

(No Model.)

J. A. LANNERT & W. R. JEAUVONS.  
VAPOR BURNER.

No. 479,220.

Patented July 19, 1892.

FIG 1

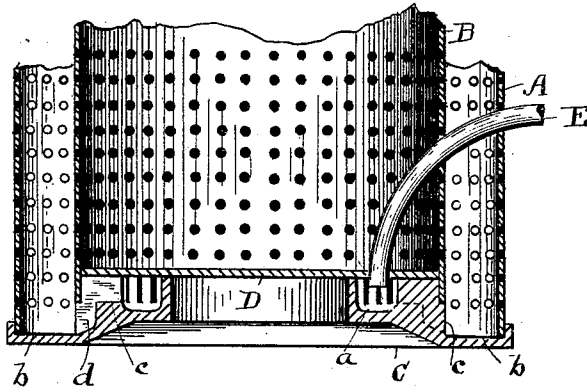


FIG 2

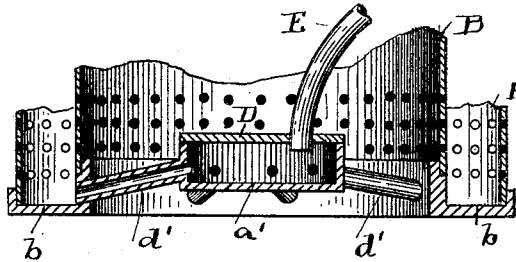


FIG 3

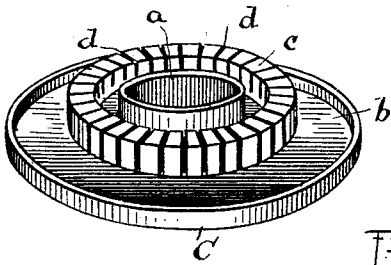


FIG 4

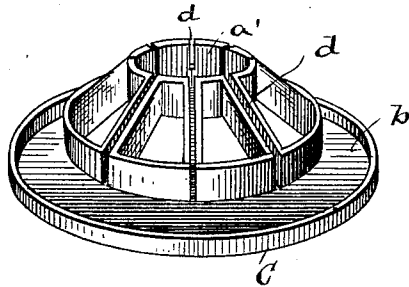
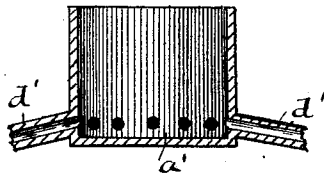


FIG 5



ATTEST.

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# UNITED STATES PATENT OFFICE.

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## VAPOR-BURNER.

SPECIFICATION forming part of Letters Patent No. 479,220, dated July 19, 1892.

Application filed March 9, 1892. Serial No. 424,337. (No model.)

*To all whom it may concern:*

Be it known that we, JOHN A. LANNERT and WILLIAM R. JEAUVONS, citizens of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in 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 has reference to vapor-burners; and the invention consists in the construction, combination, and arrangement of parts, substantially as shown and described, and particularly pointed out in the claims.

Figure 1 is a vertical central section of one form of our improved burner; and Fig. 2 is a vertical central sectional view of a form of burner in which there is a central vapor-distributing chamber, from which radiate a series of tubes to the outer burner-chamber, and through which tubes the vapor is conveyed and distributed to the vapor and combustion chamber in effect as it is by the construction shown in Figs. 1 and 3. In this instance the air is supplied between the inner and outer chambers. Fig. 3 is a perspective view, reduced, of the form of burner shown in Fig. 1, and in which notches or slots are provided, through which the vapor passes from the inner or distributing chamber to the bottom of the outer or burner chamber about the outside view of still another form of burner, which comes between the two preceding forms described. In this instance, instead of the radiating tubes, we employ radiating deeply-flanged open channels, which serve the same purpose as the tubes and slots shown in the other figures. Fig. 5 is a modification of the vapor-distributing chamber or drum shown in Fig. 2, and in which the sides of the chamber are made sufficiently high to protect the vapor against air currents and drafts, and thereby rendering a cover over said chamber unnecessary.

In Figs. 1 and 2, A and B represent the inner and outer combustion-tubes and C represents the burner bowl or base in the several figures.

In Figs. 1 and 3 the burner bowl or base has a circular trough-shaped vapor-distributing channel or chamber *a*, inside or within which is a central air or draft passage and outside of which is the base or bottom of the vapor and combustion chamber *b*. The outer wall *c* of the distributing-chamber *a* is also the inner wall of the chamber or channel *c*, and across said wall to about one-half its depth (more or less) are slots or notches *d* at frequent intervals, through which the vapor or gas passes from the inner to the outer chamber. These notches or slots are also formed in the outer side of the said wall, as seen in Fig. 1, so as to pass beneath the inner combustion-tube and the shoulder in said wall, on which said tube rests. Any convenient or sufficient way of supporting the combustion-tubes on the burner base or bowl may be adopted.

E represents an oil-supply pipe extending in this instance through the combustion tubes and chamber into the inner or distributing chamber. By thus exposing said pipe to the heat of the burner the vaporization of the oil is greatly facilitated. It will, however, be understood that the chamber *a* is essentially a vapor-chamber and that it serves to feed and supply vapor evenly to all parts of the vapor and combustion chamber, but under no circumstances can itself become a combustion-chamber or be ignited through the channels or slots *d* or their equivalent in the other forms of distributing-channels shown.

D is a cover, which fits closely over or upon the distributing-chamber and over the slots *d* within the inner combustion-tube and protects said chamber from drafts within the burner.

In Fig. 2 we show a modified form of burner, in which, instead of the annular trough-shaped distributing-chamber shown in Fig. 1, we employ a cup or drum shaped chamber *a'*, located centrally in the burner and having tubes *d'* radiating from about its sides and discharging at a slight inclination into the vapor and combustion chamber *b*. These tubes *d'* serve exactly the same purpose as the slots *d*, and the said chamber has a close cover, as has the chamber in Fig. 1.

In Fig. 4 the construction resembles that

shown in Fig. 2, excepting that in this instance deeply-flanged open channels *d* are employed instead of closed tubes. In any case the vapor in its travel from the inner to the outer chamber requires no more protection than will shield it from air drafts or currents, because it being considerably heavier than air will travel and distribute by gravity. Hence an open channel can be used, as well as a covered one, if the side-wall protection be deep enough to protect the vapor from the drafts and currents, as described. Otherwise there is no difference between this form of burner and the form shown in Fig. 2.

Fig. 5 shows the principle of open channel or duct, disclosed in Fig. 4 particularly, applied to the distributing-chamber. In this form we employ a chamber or drum with very deep sides, and by reason of the depth of sides we get practically the same effect as by means of a cover over the chamber, it being understood that the cover over said chamber serves substantially the same purpose as the cover over the channels or ducts or passages seen in the other figures—viz., to protect said channels or passages from air drafts or movements that might carry away the vapor or disturb its flow or distribution.

The bottom *b* forms the bottom of the vapor and combustion chamber, and the vapor distributes by gravity between the ends of the vapor-channels, where they discharge onto said bottom *b*, so that a uniform flame is maintained all around the burner the same as if the channels were numerous enough to supply every portion of said bottom *b* with an equal supply of vapor without lateral distri-

but ion at said points. This bottom *b* is closed, so as to prevent the escape of vapor down through it and to prevent the admission of air, and since there necessarily is only partial combustion of the vapor immediately upon or over said bottom *b*, owing to lack of sufficient air to make combustion complete, the vapor that is unconsumed will distribute itself laterally over said bottom and maintain a supply to combustion above between the tubes A and B. Hence, also, the perforations for the admission of air may come down to the immediate bottom *b*, and the burner will operate as hereinbefore described.

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

1. A vapor-burner provided with a vapor and combustion chamber and a vapor-distributing chamber and channels to convey the vapor from the distributing-chamber to the vapor and combustion chamber, substantially as described.

2. A vapor-burner having a vapor and combustion chamber closed at its bottom against admission of air and having air-inlets in its sides, a vapor-distributing chamber, and channels or ducts leading from said distributing-chamber to the said vapor and combustion chamber, substantially as described.

Witness our hands to the foregoing specification this 5th day of March, 1892.

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WILLIAM R. JEAVONS.

Witnesses:

H. T. FISHER,

NELLIE L. MCLANE.