

(No Model.)

M. MAHONY.

VAPOR BURNER.

No. 252,584.

Patented Jan. 17, 1882

Fig. 1

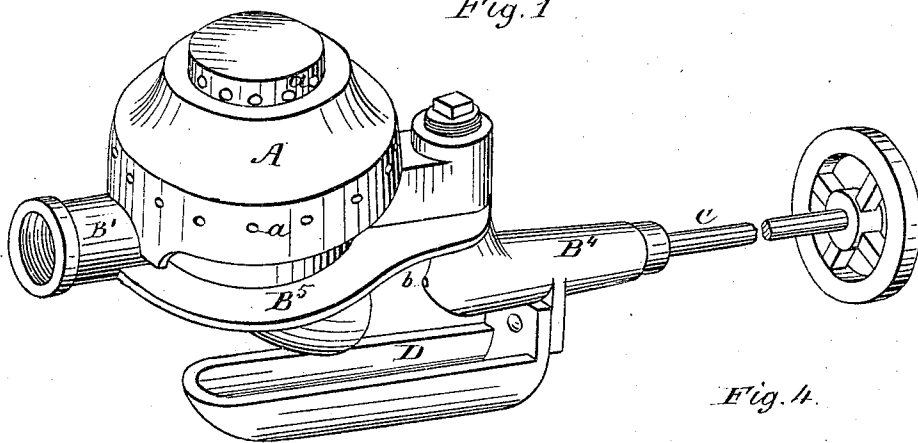


Fig. 4.

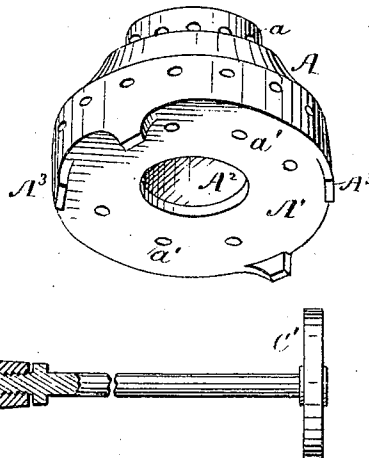


Fig. 2.

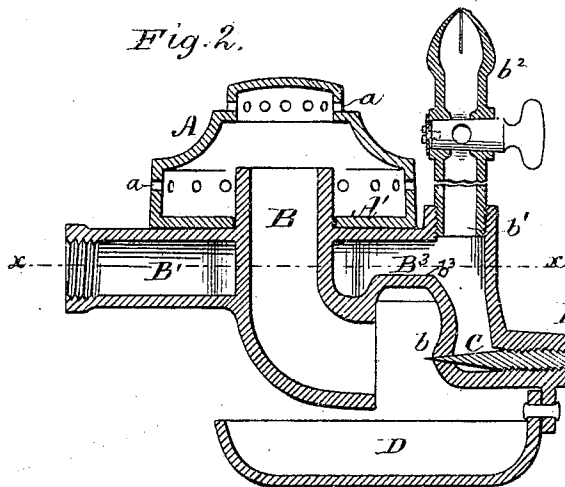
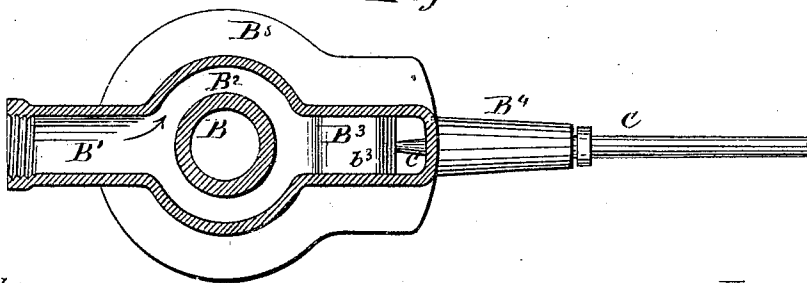


Fig. 3



Witnesses:

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UNITED STATES PATENT OFFICE.

MICHAEL MAHONY, OF TROY, NEW YORK.

VAPOR-BURNER.

SPECIFICATION forming part of Letters Patent No. 252,584, dated January 17, 1882.

Application filed November 22, 1881. (No model.)

To all whom it may concern:

Be it known that I, MICHAEL MAHONY, of Troy, in the county of Rensselaer and State of New York, have invented certain new and useful Improvements in Vapor-Burners, of which the following is a specification.

This invention relates to improvements in vapor-burners in which the burner proper and the vaporizing-chamber are formed of distinct pieces, but brought in close contact; and the objects of my improvement are simplicity of construction combined with a suitable form given to the vaporizing-chamber to obtain better results than heretofore.

The invention consists in a vaporizing-chamber provided with a surrounding horizontal flange to receive and deflect ascending flames at the time the chamber and burner are being heated, or descending jets while said burner is in use, in combination with a tube adapted to carry a light-giving burner, and a heat-giving burner provided with a bottom integral therewith and made with perforations, and other means as will be hereinafter described in connection with the drawings, and then pointed out in the claims.

Heretofore vapor-burners have been provided with flame-deflecting plates variously located and attached to the burner, and vaporizing-chambers have been made with an annular and a central passage; but the location and form of the flange attached to the vaporizing-chamber and the burner differ in construction from mine, as well as the results obtained from the burners.

In the drawings, Figure 1 represents a perspective view of the burner and vaporizing-chamber. Fig. 2 is a longitudinal vertical section of the same. Fig. 3 is a horizontal section on line *xx* of Fig. 2; and Fig. 4 is a perspective view of the burner, taken from the bottom side.

In said drawings, A represents the upper part or cap of the burner. It is provided with two circular rows of perforations, *a*, for the passage of the inflammable vapors. The under side of the cap is closed by the bottom A', cast in one piece with said cap. It is provided with a series of vertical perforations, *a'*, to let out and direct downward against the sides and around the vaporizing-chamber some jets of ignited vapors obtained with the device.

The cap A A', shown in Fig. 4, forms the heating-burner proper. The bottom A' is perforated centrally at A² to receive the upper end of the central tube, B, of the vaporizing-chamber, and is constructed to rest upon and in close contact with the top of this chamber, and the burner being cast in one piece all the metal thereof is at the same high temperature. The lugs A³, pendent from the bottom of the burner, straddle the pipes or passages leading into and from the vaporizing-chamber, add to the close contact, and keep the perforations *a'* in proper relation with the sides of the vaporizing-chamber. The said vaporizing-chamber is made cylindrical in the center, forming with the tube B a horizontal annular passage or chamber, B², into which the liquid to be vaporized is admitted through the pipe B'. The horizontal floor of the vaporizing-chamber is elevated in the passage B² to form a bridge, *b*³, to partially arrest the liquid admitted in the chamber B². After passing over the bridge the liquid is allowed to flow through the passage B² to the opening *b*, controlled by the needle-valve C, that may be opened or closed with the hand-wheel C', the stem of said valve being screw-threaded and passing through the sleeve B⁴ cast with or secured to the bottom of the vaporizing-chamber. The lower portion of the vaporizing-chamber is provided on the outside thereof with a horizontal flange or shelf, B⁵, to partly arrest and deflect the flames obtained by the combustion of burning fluid or vapors in the apparatus, and rapidly raise the metal forming the vaporizing-chamber to such a high temperature as to bring the burning fluid contained therein to a state of vapor, and said vapor can issue through the top opening, *b'*, to a suitable light-giving burner, *b'*², controlled by a cock, and through the lower opening, *b*, controlled by the needle-valve C. To the sleeve B⁴, inclosing said valve, is secured the cup D, to receive either alcohol or some of the fluid placed in the receiver of the apparatus.

In using this burner or apparatus the alcohol or fluid is first ignited in the cup D, while the openings *b* and *b'* are closed. The ascending flame strikes against the bottom of the vaporizing-chamber and its flange or shelf B⁵ surrounds the vaporizing-chamber and burner, and brings said chamber at so high a tempera-

ture as to vaporize the fluid in the passages B' B² B³. The bridge b³ being sufficient to arrest any remnant of liquid in the chamber, the opening b, closed by the valve C, is then
 5 opened, and a current of inflammable vapors is projected upward (and with it a current of air) through the curved lower end of the pipe B into the burner, escaping mainly upward
 10 therefrom through the rows of openings a, where it is ignited for cooking or heating purposes, while a portion of the vapors brought into the burner escaping downward through the holes a' (located about a sixteenth of an
 15 inch from the outer walls of the chamber B²) are also ignited, and the jets striking against the flange B⁵ keep the vaporizing-chamber surrounded with inflamed vapors and heated gases in proper condition to keep the contents thereof in the passages B' B² B³ in the state of
 20 heated and inflammable vapors.

If it is desired to use a light while having the heating-burner in operation the cock controlling the lighting-burner b² is opened and the latter lighted. If it is not desired to use
 25 the burner b² the opening b' may be plugged, as shown in Fig. 1.

The device may be used to vaporize hydrocarbons, and be employed simply as a light producing and giving burner by closing the
 30 two rows of openings a with two rings of thin metal fitting closely over them, or with a cap of thin metal fitting over the cap A, or by making the cap A without the rows of openings a, but retaining the openings a' in the bottom
 35 thereof, through which a portion of the vapors will escape. Said vapors, being ignited, will give to the vaporizing-chamber the required temperature to vaporize the liquid therein and feed the light-giving burner.

o Having now fully described my invention, I claim—

1. The combination of a burner constructed in one piece, and consisting of the cap A and the flat bottom A', provided with openings a', with a vaporizing-chamber provided with a
 45 central tube having its lower end curved to one side, an annular horizontal passage, B², having its whole top in contact with the flat bottom of the burner, and a flange or shelf, B⁵, surrounding said chamber, substantially as and
 50 for the purpose described.

2. The combination of the cap A, having the bottom A' cast therewith, and provided with openings a', with a vaporizing-chamber provided with a central tube, B, having its lower
 55 end curved to one side, an annular horizontal passage, B², a bridge, b², elevated above the floor of the passage B², and a shelf, B⁵, surrounding said chamber, substantially as and for the purpose described.
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3. The combination of a burner provided with a bottom, A', made with openings a', with a vaporizing-chamber having a horizontal annular passage, a shelf, B⁵, surrounding said
 65 chamber, a controllable vapor-escape opening, b, under said chamber, and a controllable opening, b', above the same, substantially as and for the purpose described.

4. The combination of a vaporizing-chamber having a central vertical pipe made with its
 70 lower end curved to one side, and a horizontal induction and eduction pipe, with a vapor-burner formed of a cap and bottom cast in one piece, said bottom having perforations a' and pendent lugs, substantially as and for the purpose described.
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Witnesses:

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