C. McCONNELL.

OIL BURNER.

APPLICATION FILED MAR. 27, 1912.

1,100,141. Patented June 16, 1914.

Fig. 1.

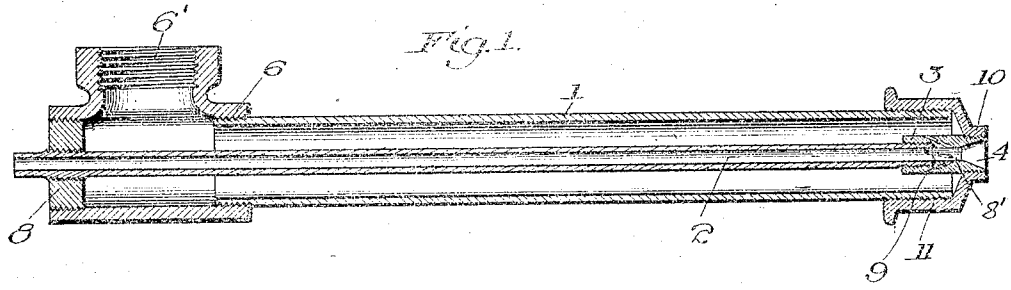


Fig. 2.

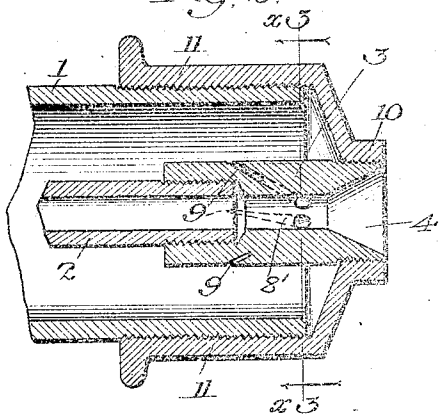


Fig. 3.

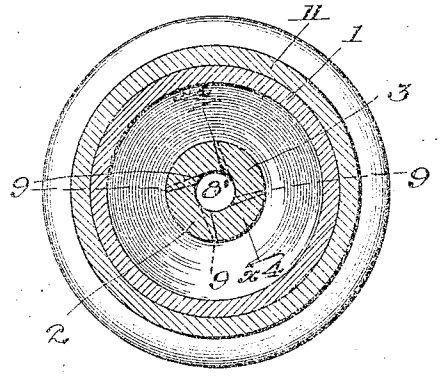


Fig. 4.

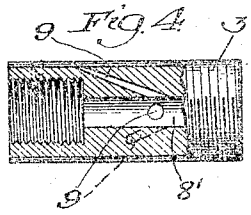
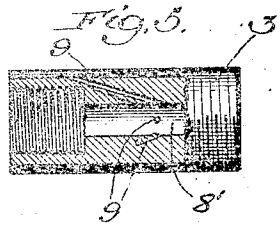


Fig. 5.



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UNITED STATES PATENT OFFICE.

CLINTON McCONNELL, OF LOS ANGELES, CALIFORNIA, ASSIGNOR TO MACHINERY AND ELECTRICAL COMPANY, OF LOS ANGELES, CALIFORNIA, A CORPORATION OF CALIFORNIA.

OIL-BURNER.

1,100,141. Specification of Letters Patent. Patented June 16, 1914.

Application filed March 27, 1913. Serial No. 686,637.

To all whom it may concern:

Be it known that I, CLINTON McCONNELL, a citizen of the United States, residing at Los Angeles, in the county of Los Angeles and State of California, have invented a new and useful Oil-Burner, of which the following is a specification.

The main object of the present invention is to provide a burner which will be adapted to spray and burn comparatively heavy oils with light pressure in distinction to the comparatively heavy pressure which is generally employed with such oils in connection with furnaces, etc. By using light pressure of say, two pounds or less per square inch, I am enabled to employ the burner in plants such as domestic furnaces in which high pressure is not available.

Other objects of the invention will appear hereinafter.

The accompanying drawings illustrate an embodiment of the invention, and referring thereto:

Figure 1 is a longitudinal section of the burner. Fig. 2 is a longitudinal section of the burner head on an enlarged scale. Fig. 3 is a transverse section on line x^3—x^3 in Fig. 2. Fig. 4 is a section on line x^4—x^4 in Fig. 3. Fig. 5 is a view similar to Fig. 4, showing a modified form of the invention.

The burner comprises an outer tube 1 for conveying air and an inner tube 2 for conveying oil, and a burner head or atomizing member consisting of a cylindrical member 3, connected to the inner tube 2 and provided with a burner outlet 4, communicating with the said tubes 2 and 1.

The outer tube 1 may be connected to any suitable source of air or steam supply, for example, to a T 6, one branch 6′ of which is adapted to receive an air or steam supply pipe, and the other branch of which is plugged as at 8 to receive and support the inner tube 2. The burner head 3 may be screwed onto the forward end of the inner tube 2 and screwed into a boss 10, extending forwardly from a screw cap 11, which screws on the forward end of the outer tube 1. The central passage or bore 8′ of the burner head is substantially continuous with the bore of tube 2 and the outlet 4 communicates with the forward end of said passage 8′, said outlet flaring forwardly to its discharge opening. A plurality of perforations or passages 9 extend through the wall of the member 3, communicating at their outer ends with the interior of the outer tube 1, and extending obliquely forward and inward and opening at their inner ends into the inner passage or bore 8′ of the member 3. These passages 9 are also preferably set in an angle with respect to radial direction so that they extend tangentially to the bore or passage 8′ in member 3, as shown in Fig. 3. The said passages 9 may be flared toward their outlet ends as shown in Figs. 2, 3 and 4, so as to provide for expansion of the issuing elastic fluid, or as shown in Fig. 5, they may be of uniform diameter throughout.

The operation is as follows: Oil is supplied to the tube 2 by any suitable means and passes forwardly in said tube and into the passage 8′ within the member 3. Air, steam or other elastic medium is supplied through the inlet 6′ and passes forwardly in the outer tube 1 and through the oblique passage 9 into the current of oil as it passes along the bore 8′. The spraying fluid passing obliquely into the body of oil in the general direction of motion of the oil and tangentially to the wall of the bore 8′, forces its way through the oil and at the same time imparts to the oil a rotary movement, these two actions serving to break up the oil and force it forwardly in a film or layer along the flaring or conical wall of the outlet 4, the passages 9 being preferably set substantially in alinement with the said wall. In this operation the entraining effect of the elastic medium on the oil, together with the resistance offered to the forward movement of the oil by the friction on the wall of the outlet 4, causes the oil to be spread in a thin film and to be broken up or atomized and thoroughly mixed with the air or elastic medium, the oil passing in a conical divergent sheet of atomized liquid and vapor from the discharge end of the outlet 4.

What I claim is:

An oil burner comprising an inner oil conveying tube, an outer combustion supporter conveying tube, an atomizing burner member communicating with said oil conveying tube and provided with a flaring ignition outlet, said burner member also pro-

vided with forwardly inclined combustion supporter inlets leading from said outer combustion supporter conveying tube to the interior wall of the burner member and tangential thereto, said inlets being inclined substantially parallel to the walls of said flaring ignition outlet.

In testimony whereof, I have hereunto set my hand at Los Angeles, California this 15th day of March 1912.

CLINTON McCONNELL.

In presence of—
ARTHUR P. KNIGHT,
VIOLET M. MURRAY.