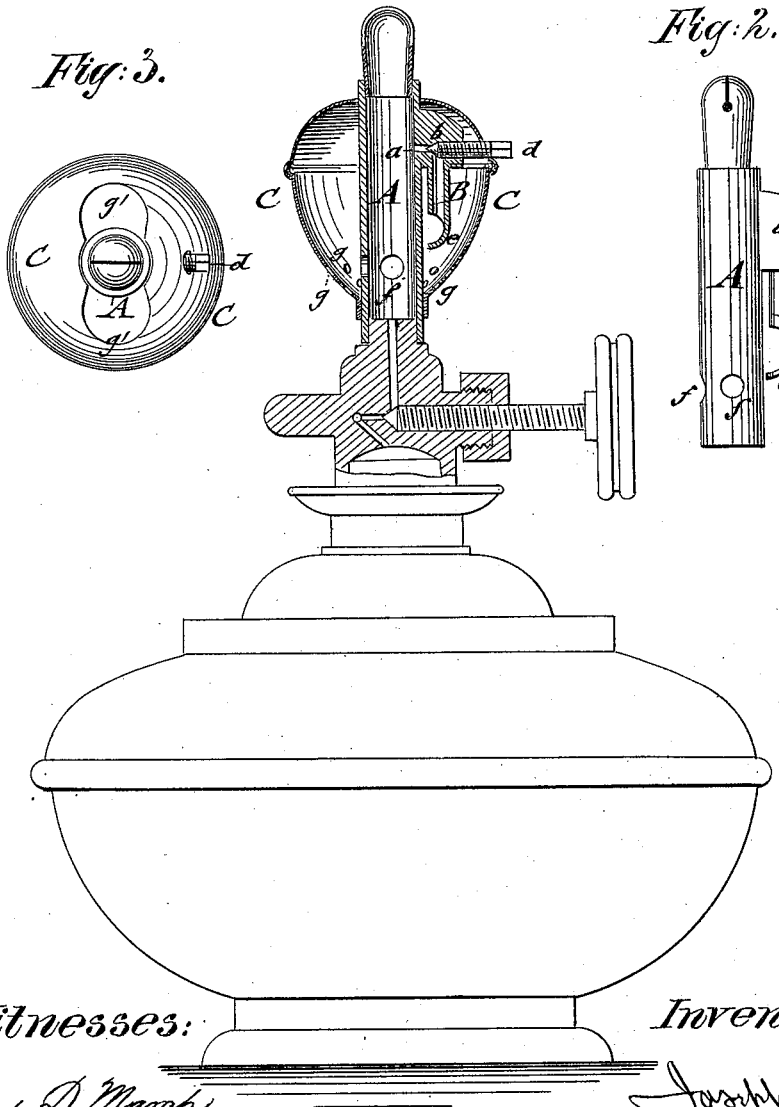
J. S. WOOD.
Vapor-Burner.

No. 212,293. Patented Feb. 11, 1879.

Fig: 1.



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JOSEPH S. WOOD, OF BROOKLYN, NEW YORK.

IMPROVEMENT IN VAPOR-BURNERS.

Specification forming part of Letters Patent No. **212,293**, dated February 11, 1879; application filed August 22, 1878.

To all whom it may concern:

Be it known that I, JOSEPH S. WOOD, of Brooklyn, in the county of Kings and State of New York, have invented a new and Improved Vapor-Burner, of which the following is a specification:

In the accompanying drawings, Figure 1 represents a vertical central section of my improved vapor-burner, with surrounding globe-shield; Fig. 2, a side view of the burner with globe-shield detached, and Fig. 3 a top view of burner and globe-shield.

Similar letters of reference indicate corresponding parts.

This invention has reference to an improved vapor-burner for petroleum and other lamps, by which an illuminating-flame of any desired size and a uniform and steady light are obtained; and the invention consists of a vapor-burner to which the oil is supplied by any suitable regulating device, the burner-tube being heated up by the generating-flame of a downwardly-extending tube that connects with a vapor-supply orifice of the burner-tube, and has a bottom exit-hole and curved point to produce the lapping of the flame around the burner-tube. A set-screw of the supply-orifice admits the regulating of the generating-flame for the size of the burner-tip to be used. A globe-shield with top and bottom holes protects the generating-flame, and supplies the required quantity of air to the same and to the air-ports of the burner-tube for mixing with the vapors of the oil to form the illuminating-gas for the burner.

By referring to the drawings, A represents the burner tube or pillar, that is provided, in the usual manner, with a suitable cock or set-screw to regulate the supply of oil to the burner. The burner is started by igniting the customary alcohol-flame of a cup or dish that surrounds the burner-tube below the cock, which then lights the illuminating-flame and the generating-flame. The burner-tube A carries at the upper end a tip of suitable size, and supplies, through an orifice, *a*, below the same, the gas-vapors to a chamber, *b*, and to a downward-extending tube, B, which has an opening at the lower end and a tapering deflector at the point that is curved toward the burner-tube, so as to produce a generating-flame that divides and laps around the burner-tube. The oil that is lifted by suitable pressure to the burner is changed by the heat of the generating-flame into vapors, and mingled with the required quantity of atmospheric air that enters through the air-ports *f* of the burner-tube. A set-screw, *d*, enters into the chamber *b* and regulates the supply of vapor to the generating-flame, so as to adjust the heating-flame, and thereby the vapors generated in the burner-tube, to any desired size of burner-tip. When once set it supplies the required quantity of vapors for that size of tip; but the set-screw has to be readjusted whenever a larger or smaller tip is to be used.

As the opening or mouth of the passage in the tube B is large it will not easily be obstructed, and the flame will be uniform. This is not the case when a set-screw extends into the mouth, leaving only a slight opening, which becomes readily obstructed.

A pear-shaped sheet-metal shield, C, is firmly attached to the burner-tube, and extended around the same and the generating-flame, so as to protect the latter against the wind, and furnish, by the steady size and action of the heating-flame, a uniform illuminating-flame at the burner-tip.

The globe-shield C is provided with a series of smaller air-holes, *g*, at the lower part, to supply the required quantity of air to the air-ports and to the heating-flame, while larger openings *g'* at the upper part serve for the escape of the gases of combustion. The temperature at the interior of the globe-shield heats the air, creating a current that draws in the air, so as to insure a perfect combustion of the heating-flame and supply the air that mingles with oil-vapors in the burner-tube and forms the illuminating-gas therewith, the current passing on both sides of the flame through the openings *g' g'* and affording increased steadiness. As the heating-jet is above the air-orifices *f*, the combined air and vapor are heated, making a mixture of uniform temperature, and one that affords a better light.

Having thus fully described my invention, I claim as new and desire to secure by Letters Patent—

1. The combination, with the burner-tube,

of a gas-passage extended downward with its mouth contiguous to the tube, and with a set-screw for regulating the flow arranged above the mouth, as set forth.

2. The combination of the tube A, adapted to receive detachable tips of different sizes, the air-openings *f*, and gas-passage with its mouth above the openings *f*, as specified.

3. The combination, with the tube A, its openings *f*, and tube B, of the casing C, having openings *g* near the bottom and openings *g'* adjacent to the tip on opposite sides thereof, as specified.

4. The deflector *e*, combined with the tube B, as set forth.

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Witnesses:
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