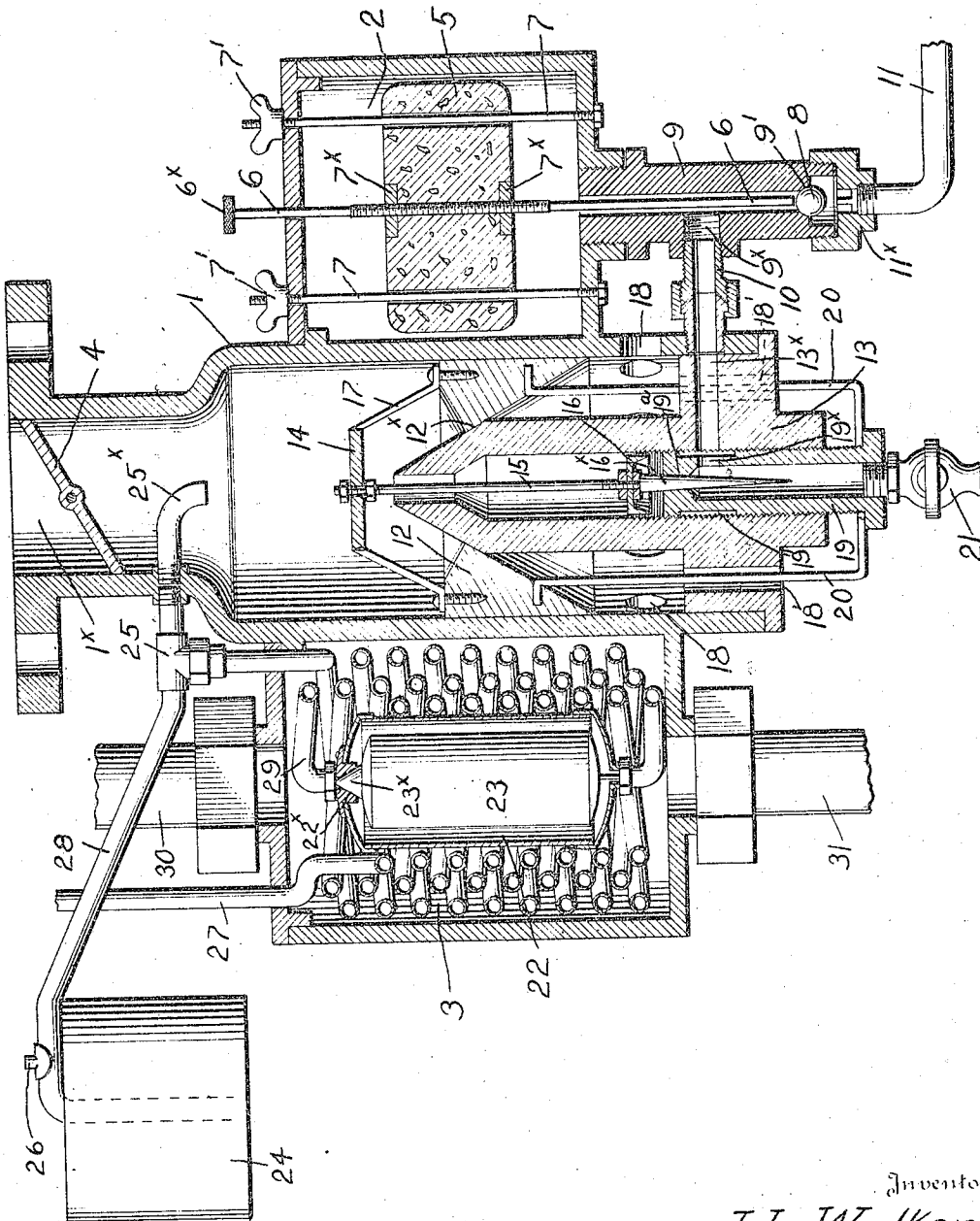


J. L. WALKER.
CARBURETER.
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CARBURETER.

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To all whom it may concern:

Be it known that I, JAMES L. WALKER, a citizen of the United States, residing at National, in the county of Pierce and State of Washington, have invented certain new and useful Improvements in Carbureters; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

This invention relates to new and useful improvements in carbureters and consists in the provision of a simple and efficient device of this nature so constructed as to enable the same to be run upon a heavy fuel, such as kerosene and distillates and so constructed as to be of easy operation.

My invention comprises various details of construction, combinations and arrangements of parts, which will be hereinafter fully described, shown in the accompanying drawing and then specifically defined in the appended claims.

I illustrate my invention in the accompanying drawing, in which I have shown a central vertical sectional view through a carbureter made in accordance with my invention.

Reference now being had to the details of the drawings by numeral, 1 designates the main carbureter chamber, having an opening 1^x controlled by the throttle 4, and 2 is a float chamber having bolts 7 passing through the top and bottom thereof and upon which are winged nuts 7'. A float 5 is mounted within the chamber 2 and has openings to receive said bolts 7, and nuts 7^x are seated in recesses in the opposite faces of the floats and receive threaded portions of the rod 6 which has a hand wheel 6^x fastened at one end, whereby the rod may be turned to cause an adjustment intermediate the same and the float. The bolts 7 serve not only to hold the float from turning axially but to guide the same in its vertical movements within the chamber 2.

A coupling 9, made preferably of magnetic metal, has threaded connection with an opening in the bottom of the float chamber and has a laterally extending duct 9^x to which the coupling 10 is connected. The lower end of the coupling 9 has a valve seat 9' and a rod 6 passes through the coupling

9 and is provided for the purpose of unseating the ball valve 8 which normally is held to its seat, formed at the lower end of the coupling 9 by magnetic attraction and may be unseated by pressure applied to the rod 6. A gasoline supply pipe, designated by numeral 11, is connected to the union 11^x and forms means whereby fuel from any suitable source of supply may pass to the interior of the coupling 9, thence through the coupling 10, through the duct 13^x formed in the wall of the member 13. Said member 13 is fitted within the body of the carbureter 1, which latter is provided with air openings 18 and the member has similar air openings 18', formed in the bottom thereof. The chambered portion of the member at its lower end has interior threads to receive the adjusting plug 19, which latter has a duct 19^x through the wall thereof, leading into an annular recess 19', forming a chamber in which the fuel enters before passing into the interior of the plug 19. The upper end of the plug 19 has an opening 19^a which is controlled by the needle valve 16^x, and 16 designates a piston secured to the rod 15 and is movable therewith inside of the chambered portion of the member 13.

A sleeve or piston 12 is movable within the carbureter 1 and has an opening, the walls of which incline from the central contracted portion 12^x through which contracted portion the member 13 passes. A wire 20 is bent bail-shaped and has its ends fitted into the sleeve and passes through apertures 18' in the bottom of the member 13 and is bent about the plug 19, and which wire is provided for the purpose of limiting the upper movement of the sleeve and thereby avoid injury to the needle valve and other delicate parts of the device and also serving as a means for holding the sleeve down, if desired, in starting the carbureter. Secured to the piston or sleeve 12 are the spider arms 17 which support the mixing plate 14, the latter being centrally apertured for the reception of the stem 15, having a loose connection therewith, so that it may shift but is adapted to be raised and lowered in the plate 14 and sleeve 12. The plug 19 is adjustable within the lower end of the member 13 and is provided with a drain cock 21 in the lower end thereof.

Mounted within the exhausted chamber 3 is a small float chamber 22, the upper end of which has an opening 22', the wall of which forms a valve seat for the tapering

valve 23* at the upper end of the float 23. A pipe 29 leads from the opening in the top of the chamber 22 and leads to and communicates with a three-way union 25 from which a pipe 25* leads to and communicates with the interior of the carbureter chamber 1, and 28 designates a pipe leading from the three-way union and communicates with the gasoline tank 24, the pipe 28 being provided with a vent 26 to the atmosphere.

A water pipe 27 leads through the top of the heating chamber 3 and coils about the float chamber 22 and communicates with the opening at the lower end of said chamber 22. An exhaust pipe 30 communicates with one end of the exhaust chamber 3 and an exit exhaust pipe 31 leads from the exit end of said chamber 3.

In operation, when a slight vacuum is formed in the carbureter above the sleeve 12, the latter is raised according to the speed of the motor and will permit air to enter the carbureter and in its movement the needle valve is lifted, admitting fuel according to the quantity of air admitted. The fuel passes out through the top of the jet and comes in contact with the lower surface of the mixing plate 14. Air entering between the sleeve 12 and the jet also comes in contact with the under surface of the mixing plate, thus insuring a thorough mixing of the air and fuel. When the throttle is thrown open, the sleeve 12 will be suddenly drawn by suction, thus lifting the piston 16 and pumping a quick supply of fuel. The piston 16 also acts as a dash to steady the sleeve 12 from jumping up and down at every stroke of the motor.

In adjusting the mixture, the adjusting plug 19 is screwed up sufficiently for the mixture and downward for a rich mixture, the needle valve being tapered for the different speeds. The fuel level may be adjusted by screwing the rod 6 up or down through the float 5, the latter being held from turning by means of the bolts. The water passing through the pipe enters the heating chamber 3 and into the float chamber 22, causing the float 23 therein to rise, making it impossible for water to pass through the float chamber 22 but, as the water becomes heated, steam will be generated and force the water downward in the float chamber and the float will lower and force the steam out at the opening in the top thereof, and the steam passes through the pipe 29, coiled about the float chamber and thence passes through the three-way union 25 and enters in a superheated condition the upper portion of the carbureter chamber.

An automatic priming device is provided through the medium of the pipe 23. As the starting of the motor there is no steam and

water will not pass through the chamber 22 and there will be a suction through the pipe 28, drawing gasoline from the tank 24 and afterward air through the vent 26 which, mixing therewith, will be drawn into the carbureter through the pipe 25*. When the apparatus is in operation and steam is produced by the water being heated by the exhaust from the engine, the suction will be overcome by the steam and the feeding of the gasoline will stop, thus priming the carbureter only when there is no steam to assist in vaporizing the heavy fuel.

What I claim to be new is:—

1. A carbureter apparatus comprising a carbureter chamber provided with an air inlet and air valve recessed in one face and mounted in said chamber and adapted to be lifted from its seat by the suction of an engine, a hollow member tapering at one end and against which said valve is designed to seat, a hollow plug with a needle valve aperture at one end, a stem fixed to said valve, a plunger and a needle valve upon said stem, said plunger being arranged for movement in said hollow member and said needle valve adapted to seat in said aperture, said hollow member having a fuel outlet above said plunger, the wall of the plug being provided with an aperture leading into an annular space intermediate the wall of the plug and the wall of the chambered portion of said hollow member, the wall of the latter being provided with an inlet duct and stop means secured to said air valve and movable over said hollow plug.

2. A carbureter apparatus comprising a carbureter chamber provided with an air valve recessed on its under face, the wall of the recess being tapering, said valve adapted to be actuated by the suction of an engine, a hollow member tapering at one end and forming a seat for said valve, a hollow plug with a needle valve aperture in one end and mounted within the chambered portion of said hollow member, a bracket secured to said valve, a stem secured to said bracket, a plunger and a needle valve upon said stem, said plunger movable within said member, and the needle valve in the aperture in said hollow plug, said member having a fuel outlet above said plunger, the wall of the latter being provided with a port communicating with an annular space between the outer wall of the plug and the wall of the chamber of the hollow member.

In testimony whereof I hereunto affix my signature in presence of two witnesses.

JAMES L. WALKER.

Witnesses:

LOUIS J. REFEACT,
RUTH ALLISON.