T. A. MULKERN.

VAPORIZER FOR INTERNAL COMBUSTION ENGINES.

APPLICATION FILED FEB. 24, 1919.

1,350,079.

Patented Aug. 17, 1920.

Fig. 1.

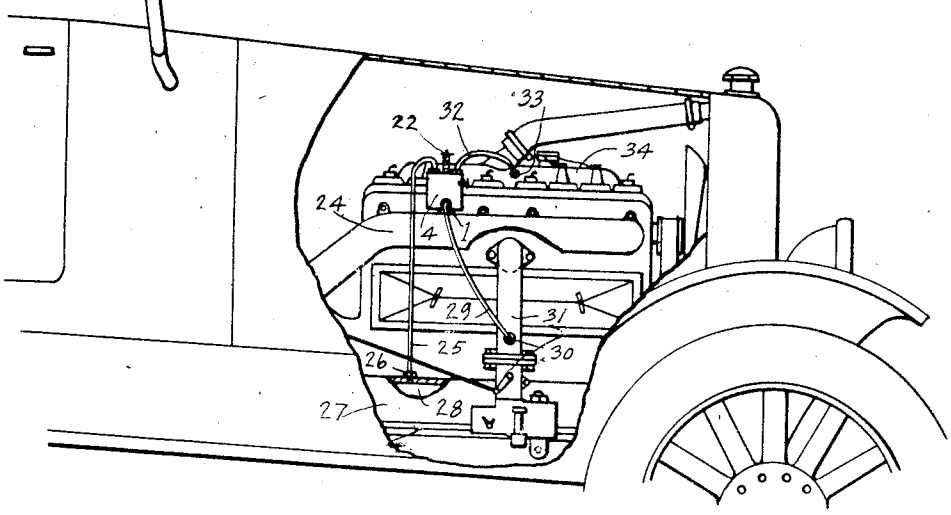
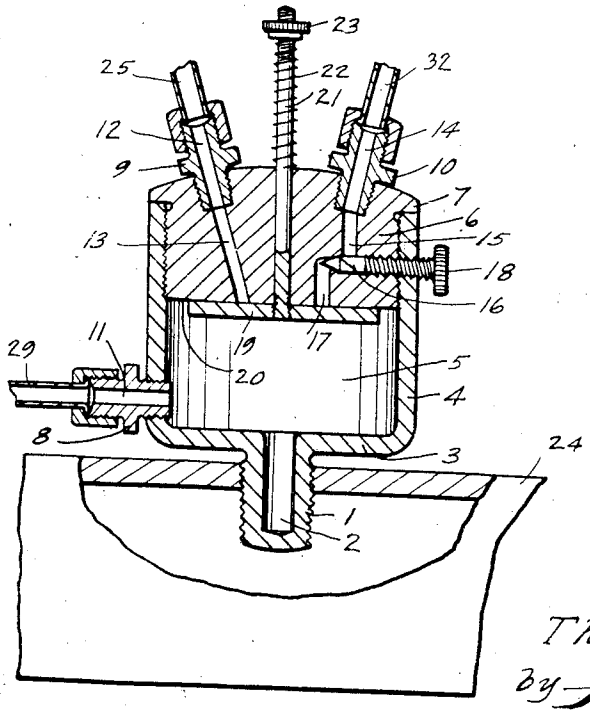


Fig. 2.



Inventor:
Thomas A. Mulkern.
by Hazard & Miller
Attys.

UNITED STATES PATENT OFFICE.

THOMAS A. MULKERN, OF HOLLYWOOD, CALIFORNIA, ASSIGNOR OF ONE-HALF TO CHARLES E. KERLEE, OF LOS ANGELES, CALIFORNIA.

VAPORIZER FOR INTERNAL-COMBUSTION ENGINES.

1,350,079. Specification of Letters Patent. Patented Aug. 17, 1920.

Application filed February 24, 1919. Serial No. 278,902.

To all whom it may concern:

Be it known that I, THOMAS A. MULKERN, a citizen of the United States, residing at Hollywood, in the county of Los Angeles and State of California, have invented new and useful Improvements in Vaporizers for Internal-Combustion Engines, of which the following is a specification.

My object is to make a vaporizer for internal combustion engines, and my invention consists of the novel features herein shown, described and claimed.

Figure 1 is a fragmentary side elevation of a vehicle having an internal combustion engine provided with a vaporizer embodying the principles of my invention, parts being broken away to show the vaporizer.

Fig. 2 is an enlarged sectional detail on the same plane as Fig. 1 and showing the vaporizer.

The externally screw threaded nipple 1 is bored from the top to form the cup-shaped chamber 2. The bottom 3 extends horizontally from the upper end of the nipple 1, and an annular wall 4 extends upwardly from the outer edge of the bottom 3 to form the mixing chamber 5 communicating with the cup-shaped chamber 2. The head 6 is screwed down into the wall 4 and has a flange 7 fitting upon the upper edge of the wall 4. A union member 8 is tapped through the bottom of the wall 4, a second union member 9 is tapped into the top of the head 6 at one side of the center, and a third union member 10 is tapped into the head 6 at the other side of the center. A port 11 leads through the union member 8 and communicates with the chamber 5, a second port 12 leads through the union member 9 and communicates with the passage 13 bored through the head 6 to the chamber 5. A third port 14 leads through the union member 10 and communicates with the passage 15 bored through the head 6 to a needle valve seat 16, and a passage 17 leads from the point of the needle valve seat 16 to the chamber 5. The needle valve 18 is tapped through the wall 4 and into the head 6 to the needle valve seat 16. A flat valve plate 19 fits against the flat lower face 20 of the head 6 in position to cover the lower ends of the passages 13 and 17. A stem 21 extends upwardly and loosely from the center of the plate 19 through the head 6. An expansive coil spring 22 is mounted upon the stem 21 against the top of the head 6, and a spring seat 23 is screw seated upon the upper end of the stem 21 against the spring, so that by manipulating the spring seat the tension of the spring may be accurately regulated.

The nipple 1 is tapped downwardly through the upper wall of the exhaust manifold 24. A pipe 25 connects the union member 9 to a union member 26, said union member 26 being tapped downwardly through the upper wall of the crank case 27 so as to lead gas from the crank case chamber 28 to the chamber 5. In a like manner a pipe 29 connects the union member 8 to a union member 30 tapped into the intake manifold 31 so as to lead gas from the chamber 5 to the intake manifold by the suction of the engine. In a like manner a pipe 32 connects the union member 10 to a similar union member 33 tapped through the wall at the top of the water jacket 34 so as to lead hot water from the top of the water jacket to the chamber 5, the flow of water being accurately controlled by the needle valve 18.

The nipple 1 extends downwardly through the top of the exhaust manifold 24 so that as soon as the engine has warmed up the nipple 1 will become hot, and the bottom 3 rests upon the exhaust manifold and will become hot to heat the gas and water in the chamber 2 and in the chamber 5.

The suction of the engine through the pipe 29 will pull the valve plate 19 downwardly and allow the gas to flow through the pipe 25 and allow the water to flow through the pipe 32 to the chamber 5, and this gas and water being heated and converted into a better gas, or vapor, will be sucked through the pipe 29 to the intake manifold and mix with the explosive mixture, thereby utilizing the gas from the crank case as a part of the explosive mixture, and thereby humidifying the explosive mixture from the water coming from the water jacket.

Various changes may be made without departing from the spirit of my invention as claimed.

I claim:

The combination with an internal combustion engine comprising a crank case, an exhaust manifold, and a water jacket, of a pipe nipple tapped through the wall of the exhaust manifold and having therein a cup-shaped vaporizing chamber, a bottom ex-

tending from the pipe nipple, an annular wall extending from the edge of the bottom and forming a mixing chamber in communication with the cup-shaped vaporizing chamber, a head screwed into the annular wall, a pipe connecting the mixing chamber with the intake manifold, a second pipe connecting the crank case chamber with the head and with the mixing chamber by way of a passage through the head, a third pipe connecting the water jacket with the mixing chamber by way of a passage through the head, a needle valve in the head for regulating the water passage, the lower face of the head being flat, a valve plate fitting against the flat face of the head to cover the passage through the head, a stem extending from the valve plate through the head, a spring upon the stem bearing against the head and against a seat adjustable on the stem.

In testimony whereof I have signed my name to this specification.

THOMAS A. MULKERN.