H. Z. WHITE.

CARBURETER FOR INTERNAL COMBUSTION ENGINES.

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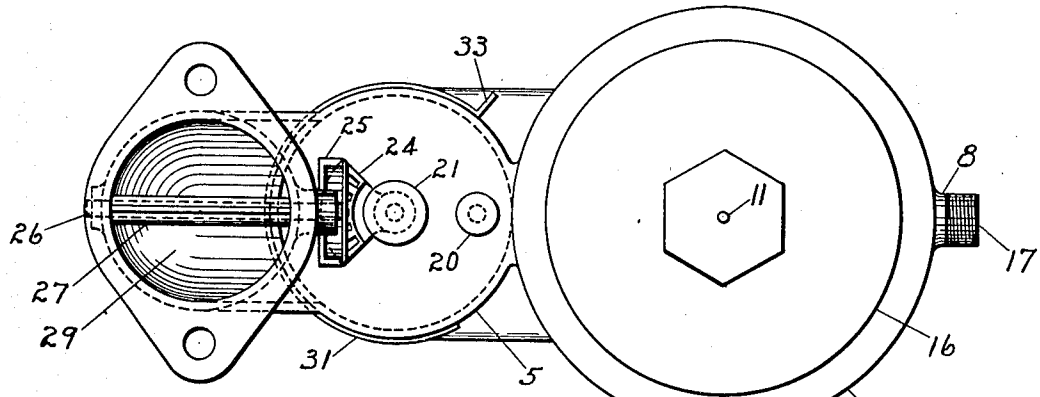


FIG. 1.

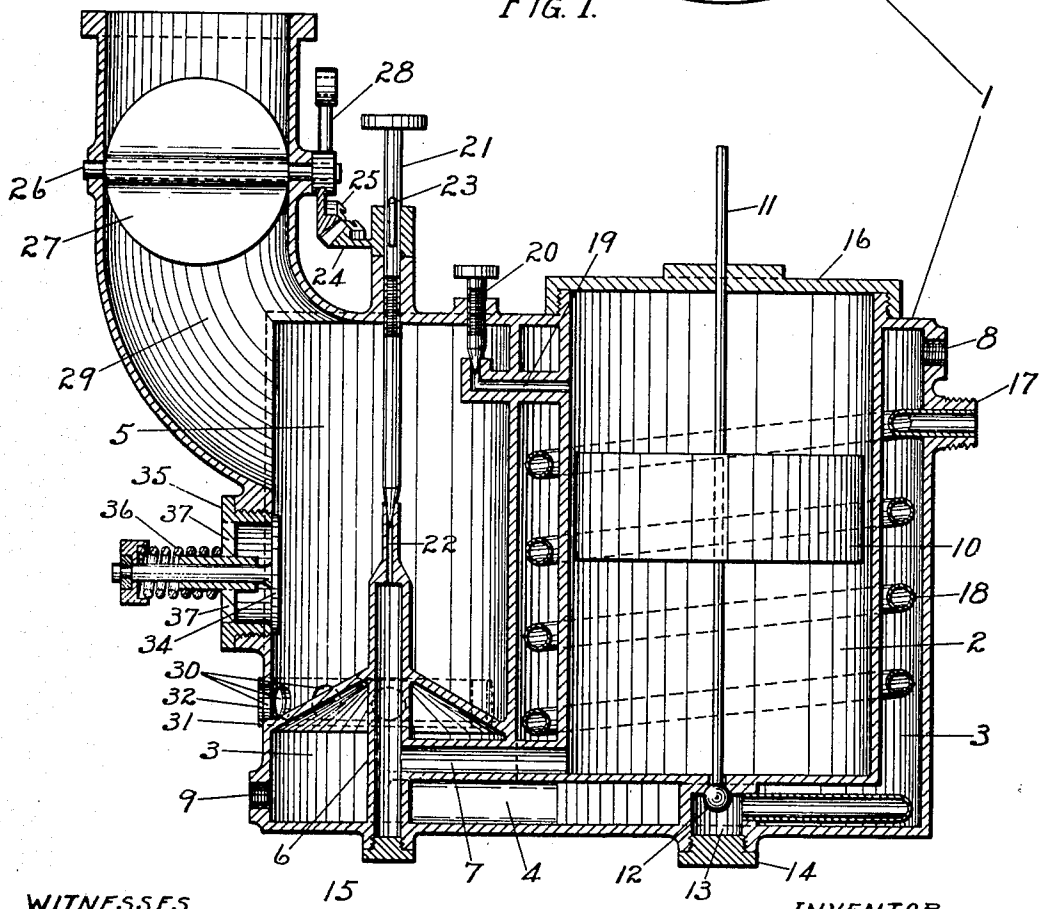


FIG. 2.

WITNESSES.

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CARBURETER FOR INTERNAL-COMBUSTION ENGINES.

No. 920,231. Specification of Letters Patent. Patented May 4, 1909.

Application filed March 13, 1908. Serial No. 420,989.

To all whom it may concern:

Be it known that I, HARRY Z. WHITE, a citizen of the United States, residing at Buffalo, in the county of Erie and State of New York, have invented or discovered a certain new and useful Improvement in Carbureters for Internal-Combustion Engines, of which the following is a specification.

The object of my invention is to provide an improvement in carbureters; and to this end it consists in a new and improved means for heating and gasifying the gasolene or other hydro-carbon supplied to an internal combustion engine, and in certain combinations and features of construction, all as hereinafter set forth.

In the accompanying drawings, Figure 1 is a plan of my improved carbureter and Fig. 2 is a central longitudinal section through the same.

In supplying gasolene or other hydro-carbon to an internal combustion engine it is desirable to add heat to the hydro-carbon to more readily break up the liquid and gasify it and so make a better and more uniform mixture with the air and hence a more powerful and economical explosive mixture. This has been done before to a certain extent by running the jacket water from the engine around the carbureter but on account of the large body of gasolene or other hydro-carbon and the rapidity with which it is used it is usually only partially heated. In accordance with my invention I provide means whereby the temperature of the hydro-carbon can be heated up to and kept at the temperature of the engine jacket water and partially gasified before being mixed with air.

As shown in the drawings, 1 is the body of my improved carbureter.

2 is the float chamber and between the float chamber 2 and body 1 is a water space 3. This water space occupies a space completely around and beneath the float chamber 2 and extends through passage 4 under the bottom of the mixing chamber 5 and around the spray nozzle 6 and passage 7 which connects the bottom of the float chamber 2 with the spray nozzle 6.

8 is the inlet to admit hot water to the water space 3 and 9 is the outlet from water space 3.

10 is a float on the stem 11 on the lower end of which is the ball valve 12 in the valve chamber 13.

14 is a plug screwed into and closing the lower end of the valve chamber 13.

15 is a plug screwed into and closing the lower end of the spray nozzle 6.

Plugs 14 and 15 can be taken out to remove any water or other foreign matter deposited from the hydro-carbon.

16 is a cap screwed onto the top of the carbureter for closing the top of the float chamber 2.

17 is a boss on the outside of the carbureter body 1 for making a connection to the hydro-carbon supply tank (not shown) and holds one end of a pipe 18. Pipe 18 is coiled around the float chamber 2 and in the water space 3, the upper end of which is fastened into the boss 17 and the lower end of which is fastened into the valve chamber 13 and is the means by which the hydro-carbon is conveyed from the outside of the carbureter to the valve chamber 13.

19 is a passage from the top of the float chamber 2 to the top of the mixing chamber 5.

20 is a threaded needle valve for opening and closing the passage 19.

21 is a threaded needle valve for opening and closing the passage 22 in the spray nozzle 6.

23 is a feather on the needle valve 21 for revolving or being revolved by the gear sector 24.

25 is a gear sector mounted and fastened on the shaft 26 of the throttle 27 and meshing with the gear sector 24.

28 is an arm on the top of gear sector 25 for the purpose of moving gear sector 25 and so opening or closing the throttle 27 and at the same time opening or closing the passage 22 in the spray nozzle 6.

29 is a mixture passage from the mixing chamber 5 by which connection is made to the combustion chamber of an engine (not shown).

30, 30 etc., are ports for the admission of air into the bottom of the mixture chamber 5 and 31 is a band having ports 32, 32 etc., corresponding with the ports 30, 30 etc.

33 is a projection on the band 31 by means of which band 31 can be shifted to close or open the ports 30, 30 etc.

34 is an air valve mounted in a seat 35 and kept closed by means of a spring 36. The seat 35 has openings 37, 37 etc., through which air is admitted to the mixture chamber 5 when the valve 34 is open.

The operation of carbureter is as follows: Hydro-carbon is first supplied to the carbureter through the upper end of the pipe 18 and flowing down through this pipe is heated to the temperature of the water surrounding it in the space 3. The hydro-carbon then fills valve chamber 13 and flows past the ball valve 12 and rises in the float chamber 2 and spray nozzle 6 until the float 10 is reached and raised when the ball valve 12 is also raised and the hydro-carbon stopped from entering the float chamber 2. The height of the hydro-carbon in the float chamber 2 is now just below the top of the passage 22 in the spray nozzle 6. The needle valves 20 and 21 are now opened and the engine started, when the suction of the engine draws air through the ports 30, 30, etc., hydro-carbon from the spray nozzle 6 past the needle valve 21 and gas from the top of the float chamber 2 past the needle valve 20, which are mixed in the chamber 5 and carried to the engine through the passage 29. As soon as the hydro-carbon in the float chamber 2 falls the float 10 descends and carrying with it the stem 11 and valve 12 more hydro-carbon is supplied to the float chamber 2 keeping a practically constant level of hydro-carbon in the float chamber 2. The flow of mixture from the mixture chamber 5 to the engine is regulated by the opening and closing of the throttle 27. As the suction from the engine increases the air valve 34 automatically opens and supplies the necessary air which is required from the increased flow of the gas from the top of the float chamber 2 and hydro-carbon spray from the spray nozzle 6.

My invention is not limited to the particular construction shown in the drawings as the pipe 18 may be carried up and down in straight lengths in a water space 3 instead of in a circular path around the float chamber 2 or in any other suitable manner and without departing from the spirit of my invention.

I claim as my invention and desire to secure by Letters Patent—

1. The combination, in a carbureter of a mixture chamber with a float chamber, a water jacket around said float chamber and means in said water jacket for carrying and heating hydro-carbon before it is delivered into said float chamber, substantially as set forth.

2. In a carbureter, the combination, of a water jacketed float chamber, means for heating hydro-carbon in said water jacket before said hydro-carbon enters said float chamber, with a mixture chamber and means for carrying said hydro-carbon from said float chamber to said mixture chamber in a heated condition, substantially as set forth.

3. In a device of the character described, the combination, of a mixing chamber containing a spray nozzle controlled by a needle valve and a mixture passage in which the flow of mixture to an engine from said mixture chamber is controlled by a throttle, with a float chamber, a space around said float chamber through which is circulated jacket water from said engine, means for carrying hydro-carbon through said jacket water on its way to said float chamber whereby said hydro-carbon enters said float chamber in a heated condition, means for delivering said heated hydro-carbon to said mixture chamber and means for carrying the gas generated in said float chamber on account of the heated hydro-carbon directly from said float chamber to said mixture chamber, substantially as set forth.

4. In a carbureter for internal combustion engines composed of a water jacketed float chamber and a mixture chamber, said float chamber having an inlet controlled by means of a float and valve, a spray nozzle outlet from said float chamber to said mixture chamber and controlled by a valve, a gas outlet from said float chamber to said mixture chamber also controlled by a valve, means to admit air to said mixture chamber and means to convey a liquid hydro-carbon through said water jacket into said float chamber, whereby said hydro-carbon is heated and partially gasified, substantially as set forth.

5. In a carbureter for internal cumbustion engines, the combination of a water jacketed float chamber, a mixing chamber, means to preserve a constant level of hydro-carbon in said float chamber, means to regulate the flow of hydro-carbon from said float chamber to said mixture chamber, means to regulate the flow of gas from said float chamber to said mixture chamber, means to regulate the admission of air to said mixture chamber, means to regulate the flow of mixture of hydro-carbon and air from said mixture chamber to the combustion chamber of an internal combustion engine and means to convey said hydro-carbon through said water jacket whereby the said hydro-carbon is heated and partially gasified, substantially as set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

HARRY Z. WHITE.

Witnesses:
ALFRED A. A. SUIT,
LUCIAN C. JACKSON.