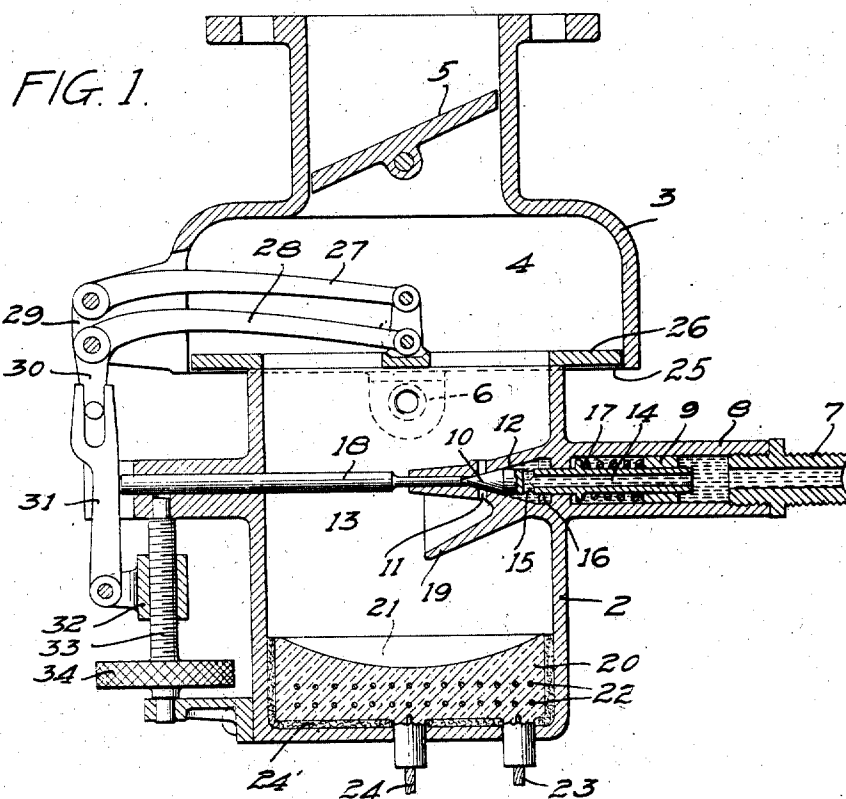
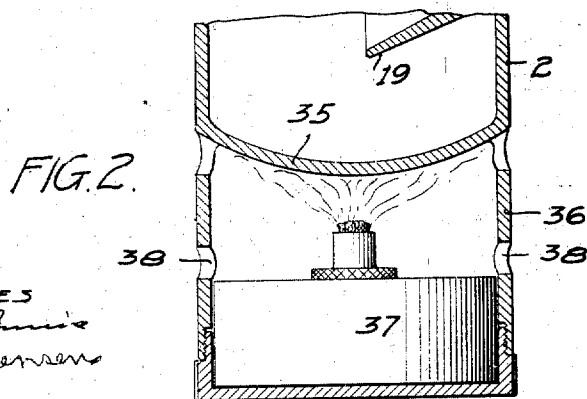


E. G. STAUDE.
VAPORIZER.
APPLICATION FILED JAN. 30, 1913.

1,214,838.

Patented Feb. 6, 1917.



WITNESSES
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EDWIN G. STAUDE, OF MINNEAPOLIS, MINNESOTA.

VAPORIZER.

1,214,838.

Specification of Letters Patent.

Patented Feb. 6, 1917

Application filed January 30, 1913. Serial No. 745,303.

To all whom it may concern:

Be it known that I, EDWIN G. STAUDE, a citizen of the United States, resident of Minneapolis, in the county of Hennepin, State of Minnesota, have invented certain new and useful Improvements in Vaporizers, of which the following is a specification.

The object of my invention is to provide means for a more thorough vaporization of the oil and a more complete carburation of the air in the mixing chamber of the carbureter.

A further object is to provide a carbureter in which the feed of the oil is regulated by the movement of the air valve.

A still further object is to provide a carbureter which will be composed of but few parts and be simple and positive in its action.

The invention consists generally in various constructions and combinations, all as hereinafter described and particularly pointed out in the claims.

In the accompanying drawings forming part of this specification,

Figure 1 is a vertical sectional view of a carbureter embodying my invention.

Fig. 2 is a detail sectional view, showing a modified form of retort.

In the drawing, 2 represents the lower portion of the carbureter casing and 3 the upper portion, containing a mixing chamber 4 and the usual throttle valve 5. These sections are secured together by suitable means, such as lugs or ears 6. 7 is the oil supply duct, communicating with a sleeve 8 mounted preferably on the wall of the casing 2 and having a guide 9 for a needle valve 10 that is adapted to close the port 11 provided in a nozzle 12 which projects into a chamber 13 formed within the casing 2. The valve 10 has a duct 14 therein leading to a transverse passage 15 in said valve, which communicates preferably with a space 16 formed within the nozzle 12 in the rear of the discharge port 11. A spring 17 normally holds the valve in its closed position. A plunger 18 is mounted to slide in the inner end of the nozzle 12 and in the opposite wall of the casing 2 and is adapted to contact with the inner end of the needle valve to force it open against the compression of the spring 17. When this valve is opened, the oil will flow into the duct 14 and the passage 15 and from thence to the discharge port 11 and drop upon a shelf or lip 19 that

is preferably formed on the nozzle beneath the port 11. This shelf operates to spread the oil over the surface of the retort beneath. In the lower part of the chamber 13 I prefer to provide a retort, wherein the oil is vaporized as it falls by gravity from the shelf 19. The preferred form of this retort I will now describe in detail.

20 is a block, preferably of porcelain or other suitable non-conducting material, having a depression 21 in its upper surface and a series of wires 22 embedded in the block at suitable intervals and forming a resistance coil in circuit with the electric conductors 23 and 24 which communicate with a battery or any other suitable source of electrical energy, not shown. Between this block and the walls of the casing 2 I prefer to provide a lining 24' of asbestos or equivalent material. The wires 22 are sufficiently small to form a resistance in the block and create sufficient heat to vaporize the oil as it falls into the depression 21, the degree of heat being regulated by the intensity of the electric current. The upper portion of the chamber 13 communicates with the mixing chamber 4 and into this chamber the vapor rises and meets the air currents entering the chamber through the annular passage 25. This passage is normally closed by a valve ring 26 which rests upon the upper wall of the casing 2. Parallel arms 27 and 28 are pivoted centrally on the valve ring 26 at their inner ends while their outer ends are pivoted on a lug 29 mounted on the wall of the casing 3. The lower arm 28 has an extension 30 thereon that is adapted to slide in the forked upper end of an arm 31 which is pivotally connected at its lower end to a block 32. This block is interiorly threaded to engage the threads of a screw 33 that is mounted in upright bearings on the wall of the casing 2 and is provided with a finger grip 34 by means of which the screw may be revolved and the block 32 raised or lowered thereon. The plunger 18 projects outwardly into the path of the arm 31 and evidently the stroke of this plunger will be varied according to the distance of the pivot of the arm 31 from the plunger. Lowering this pivot will increase the stroke of the plunger, while raising it will decrease the stroke of the plunger.

On the suction stroke of the engine the valve 26 will be lifted from its seat and the currents of air rushing in will form a vortex

above the chamber 13, into which the vapor from the retort beneath will be sucked and thoroughly mixed with air before entering the engine cylinder. The valve will rise and fall in the operation of the engine and its effect on the needle valve will be regulated by the stroke of the plunger, and, as before stated, this stroke can be accurately controlled by the adjustment of the block 32.

In Fig. 2 I have shown a slight modification in the retort feature of the device which consists in providing a wall 35 in the lower portion of the chamber 13 and beneath this wall I provide a housing 36 containing a burner 37 which is supplied with oxygen through the portholes 38. The oil will be vaporized in substantially the same manner as described with reference to Fig. 1 and will be sucked up through the chamber 13 into the mixing chamber and mixed with the incoming currents of air in the manner set forth with respect to Fig. 1.

In various ways the details of construction herein described may be modified and still be within the scope of my invention.

I claim as my invention:—

1. A vaporizer comprising a casing having a mixing chamber and an air intake opening, and valve therefor, a retort arranged within said casing and having a heating means, an oil supply duct arranged to deliver oil to said retort, a valve for said duct, an air valve arranged to close said air intake opening, a plunger arranged to actuate said oil supply valve, and mechanism actuated by the opening of said air valve for operating said plunger to move said oil supply valve.

2. A vaporizer comprising a casing having a fuel supply, a valve therefor in its side wall and an air intake opening, a valve above said fuel supply, means mounted in the wall of said casing opposite said supply and operatively connected with said air valve for automatically opening said fuel supply valve through the movement of said air valve, and a retort arranged beneath said fuel supply and upon which the fuel is dripped, a chamber being formed within said casing above said retort wherein the generated gas accumulates before contacting with the air, and a mixing chamber communicating with said generating chamber and with said air intake.

3. A vaporizer comprising a casing having an air intake opening and valve therefor, a retort arranged within said casing and consisting of a suitable block of non-conducting material having a depression therein and a resistance coil embedded therein and having electric conductors, an oil supply duct arranged to deliver oil to said depression, whereby when said block is heated the oil will be vaporized, a valve for said oil supply duct, said casing having a mixing chamber

wherein the vapor will be sucked by the incoming currents of air when said valve is opened, and mechanism actuated by the opening of said valve for imparting a corresponding movement to said oil supply valve.

4. A vaporizer comprising a casing having a mixing chamber and an air intake opening and valve therefor, a retort provided within said casing, an oil supply duct arranged to deliver oil to said retort, a valve for said oil supply duct, a plunger for opening said valve, an upright adjusting screw, a block vertically movable on said screw, an arm pivotally connected with said block and having a forked upper end, and pivoted arms having a sliding connection with said fork, and pivotally connected with said air supply valve.

5. A vaporizer comprising a casing, a retort mounted in the lower portion thereof, an air intake valve in the upper portion of said casing, a fuel supply and regulating valve therefor in the side wall of said casing, intermediate to said retort and said air valve, means connected with said air valve to be actuated thereby for opening said fuel supply valve, said fuel supply valve having means for directing the drippings upon said retort, and a generating chamber provided within said casing between said retort and said air valve.

6. A vaporizer comprising a casing having an air intake opening and valve and a fuel supply opening and regulating valve therefor beneath said air valve, said casing having a generating chamber therein into which said fuel supply projects, means connected with said air valve for opening said fuel supply valve proportionately to the degree of movement of said air valve, said casing having a mixing chamber whereto the vapor is delivered from said generating chamber.

7. A vaporizer comprising a casing having a mixing chamber, a retort arranged within said casing and consisting of a suitable block of non-conducting material and a resistance coil therein having electric conductors, means for delivering oil upon said retort, an air intake valve, and mechanism actuated by the movement of said valve for regulating the feed of oil upon said retort.

8. A vaporizer comprising a casing having a mixing chamber and an air intake opening and valve therefor, a retort comprising a block of non-conducting material and a resistance coil having electric conductors embedded within said block, and an oil feeding means arranged between said retort and said mixing chamber and adapted to drip the oil upon said retort.

9. A vaporizer comprising a casing having a generating chamber and a retort in the lower part of said chamber and means for heating said retort, a fuel supply and

spring actuated regulating valve therefor above said retort in position to discharge the drippings from said fuel supply upon said retort, said casing having a mixing chamber therein and an air valve interposed between said generating chamber and said mixing chamber, means for opening said regulating valve, and connections between said means and said air valve whereby said
10 regulating valve will be opened to drip the fuel upon said retort proportionately to the movement of said air valve.

10. A vaporizer comprising a casing having a generating chamber, a retort therein,
15 a fuel supply port and valve therefor in the

upper part of said chamber arranged to drip fuel upon said retort, said casing also having a mixing chamber and an air intake port and valve therefor, and a passage leading from said generating chamber to said mixing chamber and mechanism actuated by the movement of said valve for regulating the feed of fuel to said retort.

In witness whereof, I have hereunto set my hand this 23d day of January 1913.

EDWIN G. STAUDE.

Witnesses:

GENEVIEVE E. SORENSEN,
EDWARD A. PAUL.