

(No Model.)

2 Sheets—Sheet 1.

A. J. BLACKFORD.
OIL BURNER.

No. 538,638.

Patented Apr. 30, 1895.

FIG. 2.

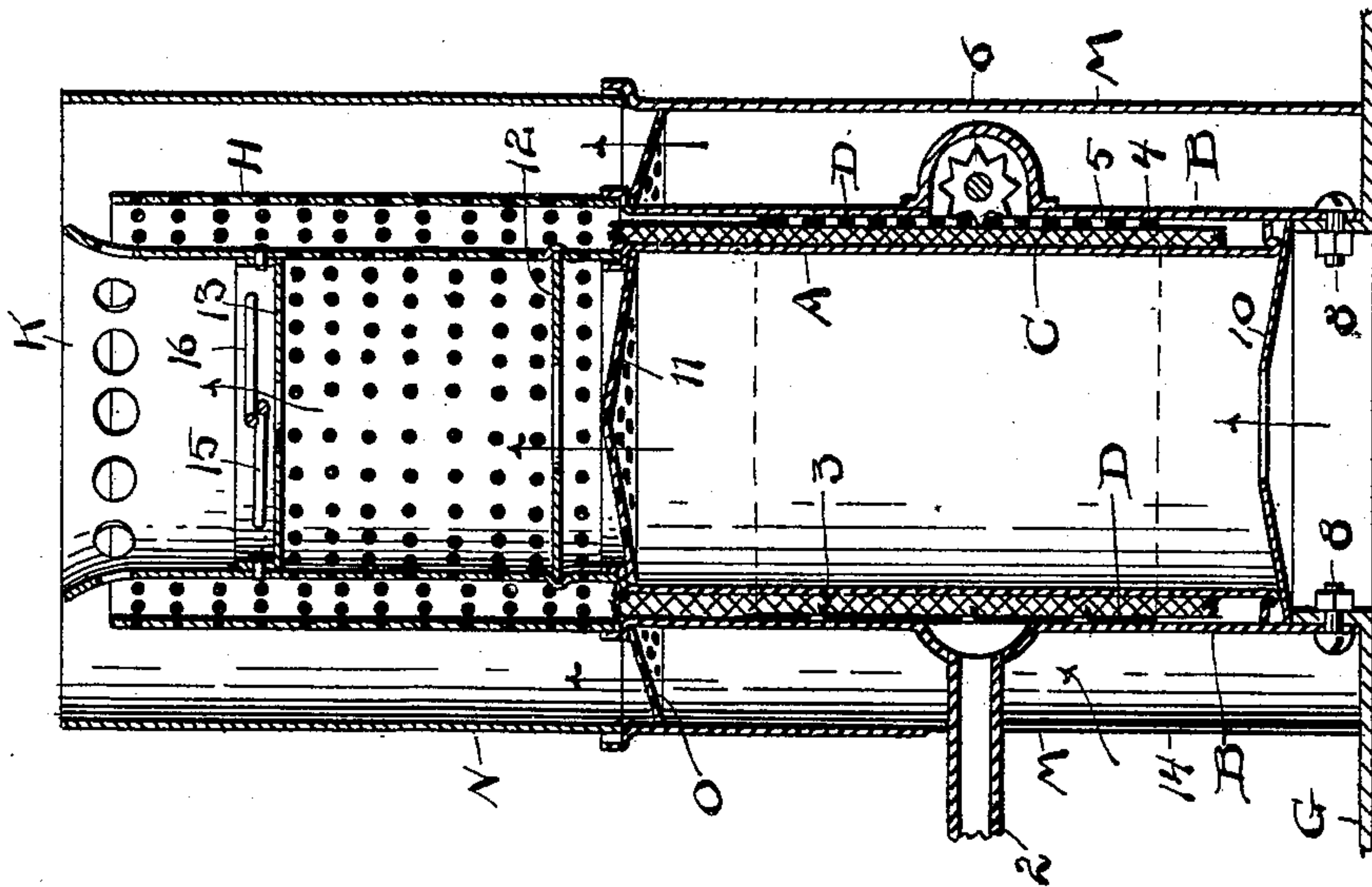
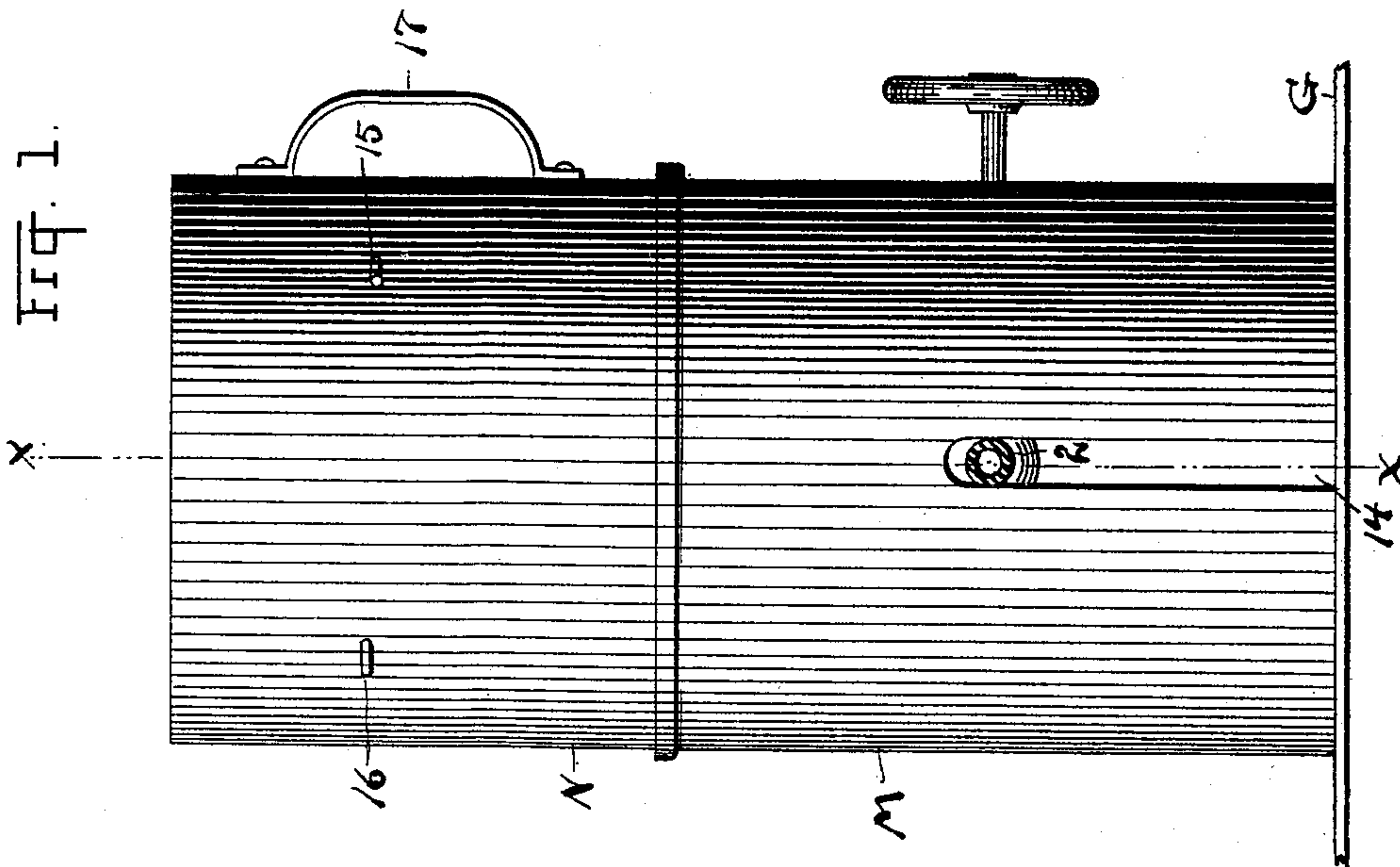


FIG. 1.



ATTEST.

R. B. Moser.

G. L. Schaffer

BY H. T. Fisher.

INVENTOR

Atwell J. Blackford

ATTORNEY

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Fig. 3.

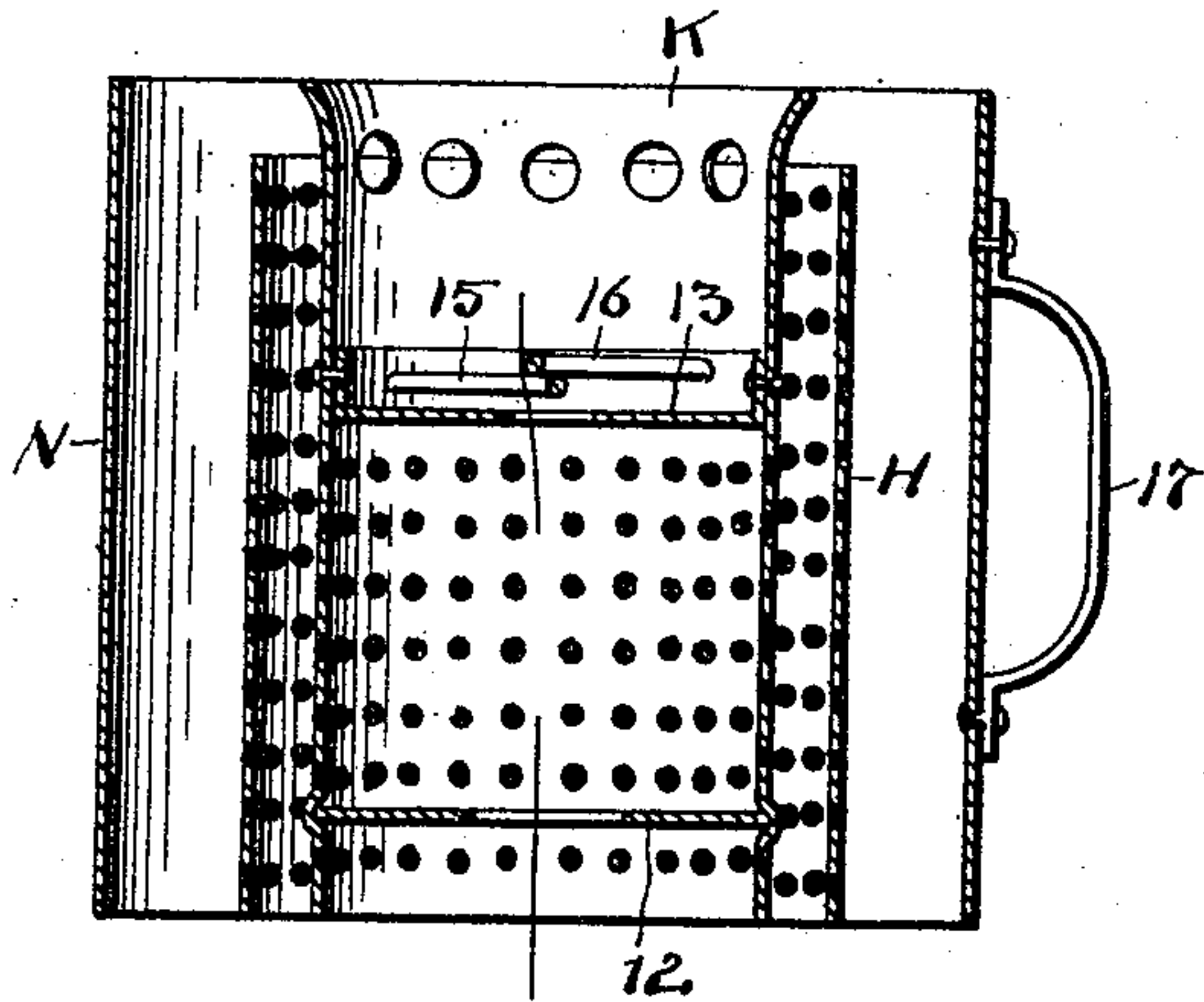
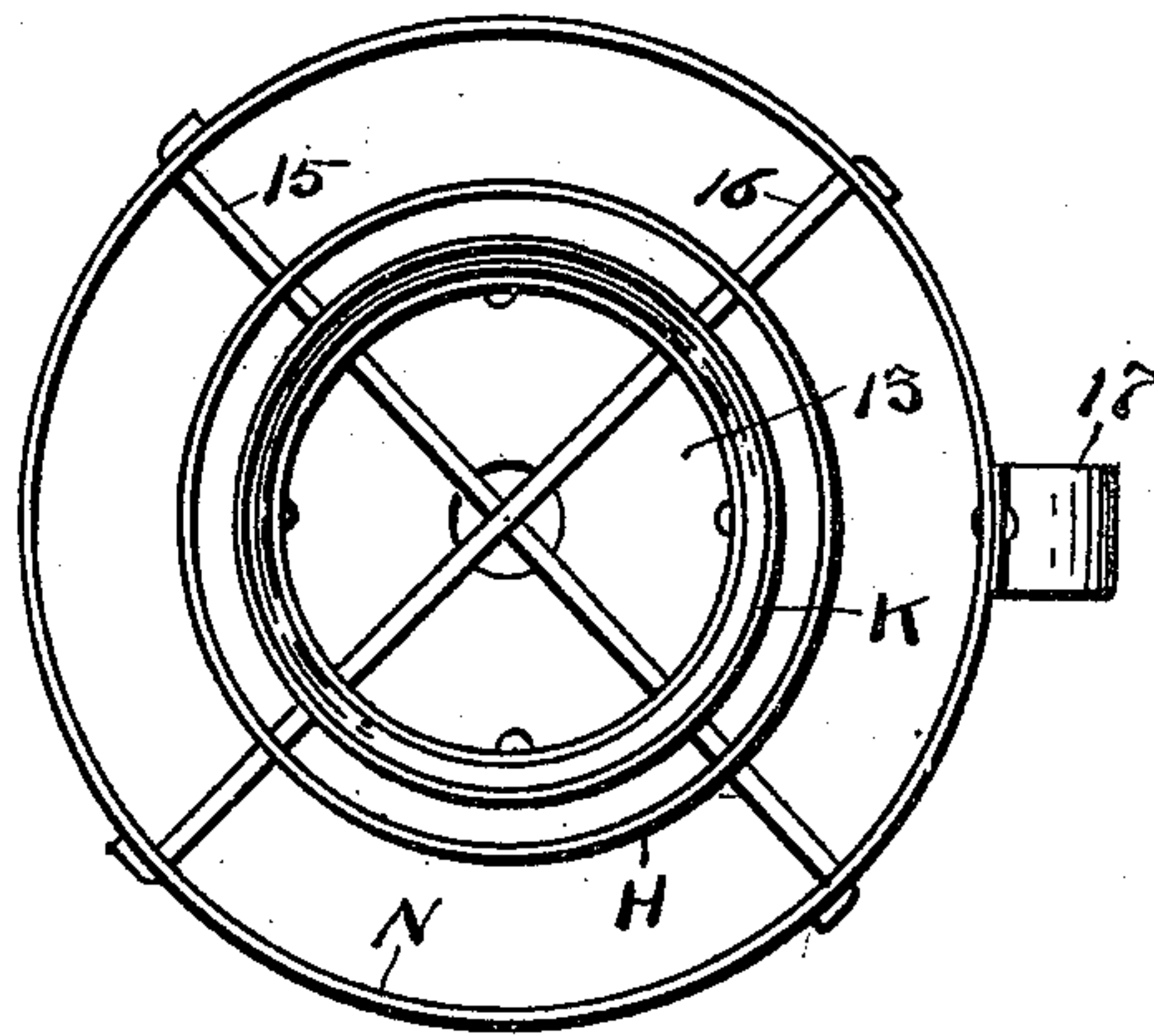


Fig. 4.



ATTEST.

R. B. Moser

G. L. Scharff

By *H. T. Fisher*

INVENTOR.

Atwell J. Blackford

ATTORNEY

UNITED STATES PATENT OFFICE.

ATWELL J. BLACKFORD, OF MEDINA, OHIO, ASSIGNOR OF ONE-HALF TO THE
DURAND MANUFACTURING COMPANY, OF SAME PLACE.

OIL-BURNER.

SPECIFICATION forming part of Letters Patent No. 538,638, dated April 30, 1895.

Application filed June 15, 1894. Serial No. 514,633. (No model.)

To all whom it may concern:

Be it known that I, ATWELL J. BLACKFORD, a citizen of the United States, residing at Medina, in the county of Medina and State of Ohio, have invented certain new and useful Improvements in Oil-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 has reference to oil burners, and the invention appertains especially to the class of burners which use kerosene oil, and are used in kitchen stoves in lieu of the usual gasoline stoves and burners.

This invention is an improvement on the burner shown and described in United States Patent No. 518,305.

In the accompanying drawings, Figure 1 is a plan elevation of the outside of the burner as it is seen when viewed in use. Fig. 2 is a central sectional elevation on line 2 2, Fig. 1. Fig. 3 is a vertical central sectional elevation of the upper and removable section of the burner, and Fig. 4 is a plan view thereof.

This burner is built in two separate sections, one immediately above the other and dividing at the wick. The two sections are shown together in operative position and relation in Fig. 2, and the upper section is shown alone in Fig. 3.

The lower section comprises the annular wick chamber composed of the inner and outer tubes A and B, the wick C therein and the wick tube D, and the drum M about said parts and removed therefrom about the distance relatively as here shown. Oil is supplied through tube —2— to the wick chamber, and the wick is raised and lowered by means of the tube D. This tube has short sharp spurs —3— struck out of itself here and there to engage the wick, and fits about within the outer tube B as seen in Fig. 2. It is inserted and removed from above after removing the upper section of the burner, and is designed to raise and lower the wick uniformly at all points around the burner so that a perfectly even movement and feed of the wick may be obtained.

The wick tube has a stiff metal strip —4—,

set vertically the full length of the tube in one side thereof and provided with one or more rows or series of holes —5— engaged by the toothed wheel —6— to raise and lower the tube.

G represents the plate or base on which the burner rests and is understood as forming part of a stove frame, not necessarily shown here because forming no part of this invention. However, the burner is fixed rigidly to this plate by bolts and nuts —8— through the upturned flange of said plate G, or by equivalent means, and there is a free open air passage the width of the burner so far as this plate G is concerned. The operation of the burner, however, does not require, nor, indeed, can it safely receive the full volume of air up through its center or interior which so large an opening affords, and hence I have limited and controlled the air supply interiorly by the use of several diaphragms. The first of these is at the bottom of the burner, indicated by —10—, with an air passage through its center, though, of course, one or more such passages might be used if together they limited the inflow of air about as this one does. Then at the top of the lower burner section I place a numerously perforated diaphragm —11—, which divides up the flow of air and checks it just enough to suit the purposes of good combustion. Between the two diaphragms —10— and —11— there is formed a fresh air supply chamber of cool air which keeps the wick chamber cool. Now, having reached the top of the lower burner section I provide an upper section consisting of two numerously perforated combustion tubes, H and K, seated upon the shouldered and flanged upper extremities of the tubes A and B and about the top of the wick C on the said shoulders.

Two diaphragms —12— and —13— span the inner tube, one near its bottom and the other toward its top, and both tubes have central air passages through them, but the upper one considerably smaller than the lower, thereby allowing enough air to pass through to supply the needs of combustion centrally in the top of the burner at a point just above the top of said combustion tubes, and at the same time checking back the air so as to

cause it to flow freely to the combustion chamber between tubes H and K through the perforations in K. The lower diaphragm —12— also serves as a heat deflector to protect the wick chamber beneath from becoming excessively heated.

The foregoing description so far as the operation and air supply of the burner is concerned, relates to the interior thereof. It is found that provision is also necessary to control the exterior air supply, and to this end I provide each burner section, upper and lower, with a drum M and N respectively. The drum M rests upon the base plate G, which closes the space beneath between said drum and the burner, and the said drum has a vertical slot —14— through the top of which the oil supply pipe —2— passes and through which all the air that is needed is admitted within said drum. Of course any equivalent air supply might be adopted, but in any case the supply of air must be limited and controlled or there will be such a rush of air into the drum chamber or space as will impede and prevent a healthy action of the burner.

About the top of the lower burner section is a finely perforated collar O, which exactly fits the interior of the drum M, and this collar also checks and helps to regulate the flow of air and to deflect the heat from above and help keep the wick chamber cool. The drum N is a continuation of drum M, but is a member of the upper section of the burner and is connected with the tubes H and K by cross rods or wires —15— and —16— passing at right angles through all three of said parts and holding them together so that they are easily handled by the handle —17— on the drum.

In operation, when it is desired to start the burner, the upper section is bodily removed by taking hold of handle —17—, and a light applied to the wick C, the same exactly as in lighting a lamp. Then the upper section is restored to place and the burner is ready for use, the measure of heat being determined by turning the wick higher or lower. By the use of the tubes H and K and the associated parts, combustion, in fact, does not really take place at the wick except in starting the burner, but a vapor is evolved which burns between said tubes, and a perfectly blue flame is assured at the top of said tubes while the

wick remains unconsumed and will last for an entire season or longer.

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

1. In oil burners, a wick chamber and a pair of perforated combustion tubes seated about the top of said chamber, in combination with a plate at the bottom of the wick chamber having an opening and the outer wick chamber tube fixed to said plate about said opening, a drum resting on said plate and inclosing the burner and having an opening to admit a limited quantity of air into the space between said drum and the burner, and a perforated plate spanning the space between said drum and the burner below the combustion tubes, substantially as set forth.

2. In an oil burner, the lower burner-section consisting of the wick chamber and a diaphragm with air passages spanning the interior of said chamber at its bottom and at its top respectively, in combination with the upper burner section consisting of the united perforated combustion tubes and diaphragms with air passages spanning the interior of said tubes near their ends, and an inclosing drum extending from top to bottom of the burner and apart therefrom to form an air chamber between said parts, and a perforated diaphragm across said air chamber at about the base of the combustion tubes, substantially as set forth.

3. In an oil burner, the wick chamber and wick and a lower drum section surrounding said chamber and extending the full length thereof from bottom to top, in combination with a pair of perforated combustion tubes seated about the top of the wick chamber and a top drum section surrounding said tubes and forming a continuation of said lower drum section, and rods uniting the combustion tubes and the top drum section, whereby the combustion tubes and the top drum section are made bodily removable together, substantially as set forth.

Witness my hand to the foregoing specification this 23d day of May, 1894.

ATWELL J. BLACKFORD.

Witnesses:

V. R. ANDREW,
BLAKE SMITH.