

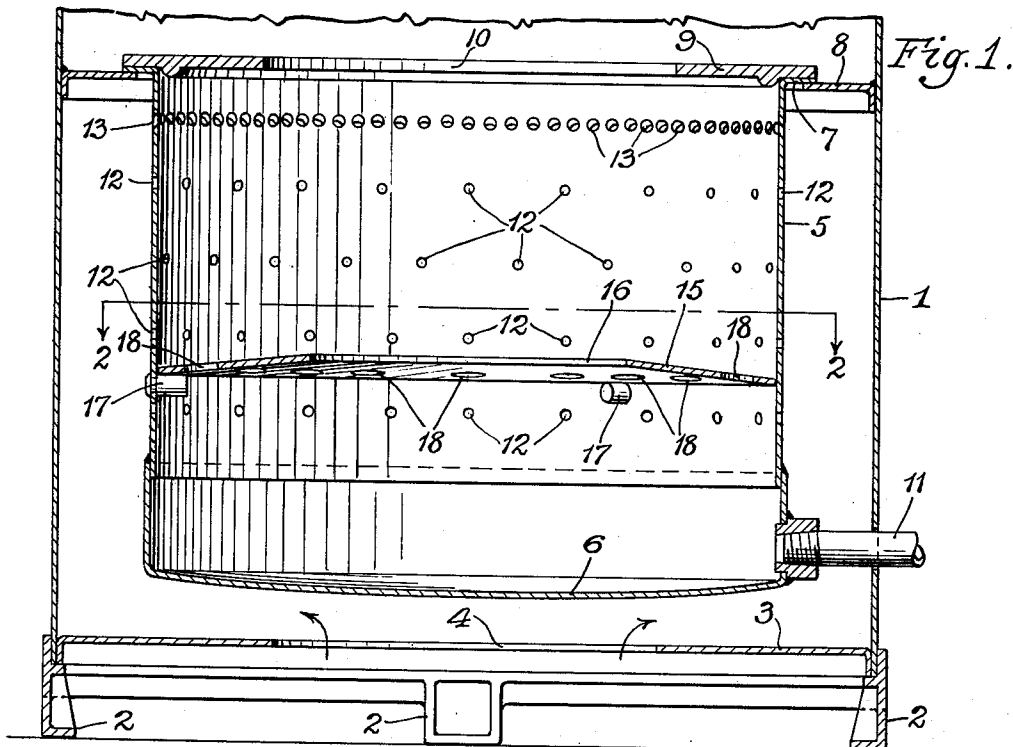
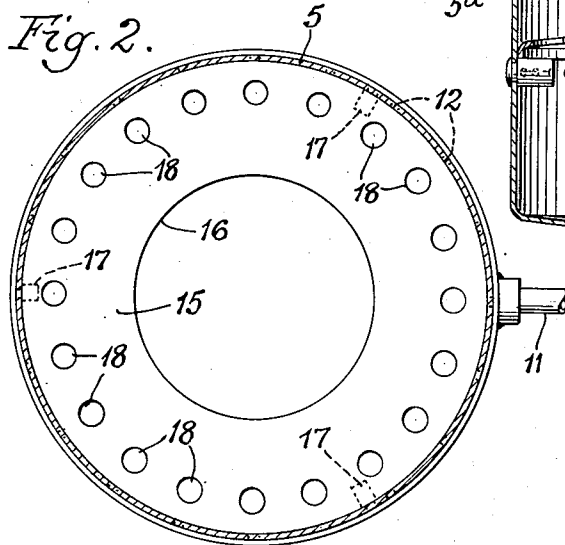
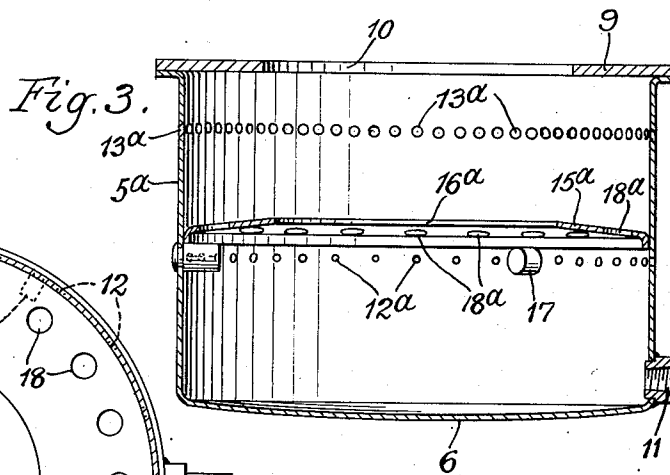
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POT TYPE BURNER AND PILOT BAFFLE THEREFOR

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POT TYPE BURNER AND PILOT BAFFLE
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3 Claims. (Cl. 158—91)

My invention relates to an improvement in pot type oil burners and has for a particular purpose the provision of an improvement in pilot rings for such burners.

Other purposes will appear from time to time throughout the specification.

I illustrate my invention more or less diagrammatically in the accompanying drawing, where-
in—

Figure 1 is a vertical axial section;

Figure 2 is a section on a reduced scale on the line 2—2 of Figure 1; and

Figure 3 is a vertical axial section through a variant form;

Like parts are indicated by like characters throughout the specification and drawing.

Referring to the drawing, I generally indicate an outer housing of any suitable shape and proportion but which I herein illustrate as generally cylindrical. It may be supported by any suitable means, for example, the supporting legs 2. 3 indicates a bottom partition having a central air inlet aperture 4. 5 indicates the pot, having a bottom portion 6. 7 is an outwardly extending flange at the top of the pot, which may rest upon any suitable support 8, such as the annular ring inwardly extending from the inner wall of the housing 1. 9 is any suitable flame ring, having an aperture 10.

11 is a liquid fuel pipe, which may extend from any suitable source of liquid fuel supply. It will be understood that the flow of the liquid fuel along the pipe may be controlled in any suitable manner, for example by the usual float valve, which does not of itself form part of the present invention. What is essential is that some means are provided for manually or automatically controlling the flow of fuel along the pipe 11.

The wall of the pot 5 is provided with a plurality of primary air inlets 12, which are herein shown as located at various levels and aligned horizontally in a plurality of rows. 13 indicates a plurality of secondary air inlets formed in an upper portion of the pot wall and preferably upwardly and inwardly inclined. It will be observed that the secondary air inlets are more closely spaced and of larger size than the primary air inlets 12. It will be understood that combustion is preferably at all times maintained in or above the pot, the rate of combustion being controlled by the rate of flow of the liquid fuel inwardly along the pipe 11. At the so-called pilot stage of minimum liquid fuel flow, combustion takes place adjacent the level of the

lowest of the primary air inlet apertures 12. I illustrate for example a pilot ring generally indicated as 15, and centrally apertured as at 16. The pilot ring may be supported in any suitable fashion, for example, upon supports or pins 17, inwardly extending from the wall of the pot 5.

The pilot ring is further provided with a plurality of apertures 18 intermediate its inner and outer edges and preferably arranged equi-distant from the center of the pot, and are shown as nearer the outside than the inside of the ring, and are spaced or positioned in relation to the adjacent primary air inlet apertures located just below. It will be understood that when the baffle 15 is located just above the lowest row of primary air inlets 12, a jet of air inwardly directed below the baffle ring passes inwardly in alignment with each one of the apertures 18 in the ring. When the parts are so disposed, the result is a species of "fly spray" effect, with the inflowing jet of air through each of the lowest row of primary apertures 12 causing a down draft through the aperture 18 just above it. It will be understood, however, that in the event the primary air inlets are located farther below or out of alignment with the apertures 18 in the baffle, the circulation may be in the opposite direction.

In the employment of my device I find that the pilot fire is stabilized and that at the higher stages of combustion a valuable recirculating mixing means is provided for obtaining a superior mixture of the inflowing air with the vaporized liquid fuel. It will be understood, of course, that at all stages of combustion the fuel which flows upon the bottom 6 is vaporized by the heat of combustion occurring above in the pot. The level of this combustion at the pilot stage is adjacent the pilot ring 15. As the supply of fuel along the pipe 11 is increased, the level of combustion rises, and at the high fire all of the apertures 12 serve as means for supplying primary air, and the final mixture completed by the secondary air flowing in through the secondary air inlet apertures 13 burns at or above the level of the flame ring 9. At the pilot stage the air inlet apertures 12 above the pilot ring serve as a secondary air supply for the mixture which is formed by the vaporized hydrocarbon and the primary air flowing in through the lowest row of primary air apertures 12. The recirculation of the mixture downwardly through the holes 18 definitely stabilizes the fire at the pilot stage.

Referring to Figure 3, the operation of the device is the same except that only a single row of primary air inlets 12a is shown in the pot 5a.

The only holes in the pot above the pilot ring 18a are the secondaries 13a. The pilot ring has the central aperture 16a and apertures 18a near the outer edge.

It will be realized that while I have shown and described an operative device, still many changes might be made in the size, shape, number, arrangement and disposition of parts without departing materially from the spirit of my invention and I wish, therefore, that my showing be taken as in a large sense diagrammatic.

I claim:

1. In a pot type burner, a burner pot having a circumferential side wall having a plurality of primary air inlet apertures therein, said apertures being located in a single horizontal row extending about the pot, means for supplying secondary air to an upper portion of the pot, means for supplying a liquid fuel to the lower portion of the pot, and a centrally apertured pilot ring located above said single row of primary air inlet apertures but substantially below the level of admission of secondary air to the pot, said ring having adjacent its outer edge a plurality of apertures substantially smaller than the central aperture of the ring, one of said primary air inlet apertures being located closely below and in radial alignment with each of said smaller apertures in the pilot ring and sufficiently close thereto to cause a down draft through such aperture in response to the inward flow of air into the pot through said primary air inlet aperture.

2. In a pot type burner, a burner pot having a generally cylindrical side wall, said side wall having a plurality of air inlets therein, means for supplying a liquid fuel to the pot, a baffle ring in said pot, having a central aperture, the outer edge of said ring terminating against the wall of the pot, said ring being provided with a plurality of aspirating apertures substantially smaller than the central aperture and arranged in a circle in the ring, one of the air inlet apertures being located closely beneath and in radial alignment with each of said aspirating smaller ring apertures.

3. In a pot type burner, a burner pot having a circumferential side wall and an open end, said side wall having a row of air inlet apertures extending circumferentially thereabout, means for supplying a liquid fuel to the pot, a baffle ring in said pot, having a central aperture, the outer edge of said ring terminating against the wall of the pot, said ring being provided with a plurality of aspirating apertures substantially smaller than the central aperture and arranged circumferentially about the ring and adjacent its outer edge, each said aspirating aperture being aligned with an air inlet aperture in the pot wall, said air inlet apertures being located closely adjacent the ring and each in radial alignment with one of the aspirating apertures, said ring being located between the air inlet apertures and the open end of the pot.

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