July 10, 1923. 1,461,470

K. A. ACKLEY

CARBURETOR

Filed May 14, 1921

Fig. 1.

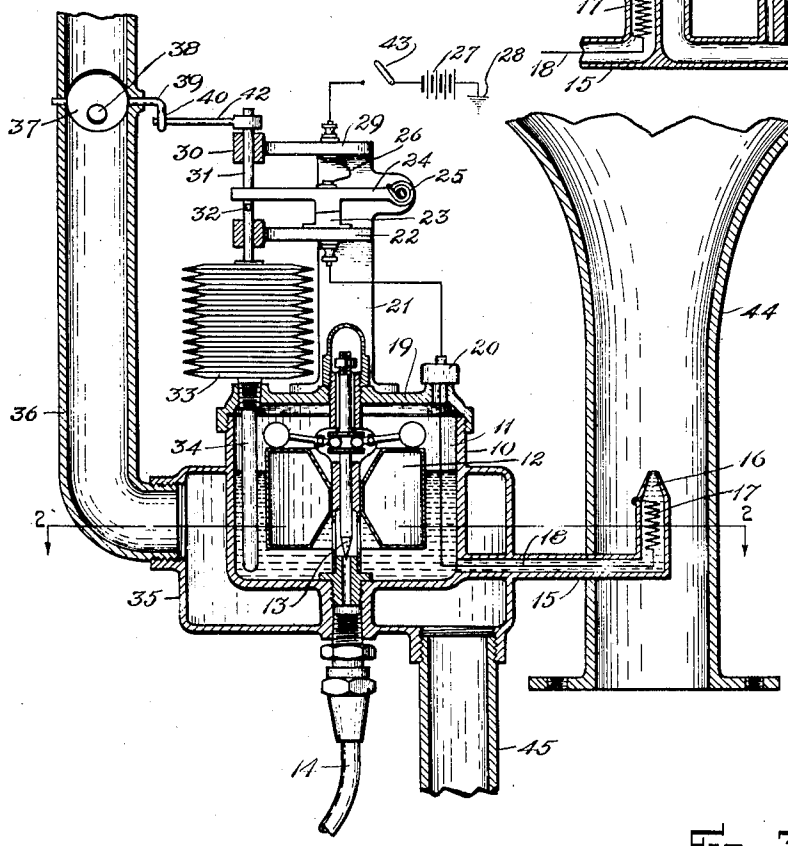


Fig. 4.

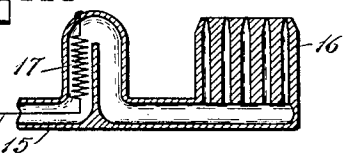


Fig. 2.

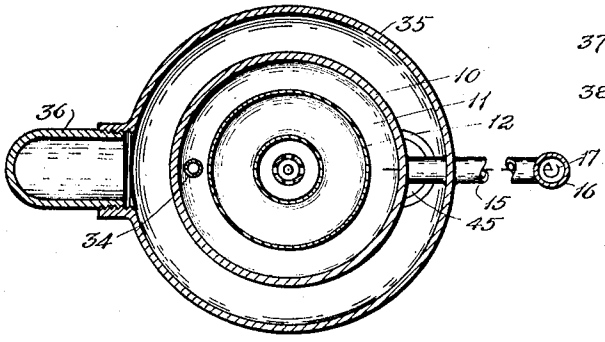
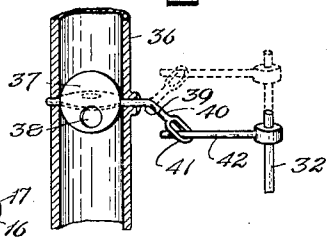


Fig. 3.



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UNITED STATES PATENT OFFICE.

KENNETH A. ACKLEY, OF LOUISVILLE, KENTUCKY.

CARBURETOR.

Application filed May 14, 1921. Serial No. 469,551.

To all whom it may concern:

Be it known that I, KENNETH A. ACKLEY, a citizen of the United States of America, residing at Louisville, in the county of Jefferson and State of Kentucky, have invented certain new and useful Improvements in Carburetors, of which the following is a specification.

This invention relates to carburetors such as used in connection with gas engines and automobiles and the like.

One important object of the invention is to provide an improved form of carburetor and a means of novel character for heating the incoming fuel supply prior to its being introduced in the intake manifold so that the engine to which the carburetor is attached may be readily started in cold weather.

A second important object of the invention is to provide a novel arrangement of carburetor and electric heater for the fuel supply, the arrangement being so constructed that the electric heater is automatically cut out after the engine starts and thus obviates the burning out or over heating of the heating coil.

A third important object of the invention is to provide, in connection with an electric heating means as set forth above, other means for heating the float chamber of the carburetor by means of exhaust gases from the engine.

With the above and other objects in view, the invention consists in general of certain novel details of construction and combinations of parts hereinafter fully described, illustrated in the accompanying drawings, and specifically claimed.

In the accompanying drawings, like characters of reference indicate like parts in the several views, and:—

Figure 1 is a vertical section through a carburetor and adjacent parts constructed in accordance with this invention.

Figure 2 is a section on the line 2—2 of Figure 1, the intake manifold being omitted.

Figure 3 is a detail view showing a slight modification of a certain valve operating means used herewith.

Figure 4 is a detail view showing an arrangement of heater suitable for use with a multiple jet nozzle.

In the embodiment of the invention herein illustrated there is provided a carburetor having a float chamber casing 10 the interior of which forms the chamber 11 wherein is located the float 12 and some usual apparatus for controlling the needle valve 13 which regulates the admission of gasolines or other fluid combustible passing through the supply pipe 14. It is not deemed necessary to describe the parts in the float chamber in detail as the same may be of any preferred construction. Leading from the float chamber is an outlet pipe 15 which connects with a nozzle 16. In this nozzle is a heating coil 17 having one end grounded on the nozzle wall and from the other end of this heating coil extends a wire 18 which leads upward through the top 19 of the float chamber, a suitable bushing 20 affording means for conducting the wire through said top without leaving the float chamber open. Secured to the carburetor is a bracket 21 wherefrom projects a shelf 22 carrying an electric contact 23. Pivoted to the bracket is also a switch arm 24 which is normally urged into engagement with the contact 23 by means of a spring 25. This switch is connected by suitable wiring 26 with a battery 27, the remaining end of the battery being grounded as at 28. Above the shelf 22 is a second shelf 29 and the shelves 22 and 29 carry aligned bearings 30 through which passes a stem 31, this stem also passing through a suitable opening in the lever 24. This bracket and the shelves are preferably made of insulating material. Beneath the lever 24 the stem is provided with a cross pin 32 so that upward movement of the stem opens contact between the lever and the electrical contact 23. At 33 is a thermostat cell of the bellows type. The stem 31 is connected to the upper end of this cell and projecting down from the cell through the top 19 is a tubular member 34 which is closed at its bottom and extends into the liquid contents of the float chamber.

Surrounding the float chamber casing is a heater casing 34 to which is connected an inlet pipe 36 which leads to the exhaust of a gas engine, this exhaust not being deemed necessary to be shown. In the pipe 36 is a butterfly valve 37 having a bleeder opening 38 therein. This valve is mounted on a stem 39 having an angled portion 40 provided at its end with a loop 41. On the stem 31 is mounted a finger 42 which extends into the loop 41.

In operating the device when the engine is cold the electric circuit will be closed. Nor-

mally a switch 43, which may also constitute the ignition switch of the machine, is open when the engine is not in operation. In order to start the operation of this device this switch 43 is closed. Thereupon the heater 17 becomes hot and, when the engine starts, the gasoline or like combustible fluid through the nozzle 16 will be heated so that it will readily mix with the air in the intake 44 and be capable of quick ignition at the proper time. At the same time the valve 37 is opened to its fullest extent. After the engine is started the exhaust gases will pass through the pipe 36 and through the heater chamber from whence they will escape through an outlet 45. This will heat the gasoline in the float chamber. The increase of heat in the float chamber will cause expansion of the cell 33 and the stem 31 will be pushed upward. The lever 24 will now rise and break the circuit through the heater 17. At the same time the valve 37 will close to a greater or less degree. Thus the heating coil 17 will only receive current for a short time and the engine starts in operation.

There has thus been provided a simple and efficient device of the kind described and for the purpose specified.

It is obvious that minor changes may be made in the form and construction of the invention without departing from the material principles thereof. It is not therefore desired to confine the invention to the exact form herein shown and described, but it is wished to include all such as properly come within the scope claimed.

Having thus described the invention, what is claimed as new, is:—

A combined valve and heating coil control thermostat comprising an expansible thermostatic cell, a bracket adjacent said cell and provided with a pair of spaced arms projecting over the cell and having alined bearings, a stem on the thermostatic cell extending through these arms, a circuit controlling lever pivoted to said bracket and extending past the stem, a pin on said stem engaging the free end of said lever to move the same, and a valve controlling arm projecting laterally from the upper end of said stem.

In testimony whereof I affix my signature.

KENNETH A. ACKLEY.