

No. 676,522.

Patented June 18, 1901.

E. P. WOILLARD.

COMBINED CARBURETED AIR AND VAPOR BURNER.

(Application filed June 16, 1900.)

(No Model.)

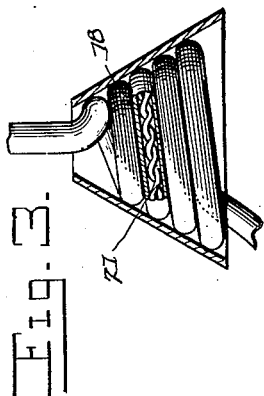


Fig. 3.

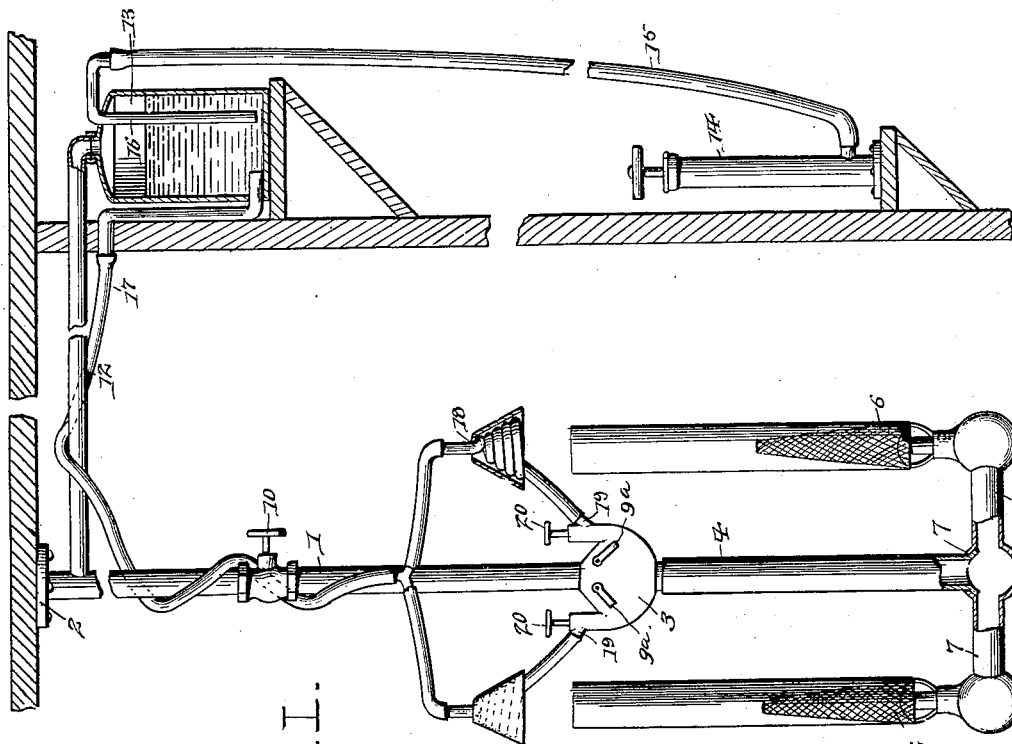
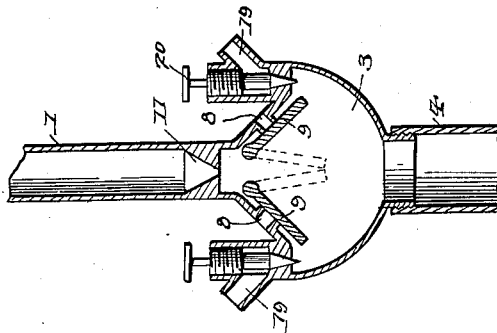


Fig. 1.

Witnesses
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UNITED STATES PATENT OFFICE.

EUGENE P. WOILLARD, OF WEST PALMBEACH, FLORIDA.

COMBINED CARBURETED-AIR AND VAPOR BURNER.

SPECIFICATION forming part of Letters Patent No. 676,522, dated June 18, 1901.

Application filed June 16, 1900. Serial No. 20,559. (No model.)

To all whom it may concern:

Be it known that I, EUGENE P. WOILLARD, a citizen of the United States, residing at West Palmbeach, in the county of Dade and State of Florida, have invented a new and useful Combined Carbureted-Air and Vapor Burner, of which the following is a specification.

My invention is an improved combined carbureted-air and vapor burning lamp, one object of my invention being to provide a vapor-burning lamp with means for carbureting air and burning the same, so that the lamp may be instantaneously lighted without the necessity of first heating the burner.

A further object of my invention is to effect improvements in the means for converting gasoline or other liquid hydrocarbons into vapor to be consumed in the lamp.

With these and other objects in view my invention consists in the peculiar construction and combination of devices hereinafter fully set forth, and pointed out in the claim.

In the accompanying drawings, Figure 1 is an elevation, partly in section, of a combined carbureted-air and vapor burner lamp and apparatus embodying my improvements. Fig. 2 is a detail sectional view of the mixing-chamber. Fig. 3 is a detail sectional view of one of the vaporizing-coils and its inclosing cone.

In the embodiment of my invention here shown the pipe 1, which is adapted for use both as a supporting-standard and as a carbureted-air pipe, is provided at its upper end with a plate or flange 2, whereby it may be attached to a ceiling or other suitable overhanging support. A mixing-chamber 3 communicates with the lower end of the said pipe 1, and from the said mixing-chamber depends an expansion-chamber 4, which is tubular in form. A tube 5 leads from the expansion-chamber to a burner 6, which is a Bunsen burner of the usual form. As here shown, the lamp is provided with two burners, and a flexible joint 7 is formed between the inner ends of the pipes 5 and the lower end of the tubular expansion-chamber 4, for a purpose presently stated herein. The mixing-chamber 3 is provided with air-intakes 8 and with dampers 9 for opening and closing said air-intakes. Said dampers may be operated by any suitable means, as by handles 9^a, (indi-

cated in Fig. 1,) and which may be of any preferred construction. In the pipe 1 is a valve 10, and in the lower end of said pipe where it communicates with the mixing-chamber is a tip 11. A pipe 12 leads from the top of a tank or reservoir 13 for gasoline or other liquid hydrocarbon vapor to the pipe 1. An air-pump 14 has a tube 15, which leads to the said tank or reservoir 13 and has a leg 16 depending therein. A tube 17 leads from the said tank or reservoir at a point near the bottom thereof and is adapted to convey gasoline therefrom to vaporizing-coils 18, which are located above the burners and are adapted to be heated thereby. Said vaporizing-coils communicate with the mixing-chamber, as at 19, and needle-valves 20 are provided, which serve to regulate the supply of vapor to the mixing-chamber and to cut off the supply thereof, as may be desired. The vaporizing-coils are provided with interior cores 21, made of spirally-twisted wires, which, while filling the said coils, form spirally-disposed grooves or channels which admit of the passage of the vapor through the vaporizing-coils. The said twisted wires being conductors of heat coact with the heated vaporizing-coils in the conversion of the hydrocarbon liquid into vapor and increase the efficiency of said vaporizing-coils.

The operation of my invention is as follows: Air being pumped into the tank 13, the same becomes carbureted as it bubbles up from the lower end of the leg 16 through the body of the gasoline in the tank, and the valve 10 being open the carbureted air under pressure passes through the pipe 12 to the pipe 1, and through the tip 11 into the mixing-chamber 3, and thence through the tubular expansion-chamber 4 and pipes 5 to the burner 6, where it may be ignited by a match and burns instantly. The heat from the burners speedily raises the temperature of the vaporizing-coils to such a degree as to cause the latter to convert gasoline fed thereinto into vapor. When the vaporizing-coils are thus efficiently heated, the valves 20 are opened and the dampers 9 opened, and the valve 10 being closed gasoline from the tank or reservoir in passing through the vaporizing-coils is converted into vapor, which is supplied to and consumed in the burners, the

carbureted air being used only for a long enough period to heat the vaporizing-coils. The air-intakes 8 and dampers 9 regulate the admission of air to the carbureted air in the
5 mixing-chamber.

When it is desired to use carbureted air solely as the illuminant, the burners 6, by reason of the joint 7, may be turned at right angles to the position indicated in Fig. 1 with
10 relation to the vaporizing-coils, so as to move the burners from their position under said vaporizing-coils. I employ covers 21, which are conical in form, on the vaporizing-coils to concentrate the heat therein, as will be un-
15 derstood.

Having thus described my invention, I claim—

The combination of a mixing-chamber having air-intakes and dampers to close them,

said mixing-chamber being otherwise closed 20 to the outer air, a reservoir for liquid hydrocarbon, means to compress and carburet air in said reservoir, a valved pipe conducting from the air-space of said reservoir to said mixing-chamber, a valved pipe conducting 25 from the lower end of said reservoir to said mixing-chamber, said pipe including a vaporizing-coil, a burner, said coil being heated thereby, and a pipe conducting from said mixing-chamber to said burner, substantially 30 as described.

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

EUGENE P. WOILLARD.

Witnesses:

F. H. HOUGHTON,
H. S. MILLER.