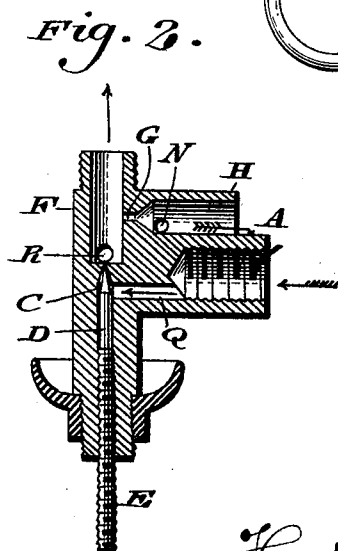
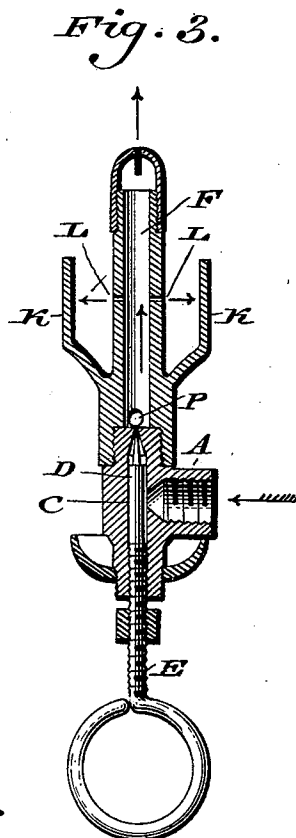
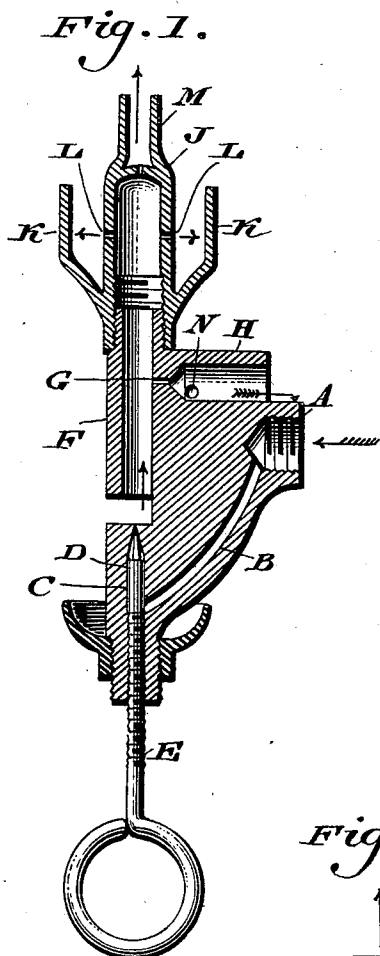


(No Model.)

H. F. SMITH.
VAPOR BURNER.

No. 592,837.

Patented Nov. 2, 1897.



WITNESSES

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VAPOR-BURNER.

SPECIFICATION forming part of Letters Patent No. 592,837, dated November 2, 1897.

Application filed May 26, 1897. Serial No. 638,207. (No model.)

To all whom it may concern:

Be it known that I, HARPER F. SMITH, a citizen of the United States, residing in the city and county of Philadelphia, State of Pennsylvania, have invented a new and useful Improvement in Vapor-Burners, which improvement is fully set forth in the following specification and accompanying drawings.

My invention consists of improvements in vapor-burners embodying means for vaporizing the gasolene or hydrocarbon fluid employed and converting the same into gas in a practical and efficient manner, the features of the same being hereinafter described, and pointed out in the claims that follow the specification.

Figure 1 represents a vertical section of a vapor-burner embodying my invention. Figs. 2 and 3 represent vertical sections of other forms thereof.

Similar letters of reference indicate corresponding parts in the figures.

Referring to the drawings, A designates the vapor-tube, to which is attached the pipe which supplies gasolene or other hydrocarbon fluid to said tube.

B designates a smaller vapor tube or passage which extends obliquely in the shell of the device from the tube A to the chamber C of the needle-valve D, which may be raised and lowered or adjusted by the screw-stem E of said valve. Directly above said valve is the gas-tube F, whose lower end is open to the atmosphere, whereby air may be admitted into said tube by the action of the vapor directed from said valve into the open end of said tube.

On the side of the tube is the small port G, which forms a direct communication between said tube and the superheating-tube H, which is located above or adjacent to the vapor-tube A, so that gas will be directed into said tube H and discharged from said tube H, and which when ignited serves to superheat the tube A.

Supported on the tube F is the burner J, at the sides of which are the flaring arms K, and in said tube opposite to said arms are the ports L, through which gas is discharged for heating said arms and increasing the temperature of the gas in the tube F.

Rising from the tip of the burner are the

deflectors and guards M, which protect the resultant flame and act as an additional heater for said tip, preventing carbonization in the slit or opening of the tip, especially as after the flame is extinguished there is a retention of heat for considerable time.

It will be seen that when the device is in operation, as the tube A is heated by the flame of the superheating-tube, the gasolene or hydrocarbon fluid that enters said tube A is vaporized and the vapor passes through the tube B and enters the valve-chamber, from which it is directed into the tube F, and air is also admitted at the open bottom of the same, whereby a highly-inflammable gas is produced, some of which enters the superheating-tube, as has been stated, and the remainder may be consumed at the tip of the burner, where the flame will be brilliant and of a high temperature.

In order to admit the air into the superheating-tube H to be combined with the gas therein for governing the blueness of the flame and intensity of the heat on the tube A, said tube H is provided with an opening N, through which air is admitted, as is evident.

In Fig. 2 the communication between the tube A and the valve-chamber is by means of a passage or tube Q, which extends parallel with said tube A instead of obliquely, as in Fig. 1, and the gas-tube F is closed at its bottom and provided just above the same with an opening or inlet R for the admission of air to the gas in said tube F.

In Fig. 3 both tubes B and Q of Figs. 1 and 2 are dispensed with and the tube A communicates directly with the valve-chamber. In this case the gas-tube is directly connected with the valve-chamber and provided with an air-inlet P, as in Fig. 2. In said Fig. 3 the superheating-tube is also omitted, it being noticed that the vapor-tube A is close to the burner, the latter being heated by the flame of the gas discharged through the ports L adjacent to the arms K, which receive the impact of said flame.

I am aware that it is not new to connect a pipe with the burner, the same extending from said tube outside of the same to the superheater tube or chamber, so as to supply the latter with gas for primarily superheating the

hydrocarbon fluid in the supply-tube, but in my construction I employ the port G as a direct communication between the tubes F and H, and thus avoid the use of the aforesaid pipe.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A vapor-burner consisting of a shell having therein a vapor-chamber with an inlet and an outlet, a controlling-valve for said outlet, a gas-passage open to the atmosphere directly over said vapor-chamber outlet and in line therewith and a superheating-passage adjacent and over said vapor-inlet passage and provided with an air-inlet and communicating directly with said gas-passage, and a tip connected with said shell.

2. A vapor-burner consisting of a shell having the vapor-chamber C with the needle-

valve D therein and provided with the inlet A and communicating passage B, the gas-passage F open at its base directly over the vapor-chamber outlet to the atmosphere, said gas-passage being in line with said vapor-chamber, the superheating-tube H adjacent to and above said inlet and communicating directly with said gas-passage, and a tip secured to said shell.

3. A vapor-burner consisting of a shell having the chamber C with the valve D therein, the inlet A, the passage B, the gas-tube F, the superheating-tube H, adjacent to and over said inlet and communicating directly with said gas-tube, a tip on said shell, the arms K and guards M.

HARPER F. SMITH.

Witnesses:

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