Feb. 26, 1946. B. F. CASTLE 2,395,655

OIL BURNER

Filed Aug. 20, 1943

Fig. 1

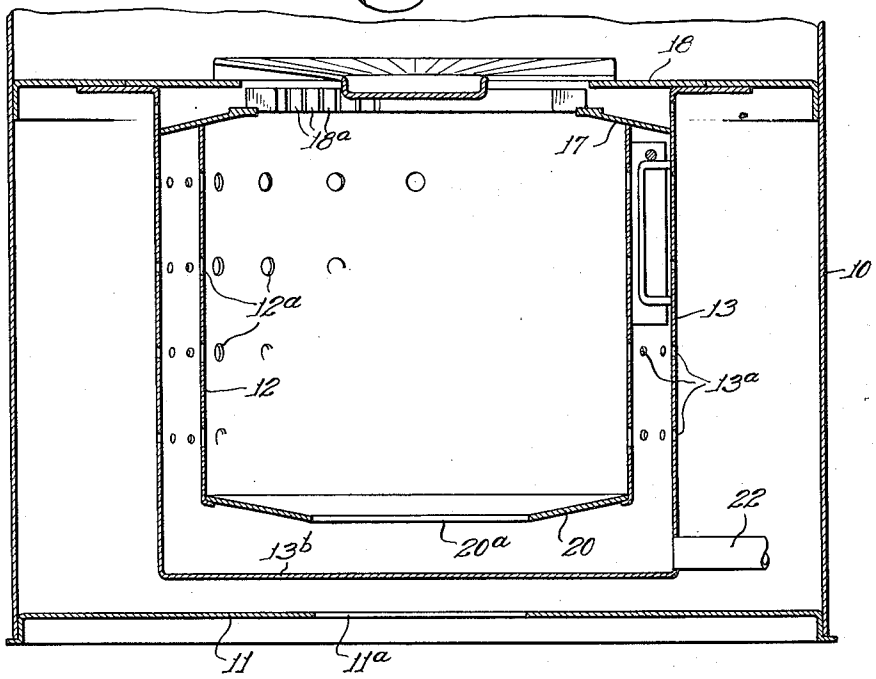
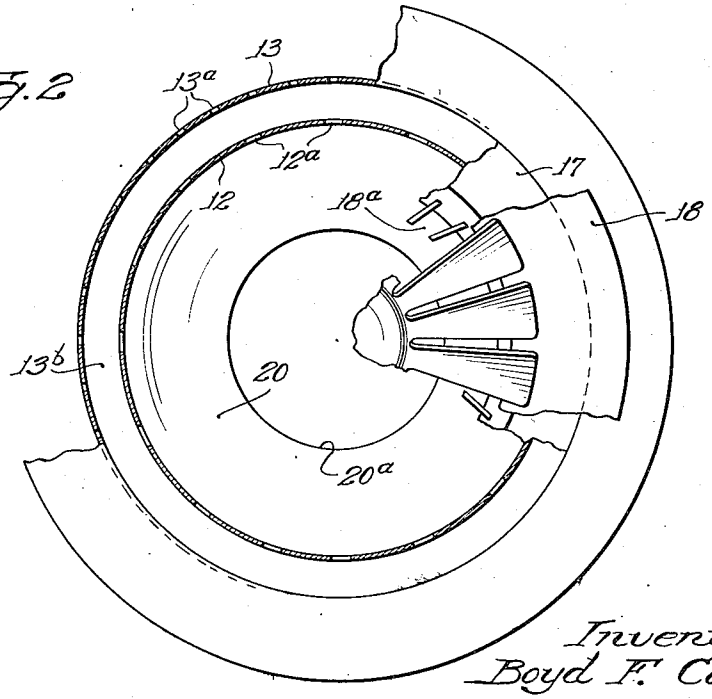


Fig. 2



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OIL BURNER

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2 Claims. (Cl. 158—91)

This invention relates to oil burners and has for an object the provision of a device of that character which is efficient, economical and clean in operation. It is characterized by the provision of a mixing chamber into which the air for combustion is drawn or forced in jets which mix with the gas or fuel vapor, drawn into the mixing chamber by the aspirating action of the jets and the mixture is in turn jetted into the combustion chamber. A novel and valuable feature of my new burner is the provision of a ring or collar, below all of the air holes and above the fuel oil.

In the accompanying drawing, I have illustrated one embodiment of my invention.

Figure 1 is a vertical sectional view of a burner construction illustrative of the invention; and

Figure 2 is a broken top plan view of the structure shown in Fig. 1.

Like numerals refer to like elements throughout the drawing in which 10 indicates a heating drum, having a bottom 11, centrally apertured at 11*a* for admission of air for combustion. Mounted within the drum 10, is the burner proper, comprising a shell 12 surrounded by and spaced from a sleeve 13. The shell 12 is provided with a plurality of apertures 12*a* and the sleeve 13 is similarly provided with a plurality of smaller apertures 13*a*, in alignment with apertures 12*a*.

The sleeve is provided with a bottom 13*b* with which it forms a pot for the reception of fuel oil. Projecting inwardly and downwardly from shell 12 below the apertures 12*a* therein, is a ring 20, centrally apertured for flow of air at 20*a*. This ring lies above the pot bottom 13*b*.

A partition 17 extends from sleeve 13, inwardly thereof and below the uppermost row or rows of apertures 13*a*, the partition being also arranged to close the space between the sleeve and shell at the top thereof, such space constituting a mixing chamber. Partition 17 is extended inwardly of the shell 12 at the top thereof and coacts with an overlying plate 18 to form a chamber having inwardly-directed apertures 18*a* to direct air into the gases arising from the combustion chamber which is formed by the shell 12.

Oil or other fuel under such regulation or control as may be provided flows into the pot through duct 22.

It is to be understood that the apparatus, illustrated and described, may be mounted in any suitable housing for heating purposes and may be operated under natural or forced draft or both.

In the operation of my device, when oil is supplied to the pot and ignited, air will flow inwardly through apertures 13*a* into the mixing chamber and therefrom through the apertures 12*a* into the combustion chamber. This flow sets up an aspirating action which induces a flow of gas or vapor from the bottom of the pot beneath the ring 20 into the mixing chamber where it mixes with the air and the mixture is jetted into the combustion chamber where it burns. The flames are clean and the combustion is efficient. The height of the zone of combustion depends upon the amount of fuel supplied. With a limited supply of oil a clean pilot fire may be maintained which will automatically increase in volume with an increase in fuel supply.

At high fire, if any unburned gas is rising from the pot, it will be scavenged by the pure air flowing through apertures 18*a*.

I do not wish to be limited to the specific embodiment shown and described except as the claims, properly evaluated with respect to the prior art may so limit them.

What I claim is:

1. An oil burner comprising a pot member having an imperforate bottom and a vertical wall constituting a sleeve, means to supply oil to said pot, a shell coaxial with and spaced from said sleeve, said shell terminating short of the bottom of said pot member and defining a combustion chamber, said sleeve and shell forming a mixing chamber substantially co-extensive with said combustion chamber and being provided with aligned apertures constructed for cooperation to form aspirating means, said apertures being spaced vertically and horizontally in said sleeve and shell, said mixing chamber being in communication with the interior of said pot at its lower end, means to close said mixing chamber at the top thereof, and a ring extending inwardly from said shell below the lowermost apertures therein and overlying a portion of the bottom of said pot, whereby in normal operation air flowing through the apertures in said sleeve and shell will form aspirating jets thereby inducing oil vapor from said pot into said mixing chamber and into combustible mixture with said air, said mixture being aspirated into said combustion chamber.

2. An oil burner comprising a pot member having an imperforate bottom and a vertical wall constituting a sleeve, means to supply oil to said

pot, a shell coaxial with and spaced from said sleeve, said shell terminating short of the bottom of said pot member and defining a combustion chamber, said sleeve and shell forming a mixing chamber substantially co-extensive with said combustion chamber, and being provided with aligned apertures constructed for cooperation to form aspirating means, said apertures being spaced vertically and horizontally in said sleeve and shell, said mixing chamber being in communication with the interior of said pot at its lower end, means to close said mixing chamber at the top thereof, and a ring extending inwardly from said shell below the lowermost apertures therein and overlying a portion of the bottom of said pot, said ring being downwardly and inwardly inclined from said shell, whereby in normal operation air flowing through the apertures in said sleeve and shell will form aspirating jets thereby inducing oil vapor from said pot into said mixing chamber and into combustible mixture with said air, said mixture being aspirated into said combustion chamber.

BOYD F. CASTLE.