

J. E. CALLAND.  
LIQUID FUEL BURNER.  
APPLICATION FILED NOV. 12, 1915.

1,176,340.

Patented Mar. 21, 1916.

2 SHEETS—SHEET 1.

Fig. 1.

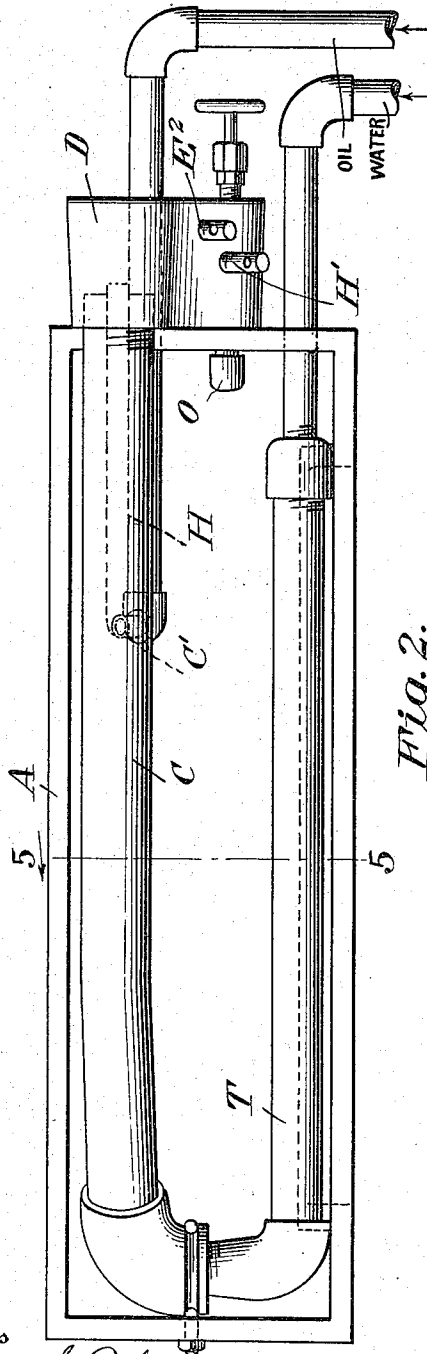
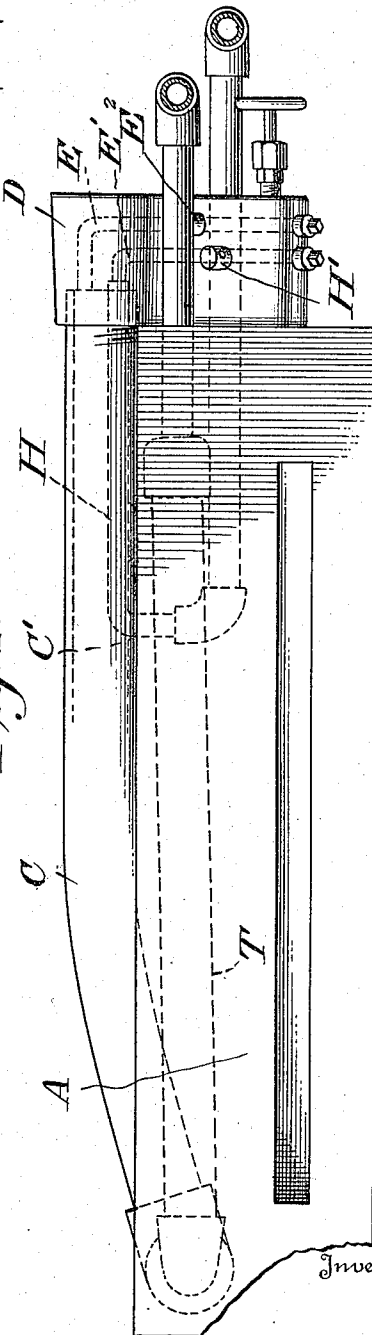


Fig. 2.



Witnesses

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2 SHEETS—SHEET 2.

Fig. 3.

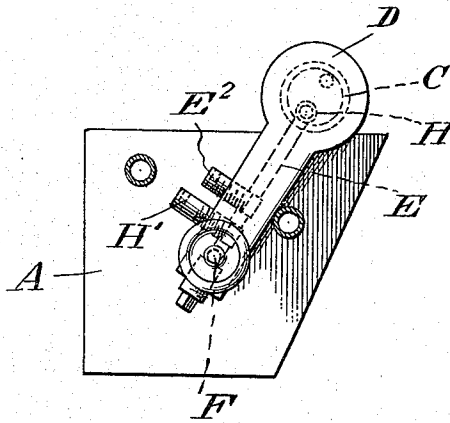


Fig. 4.

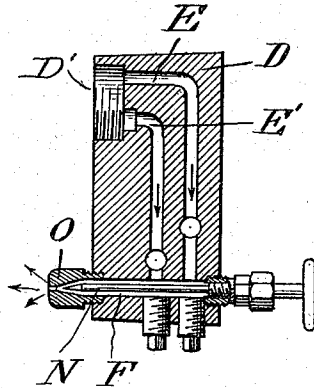
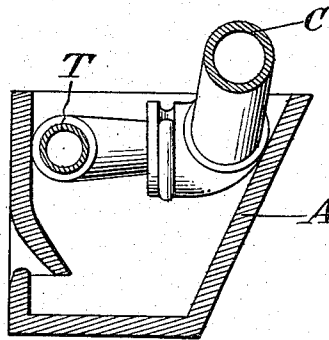


Fig. 5.



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# UNITED STATES PATENT OFFICE.

JOSEPH E. CALLAND, OF NEWCASTLE, INDIANA.

## LIQUID-FUEL BURNER.

1,176,340.

Specification of Letters Patent.

Patented Mar. 21, 1916.

Application filed November 12, 1915. Serial No. 61,108.

*To all whom it may concern:*

Be it known that I, JOSEPH E. CALLAND, a citizen of the United States, residing at Newcastle, in the county of Henry and State of Indiana, have invented certain new and useful Improvements in Liquid-Fuel Burners; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

This invention relates to new and useful improvements in crude oil burners and consists of a simple and efficient apparatus of this nature having various details of construction, combinations and arrangements of parts which will be hereinafter fully described, shown in the accompanying drawings and then specifically defined in the appended claim.

My invention is illustrated in the accompanying drawings, in which:

Figure 1 is a top plan view of the burner made in accordance with my invention. Fig. 2 is a side elevation. Fig. 3 is an end view. Fig. 4 is a detail sectional view through the casing containing the needle valve. Fig. 5 is a cross sectional view on line 5—5 of Fig. 1.

Reference now being had to the details of the drawings by letter, A designates a tray or receptacle with one side wall inclined and the opposite wall provided with an elongated slot disposed at an inclination to the perpendicular and through which air is adapted to be drawn, affording oxygen for combustion. Contained within the tray is a coil pipe C, and D designates a valve casing which has an opening D' for the reception of one end of said pipe. Ducts E and E' are formed within said valve casing and through which steam is adapted to pass, the said duct E being regulated by means of a valve E<sup>2</sup> and the duct E communicates with a horizontally disposed duct F. The duct E' communicates with a pipe H through which oil is introduced, said pipe H passing through an aperture C' in the pipe C, thence horizontally and the feeding of the oil is controlled by a valve H', the duct E' com-

municating with the duct F where it mixes with steam from the duct E and the mixture is controlled by the needle valve N, a nozzle O communicating with the end of the duct, as shown clearly in the sectional view of the drawings.

A pipe T communicates with the pipe C and forms means whereby water is conducted to the pipe C where it is converted into steam by the heat from the burner.

The operation of my invention will be readily understood and is as follows: Oil being fed through the pipe H is allowed to burn at the nozzle, the water contained in the pipe C being converted into steam and flame sprayed from the nozzle will tend to vaporize the oil as it passes through the pipe H, the steam in the water commingling when they come together in the duct F, the feeding of the vaporized fuel being regulated by the needle valve. The air for combustion purposes enters the slot in the side of the tray and commingles with the vaporized fuel as it makes exit from the nozzle, the heat of the valve casing assisting in converting the water into steam and heating the oil as it passes through the pipe H.

What I claim to be new is:—

A crude oil burner comprising a tray having an elongated opening formed in one wall thereof, a valve casing at one end of the tray and provided with ducts leading through the same and communicating with a recess, said ducts communicating with a transverse passageway, a hollow threaded bearing plug mounted in the latter, a needle valve having threaded connection with said plug, a nipple fitted to one end of said valve casing and communicating with the passageway and in which the free end of the needle valve works, a pipe fitted in said recess and communicating with one of said ducts, a pipe leading from the other duct through the wall of the pipe in said recess, and a third pipe passing through the tray and communicating at one end with the pipe which is held in said recess.

In testimony whereof I hereunto affix my signature in presence of two witnesses.

JOSEPH E. CALLAND.

Witnesses:

E. T. WHITE,  
GERTRUDE MACY.