

Jan. 27, 1925.

C. M. DAWDY

1,524,540

VAPOR MIXER AND MOISTENER

Filed April 23, 1924

2 Sheets-Sheet 1

Fig. 1.

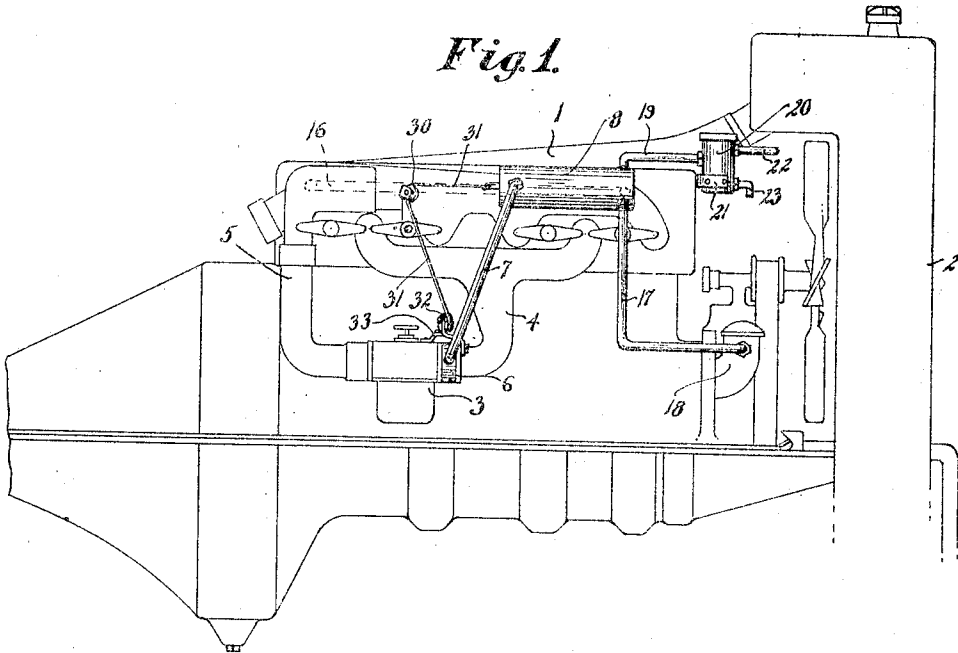
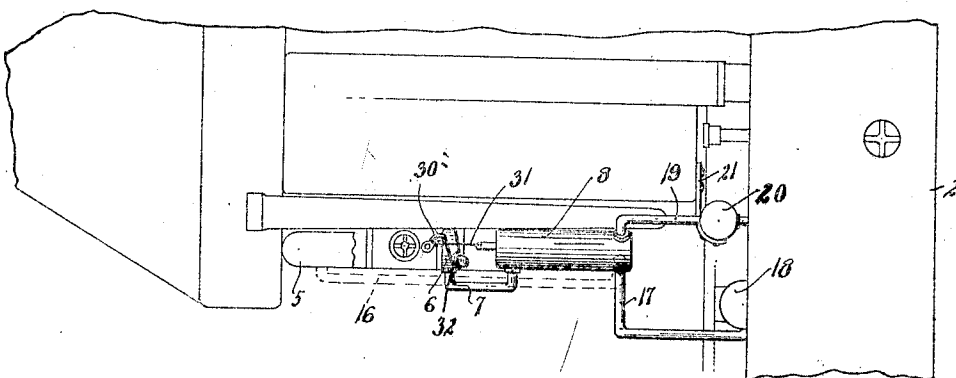


Fig. 2.



J. H. McEwen

WITNESS:

Clyde M. Dawdy.

INVENTOR

BY *Victor J. Evans.*

ATTORNEY

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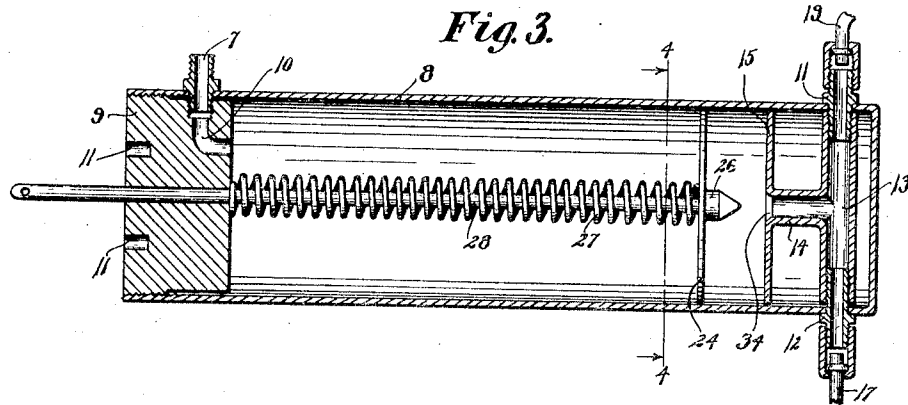
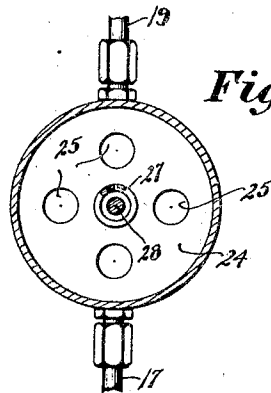
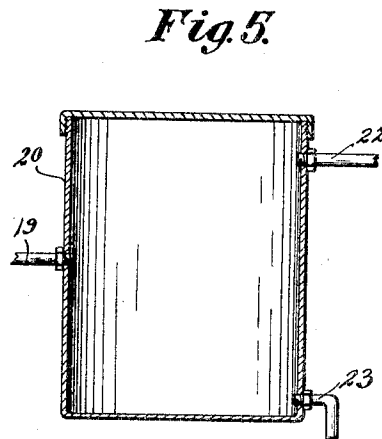
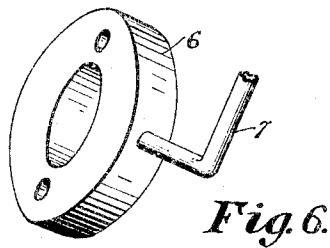
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ATTORNEY

UNITED STATES PATENT OFFICE.

CLYDE M. DAWDY, OF BOONE, IOWA.

VAPOR MIXER AND MOISTENER.

Application filed April 23, 1924. Serial No. 708,593.

To all whom it may concern:

Be it known that I, CLYDE M. DAWDY, a citizen of the United States, residing at Boone, in the county of Boone and State of Iowa, have invented new and useful Improvements in Vapor Mixers and Moisteners, of which the following is a specification.

The object of this invention is to provide an oil or gas driven engine with an auxiliary carbureter adapted to deliver a vaporized oil in a heated condition into the intake manifold to cause the same to mix with the gases from the carbureter therein to more effectively break up the particles of fuel and render the same in a better combustible condition, and thereby obtain more uniform power and flexibility from the engine.

A further object is to produce a device of this character which can be readily applied to any ordinary construction of engines without interfering with any of the working parts thereof.

A still further object is to produce a device of this character in which a flow of the heated and vaporized oil directed into the intake manifold of an engine, is automatically controlled by the gas control lever of the carbureter so that the engine is permitted to idle without having the vaporized fuel delivered thereinto, and also whereby any liability of rusting the interior parts of the engine will be effectively overcome.

To the attainment of the foregoing and other objects which will present themselves as the nature of the invention is better understood, reference is to be had to the drawings which accompany and which form part of this application.

In the drawings:—

Figure 1 is a side elevation of the power plant of an automobile illustrating the application of the improvement thereon.

Figure 2 is a top plan view thereof.

Figure 3 is a central longitudinal sectional view through the mixing chamber.

Figure 4 is a section on the line 4—4 of Figure 3.

Figure 5 is a central section through the water receptacle.

Figure 6 is a perspective view of the gasket employed.

While in the drawings, I have shown my improvement in connection with the gas engine of an automobile, it is to be under-

stood that I do not wish to be so restricted, as the same is applicable and will be found equally efficient upon other classes of either oil or gas engines.

Referring now to the drawings in detail, the numeral 1 designates the engine block, 2 the radiator, 3 the carbureter, 4 the intake manifold leading from the carbureter, and 5 the hot air stove between the engine and carbureter.

In carrying out my invention I insert between the carbureter and intake manifold and secure by the same bolts that connect the carbureter to the manifold, a metal gasket 6. Passing through one side of the gasket and preferably having a nozzle end directed through the bore of the gasket toward the intake manifold, there is a tube 7. This tube is connected adjacent to one end of a mixing chamber 8. The mixing chamber may be supported upon the engine in any desired or preferred manner, being preferably arranged above the intake manifold 4 and in contact with the engine to receive heat therefrom.

The mixing chamber has its end nearest the front of the engine closed, and its opposite end likewise closed by a head in the nature of a cylindrical threaded block 9. The head has an angle port 10 with which the tube 7 communicates. The outer face of the block is provided with spaced depressions 11 for the reception of the jaws of a spanner wrench whereby the head may be secured in or removed from the mixing chamber.

Near the closed end of the mixing chamber there is arranged therein and secured by nipples 11 and 12 the longitudinal branch of an angle tubular member 13. The member may be referred to as a nozzle, and its central longitudinal branch 14 has secured on the outer end thereof a flange 15 that is in contacting engagement with the bore of the chamber. There may be connected with the nozzle 13 a pipe 16 that leads direct to the hot air stove of the automobile, but in practice I have not found this an absolute requirement.

Connected to the nipple 13 there is a pipe 17 that leads to the breather pipe 18 of the engine and is connected by a nipple to one side thereof.

To the nipple 11 there is connected a tube 19 that is connected to a closed receptacle 20 secured by a bracket 21 on the front of

the engine block. The receptacle 20 has a tube connection 22 with the top of the radiator tube. The receptacle 20, at its bottom has an angle outlet tube 23.

5 In the mixing chamber 8 there is a disk or head 24, provided with spaced apertures 25. To this disk, which is really in the nature of a piston there is secured a needle valve 26. The valve is designed to normally
10 close the central passage 14 of the nozzle 13, being influenced in such direction by a spring 27 that surrounds a stem 28 secured to the inner face of the piston 25, and if necessary forming a part of the valve 26.
15 The stem 28 passes through a central opening in the head 9 of the mixing chamber.

Journalled on a suitable bracket secured by the bolt holding one of the stirrups between the engine and the intake manifold
20 there is a sheave wheel 30. Connected to the outer end of the stem 28 and directed over the sheave wheel there is a cable 31. This cable is preferably trained over a second cable 32 supported on the top of the
25 carbureter and on the intake manifold and is from thence connected to the lever 33 for the gas or throttle valve of the carbureter. Thus when the gas or throttle lever 33 is closed the spring 27, influencing the piston
30 25 will cause the valve 26 to be seated in the mouth 34 of the central passage 14 of the nozzle.

By providing the receptacle 20 with the outlet 23 only the vapor from the heated
35 water in the radiator will be drawn through the pipe 19 into the mixing branch 13 of the nozzle. The suction created by the engine cylinders will draw the oil vapor from the crank case through the tube 17
40 into the mixing chamber 13 of the nozzle, while the mixing chamber 8 being arranged against the side of the engine will be heated therefrom, and as previously stated, a pipe of tubular connection may be arranged between the mixing chamber of the nozzle
45 and the hot air stove of the engine. Thus vaporized oil, the vapor from the heated water and the heat units will be caused to mingle together in the chamber 8 and will
50 be directed therefrom through the tube 7 into the engine intake manifold. These agents will act upon the fuel delivered from the carbureter to more effectively break up the particles thereof so that the fuel is delivered
55 into the engine cylinders in a thor-

oughly vaporized condition to insure more uniform power and flexibility of the engine.

Having described the invention, I claim:—

1. The combination with an internal combustion engine including the radiator, the
60 hot air stove, the carbureter, and the intake manifold therefor, of an auxiliary carbureter, comprising a chamber having a tube at one end thereof communicating with the intake manifold forward of the carbureter,
65 a tube at the opposite end thereof, a receptacle with which said tube communicates and which has an outlet opening below the tube, a tube connecting the top of the receptacle with the top of the radiator, a tube
70 connected with the chamber and directed into the breather pipe for the crank case of the engine, a tube connection between the chamber and the hot air pipe, and a valve
75 controlling the passage of the mixture from vaporized oil from the crank case, the vapor from the radiator and the heated air from the hot air pipe in its outlet into the intake manifold.

2. The combination with an internal combustion engine, including the radiator, the
80 carbureter and the intake manifold, of an auxiliary carbureter including a chamber arranged on the engine block to receive heat therefrom, a tube establishing a communication between one end of the chamber and
85 the intake manifold inward of the carbureter, a T-shaped nozzle arranged in the chamber and whose longer branch establishes a mixing chamber, said nozzle having
90 its central branch flanged to contact with the bore of the chamber, tubes extending from the longer branch of the nozzle, one of which being connected to the breather pipe of the engine, a chamber with which
95 the second tube communicates, said chamber having a tube extending into and terminating adjacent to the top of the radiator and having an angle outlet tube adjacent to its
100 bottom, a piston in the chamber having a stem extending through one end thereof and having a needle valve to close the mouth of the central branch of the nozzle, a flexible element connected with the outer end of the stem, guide means therefor, and said
105 element having its end connected to the throttle valve of the carbureter.

In testimony whereof I affix my signature.

CLYDE M. DAWDY.