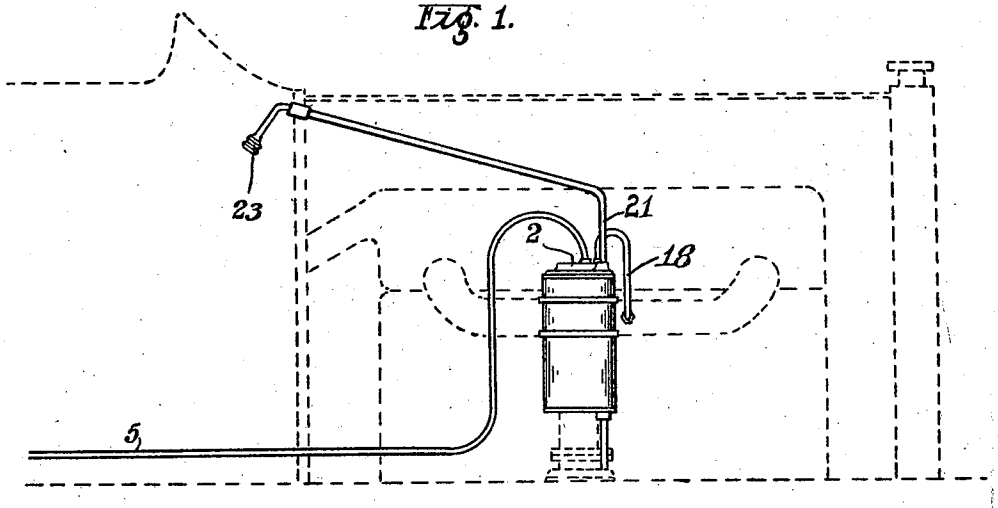


Fig. 2.

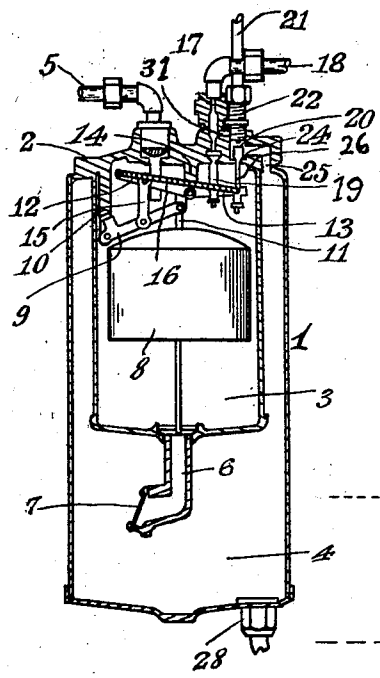


Fig. 3.

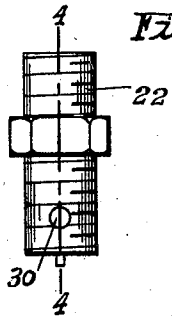
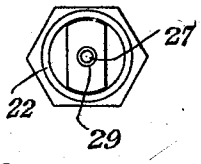


Fig. 5.



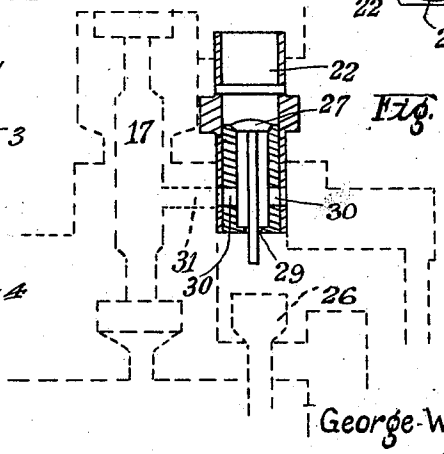


Fig. 4.

Inventor
George W. Marsh.

By Harry C. Schroeder
Attorney

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UNITED STATES PATENT OFFICE.

GEORGE W. MARSH, OF OAKLAND, CALIFORNIA.

FUEL-CONSUMPTION INDICATOR AND CYLINDER PRIMER.

Application filed June 1, 1920. Serial No. 385,698.

To all whom it may concern:

Be it known that I, GEORGE W. MARSH, a citizen of the United States, residing at Oakland, in the county of Alameda and State of California, have invented certain new and useful Improvements in Fuel-Consumption Indicators and Cylinder Primers, of which the following is a specification.

My invention is an improved fuel consumption indicator, particularly applicable to vacuum fuel feeding systems for gas engines. My invention also provides an easy means for priming the engine cylinders.

Referring to the annexed drawing which forms a part of this specification:

Figure 1 is a side view of my invention applied to a vacuum feed of an automobile gas engine.

Figure 2 is a vertical section of my invention and a vacuum fuel feed to which my invention is applied.

Figure 3 is a side view of the auxiliary air supply valve.

Figure 4 is a vertical section of said supply valve.

Figure 5 is a bottom plan view of said supply valve.

In the drawing, 1 indicates a vacuum fuel supply tank adapted to be mounted on an automobile above the carburetor. Said tank is closed at the top by a head 2. A filling chamber 3 is closed at its upper end by head 2 and suspended from said head within the tank 1 above an emptying tank 4 formed in the lower part of said tank. A pipe 5 leads from the gasoline supply tank (not shown) through the head 2 into the upper part of filling chamber 3. From the bottom of the filling chamber 3 leads an outlet 6 controlled by a flapper valve 7. In the filling chamber 3 is a float 8. A float lever 9 is pivoted to a bracket 10 depending from the head 2, which lever is connected at its swinging end to a pin 11 on the top of the float 8. Levers 12 and 13 are pivoted to a bracket 14 depending from the head 2. A link 15 connects the float lever 9 and the lever 12. The head 2 has a port 17 leading into the filling chamber 3 to which port is connected a pipe 18 leading to the engine intake manifold, said port being controlled by a valve 19 connected to the lever 13. The head 2 has a port 20 to which is connected a pipe 21 by means of union 22 screwed into the head 2, which pipe extends to the upper part of the automobile dash and has a whistle 23 on its outer end. From the port 20 lead ports 24 and 25 respectively into the top of chamber 3 and tank 1. The port 24 is controlled by a valve 26 connected to the lever 13. The inner end of pipe 21 is controlled by a valve 27 in union 22. The tank 1 has an outlet 28 leading from the bottom of the emptying chamber 4 to the engine carburetor. The structure above described is the well known "Stewart Vacuum Gasoline System" in use on automobiles. The union 22 has a port 29 in its inner end, through which the stem of valve 27 extends, and with ports 30 below the valve 27, one of which ports communicates with a port 31 leading into port 17.

When the filling tank 3 is empty the float is down and the valve 19 is open while the valve 26 is closed. The suction of the intake stroke of the engine piston draws the air out of the chamber 3 through port 17 and pipe 18, creating a vacuum in said chamber into which gasoline is forced through pipe 5. When the gasoline fills the tank 3 the lever 12 is swung upwardly through lever 9 and link 15, and the spring 16 passing above the pivot of levers 12 and 13 swings the lever 13 upwardly, closing valve 19 and opening valves 26 and 27 and port 24, which admits air through whistle 23, pipe 21, union 22 and port 24 into the chamber 3 and causes air to pass from union 22 through ports 30 and 31, port 17 and pipe 18 and blow the whistle 23 and indicate the filling of the tank 3. As the spring 16 snaps the arm 13 upwardly to open the valve 26 and close the valve 19, the inertia carries the valve 26 above its normal resting point and contacts with the stem of the valve 27 to momentarily unseat said valve which blows the whistle. The valve 27 seats by its own weight and stops the whistle. Air entering the chamber 3 then prevents the further entry of gasoline into the chamber 3. When the gasoline is drawn out of the chamber 3 by the carburetor, the float dropping swings lever 12 down through the lever 9 and link 15 until spring 16 passes below the pivot of levers 12 and 13, whereupon the spring swings the lever 13 down which opens valve 19 and closes valve 26. The above described operations are then repeated.

Each time the whistle 23 blows the driver

of the car looks at the cyclometer and in this way is able to determine the mileage he is getting from the gasoline.

When the engine is stopped and the chamber 3 filled and valves 19 and 27 closed and opened respectively, a cup of gasoline may be placed over the whistle 23 and the engine cranked to cause the gasoline to be drawn in from the cup through the whistle 23, pipe 21, ports 30, 31 and 17 and pipe 18 into the engine to prime it.

Having described my invention, I claim:

1. In a vacuum fuel feed system comprising a tank, an air intake, a suction intake, and a fuel intake, a whistle in said air intake, adapted to blow when the tank is substantially full, a passage between the air intake and the suction intake, a valve controlling said passage, a valve controlling said suction intake, a filling chamber in said tank, said chamber having an air intake port therein, a valve controlling said port, a float in said chamber, and means joining said float and said air intake valve and said suction intake valve whereby said valves are alternately opened and closed by the float, said air intake valve being adapted to engage and raise the first mentioned valve, thus actuating said whistle substantially as described.

2. In a vacuum fuel feed system comprising a tank, an air intake, a suction intake, and a fuel intake, a whistle in said air intake, adapted to blow when the tank is substantially full, a passage between the air intake and the suction intake, a valve controlling said passage, a valve controlling said suction intake, a filling chamber in said tank, said chamber having an air intake port therein, a valve controlling said port, a float in said chamber, a system of spring controlled levers joining said float and said air intake valve and said suction intake valve whereby said valves are alternately opened and closed by the float, and operative means joining said air intake valve and said first mentioned valve whereby said first mentioned valve is opened upon the raising of said air intake valve, thus momentarily actuating the whistle.

In testimony whereof I affix my signature.

GEORGE W. MARSH.