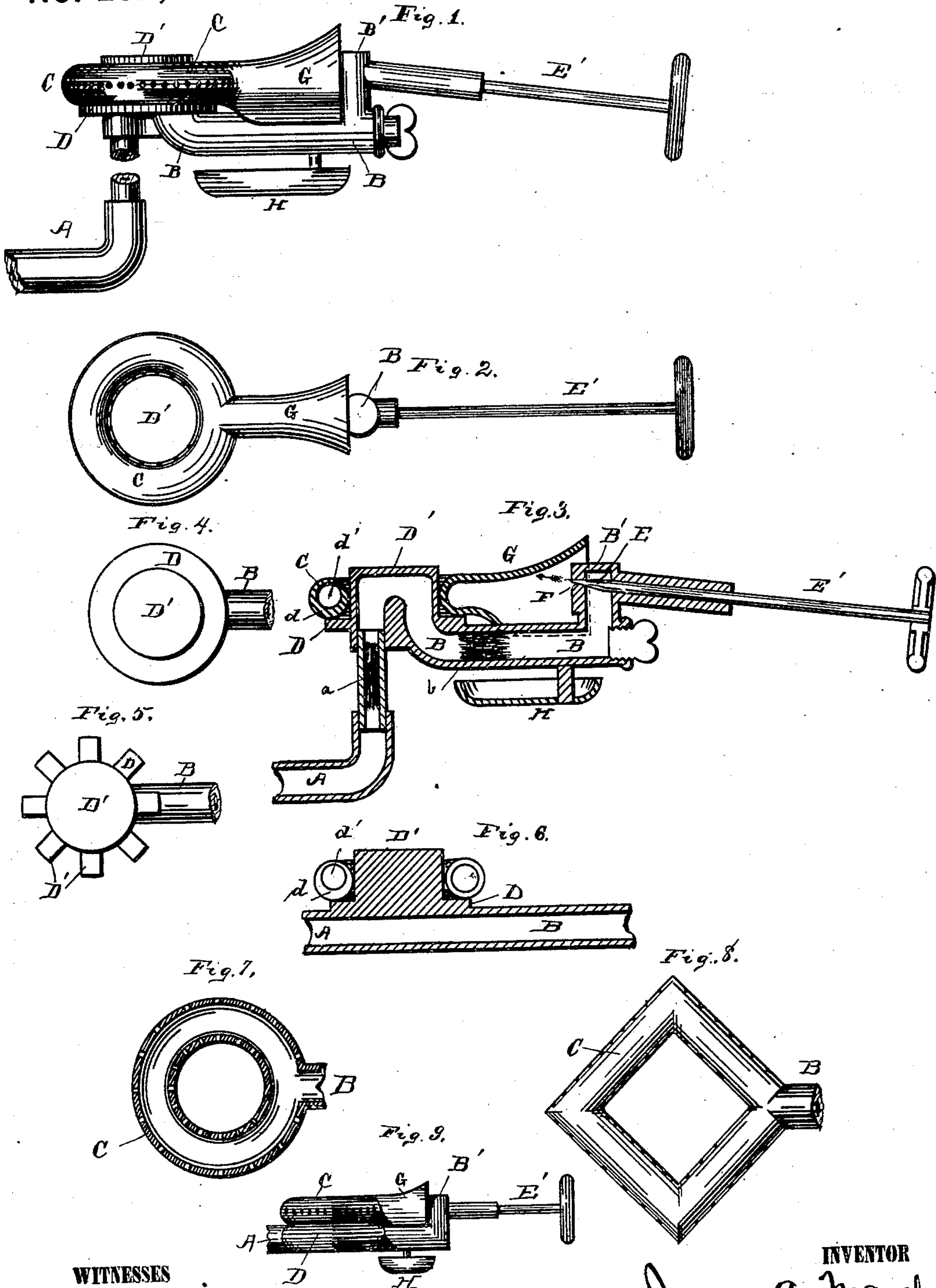


(No Model.)

J. A. MARSH.
Vapor Burner.

No. 232,139.

Patented Sept. 14, 1880.



WITNESSES

Frank M. Fabyer.
Wm. E. Donnelly.

INVENTOR

James A. Marsh.
By Seagett & Seagett.
ATTORNEY

UNITED STATES PATENT OFFICE.

JAMES A. MARSH, OF CLEVELAND, OHIO.

VAPOR-BURNER.

SPECIFICATION forming part of Letters Patent No. 232,139, dated September 14, 1880.

Application filed June 18, 1880. (No model.)

To all whom it may concern :

Be it known that I, JAMES A. MARSH, of Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and
5 useful Improvements in Vapor-Burners; 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 pertains to make and use it, refer-
10 ence being had to the accompanying drawings, which form part of this specification.

My invention relates to vapor-burners; and it consists in a peculiarly-shaped burner provided with a central support, said burner pro-
15 vided with one or more lines of continuous perforations upon its outside, and also with one or more perforations on its inner surface, and in parts and combination of parts, as will more fully hereinafter appear.

20 In the drawings, Figure 1 is a view, in elevation, of a burner constructed according to my invention. Fig. 2 is a plan view, and Fig. 3 a vertical sectional view, of the same. Figs. 4 and 5 are detached plan views of the rest
25 employed for the burner. Fig. 6 is a detached vertical sectional view of a modification of a portion of the vaporizing chamber and burner. Fig. 7 is a plan view, in transverse section, of my improved burner. Fig. 8 is a plan view
30 of a modification of the same, and Fig. 9 is a view, in elevation, of the modification shown in Fig. 8.

In the said drawings, A represents the inlet-pipe, adapted to supply the burner with
35 gasoline. B is the generating-chamber. This generating-chamber may extend up and form the central opening within the circular burner, as shown in Fig. 3; or the central portion may be made solid, as shown in Fig. 6.

40 C is the burner proper. It is preferably constructed in circular form, having one or more lines of continuous perforations upon its outside, from which the vapor which is to be mingled with the air is permitted to escape
45 and where it is burned. If found necessary, this burner C may be supplied with one or more perforations upon its inner surface, so as to permit jets of gas to impinge upon its support D', and from thence communicate
50 heat to the generating-chamber B.

E is a needle-valve operated by means of

the screw-shaft E'. B' is a short tube leading up from the vaporizing-chamber proper, and terminating just above the needle-valve E. The object of this short tube is to convey va-
55 por to the commingling-chamber G, and is placed at an angle with said commingling-chamber, so as to force the gas and vapor as it escapes through the valve against the upper
60 portion of the commingling-chamber G. The commingling-chamber G is connected directly with the burner C, as shown in Figs. 1, 2, and 3. This commingling-chamber G is open at
its bottom to permit any gasoline that may be deposited in the burner C to pass to the
65 drip-cup H. It also has an opening at its end, toward the valve E, for the admission of the vapor from the valve E, and with it air to mingle with the vapor before it enters the
burner C. 70

H is a drip-cup adapted to receive a sufficient amount of gasoline, which, upon being ignited, will furnish the initial heat for the generation of gas.

In constructing this burner I prefer to make
75 the lower front portion of the ring-burner, as shown at d, thicker than the same point at the opposite side, in order to elevate the opening d', so as to permit any gasoline which may have escaped through the commingling-cham-
80 ber G into the burner C to flow back and be caught in the drip-cup H.

Having thus described the construction of my device, its operation is as follows: When it is desired to start the flame the valve E
85 is opened, the gasoline permitted to escape through the orifice F, from whence it will overflow into the drip-cup H. When a sufficient quantity has been permitted to escape the valve is closed and the gasoline in the
90 drip-cup is lighted. In a moment the gasoline in the vaporizing-chamber B becomes sufficiently heated to vaporize, when the valve E is again opened and the gasoline in the shape of vapor permitted to escape through the orifice
95 F. The gas passes from the orifice F readily into the commingling-chamber G, and from thence into the burner C, carrying with it a sufficient quantity of air to burn it as it escapes through the perforation in the burner
100 C. In this chamber G, and also in the burner proper, the gas mixes readily with the air

admitted, and passes out through the small perforations, where it may be lighted. By the time the gasoline is consumed in the drip-cup H sufficient heat has been generated by the burner C to heat its rest D, and through it the vaporizing-chamber B, to continue vaporization.

If it is desired at any time to shut off the heat-supply, the valve E may be closed.

10 The pipes A and B are provided with filling *a b*, which may consist of asbestos, fine wire, or other suitable material. The object of this filling is to regulate automatically the flow of gasoline to the vaporizing-chamber.

15 The rest D, heretofore described, is provided with a central projection, D', adapted to fit in the space within the hollow ring-burner. As shown in Fig. 3, this projection D' may be made hollow, thereby forming a portion of the vaporizing-chamber; or it may be made solid, as shown in Fig. 6, in which case it will act as a heater-plate.

As a substitute for my support D and projection D', a pipe of the same shape as that of the burner may be employed, as shown in Fig.

25 9. The gasoline passing through this under

pipe will come in very close contact with the burner above, and sufficient heat will be generated from the burner to vaporize the gasoline in this support.

What I claim is—

1. In a vapor-burner, the combination of a commingling-chamber, G, burner C, and rest or support D, substantially as and for the purpose shown.

2. In a vapor-burner, the combination, with the commingling-chamber G, having its end and bottom open, of the burner C, vaporizing-chamber B, and drip-cup H, substantially as and for the purposes shown.

3. In a vapor-burner, the combination, with the circular hollow ring-burner C, of the support D, provided with the projection D', substantially as and for the purpose shown.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JAMES A. MARSH.

Witnesses:

JNO. CROWELL, Jr.,
WILLARD FRACKER.