

(No Model.)

M. MAHONY.
VAPOR BURNER.

No. 249,473.

Patented Nov. 15, 1881.

Fig. 1.

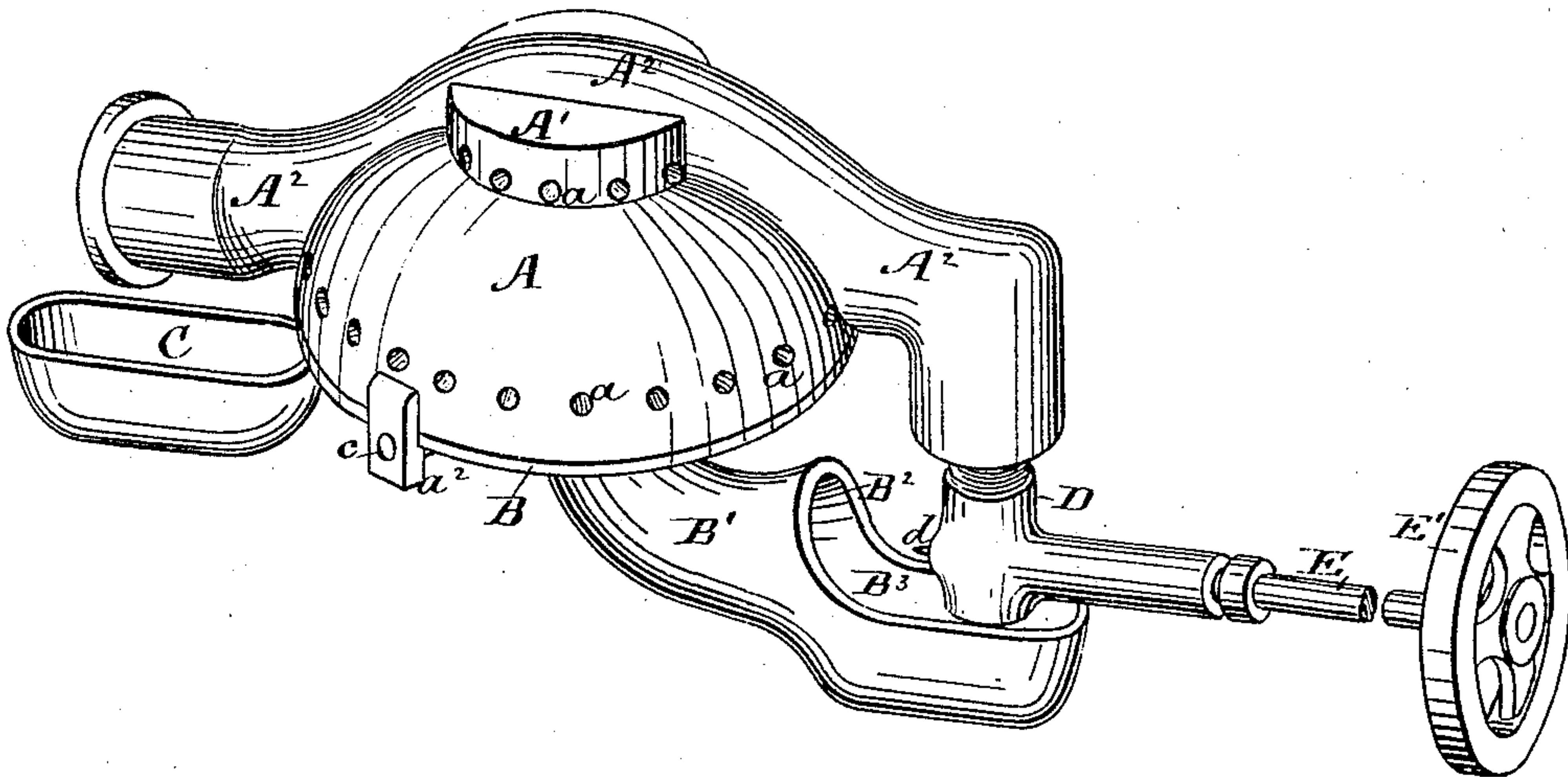


Fig. 2.

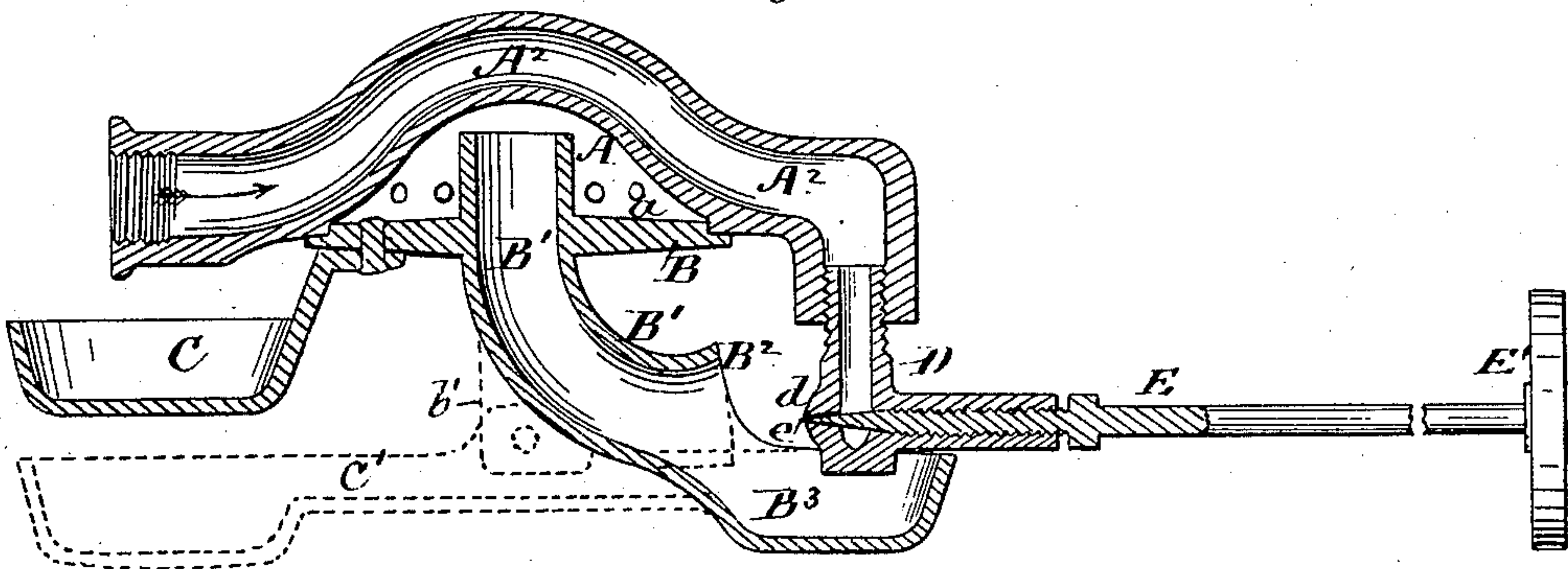
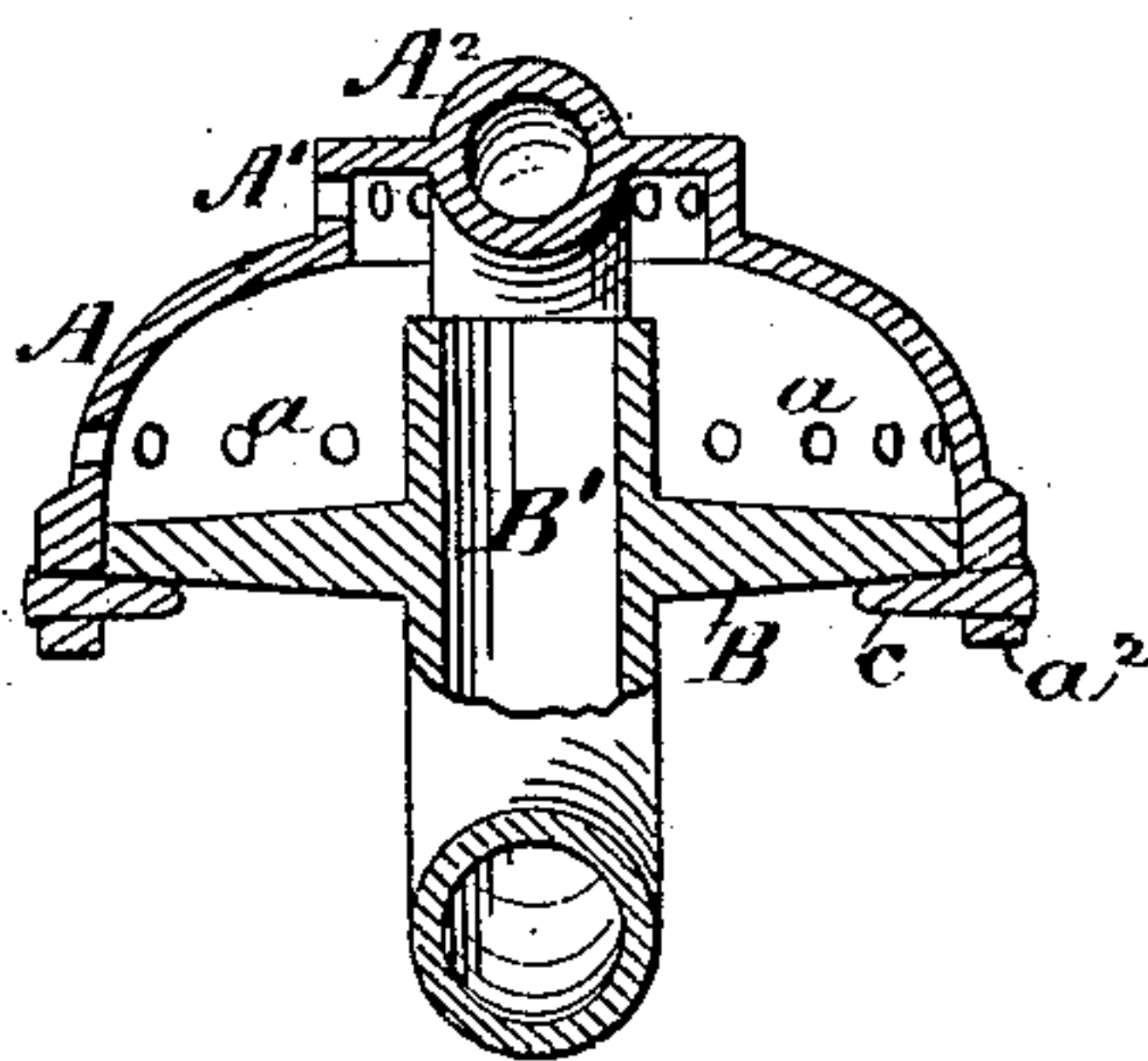


Fig. 3.



Witnesses:

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UNITED STATES PATENT OFFICE.

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VAPOR-BURNER.

SPECIFICATION forming part of Letters Patent No. 249,473, dated November 15, 1881.

Application filed July 23, 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 in one piece; and the objects of my improvements are simplicity of construction, combined with a suitable form to produce an increased efficiency of action.

The invention consists in giving to the tube bringing the hydrocarbon to the burner the form of an arch passing over and among the jets of flame that may issue from the burner, and in making said arched tube integral with the burner, and other means, as will be hereinafter described, and pointed out in the claims.

Heretofore in vapor-burners the pipe leading from the oil-reservoir has often been made to pass over the flame of the burner, either exposed at a distance therefrom or protected with a casting secured to the under side thereof, or the oil has been made to circulate through rectangular passages made vertically or horizontally around the walls of the burner; but in every case the form of the reservoir for the heated vapors produced differs from mine.

In the drawings, Figure 1 represents a perspective view of the burner. Fig. 2 represents a longitudinal vertical section, and Fig. 3 a transverse vertical section, of the same.

In said drawings, A represents the semi-spherical portion of the burner. It is cast in one piece with a short cylindrical top, A', and each portion is provided with a series of perforations, *a*, for the passage of the inflammable vapors. The burner A A' is also provided with an arched vaporizing-chamber, A², cast with it, so that its upper portion projects above the portion A and top A' of the burner, and its under portion is within the burner and top thereof, so as to receive the full benefit of the latent heat communicated to the burner from the flame surrounding it when in full operation. The arched form of the vaporizing chamber or tube A² materially assists its action, as it retards the advance of the oil, and forces it to present a large surface at the point where it

becomes transformed into vapor by the latent heat of the burner. The burner A has its bottom closed by a circular plate, B, having its edge preferably rabbeted to fit the bottom edge of the burner A, the two being united together by a couple of pins, *c*, passing under the plate B, through pendent lugs *a*² formed on the bottom edge of the burner A, the rabbeted edge being cut away on opposite sides for the passage of the lugs.

Through the bottom plate, B, and preferably formed in one piece therewith, passes the pipe B', the upper part of which projects vertically within the cavity of the burner-cap. The lower end of the pipe B' is bent to one side, and is expanded at B² to form a somewhat funnel-shaped mouth, and terminates in an elongated cup, B³, adapted to receive a burning-liquid.

To the under side of the plate B is secured the cup C, so as to project under the fluid-receiving end of the vaporizing-tube A². This cup C is to receive alcohol or other inflammable fluid. The vapor-conducting end of the vaporizing-tube A² has a hollow stopper, D, provided with a small conical perforation, *d*, on one side, that is controlled by an ordinary pointed conical valve or needle, *e*, at the end of a stem, E, provided with a hand-wheel, E'.

In using this burner any suitable liquid is received in the tube A² in the direction of the arrow shown in Fig. 2, from a pipe connected with a reservoir, said pipe containing usually coiled wire-netting, fine gravel, &c., to prevent the fluid contained therein from flowing too rapidly toward the burner. To start the apparatus properly it is first necessary to transform into vapor a portion of the fluid in the tube A², so as to have nothing but hydrocarbon vapors contained therein. This is accomplished by first heating sufficiently said tube A², either by means of alcohol burning in the cups B³ and C, (and this is the means that I prefer,) or by allowing a small quantity of the liquid contained in the tube A² to issue into the cup B³ and inflaming it; but I have found that it is better to heat both ends of the tube A² by using alcohol at the same time in the cup C. After a sufficient time has elapsed to heat the tube A² and vaporize its contents the needle-valve *e* is opened, and a jet of hot vapor is projected through the open mouth of the pipe B' with a

current of air within the interior of the burner, from which it immediately escapes through the openings *a*, and is lighted with a match on the outside thereof. The flames thus produced soon bring the whole of the burner-top to a high temperature, and the vaporizing chamber or tube *A*², being made in one piece with said burner-top, continues at a high temperature while the burner is in use, and produces a constant supply of inflammable vapors. The arched form of the tube *A*² is very appropriate for a vaporizing-chamber, forming at the same time a sort of trap containing vapors to arrest the liquid before it reaches the center of the burner.

The cups *B*³ and *C* may be formed in one piece independently of the pipe *B'*, and be connected by a channel, *C'*, as shown by dotted lines in Fig. 2, said cups and channel being then secured to a lug, *b'*, pendent from said pipe *B'*, and thus it will not be necessary to pour alcohol or other burning-fluid at two points to start the burner in operation.

Having now fully described my invention, I claim—

1. A vapor-burner consisting of a hollow cap, with a tubular arched vaporizing-chamber cast therewith in one piece and passing over and across said cap, substantially as and for the purposes described.

2. The combination of a perforated hollow cap, a tubular arched vaporizing-chamber passing over and diametrically across said cap, with a bottom plate, *B*, having a central pipe bent to one side and provided with a cup, substantially as and for the purpose described.

3. The combination of a perforated hollow cap, a tubular arched vaporizing-chamber passing over and diametrically across said cap, and a hollow stopper, *D*, having an opening, *d*, on one side thereof, with a bottom plate, *B*, having a central pipe bent to one side and provided with a funnel-shaped opening, *B*², and a cup, *B*³, substantially as and for the purposes described.

4. The combination of a perforated hollow cap, a tubular arched vaporizing-chamber passing over and diametrically across said cap, with a bottom plate having a central pipe bent to one side and provided with a cup, *B*³, and a cup, *C*, secured under the fluid-receiving end of the vaporizing-chamber, substantially as and for the purpose described.

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Witnesses:

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