

(No Model.)

W. H. WILDER, J. A. LANNERT & W. R. JEAVONS.
OIL AND VAPOR BURNER.

No. 479,690.

Patented July 26, 1892.

Fig 1.

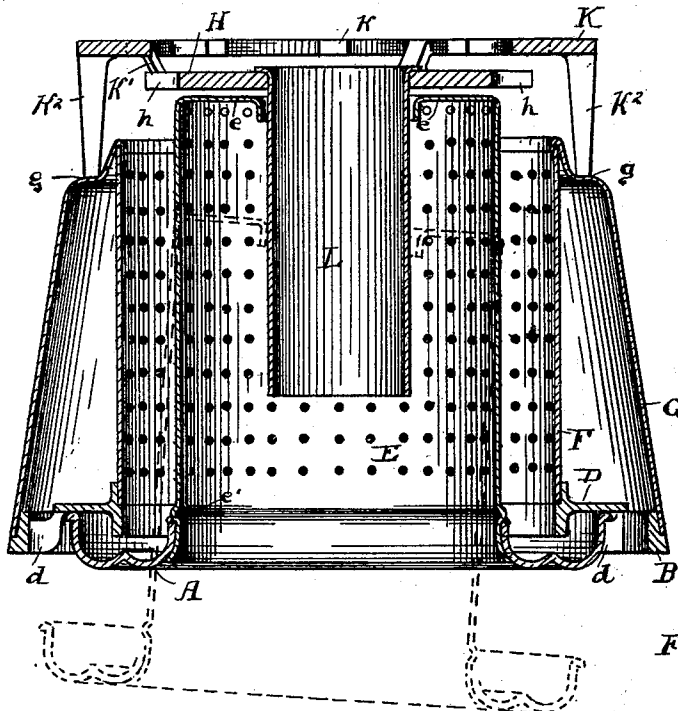
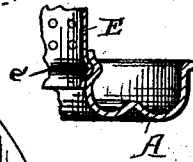
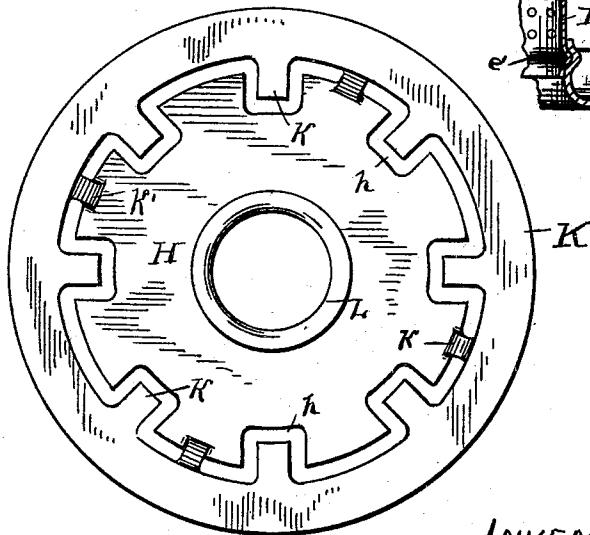


Fig 3

Fig 2.



ATTEST.

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WILLIAM H. WILDER, OF FLORENCE, MASSACHUSETTS, AND JOHN A. LANNERT AND WILLIAM R. JEAUVONS, OF CLEVELAND, OHIO.

OIL AND VAPOR BURNER.

SPECIFICATION forming part of Letters Patent No. 479,690, dated July 26, 1892.

Application filed March 26, 1892. Serial No. 426,472. (No model.)

To all whom it may concern:

Be it known that we, WILLIAM H. WILDER, residing at Florence, in the county of Hampshire, State of Massachusetts, and JOHN A. LANNERT and WILLIAM R. JEAUVONS, residing at Cleveland, county of Cuyahoga, and State of Ohio, citizens of the United States, have invented certain new and useful Improvements in Oil and Vapor Burners; and we do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same.

Our invention relates to improvements in oil and vapor burners of the class shown in patent to Thissell and Wilder, No. 464,627, dated December 8, 1891; and the invention consists in the construction, combination, and arrangement of parts, substantially as shown and described, and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a vertical central sectional elevation of a burner constructed according to our invention. Fig. 2 is a plan view of the spider over the burner; and Fig. 3 is a cross-section of a modification of the bowl, showing a different connection between the inner tube and the bowl.

Referring to the drawings, A represents the vapor-bowl; B, the supporting-ring about the outside of the bowl and apart therefrom for the free passage of air.

D is the cover of the bowl, and webs *d* at intervals connect said cover with ring B.

E and F, respectively, are the inner and outer combustion-tubes.

G is the deflecting-hood, extending from ring B to the top of combustion-tube F.

The inner tube E is drawn into the shape shown and made to fit upon the bowl at its lower end and at its top is provided with an inwardly-extending flange or diaphragm *e*, substantially at right angles to the side of the said tube and formed in continuation thereof in the same sheet of metal. The said diaphragm or flange extends inwardly all around about one-fourth the width of the said inner tube in cross-section, leaving a central opening for the passage of air upward from the burner. The combustion-tube E

itself is perforated about its sides; but no perforations are formed in the flange *e*. At its lower end the said tube E has a bead *e'*, so formed as to make effectual engagement with the upper edge of the burner-bowl, the bead resting upon the said edge and serving to support the weight of the tube. At its lower edge the said tube is flared outward to conform to the rounded side of the said bowl. This flaring of the tube and the bead or shoulder above the same, on which the tube rests, may be made before the parts are united, and then to unite the said parts the tube is introduced through the bottom of the bowl and carried upward until the said bead *e'* springs over the upper edge of the bowl. If preferred, the flaring of the inner tube might be effected after the tube and bowl are in position. The bead *e'* on the lower end of the said tube may be made to engage with the annular groove or depression in the inner wall of the bowl, as shown in Fig. 3.

Above the combustion tubes and chamber and extending across or over the same is the flame-deflecting spider. This spider consists of the flame plate or disk H, which lies immediately over the flange *e* of the inner combustion-tube and extends out part way over the combustion-chamber, so as to serve as a flame-deflector. About the periphery of this plate or disk are a series of recesses *h*, into which project the arms *k* on the outer ring K. This outer ring K is connected with plate H by webs *k'* at intervals and is on a sufficiently higher plane than the plate H to provide a flame or draft passage between said parts H and K. It will be seen that the said webs *k'* are inwardly inclined somewhat from ring K, so as to connect with the periphery of plate H, which is some slight distance within the inner edge of the ring K, thereby giving freedom and tendency of the flame toward the center of the burner. The spider constructed with these parts is supported on the shoulder *g* of the hood G by three or more legs *k²*.

If preferred, the spider may be cast in two pieces and secured together by any suitable means, such as riveting, and in this case the outer edge of the lower portion or plate H may be made continuous and not cut away beneath the projections *k* of ring K, as shown.

In operation the flame from the combustion-chamber is deflected inward by the ring K of the spider, the projections k assisting to carry the flame still farther inward over the lower portion or plate H. The flame thus thrown inward away from the influence of outside currents hugs the plate H and extends to the air-tube L, where it is supplied with air to produce perfect combustion. Thus a flame is produced all over the area of the top. Thus by this construction of the spider flame is maintained all over the area of the top.

Having thus described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. In a burner, the inner tube shouldered at its lower portion to engage the inner wall of the vapor-bowl to hold and secure it to said bowl, substantially as described.

2. In a vapor-burner, the inner perforated tube having the metal at its lower portion bent or formed out of line with the sides of the tube, whereby it engages the inner wall of the vapor-bowl to hold and secure it to said bowl, substantially as described.

3. The burner-bowl and combustion-tubes, the inner tube having its lower extremity enlarged and bearing against the sides of the burner-bowl, and a projection bearing on the upper edge of the bowl, substantially as described.

4. A burner provided with a vapor-bowl and combustion-tubes, the inner perforated tube having an air-deflector formed integral therewith at its top, substantially as described.

5. A burner having perforated combustion-tubes forming a combustion-chamber between them, and the spider having two deflecting-plates one above the other and above the combustion-chamber, substantially as described.

6. The burner-bowl and perforated combustion-tubes, an air-deflector at the top of the inner tube having a central opening, and a flame-deflector supported above said air-deflector, substantially as described.

7. In a burner having combustion-tubes, the inner tube having an air-deflecting partition with a central opening, and a guide for the inner tube supported within said central opening, substantially as described.

8. A vapor-burner provided with a combustion-chamber, a flame-deflecting plate having a central opening and an air-supply tube depending from about said opening, and a flame-deflector above the said combustion-chamber, substantially as described.

9. A burner having perforated tubes forming a combustion-chamber between them, and the flame-plates, the outer one above and overlapping the lower inner plate and the combustion-chamber, substantially as described.

10. In a burner, the flame-plate whose outer portion is raised above the inner portion and having arms extending inward over the lower inner portion to distribute the flame, substantially as described.

11. The burner-bowl and a perforated combustion-tube secured thereto, an air-deflector at the top of said tube provided with an opening, and a flame-deflecting plate having an opening, and an air-supplying tube secured to said plate about said opening and projecting into said tube, substantially as described.

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