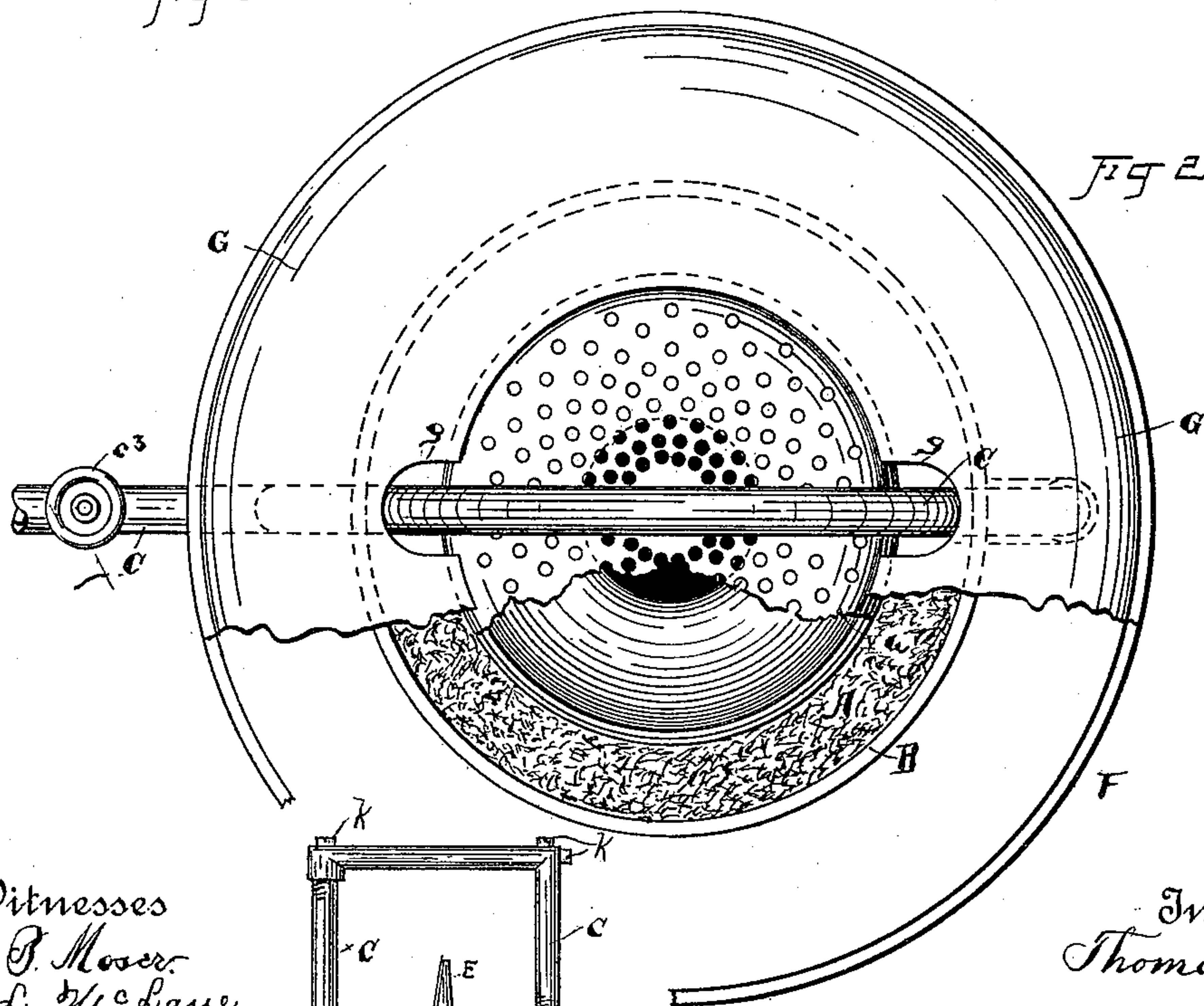
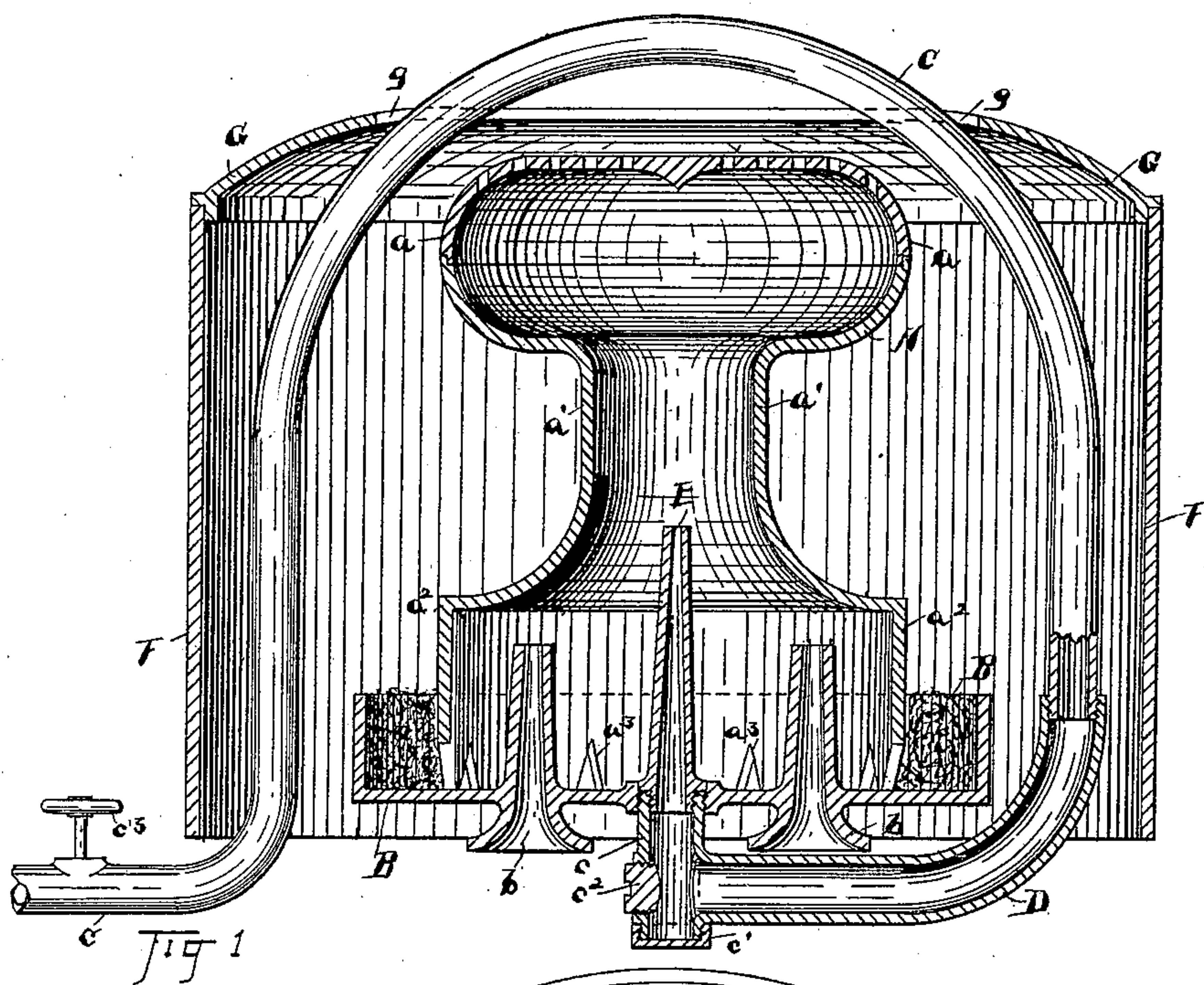


(No Model.)

T. M. PAINTER.
DOMESTIC VAPOR BURNER.

No. 459,789.

Patented Sept. 22, 1891.



Witnesses
P. B. Moser.
H. L. McLane.

Inventor
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By his Attorney

M. T. Fisher.

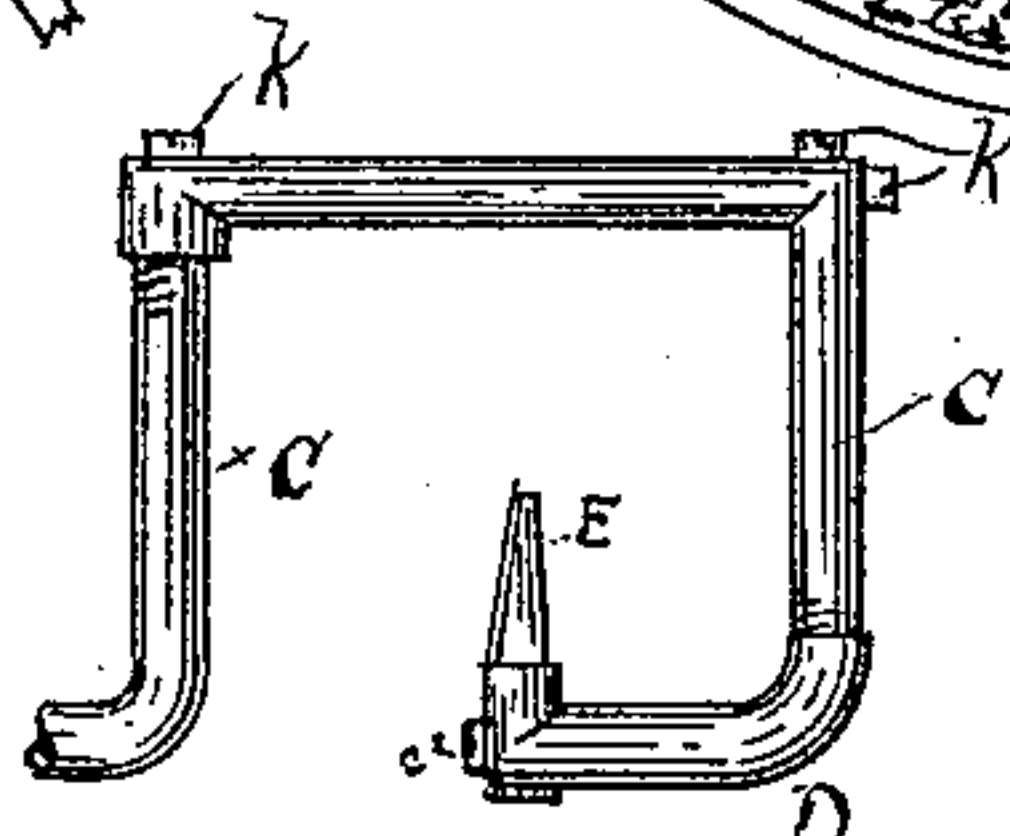


Fig 3

UNITED STATES PATENT OFFICE.

THOMAS M. PAINTER, OF CLEVELAND, OHIO, ASSIGNOR OF ONE-HALF TO
RICHARD E. OGLEBAY, OF SAME PLACE.

DOMESTIC VAPOR-BURNER.

SPECIFICATION forming part of Letters Patent No. 459,789, dated September 22, 1891.

Application filed October 22, 1890. Serial No. 368,947. (No model.)

To all whom it may concern:

Be it known that I, THOMAS M. PAINTER, 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 Domestic 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 which it appertains to make and use the same.

My invention relates to improvements in domestic vapor-burners; and the invention consists in the construction and combination of parts, substantially as shown and described, and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a vertical sectional elevation of my improved burner, the supply-tube being mostly in elevation, and Fig. 2 is a plan view thereof with all the parts in position and a portion of the cover broken away. Fig. 3 is a modification of the vapor-tube.

A represents the burner proper, provided with a removable perforated cap a and having a contracted neck a' and an expanded base a^2 , adapted to be set into the pan B. Around the lower edge of the base a^2 of the burner is shown a series of openings a^3 , and the pan B has such width with respect to the said base that a space is afforded between the outside of the base and the inside of the pan, which space is packed with mineral wool or like conducting non-combustible material, from the surface of which a flame may be maintained for the purpose of initial starting of the burner. The openings a^3 permit any overflowing oil from the jet E to be absorbed by mineral wool or the like in pan B.

C represents the fluid-inlet pipe, bent, as here shown, into U shape, and extending above and over the burner from one side and thence down and around beneath the burner upon the other side, the center of the U coming immediately above the burner and in such proximity thereto that it can be exposed to the flame and be thoroughly heated.

For convenience of connection a separate pipe D is attached to the extremity of the pipe C and forms a curved elbow provided

with a vertical head c , attached centrally to the bottom of the pan B. A burner-jet E extends from this central point of attachment up into the neck of the burner. At the bottom of the head c is a cap c' , and at its side opposite the channel in the elbow-pipe D is a removable plug c^2 . The said plug and the cap c' are designed to be removed when for any reason it becomes necessary to have access to the inside of the head and tube to cleanse the same, although it will be noticed that by this construction of burner cleansing has not been found necessary, for the reason that there are no deposits on the inside of the conveying mechanism to obstruct the same.

It will be observed that when the pan B is packed with mineral wool, asbestos, or the like, so as to close the openings a^3 in the base of the burner, there is no air admitted to the interior of the burner from about the bottom or sides except what is admitted through the funnel-shaped openings b , of which there may be one or more, as the size and needs of the burner may demand. These openings are through the bottom of the pan B, and the funnels b extend up into the base of the burner some distance above the edge of the pan B, so that there will be no overflow of oil at any time out of the pan B into these air-passages.

The pipe C is provided with a valve c^3 for controlling the flow of oil through the pipe, and this valve in practice will be located outside of the stove or furnace containing the burner, so as to be accessible to the operator.

F represents an inclosing case, which extends outside of the U portion of the pipe C and around the burner and is provided with a dome-shaped cover G, which fits snugly upon the said case and has a central opening, shown in this instance as about the size in cross-section of the head of the burner. For convenience of adapting the said cover to the pipe C notches g are cut on its inner edge, which fit about the sides of the said pipe. The opening in the cover or cap G might be made smaller than here shown, but the present style works very satisfactorily. It will be noticed that there is an air-space opening from the bottom within the casing F and be-

tween it and the burner, and the converging sides of the cover cause the air to form a draft through its central opening about the flame at the top of the burner, thus tending to concentrate the air at the point of combustion and to feed the flame with oxygen to produce perfect combustion of the vapor.

Experience in this art has taught that it is desirable to have all the parts as conveniently separable as possible, and for this reason I have made the burner proper, so that it may be freely set down in the pan B and as freely and easily removed, and the case F and the cover G are likewise removable by simply lifting them from their place.

The burner here shown and described is designed for domestic use and is adapted to be placed in an ordinary fire-pot of a cooking stove or range or in a furnace employed to heat a residence or other building. I have shown only a single burner, but obviously two or more might be connected. In the case of a furnace a single large burner would ordinarily be employed; but in a cooking stove or range two or more would probably serve a better purpose, one beneath each opening, and adapted to be used singly or together as the service might require.

When the burner is to be started, a sufficient amount of oil is allowed to flow through the nozzle E into the drip-pan B, and the mineral wool by which the outside of the pan is packed being conductive will soon become saturated with the oil about its surface, where a match can be applied and a flame produced to heat the burner to a vaporizing temperature. This being done, the burner is in condition to be ignited about its top and is then ready for use.

Any suitable hydrocarbon oil may be employed with this burner, and the construction is such that whatever grade of oil is used there is no carbonizing at any point inside of the burner. The gas escapes through the jet E under pressure, and being projected into the burner-head passes out through the opening therein and is ignited. This causes a draft or suction through the neck of the burner and an inflow of air through the opening b; but there is no combustion or flame anywhere, excepting on the top of the burner, where it is designed to be.

In Fig. 3 I show a modification of the tube

C, in which said tube is made in sections and is angular instead of curved, as shown in Figs. 1 and 2. At the upper right and left hand corners are plugs k, which may be removed to introduce an instrument of any suitable kind for the purpose of removing any carbon or other deposit or obstruction that may be collected in said tube. The fact that the tube is heated excessively by the flame of the burner may lead to plugging the passage, and to avoid annoyances of this kind, if it should occur, there is special advantage in having the said tube made in sections which are readily removable and to have removable plugs for entering the pipe, whether it be left on the stove or removed to be cleaned.

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

1. In a vapor-burner, the drip-pan, a burner proper set in said pan and having openings about its bottom and a non-combustible packing about the base of the burner in the said pan, an oil and vapor supply pipe having a central jet extending into the body of the burner, an inclosing case, and a cap with a central opening set upon the case about the top of the burner, substantially as described.

2. The burner proper having a removable perforated cap, a contracted central portion, and an enlarged base open at the bottom, in combination with a pan supporting the burner and provided with air-inlet tubes in its bottom extending into the burner and a vapor-jet extending centrally into the neck of the burner, substantially as described.

3. In a vapor-burner, the burner proper and the drip-pan supporting the same, in combination with the oil and vapor supply pipe extending over the burner, an elbow connecting with said pipe and the bottom of the drip-pan, a burner-jet extending from said elbow into the neck of the burner, the inclosing case, and the cap on the case about the top of the burner, substantially as described.

Witness my hand to the foregoing specification this 10th day of October, 1890.

THOMAS M. PAINTER.

Witnesses:

H. T. FISHER,
NELLIE L. McLANE.