

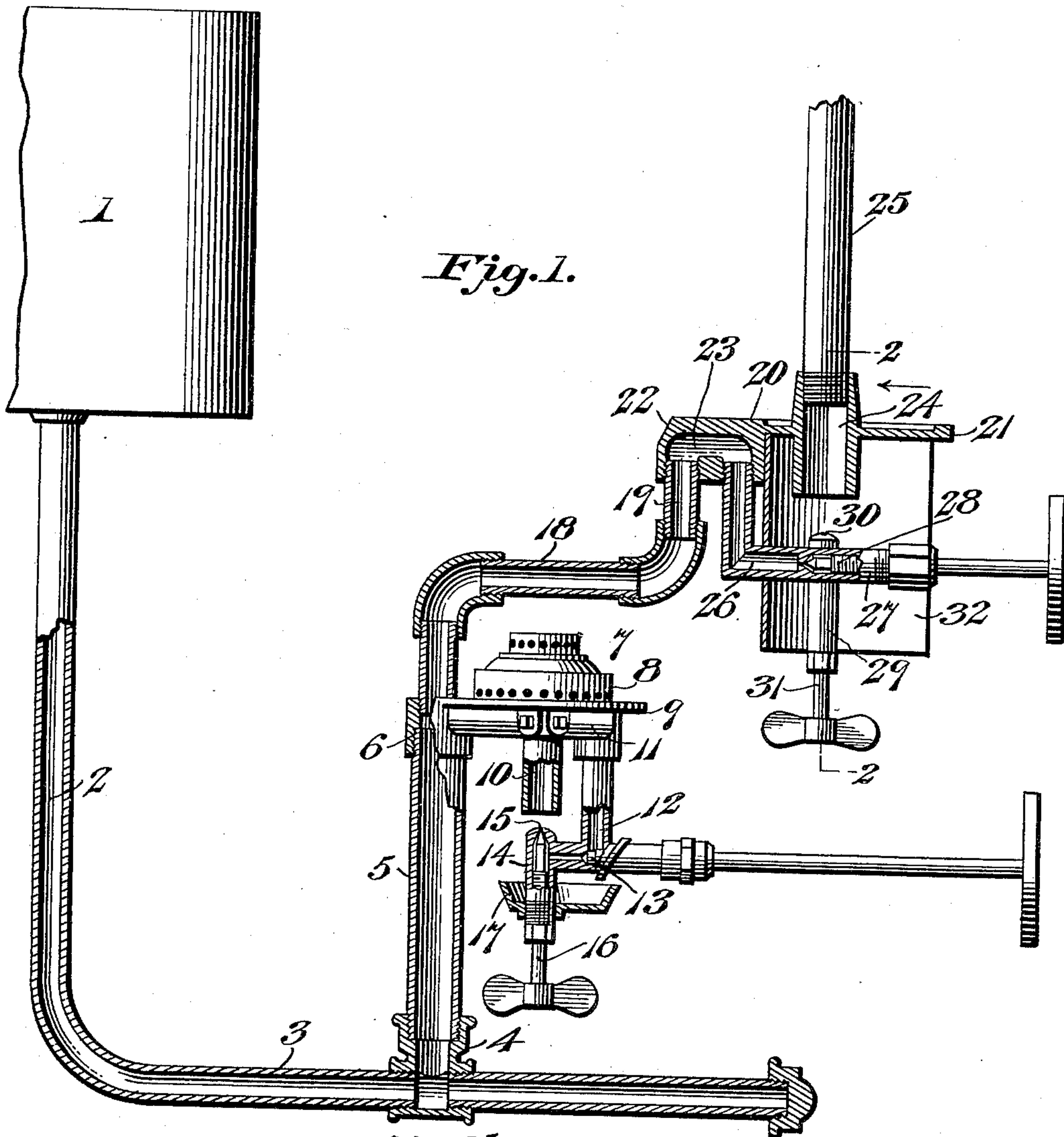
No. 682,509.

Patented Sept. 10, 1901.

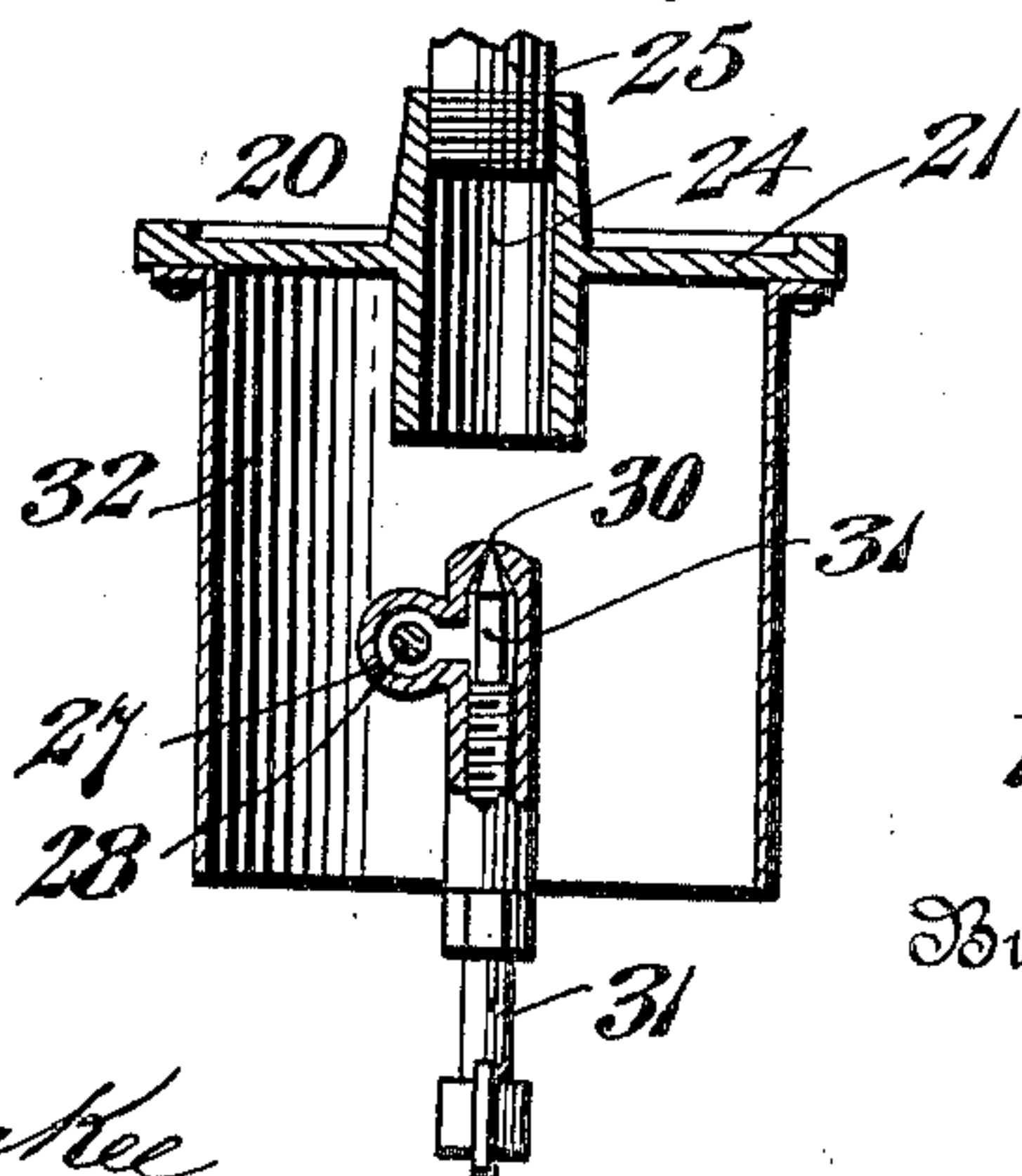
W. O. VANCE.  
CARBURETER.

(Application filed July 25, 1900.)

(No Model.)



*Fig. 2.*



Witnesses  
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By

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# UNITED STATES PATENT OFFICE.

WILLIAM O. VANCE, OF NEW ALBANY, INDIANA.

## CARBURETER.

SPECIFICATION forming part of Letters Patent No. 682,509, dated September 10, 1901.

Application filed July 25, 1900. Serial No. 24,813. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM O. VANCE, a citizen of the United States, residing at New Albany, in the county of Floyd and State of Indiana, have invented a new and useful Carbureter, of which the following is a specification.

This invention relates to a novel carbureter designed for the generation of a gas from a liquid hydrocarbon for lighting or heating purposes, the object in view being to provide for the volatilization of the liquid hydrocarbon by a burner tapped into the oil-main and for the formation of a combustible gas within a commingling and distributing head located adjacent to the vaporizing-burner and designed to supply the gas thus formed to any desired number of burners located beyond the distributing-point. To the production of such a device the invention consists in leading an oil-supply pipe from a suitable reservoir to a distributing-head and in vaporizing the oil immediately before it reaches the head by means of a burner supplied with oil from the oil-pipe and directing its flame against a horizontal portion thereof to cause the volatilization of the oil substantially injected in the form of a vapor into the commingling-chamber of the distributing-head, the injection of the vapor effecting its commingling with air to form a gas designed to be supplied from the head to a gas-main for conveyance to the point or points of use.

The specific construction and arrangement of the apparatus will be more fully described hereinafter and will be clearly understood in connection with the accompanying drawings.

In said drawings, Figure 1 is a sectional view of my apparatus complete, certain of the parts being shown in elevation; and Fig. 2 is a sectional view through the distributing-head on the line 2 2 of Fig. 1.

Referring to the numerals of reference employed to designate corresponding parts in both views, 1 indicates a supply tank or reservoir for a liquid hydrocarbon—as, for instance, gasolene—designed to be fed to a depending oil-pipe 2, provided at its lower end with a horizontal extension 3. The feed of the hydrocarbon may be maintained by gravity or by a pump or similar apparatus in the manner well understood in the art and in ac-

cordance with the quantity of gas required to be generated by the apparatus. At a suitable point in the horizontal branch 3 is interposed a three-way fitting 4, into which is screwed the lower end of the burner-supply pipe 5, screwed at its upper end to the supply-port 6 of a vaporizing-burner 7. The burner 7 is of ordinary form and comprises the burner-cap 8, resting upon the burner-plate 9, having a central open-ended flue 10 and formed on its under side with oil-passages 11, through which oil is supplied from the port 6 to a depending angular pipe 12, controlled by a valve 13 and leading to a needle-valve chamber 14, located directly under the burner-flue 10. The oil is designed to be vaporized while passing through the passages 11 by the heating of the plate 9 in close proximity to the flame of the burner and issues in the form of a vapor from a jet-orifice 15 in the upper end of the valve-casing 14. The injection of the hydrocarbon vapor through this opening into the flue 10 for consumption by the burner is controlled by a needle-valve 16, and, as usual, a drip-pan 17 is mounted on the casing 14 for the reception of oil for use in starting the generation of the vapor when the apparatus is first brought into use.

Immediately above the port 6 the burner-plate 9 is pierced by the lower end of a continuation of the oil-pipe 5, having a horizontal portion 18 located immediately above the burner 7 and terminating in a vertical end 19, which supports what I will term the "vaporizing" or "distributing" head 20. This head, which, as premised, is designed for the formation of the gas to be supplied to the lighting and heating devices, comprises a substantially circular plate 21, having an enlargement 22, formed with a recurved port 23, into one end of which is screwed the upper extremity of the pipe 19, and at its center the plate is provided with an open-ended flue or commingling-chamber 24, communicating with a gas-main 25, serving as a conduit through which the gas is distributed from the head 20 to the point or points of use—that is to say, to one or more burners designed for lighting or heating purposes, or both. From the other end of the port 23—that is to say, from the end opposite the pipe 19—depends a short angular vapor-pipe 26, terminating in a con-



trolling-valve casing 27, containing a controlling-valve 28 and communicating with a vertically-disposed needle-valve casing 29, having its jet-orifice 30 located directly under the flue or commingling-chamber 24 and controlled by a needle-valve 31. The distributing-head 20 is located in close proximity to the vaporizing-burner 7, but is located to one side thereof in a slightly higher plane. I have therefore provided for the protection of the head from the heat of the burner by securing a metal shield or hood 32 upon the plate 21 and extending downwardly from said plate to a point a sufficient distance below the pipe 26 to preclude the possibility of the ignition of the vapor injected from the needle-valve casing 29 to the interior of the commingling-chamber 24. This shield or hood 32 has a substantially semicircular cross-sectional contour, so as to leave the head freely exposed to the air from the side opposite the vaporizing-burner, and while its means of attachment to the plate 21 may be varied its upper end is preferably bent outwardly to form horizontal flanges secured to the under side of the plate.

In use the operation of the apparatus is as follows: Oil fed to the oil-pipe 2 from the reservoir 1 under the impulse of gravity or by the employment of any desired form of positive feed passes through the burner-pipe 5 to the head 20, a small percentage of the flow being diverted to the vaporizing-burner 7 for the support of sufficient combustion to vaporize the main flow of oil as it passes through the horizontal portion 18 of the oil-pipe on its way to the head. The vapor thus generated passes to the port 23 in the distributing-head and thence through the vapor-pipe 26 to the needle-valve casing 29. Assuming the needle-valve 30 to be in an open position, a jet of vapor will be ejected from the orifice 30 into the vaporizing-chamber 24, drawing with it a sufficient quantity of air to form a highly-combustible gas when commingled with and carbureted by the vapor. The gas thus formed is conveyed through the gas-main 25, where it is supplied to any desired number and character of burners.

From the foregoing it will be seen that I have produced a simple and efficient carbureting apparatus for producing a combustible gas from a liquid hydrocarbon, and it is obvious that it may be used in connection with various forms of heating and lighting apparatus and with heating or lighting systems, or both; but while the present embodiment of the invention appears to be preferable I do not limit myself to the structural details defined, as, on the contrary, I reserve the right to effect such changes, modifications, and variations as may fall within the scope of the protection prayed.

What I claim is--

1. In a carbureter, the combination with a reservoir, an oil-pipe leading therefrom and means for heating said pipe to vaporize the

oil, of a commingling and distributing head comprising a plate formed with an open-ended commingling-chamber and with a port located to one side of the commingling-chamber, one end of said port being in communication with the oil-pipe, a valve-casing suspended from the plate and in communication with the opposite end of the port in said plate and having a jet-orifice arranged to inject vapor into the lower open end of the commingling-chamber of the head, and a valve within the valve-casing.

2. In a carbureter, the combination with a reservoir, an oil-pipe communicating therewith and a vaporizing-burner in communication with the pipe and arranged to heat said pipe at an advanced point, to effect the vaporization of the hydrocarbon, a commingling and distributing head comprising a plate formed with an open-ended commingling-chamber and with a U-shaped port, one end of said port being in communication with the oil-pipe beyond that portion heated by the burner, a valve-casing provided with a jet-orifice arranged to inject vapor into the commingling-chamber of the head, a valve within the valve-chamber, and a valve-controlled vapor-pipe leading from the other end of the U-shaped port and communicating with the valve-casing.

3. In a carbureter of the character described, the combination with a reservoir and a depending oil-pipe provided with a horizontal branch and an upstanding pipe communicating with said horizontal branch and supporting a commingling-burner at its upper end, an oil-pipe extension located beyond the burner and communicating with the oil-pipe, said extension being provided with a horizontal portion located immediately above the burner, a vaporizing and distributing head comprising a horizontal plate formed with a vertically-disposed open-ended commingling-chamber and with an enlargement formed with a U-shaped port, one end of said port being in communication with the oil-pipe beyond that portion heated by the burner, a needle-valve casing provided with a jet-orifice arranged to inject vapor into the commingling-chamber of the head, a valve-controlled vapor-pipe leading from the other end of the port in the head and communicating with the needle-valve casing, and a hood depending from the plate intermediate of the commingling-chamber and the burner to protect the exposed vapor from the heat generated by said burner.

4. A portable carbureter of the character described, comprising a reservoir, an oil-pipe pendent from the reservoir and having an upstanding branch, a vaporizing-burner, and a commingling and distributing head both supported exclusively by said upstanding branch of the oil-pipe, said vaporizing-burner being disposed to heat the pipe at a point intermediate of the reservoir and head, the lower end of the head being open for the



free ingress of air, and a jet device suspended from the head and disposed to project a jet of vapor into the open end thereof.

5 In a carbureter, the combination with a distributing and commingling head comprising a plate formed with a flue opening into the outer air at its lower end, and a port located at one side of the flue and opening at one end through the under side of the plate,  
10 a valve-casing supported by the plate below the same and having a jet-orifice disposed to project a jet of vapor into the open end of the flue, said valve-casing being in communication with the adjacent end of the port, a  
15 supply-pipe coupled to the opposite end of the port and constituting the support for the head, and a vaporizing device disposed to vaporize the oil within the supply-pipe.

6. The combination with a commingling-head comprising a plate provided with an open-ended flue or commingling-chamber extending above and below the plate and with a port disposed to one side of the commingling-chamber and having one end opening through the under side of the plate, of means for leading vapor to one end of said port, and means for leading said vapor from the opposite end of the port and for injecting it into the lower end of the flue.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

WILLIAM O. VANCE.

Witnesses:

THOS. E. FOGLE,

WILLIAM B. SUTHERLAND.