(No Model.)

H. L. McAVOY.

Vapor Burner.

No. 231,075. Patented Aug. 10, 1880.

Fig. 1.

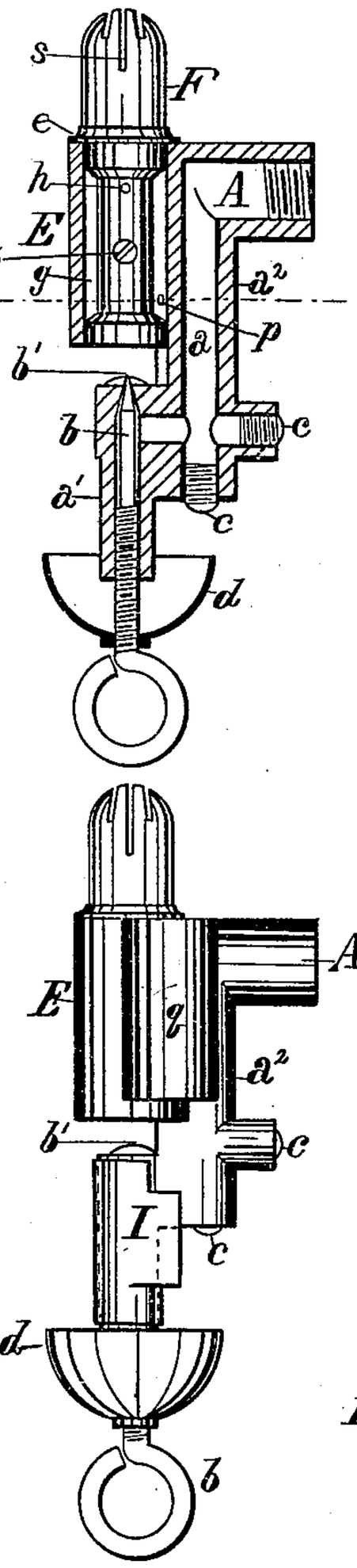


Fig. 2.

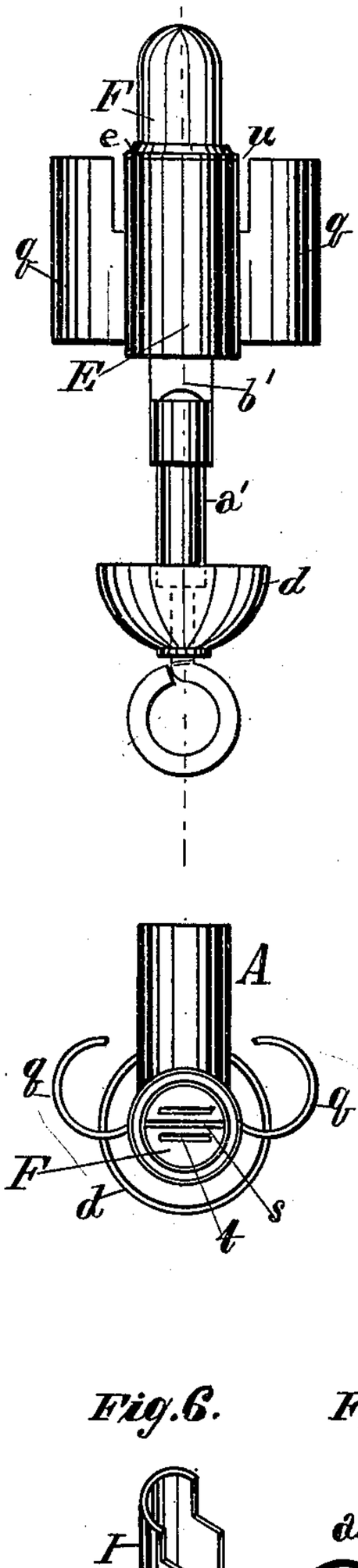


Fig. 3.

Fig. 4.

Fig. 5.

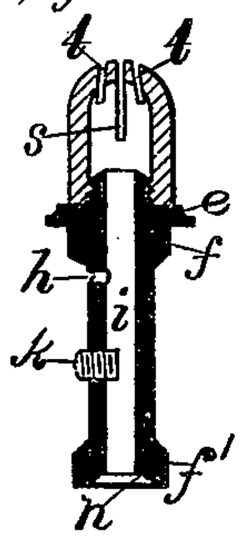


Fig. 6.

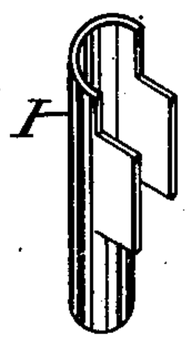
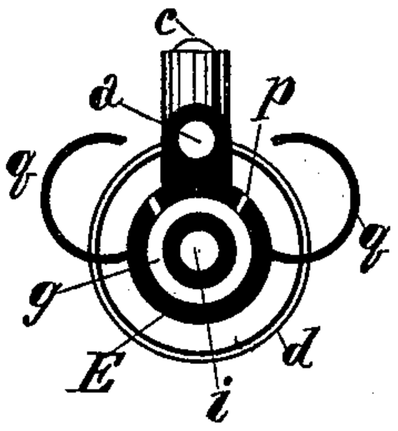


Fig. 7.



Witnesses:

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By his Atty
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UNITED STATES PATENT OFFICE.

HUGH L. McAVOY, OF BALTIMORE, ASSIGNOR OF THREE-FOURTHS OF HIS RIGHT TO JAMES FRYER, OF BALTIMORE COUNTY, MARYLAND.

VAPOR-BURNER.

SPECIFICATION forming part of Letters Patent No. 231,075, dated August 10, 1880.

Application filed March 17, 1880. (No model.)

To all whom it may concern:

Be it known that I, HUGH L. McAVOY, of the city of Baltimore and State of Maryland, have invented a new and useful Improvement in Vapor-Burners, of which the following is a specification.

My invention relates to an improvement in vapor-burners for illuminating and heating purposes, and will first be described, and then designated in the claims.

In the accompanying drawings, Figure 1 is a vertical section of all parts of the burner except the tube. Fig. 2 is a front view of the burner. Fig. 3 is a side or transverse view of same. Fig. 4 is a top view. Fig. 5 is a vertical section of the burner-tube. Fig. 6 is a perspective of the adjustable sleeve for regulating the supply of air. Fig. 7 is a cross-section through the dotted line in Fig. 1.

The letter A designates the oil-supply pipe; *a*, the passage leading to the needle-valve *b*. The casing of the passage constitutes the heater a^2, and is bored out by a tool entering at the points now shown closed by the screw-plugs *c*.

d is the receptacle for the oil, which is burned at first to heat up the parts to get it in condition to generate vapor.

E designates a burner-tube holder, open at both ends, and F the burner-tube, provided with a flange, *e*, which rests on the top edge of the tube-holder and serves to support the burner, the tube of which depends within the holder. The upper part of the burner-tube immediately below the flange *e* has an enlargement, *f*, which is adapted to fit snugly within the holder, and the lower end of this tube is likewise adapted, by means of an enlargement, *f'*, to fit the tube-holder, and the exterior of the burner-tube between the two enlargements is so much smaller than the casing of the holder that an annular space, *g*, is formed therein. (See Fig. 1.) An opening, *h*, is provided in the small part of the burner-tube communicating from the vapor-passage *i*, extending through it, and a screw, *k*, is provided, which enters the passage *i* and serves to lessen its capacity for the flow of vapor. The opening in the lower end of the burner-tube is flaring or funnel-shaped, as shown at *n*, Fig. 5, and is immediately over the needle-valve or vapor-exit *b'*, so that the vapor issuing therefrom enters the passage *i* of the burner-tube and carries with it an amount of atmospheric air, as will be readily understood. The amount of air which is thus intermingled with the vapor may be lessened by means of the adjustable sleeve I, which fits and is adapted to slide on the lower part, *a'*, of the heater. By raising this sleeve the space separating the vapor-exit *b'* and the flaring opening *n* is partly closed, and thereby the supply of air which can enter the opening *n* is lessened. As the sleeve incloses that part of the heater below the vapor-exit, it serves to protect said part from the cooling action of the air, and thereby prevents condensation of the vapor in its passage through it.

A hole, *p*, is on each side of the casing of the burner-tube holder, (see Figs. 1 and 7,) and through these holes vapor may escape from the annular chamber *g*, to produce a jet which will play on the side of the heater a^2. Each side of the holder is provided with a wing, *q*, curved backward toward the heater to partly surround a hole, *p*, and serves to shield the heating-jet. A slot, *u*, is formed in the shield, through which the jet or flame may be seen from the front side.

By this construction the heat to maintain the generation of the vapor is applied below the burner F, and as the flame issuing therefrom does not come in contact with any heating device the light is in no way interfered with.

It will be observed that the burner has a central slot, *s*, of depth sufficient to permit the flame to issue laterally, and on each side of said slot is another slot, *t*, of much less depth. These side slots increase the density of the flame at the upper and central part, the three slots producing a larger flame.

Having described my invention, I claim and desire to secure by Letters Patent of the United States—

1. In a vapor-burner, the combination of the burner-tube holder E and the detachable burner-tube provided with a flange, *e*, to rest on the top edge of the holder, and having just below the flange and at its lower end an enlargement, each of size to fit snugly within the holder and form between the enlargements an annular space, *g*, as set forth.

2. In combination with the vertical heater-case a^2, the tubular burner-tube holder E, having holes p for the heating-jet, and the shielding-wings q, attached to the holder and curved backward to partly surround the holes, as set forth.

3. In a vapor-burner, the combination of the holder-case E, having holes p for the heating-jet, and a burner-tube within the case arranged to fit snugly at its upper and lower ends and form an annular space, g, and having an opening, h, to communicate from the vapor-passage i within the tube to the space g, as set forth.

4. In a vapor-burner, the combination, with the vapor-exit b' at the upper end of the heating part a', and the burner-tube F, having its lower end open and suspended immediately over the vapor-exit, an open space separating said parts, of an adjustable sleeve, I, fitted on and inclosing the heater part a', as set forth.

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Witnesses:
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