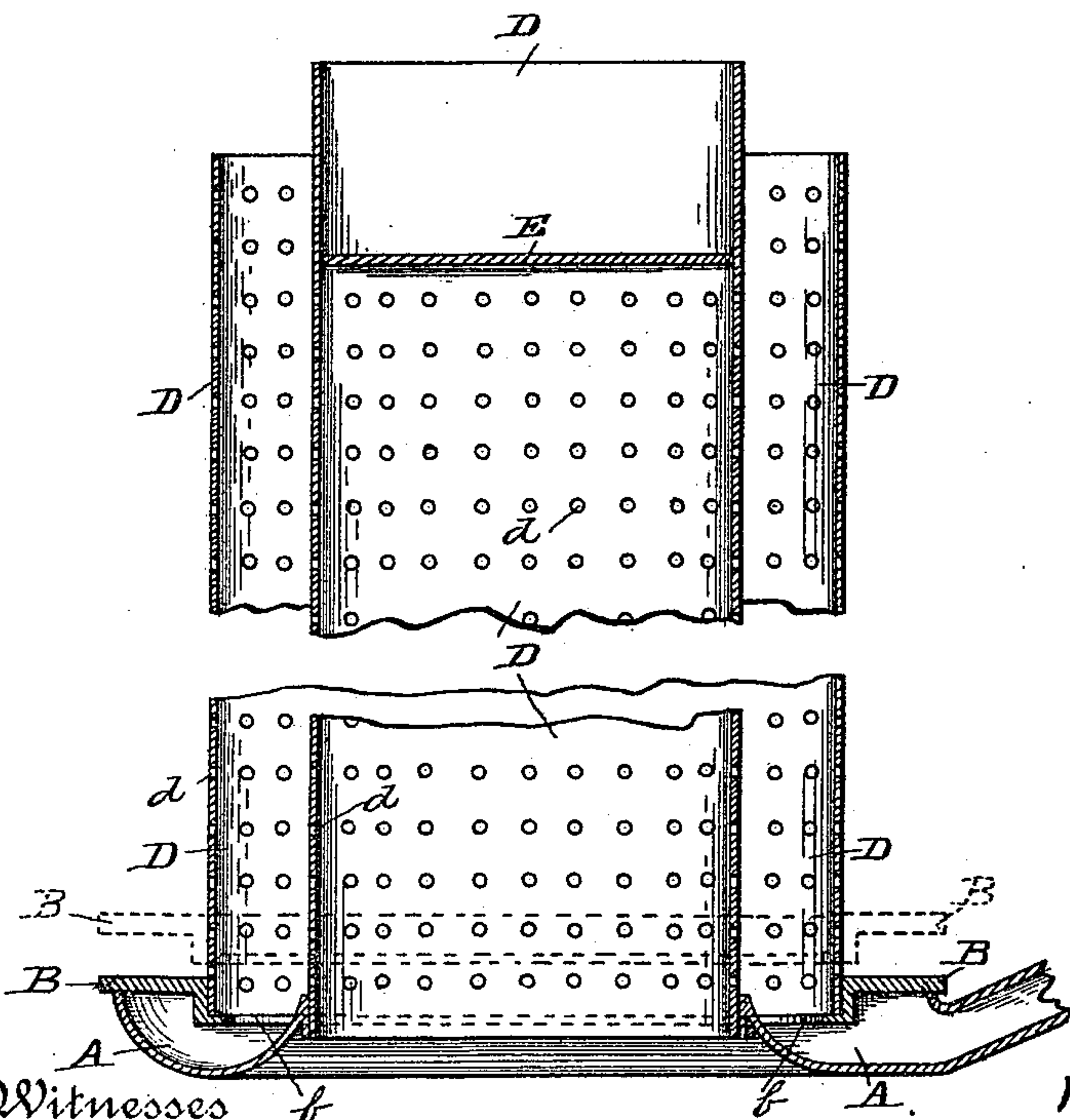
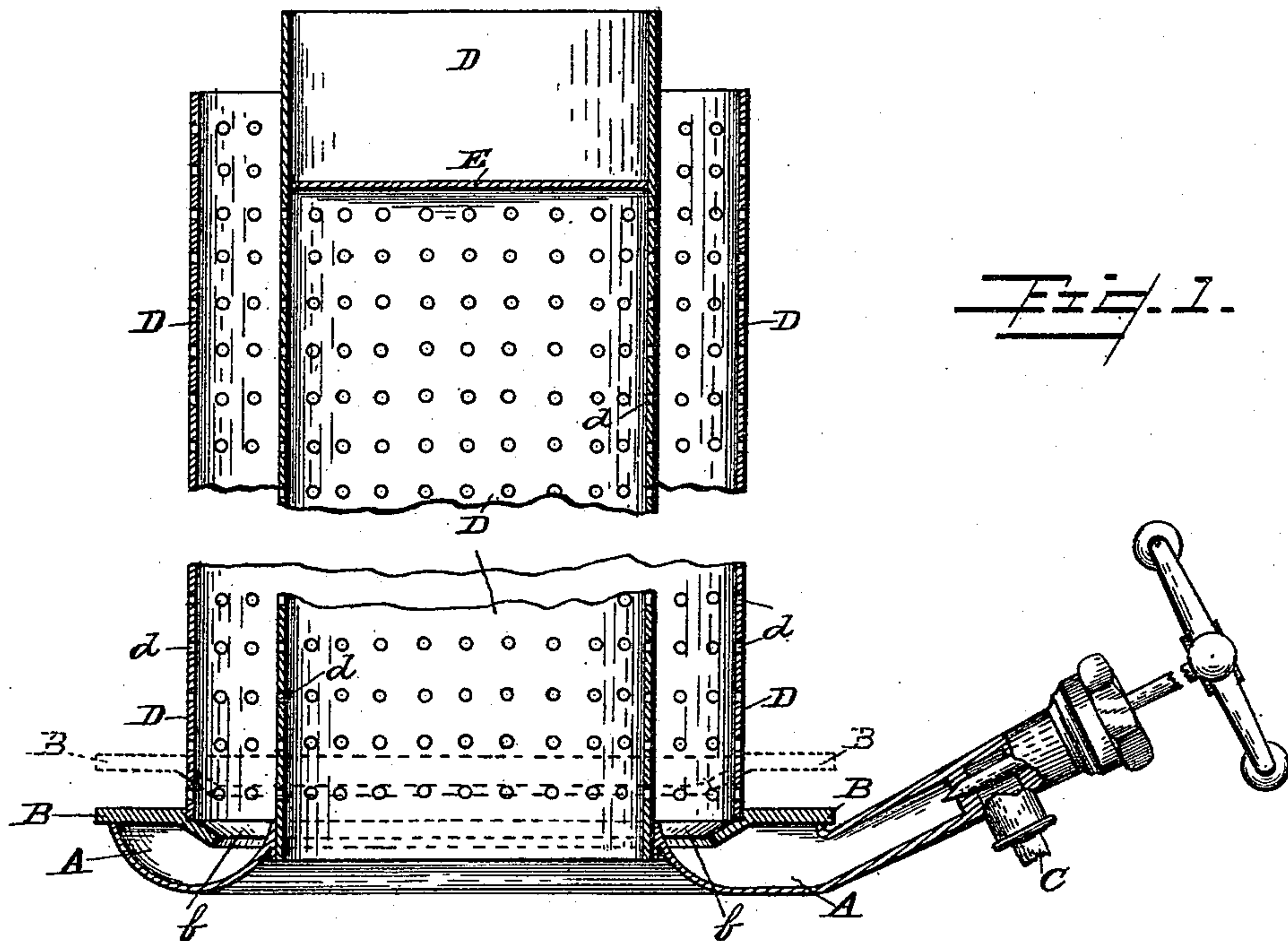


(No Model.)

W. R. JEA VONS.
VAPOR BURNER.

No. 438,548.

Patented Oct. 14, 1890.



Witnesses
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Albert B. Blackwood

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UNITED STATES PATENT OFFICE.

WILLIAM R. JEAUVONS, OF CLEVELAND, OHIO, ASSIGNOR OF ONE-HALF TO
JOHN A. LANNERT, OF SAME PLACE.

VAPOR-BURNER.

SPECIFICATION forming part of Letters Patent No. 438,548, dated October 14, 1890.

Application filed January 6, 1890. Serial No. 335,997. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM R. JEAUVONS, a citizen 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 I 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
10 which it appertains to make and use the same.

My invention relates to vapor-burners; and the invention consists in a burner provided with a vapor-distributing chamber constructed and operating substantially as shown and
15 described, and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a vertical sectional elevation of one form of my improved burners, and Fig. 2 is an elevation of a different form or modification of a burner.
20

In both the figures the burner is shown as circular; but it may have different forms, according to use or taste. In this instance the burner is constructed of two separate parts, A and B. The part A is fashioned in cross-section somewhat in the shape of a trough with a round bottom, and the part B consists of a lid or cover, which serves to close the vapor-distributing chamber over and along its top portion, and to form a narrow opening at one side or edge for the vapor to escape to the combustion-tubes. The lid, rim, or cover B lies flat upon the upper edge of the base A, so that the vapor-carrying chamber between said parts will be air-tight where the parts meet. I have preferably shown the inner edge of the cover extended downward toward the bottom of the base portion or receptacle A, to form the narrow space through which the vapor issues between the combustion-tubes. In Fig. 1 the inclination is diagonal, while in Fig. 2 it is substantially vertical. In either and any case a chamber is formed beneath the lid or cover B, and a narrow neck or opening remains between the inner edge of said lid or cover and the inner side or edge of the bowl A, and the chamber thus formed serves to diffuse, distribute, or convey the vapor or gases
45 evenly to all parts thereof, so as to have an even

flame at all points in the burner. If the said chamber did not have the cover close down upon the bowl or base A, there would be no diffusion or traveling of vapor, and the flame would burn from the surface of the bowl 55 where the oil enters from the pipe C and where air is supplied—that is, if the lid were not there or not close down, the oil or vapor would be consumed at the supply-pipe and there would be no gas left to carry around to the other parts of the chamber, even if it were disposed to travel; but by forming a chamber and a narrow opening along the inner edge thereof, and the burner being fully heated, the gas or vapor will speedily distribute itself 65 beneath said cover around to every portion of the chamber, and ignition will not occur until the gas in the chamber is forced out by its own accumulated pressure or is drawn out by combustion, which is fed with air and supported through the perforations *d* in the tubes or flues D. 70

It is of course understood by persons skilled in this art that the vapors of petroleum are heavier than the atmosphere, and in a burner of this character the vapor travels around and fills the walled and covered chamber before it will voluntarily escape therefrom. Again, having the chambers so constructed that atmosphere is excluded by the pressure 80 of the heavier vapor therein, combustion cannot occur within the chamber or bowl for the want of air. Then when the vapor is ignited between the tubes D it will burn from the points above the narrow neck, where the supply of air or oxygen occurs, and extend thence up between the perforated tubes to the top thereof or above, making a beautiful blue flame all the way and producing intense heat. 85

C is the oil-supply pipe or tube provided with a suitable controlling-valve at right angles thereto. As here shown, a short neck or joint of pipe intervenes between pipe C and the vapor-chamber. The needle-valve shown is secured in the outer end of this neck or joint 95 and serves to admit the oil in such volume as the burner may require.

Assuming that gasoline is burned, though other hydrocarbons may be used when the burner is started, the bowl or trough A is sup- 100

plied with more or less fluid to put the device in vaporizing condition. By raising the lid B the actual quantity of oil can be seen, and experience will soon tell how much is needed.

5 While the cover is raised a match is applied, and by the time the cover is slowly replaced the bowl will have become heated sufficiently to vaporize enough oil to sustain a small flame between the combustion-tubes. The heat of

10 this flame is conducted to the bowl, which in turn generates more vapor, and in a short time the burner is heated to its maximum. As the valve can be opened and left open, the fluid lighted, and this cover replaced, and thus

15 left, the burner will become heated and operative without smoke or odor and without the slightest attention from the operator. In this operation the connecting pipe section or joint through which fuel is supplied be-

20 comes very hot, so that very soon after starting the small jet of oil admitted through the valve no sooner comes in contact with the said pipe than it is vaporized and the vapor flows into the burner-chamber. Now, by reason of

25 the chamber being closed, except at the inner edge, and the air excluded, no combustion takes place therein, and this leaves the vapor free to travel around to all parts of the chamber and to fill the same with equal density

30 all around. This occurs while combustion is in progress, and a uniform flame is thus maintained all around the circle of the burner; but the vapor-chamber must be kept closed, as described, and the burner would be de-

35 stroyed if air were admitted beneath the cover. In that case combustion would take place only where the vapor or oil is admitted and give only a yellow flame. The outer tube D is attached to the cover B. The inner tube

40 D is attached to the base A at the inner annular upwardly-extending neck or flange thereof, and has a diaphragm E near its top, which entirely closes said tube inside. The opening *b* is between the two flues. Air is

45 admitted through the perforations of both flues.

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

50 1. A vapor-distributing chamber closed to

prevent combustion therein and having an oil or vapor supply pipe and a narrow neck or opening along one edge for the escape of vapor, in combination with combustion-tubes about said opening, substantially as described. 55

2. In a vapor-burner, a trough-shaped base and a closely-fitting cover extending part way over its top and forming a vapor-distributing chamber between said parts, said chamber having a narrow opening for the escape of 60 vapor, in combination with an oil or vapor supply pipe having a suitable valve, substantially as described.

3. In a burner having a vapor-containing chamber, a base trough-shaped in cross-section, and a cover narrower than the top of the base fitting closely on one edge thereof, in combination with perforated tubes extending from about the edge of said cover and one 65 edge of said base, respectively, and in close metallic connection with said parts, whereby the said base and its connections are heated, substantially as described. 70

4. In a vapor-burner, a base and a detachable cover forming a vapor-distributing chamber, said cover resting one edge on said base and the other edge extended on a lower plane than the adjacent edge of the base and apart therefrom, whereby an opening is formed for the escape of vapor, in combination with per- 75 forated combustion-tubes about said opening and a supply-pipe adapted to be heated from the base, substantially as described. 80

5. A vapor-burner having a cover in a separate piece from the base and extending partly 85 over said base from its outer edge and fitting closely on said outer edge to form an air-tight connection at that point, a perforated tube connected with the inner edge of said cover and another perforated tube connected with 90 the inner edge of the generator, and a supply-pipe fixed to the base, substantially as described.

Witness my hand to the foregoing specification this 23d day of December, 1889.

WILLIAM R. JEAVONS.

Witnesses:

H. T. FISHER,
NELLIE S. McLANE.