

(No Model.)

F. W. SWETMAN.

VAPOR BURNER.

No. 252,631.

Patented Jan. 24, 1882.

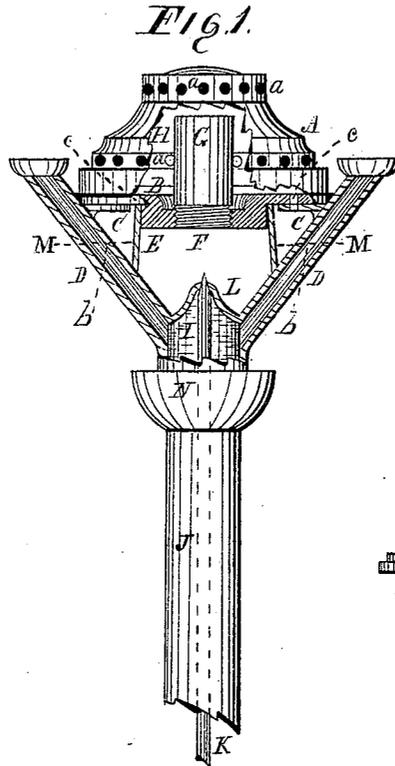


FIG. 3.

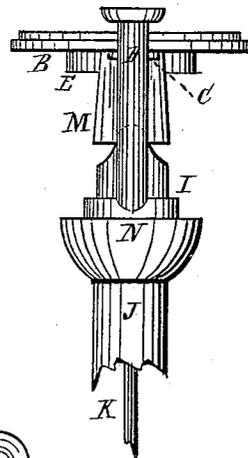
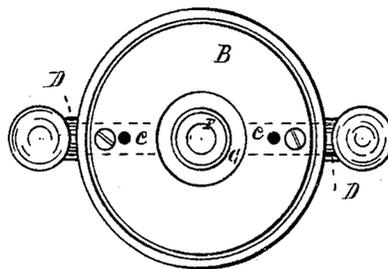


FIG. 2.



Witnesses.
J. H. Burridge
F. C. Mills

Inventor.
F. W. Swetman
W. H. Burridge atty

UNITED STATES PATENT OFFICE.

FREDERICK W. SWETMAN, OF CLEVELAND, OHIO.

VAPOR-BURNER.

SPECIFICATION forming part of Letters Patent No. 252,631, dated January 24, 1882.

Application filed October 19, 1881. (No model.)

To all whom it may concern:

Be it known that I, FREDERICK W. SWETMAN, of Cleveland, in the county of Cuyahoga and State of Ohio, have invented a certain new and improved Vapor-Burner; and I do hereby declare that the following is a full, clear, and complete description thereof.

My invention relates to a vapor-burner; and the improvement consists in a peculiar arrangement of heating-pipes in connection with the heating-chamber and generator, for the purpose of a rapid and economical generation of gas or vapor for consumption in the heating-chamber. The said pipes also form tubular supports for the said chamber and auxiliary generators.

For a more full and complete description of the said invention reference will be had to the following specifications, and to the annexed drawings, making part of the same.

Figure 1 is a front view, partially broken away to show the interior of the heating-pipes, generator, and combustion-chamber. Fig. 2 is a top view with dome or cap removed. Fig. 3 is a side view with the cap or dome removed.

Like letters of reference refer to like parts in the several views.

The principal object of this improvement is to produce a burner having the qualities necessary for a rapid and economical generation of vapor or gas for heating purposes, its construction being simple and readily manipulated.

The dome or cap A, Fig. 1, is perforated, as seen at *a a*, which dome is mounted upon a base-plate, B, Figs. 2 and 3. This plate is attached to the lugs C C, projecting from the tubes D D. In the central part of the base-plate is a boss, E, with a central opening, F, in which is inserted a tube, G, extending into the chamber H, Fig. 1. The pipe G may be screwed into the opening or bore F, so as to be adjustable, as may be required in the efficiency of the burner.

Connected with the lower end of the tubes D D is the vapor or gas generator I, which is in open communication with said tubes, as seen in Fig. 1. This generator is connected to the supply-pipe J, through which passes the rod K, provided with a needle-valve, L, at the upper end, while the lower end is provided with the ordinary device for operating it. The pipe

J is connected in the usual way with the oil-reservoir. These parts are not shown, as they may be the same as those in common use and arranged in the same way in relation to the burner.

The tubes D D are closed at the upper ends and are designed for a threefold purpose. First, they form tubular supports for holding the base and dome in position; secondly, they are conductors of heat from the combustion-chamber H to the generator I, and, thirdly, they act as auxiliary generators. These tubes transmit the heat with more facility than solid connections. In the base of the combustion-chamber are vent-holes *c c*, Figs. 1 and 2, which cause a flame from the chamber H to be impinged upon the tubes at or near the points *b b*. This heat is quickly transmitted to the generator I through the passage of the tubes and their substance, the tubes to a certain extent forming auxiliary generators to the generator I, as more or less oil and vapor will pass into the bore of the tubes. Hence the heat taken up by the tubes is quickly transmitted to the generator I for the conversion of the hydrocarbon oil into vapor for heating the chamber H, as supplied through the needle-valve. This arrangement presents a large and quick generating capacity, so much required in this class of heaters, and at the same time is economical in this, by the fluid not being forced in a partial or quite unvaporized state into the combustion-chamber.

To obtain the best results from gasoline in vapor-burners, it should be highly vaporized and consumed under a high degree of heat. In this way there is more economy of the fluid or oil, and a greater degree of heat generated, than the same quantity of fluid used in ordinary vapor-burners of this class.

For the purpose of preventing the flame-jets issuing from the vent-holes *c c*, Figs. 1 and 2, from being deflected from the tubes the shields M M, Figs. 1 and 3, are extended down from the under side of the base and spread out laterally from the tubes, as seen in Fig. 3, by which the vents *c c* are between the tubes and shields M M, as seen in Fig. 1, which causes the flame-jets to be concentrated upon said tubes for the purpose described.

Directly below the needle-valve is a drip-

cup, N, into which the gasoline runs on opening said valve for igniting the burner in the ordinary way.

What I claim as my invention, and desire to secure by Letters Patent, is—

In a vapor-burner, the combination of the tubular supports, gas-generator, and combustion-chamber, shield and needle-valve mechanism, jet-openings, and guide-pipe in align-

ment with the needle-valve and leading into the said combustion-chamber, substantially as set forth, and for the purpose specified.

In testimony whereof I affix my signature in presence of two witnesses.

FREDERICK W. SWETMAN.

Witnesses:

W. H. BURRIDGE,

J. H. BURRIDGE.