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W. W. WHETSTINE

ATTACHMENT FOR INTERNAL COMBUSTION ENGINES

Filed Aug. 20, 1920

2 Sheets-Sheet 1

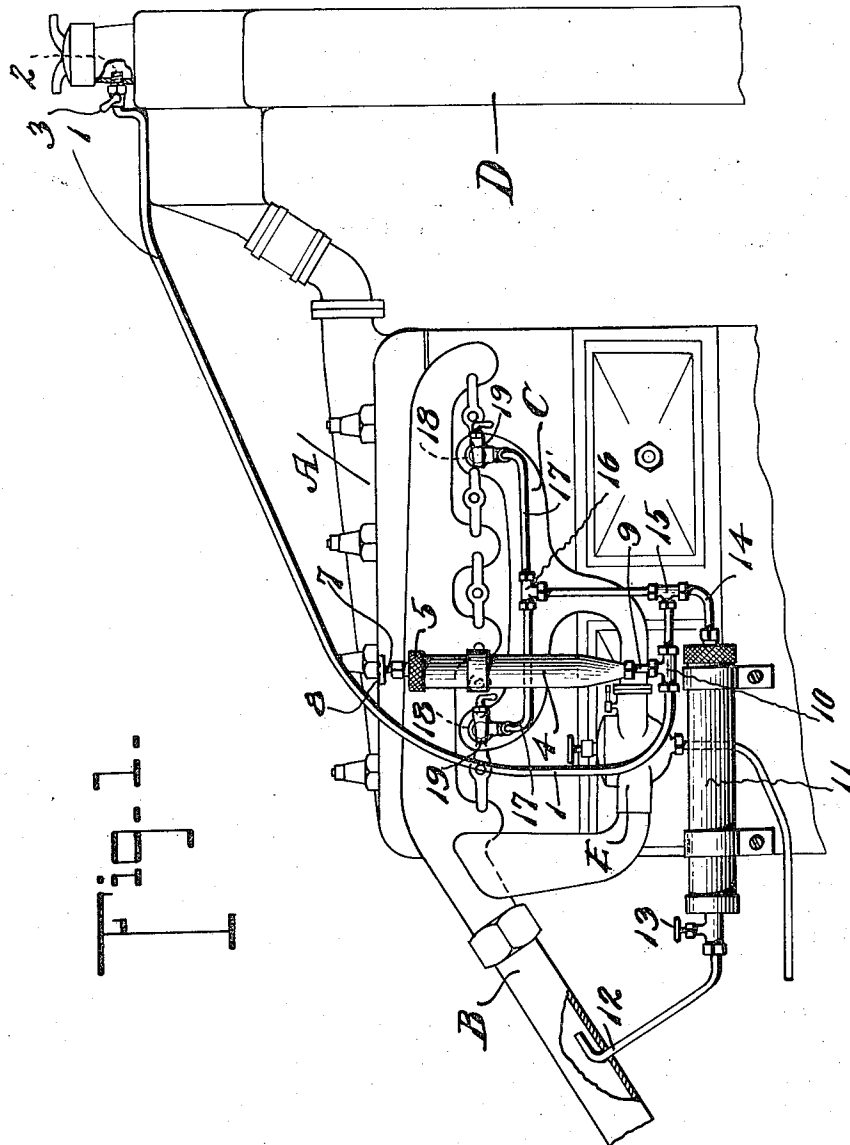


Fig. 1.

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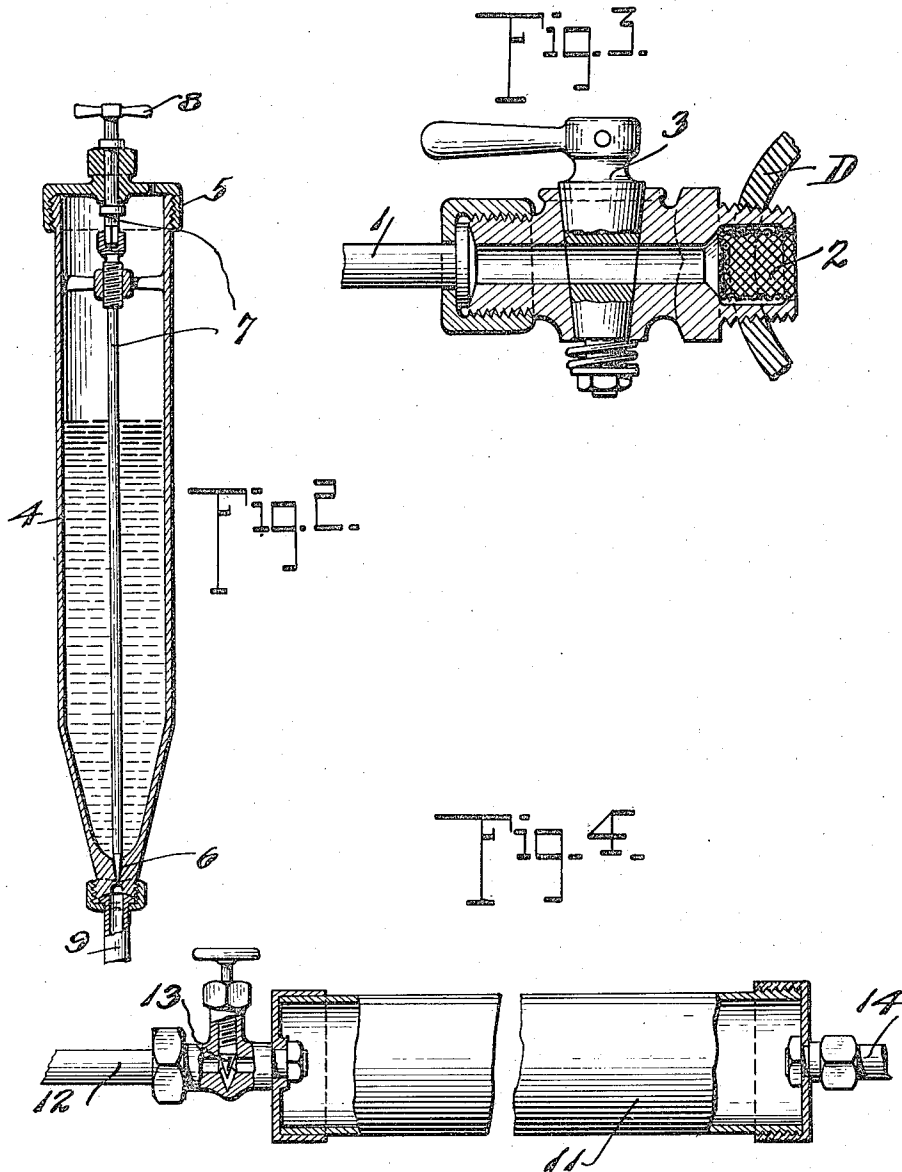
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2 Sheets-Sheet 2



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UNITED STATES PATENT OFFICE.

WALTER W. WHETSTINE, OF PORTLAND, OREGON.

ATTACHMENT FOR INTERNAL-COMBUSTION ENGINES.

Application filed August 20, 1920. Serial No. 404,868.

To all whom it may concern:

Be it known that I, WALTER W. WHETSTINE, a citizen of the United States, residing at Portland, in the county of Multnomah and State of Oregon, have invented certain new and useful Improvements in Attachments for Internal-Combustion Engines, of which the following is a specification.

My invention relates to internal combustion engines, and particularly to the fuel supply means thereof.

The objects of my invention are: first, to reduce the gasoline or petroleum oil content of internal combustion engine fuel in the interest of economy by providing a means whereby a portion of the exhaust gases are taken from the exhaust line and diffused with and made a part of the ordinary engine fuel heating the latter to increase its combustibility; second, to provide a means whereby liquids such as glycerin contained in the reservoir of my device may be volatilized and with moisture taken from the cooling system of the motor be made a constituent of the engine fuel; and third, to eliminate carbon formation and deposits in the engine by providing a means for producing and supplying an engine fuel which leaves no trace of carbon in the motor, thereby increasing its operative efficiency.

From the description to follow, other objects and advantages will become apparent and will be specifically pointed out and referred to in the claims hereto appended.

For a clear understanding of my invention and the manner in which it operates reference should be had to the several drawings of the mechanism illustrated by which I attain these objects, and in which:—

Figure 1 is a side elevation of a portion of a conventional type of automobile engine and radiator showing my invention attached thereto;

Figure 2 is an enlarged sectional view through the reservoir thereof;

Figure 3 is a detail sectional view of the water vapor controlling valve and strainer thereof; and

Figure 4 is a view of the exhaust gas valve and pressure distributing or regulating tank of my device, certain portions being broken away to show the valve and tank construction.

Similar numerals refer to similar parts throughout the several views.

I have illustrated my invention as attached to and made a part of an automobile engine of the conventional type, A indicating the engine, B the exhaust line therefrom, C the intake manifold thereof, D the radiator, and E the carbureter.

From the radiator D, I run a tube 1 having provided at convenient points therein a strainer 2 and a cut-off valve 3. I provide a reservoir 4, having a removable cap 5 to allow for filling, the flow of liquid therefrom being controlled by needle valve 6 in which the needle rod 7, terminating in handle 8, is adapted to be rotated to open and close said valve. Liquid when released from said reservoir flows into tube 9, said tube being joined to tube 1 at 10.

I also provide a chamber 11 which I call a pressure regulator or distributor tank, into which gases are carried from exhaust line B by means of a tube 12, said tube being provided with a regulating valve 13 which may be placed at any convenient point therein. Leading from the pressure regulator tank the exhaust gases are conveyed by means of a tube 14 which is joined by tube 1 at 15 to a T-joint 16, from which pipes 17 and 17' lead into the intake manifold C, connections therewith being indicated by 18 the combined strainers and control valves 19 similar in form to that shown in Figure 3 being located at some suitable point in said tubes.

Having given a brief description of the mechanical structure of my invention, I will now describe its several parts, their functions, and the manner of their operation. Water vapor from the radiator D passing through tube 1 mingles with the liquid supplied from reservoir 4. Glycerin which I have used in my apparatus with marked success, as hereinafter indicated, is volatilized by heat in the presence of moisture.

The exhaust gases after passing through pressure regulating tank 11 and into tube 14 come into contact with the water and glycerin vapors from tube 1 at 15 from whence the several gases, highly heated and thoroughly intermingled, pass into the intake manifold of the engine, there diffusing with the gaseous fuel supplied from the carbureter E.

After ignition in the engine cylinders the burned gases pass out through the exhaust line B, a portion to be used again after the manner before described.

5 The flow of exhaust gases into the pressure regulator tank is intermittent with the explosions in the engine cylinders. To overcome the intermittent high pressures concurrent therewith, and to distribute this
10 pressure evenly, chamber or pressure regulator tank 11 is provided, the gases after entering said chamber are stored there and escape therefrom under even pressure through tube 14.

15 The character of the liquid contained in the reservoir 4 determines its effect upon the performance of the engine. When glycerin is used in this apparatus, the amount of gasoline required in an ordinary engine has
20 been materially lessened, in fact, the more cylinders in the engine, the greater the proportionate reduction in gasoline consumption. Carbon deposits have been entirely eliminated by the use of glycerin in this
25 manner.

Moisture which is introduced primarily to aid in the volatilization of the glycerin employed tends to promote fuel effectiveness by aiding in the reduction of the amount of
30 gasoline or petroleum oil required while not reducing the explosive force of the fuel.

While the drawings hereto appended illustrate the preferred embodiment of my device, I do not limit myself to the specific
35 structure therein shown for many modifications and changes within the scope of the claims are to be resorted to.

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

1. The combination with an internal combustion engine having a conventional fuel intake means and exhaust discharge means, of a reservoir adapted to contain glycerin,
45 moisture supply means for supplying moisture to the glycerin, means connecting said exhaust discharge means with the fuel intake means, and means connecting said glycerin reservoir with the connecting means between the exhaust discharge means and the
50 fuel intake means whereby glycerin is volatilized and introduced into the explosive mixture passing to the firing chamber.

2. The combination with an internal combustion engine having conventional fuel intake means, exhaust discharge means, moisture producing means, and carburetting
55 means, of means for connecting said exhaust discharge means and moisture producing means with said fuel intake means, a reservoir adapted to contain glycerin, and means
60

connecting said reservoir with the afore-said connecting means whereby the glycerin is volatilized and diffused with the exhaust gases, water vapor and the explosive fuel in the firing chamber. 65

3. The combination with an internal combustion engine having fuel intake means, water cooling means, and exhaust means, of a reservoir adapted to contain glycerin, a conduit intermediate said exhaust discharge means and said fuel intake means, and a conduit connecting the water cooling means and glycerin reservoir with the conduit from the exhaust discharge means, whereby to mix
70 the vapor from the water cooling means with the glycerin and subject the mixture to the heat of the exhaust gases to volatilize the same and introduce the product into the fuel entering the intake means. 75

4. The combination with an internal combustion engine having fuel intake means, water cooling means, and exhaust discharge means, of a conduit intermediate said exhaust discharge means and said fuel intake means, a conduit intermediate said water cooling means and the conduit first named, a reservoir adapted to contain glycerin, connecting means between said glycerin reservoir and the conduit last named, and means
80 adapted to regulate the flow of glycerin into said connecting means. 85

5. The combination with an internal combustion engine having fuel intake means, exhaust discharge means, and water cooling means, of a reservoir adapted to contain glycerin, means to regulate the flow of glycerin from said reservoir, a conduit to receive said glycerin as it flows from the reservoir, a chamber to receive exhaust gases, a conduit intermediate said exhaust discharge means and said chamber, a conduit intermediate said chamber and said fuel intake means, and a conduit intermediate said water cooling system and the conduit last mentioned to which the conduit for glycerin is connected. 90 95 100 105

6. The combination with an internal combustion engine having fuel intake and exhaust discharge means for the fuel, and carburetting means, of an attachment comprising glycerine supply means, means for supplying moisture for admixture with the glycerine, and means connecting the engine exhaust means and fuel intake for subjecting the glycerine and admixed moisture to the heat of the exhaust gases to volatilize the glycerine and convey said volatilized products to the intake means for admixture with the carbureted fuel. 110 115 120

In testimony whereof I affix my signature.
WALTER W. WHETSTONE.