

Aug. 24, 1926.

1,597,072

R. H. HENKLE

CARBURETOR

Filed Jan. 8, 1925

Fig. 1.

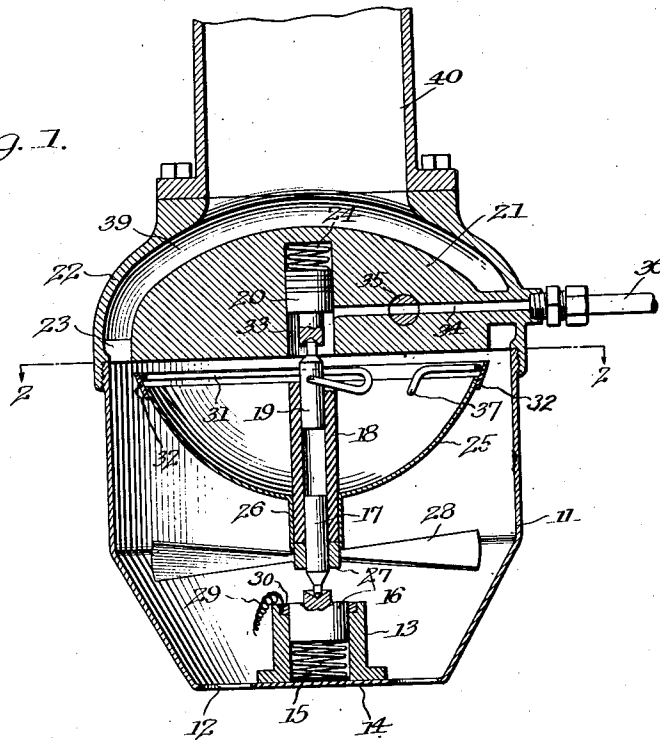
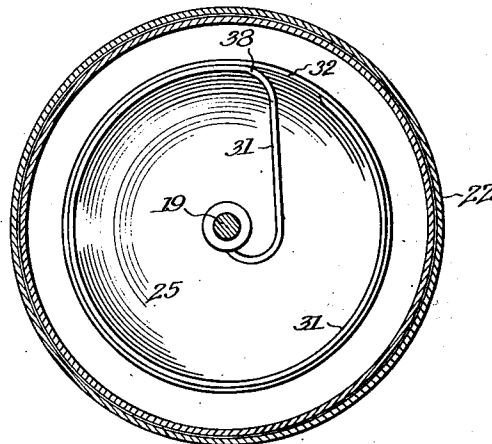


Fig. 2.



Inventor
Ralph H. Henkle.

Joseph W. Hazell
Attorney

UNITED STATES PATENT OFFICE.

RALPH H. HENKLE, OF ANNAPOLIS, MARYLAND.

CARBURETOR.

Application filed January 8, 1925. Serial No. 1,226.

The present invention relates to carburetors, and particularly to carburetors for mixing air and liquid fuel for internal combustion engines.

5 An object of the invention is to provide a carburetor by which the liquid fuel is vaporized before it enters the intake manifold.

10 A further object of the invention is to provide a carburetor having a heating device associated therewith and adapted to assist in the vaporization of the fuel.

15 Another object of the invention is to provide a carburetor having a rotary fuel-receiving member with means whereby it is operated by air pressure from the air intake.

20 Still another object of the invention is to provide such a carburetor with means for automatically cutting off the fuel supply when the engine is not running, and with means for regulating said fuel supply.

25 A still further object of the invention is to provide a carburetor, and particularly a carburetor having a rotary member with an electrically heated member for vaporizing a liquid fuel.

30 Other objects and advantages of the invention will appear from the following description taken in connection with the accompanying drawings, which illustrate one preferred embodiment thereof and in which:

25 Fig. 1 is a vertical sectional view of a form of carburetor embodying the present invention;

Fig. 2 is a sectional view taken on the line 2-2 of Fig. 1 in the direction of the arrows.

35 Referring in detail to the drawings, a casing 11 is provided with an air intake opening 12 at one end thereof, in which is mounted a spring and bearing housing 13, which is preferably made of insulating material and which may be supported upon a centrally located plate 14, forming a part of the casing 11, or supported from it by webs or other desired means.

40 In the lower end of the housing 13 is mounted a spring such as the coil spring 15, shown, and resting on said spring is a lower bearing member 16, adapted to receive the lower end of a pin 17.

50 The pin 17 fits within an insulating member 18 at the lower end thereof, and in the

upper end thereof is mounted an upper pin 19, supported in an upper bearing member 20, which is slidably mounted in the stationary housing 21, fixed within the upper casing member 22 by means of spacing and supporting webs 23, or by other desired means.

60 A spring 24, mounted in the stationary member 21, urges downwardly the upper bearing 20, and is preferably under sufficient tension to overcome the action of the spring 15, and the insulating member 18, carrying the upper and lower pivot pins 17 and 19, respectively, is thus yieldably held for rotary motion between the two coil springs.

70 Centrally fixed to the insulating member 18 is a fuel receiver 25, preferably cup-shaped, as shown, and having a depending annular flange 26, through which the insulating member 18 passes and by which the rotary fuel receiver is fixed to said insulating member.

75 Fixed to the lower pivot pin 17 is a collar or ring 27, which contacts at its upper edge with the annular flange 26 of the rotary fuel receiver and carries the radially extending fan blades 28.

80 The housing 13 is provided with an inner annular shoulder adapted to receive a ring 30 of metal or other conducting material, with which a wire contacts conducting an electric current. The ring 30 is mounted in the upper part of the housing 13, and when the rotary fuel receiver 25 is moved axially in operation, the lower bearing 16 moves with it under the action of the spring and comes in contact with the ring 30.

85 The ring 30, the lower bearing 16, the pin 17, the ring or collar 27, and the rotary fuel receiver, including the flange 26, are thus adapted to conduct a current of electricity, which may be carried to the housing 13 by a wire 29 from any suitable source to the rotary fuel receiver.

90 The particular heating device herein shown in the present embodiment of the invention has the form of a wire 31 secured in any convenient manner to a circular insulating strip 32 disposed about the rim or outer edge of the rotary fuel receiver 25.

95 The upper bearing member 20 has its lower portion spaced from the stationary housing 21 to permit the passage there-

through of a liquid fuel which enters into the opening 33 from a channel 34, provided with a valve 35, operable from without the casing and controlling the supply of fuel which enters the carburetor from a feed pipe 36, connected to the fuel tank.

The electric heating current above referred to passes from the flange 26 through the body of the rotary fuel receiver 25 and enters the heating element or wire 31 at the point 37, where said wire is soldered, welded, or otherwise secured to said fuel receiver. After passing about the edge of the fuel receiver, the wire 31 is bent radially inwardly, as shown at 38, and contacts with the upper bearing pin 19, which conducts the current through the upper bearing member 20 to the housing 21, where the circuit is grounded.

The stationary member 20 is spaced from the upper housing 22 to provide an annular channel 39 leading to the intake manifold 40.

In operation the liquid fuel is fed from the supply tank through the feed pipe 36 into the channel 34, and downwardly through the chamber 33 into the rotary receiver 25. The intake of air through the intake opening 12 causes the fan blades 28 to rotate, and these blades being fixed with respect to the rotary fuel receiver, cause said receiver to rotate at the same angular velocity as said blades. This rotary motion causes the liquid fuel to be spread in a very fine film over the inner surface of the fuel receiver and to be thrown radially outward under centrifugal action to the upper and outer edge of said receiver, where it passes across the heating wire 31 and is thrown off the fuel receiver in a tangential direction caused by said rotary motion in the form of a vapor produced by the action of the heated wire on the fine film, the vaporized fuel being then carried through the channel 39 around the stationary member 20 in the form of a vapor into the intake manifold 40, from which it is delivered to the combustion chamber or chambers.

It will be seen that by the above construction there has been provided a carburetor having a rotary fuel receiver in combination with a heating element, by which the liquid fuel is heated and vaporized before it is carried into the combustion chambers to be ignited, and that the upper movable bearing 20 cuts off the supply of fuel when the device is not operating, owing to the action of the spring 24.

It will also be observed that the ring 30 and the lower bearing member 16 provide an automatic make and break contact, by means of which a current flows through the heating element during operation of the device and is cut off therefrom when the device is not operated. It will also be observed that the heating element in the pres-

ent embodiment of the invention is located on the inside of the fuel receiving member for the purpose of conserving its heat.

What is claimed is:

1. A carburetor including a casing having an air intake opening, means for supplying a liquid fuel to the interior of said casing, a rotatable heating element, and means in said casing carrying said heating element and operated by intake of air therein to for delivering said fuel to said rotatable heating element to vaporize said fuel.

2. A carburetor including a casing having an air intake opening, means for supplying a liquid fuel to the interior of said casing, a rotary heating element in said casing, and a rotary fuel receiver carrying said heating element and operated by intake of air into said casing for delivering said liquid fuel in the form of a thin film to said rotary heating element for vaporizing said fuel.

3. A carburetor including a casing having an air intake opening, means for supplying a liquid fuel to the interior of said casing, and means in said casing including a rotary heating device and a fuel receiver associated therewith and operated by intake of air into said casing for delivering said fuel to said rotary heating device for vaporizing said liquid fuel.

4. A carburetor including a casing having an air intake opening, means for supplying a liquid fuel to the interior of said casing, and means in said casing for vaporizing said liquid fuel, said last-named means including a rotatable electric heating device and a fuel receiver associated therewith and adapted to deliver liquid fuel to said rotatable heating device in the form of a thin film.

5. A carburetor including a casing, rotatable means for receiving a liquid fuel, and carrying a fuel vaporizing heating element rotatable therewith, said rotatable fuel-receiving means being formed to conduct fuel to said heating element during rotation.

6. A carburetor including a rotary liquid fuel receiver, a fuel vaporizing heating element rotatable therewith, and means operated by intake of air into said carburetor for rotating said liquid fuel receiver and conducting said fuel to said vaporizing heating element.

7. A carburetor comprising an air passage and a mixture outlet, a rotary liquid fuel receiver in said air passage having a fuel vaporizing electrical heating element rotatable therewith, axially movable bearings in which said receiver is rotatably mounted, a fuel inlet channel, circuit closing members for the electric circuit of said heating element, and means for moving said fuel receiver axially in one direction in operation to open said channel and close said

circuit, and axially in the reverse direction to close said channel and open said circuit when said receiver is stationary.

5 8. A carburetor having an air passage and having a rotary fuel vaporizing heating element in said air passage, means rotatable with said heating element for receiving a liquid fuel and conducting it in the form

of a thin film to said heating element, means for conducting a current of electricity to 10 said heating element, and an automatic make and break contact associated therewith.

In testimony whereof I affix my signature.

RALPH H. HENKLE.