This invention which relates to oil burners of the pot-type is concerned primarily with means providing for a pilot light which will operate dependably and effectively, particularly in the low fire stage, and free of trouble in the presence of widely varying drafts.

In this improved burner we employ a pot-like container having a cylindrical body united to a cup-shaped bottom. The pot bottom may be inclined downwardly toward the center, and be provided at one point with a radial channel that is substantially level. The pilot utilizes an elongated level-bottom housing that is affixed to the pot bottom and extended radially from a wall of the container to a point short of its center. This housing end facing toward the container center is open but elsewhere it is closed, so that a pilot flame originating at its bottom vaporizes the liquid fuel moving toward the center. As a result, the pilot flame readily heats the housing walls and bottom which are spaced from the container for greater efficiency.

To make its admitting into the pilot housing a supply of air directly from a point exteriorly of the container whereby to promote maintenance of the pilot flame. The protection thus afforded within the narrow confines of the housing wherein the pilot light originates permits its operation to continue more or less independently of external conditions such as variations in the draft. As a result, vaporization of fuel within the container will be accelerated and promoted.

A pot-type burner with provision for a pilot flame pot可根据 this invention may be produced at small expense, and it involves provision for a number of conditions in its use.

A more satisfactory operation of the burner is assured, particularly in the initial stages of its operation. The connection is also studied in accordance with the suggestive embodiment set forth in the accompanying drawing, wherein—

Figure 1 is a vertical section through a space heater with the pot-like burner equipped with the pilot device of this invention; Fig. 2 is a perspective view of the bottom part of the burner and Fig. 3 is a vertical section, taken on line 3—3 of Fig. 2.

In Fig. 1 there is illustrated a space heater having a drum D which is mounted within a cabinet C in spaced relation thereto. Above the drum bottom 10 there is mounted a pot-type burner P which may be suspended in its operative position as by means of a baffle plate 11 which is affixed within the drum. A fuel pipe 12 leads from the closed end of a fuel supply source to the burner pot to connect therewith at a point close to its bottom.

The present pot burner comprises a cylindrical shell-like body 15 provided with air inlet openings 16 arranged in rows or otherwise, and formed at its top with an outturned flange 17 for resting upon the baffle plate 11 when the burner is suspended therefrom. The cylindrical body which is fitted to a bottom 20 that may be inclined downwardly toward its center. As shown, the bottom is formed with an upstanding marginal flange 18 having, if desired, an offset 22 to provide an upper section 23 which in the lower portion of the body 15 when assembled therewith. The bottom is united to the body in any approved way removable therewith, and in the ensuing description these two parts of the burner pot will be treated as one.

Extending inwardly from one side of the bottom 20 is a channel 25 which is substantially level and co-level with the lowermost part of the pot bottom in its center region (see Fig. 3). Positioned radially within this channel is an elongated in housing H open only upon its inner end. This housing is provided with a bottom 26 which supports upstanding sides 27 spaced apart about one inch, and an outer end 28, the latter being joined also to the sides and extending angularly outwardly to 29 to provide a partial top as well. The two sides slant upwardly toward their inner ends and support between them a removable closure which may take the form of an elon gated plate 30 having side flanges 31 and an apron 32 at its inner end. This closure, when fitted in place, cooperates with the top wall 29 in completing an enclosure which is open only at the inner end of the housing for a distance of perhaps 2½ inches which extends upwardly to the lower edge of the apron.

The housing bottom 26 is provided with a downsett foot 35 near its inner end. This foot is rested in the channel 25 to which it may be secured as by welding. The remainder of the housing bottom 26 is thereby sustained off the channel bottom and clear of its sides as well. The outer end wall 28 of the housing is apertured to receive a neck 37 extended from one end of a bushing 38, the neck being flared out and around to engage the inner face of the end wall 28. The neck is extended to receive a brazed fillet 39 around the bushing at its juncture with the end wall 28, and rigidifies the connection of the bushing to the housing. This bushing is internally threaded to receive the fuel pipe 12 which is operatively joined thereto. The inner end of this bushing constitutes a fuel inlet which is located adjacent the bottom side of the bushing, as at 30, and is so disposed as to form an angle with the axis of the housing.

An opening in the forwardly extending top 29 is provided for reception therethrough of an air conduit 42. As shown this conduit consists of a pipe which is obliquely disposed within the housing in such an angular relation to its bottom 26 as to project a stream of air thereupon at a point which is distant from the fuel inlet by about 1½ inches. This conduit which may be readily extended to suit the extension of the housing serves to protect the flame and to accelerate vaporization of the incoming fuel. When a high fire stage is reached, the pot-like housing offers no interference whatsoever since the fuel and air supply then operate to maintain the flame at a higher-up elevation in the normal manner.

Spacing of the pilot housing bottom 26 from the bottom 20 of the burner pot promotes quick and effective heating of the fuel entering therewith. The heat is not transferred by conduction to the pot bottom (except in only a very minor degree), but remains largely within the housing to promote vaporization of the fuel moving therethrough. The apron 32 depending at the inner end of the cover plate 30 tends to confine the flame within the housing and maintain the closeness therewith.

The angle at which the air stream is projected into the pilot housing is important, as is also the distance away from the fuel inlet at which the air strikes the housing bottom 26 to mix with the liquid fuel entering thereinto. While the air and the fuel are mixing, the former will be in the inward advance of the latter along the bottom 26 of the pilot housing situated at the inner end. If a strong down draft is encountered at that point, the flame may be driven back and even outwardly to some extent, perhaps as far as the point where the air stream joins with the fuel, but the flame is extinguished when the air stream is caused to move outwardly. Under normal conditions the inwardly moving air stream within the housing will tend to hold the flame toward the open inner end thereof.

We claim:

1. In a device of the kind described a pot-like con-

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PILOT FOR OIL BURNERS
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2 Claims. (Cl. 158—91)

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3. A container for the burning of liquid fuel provided with sides and a bottom, an elongated pilot housing fixedly mounted within the container and extending radially from a side wall thereof toward its center, the housing being provided with a substantially level bottom disposed above the container bottom in spaced relation thereto, spaced sides upstanding from the bottom, an outer end joined to the sides and extending angularly forwardly to provide a partial top for the housing and a top closure carried by the sides and in engagement with said partial top, the inner end of the housing being open for the full distance between its sides, a fuel inlet extending through a side of the container and into the pilot housing having its point of discharge close to the outer end of its bottom, and a conduit extending through a side of the container and the partial top of the pilot housing for delivery into the housing of atmospheric air in a stream that is directed inwardly toward the housing open end and downwardly toward its bottom at a point medially of its length and inwardly of the point of discharge of liquid fuel thereinto, thereby to promote vaporization and combustion of the fuel at a point outwardly and away from the open end of the housing and to urge a flame originating at such point inwardly and toward the open end of the housing, the arrangement being such that in low fire the flame originating within the housing will transmit its heat by conduction to the housing bottom and sides without substantial dissipation to the container bottom, thereby to further promote vaporization of the fuel within the housing.

2. In a device of the kind described a pot-like container for the burning of liquid fuel provided with sides and a bottom, an elongated pilot housing fixedly mounted within the container and extending radially from a side wall thereof toward its center, the housing being provided with a substantially level bottom disposed above the container bottom in spaced relation thereto, spaced sides upstanding from the bottom, an outer end joined to the sides and extending angularly forwardly to provide a partial top for the housing and a top closure carried by the sides and in engagement with said partial top, the inner end of the housing being open for the full distance between its sides, means depending from the housing bottom at its forward end in engagement with the container bottom to provide a fixed support for the housing at that point, a fuel inlet extending through a side of the container and into the pilot housing having its point of discharge close to the outer end of its bottom, and a conduit extending through a side of the container and the partial top of the pilot housing at an angle with respect to the bottom of the housing for delivery into the housing of atmospheric air in a stream that is directed inwardly toward the housing open end and downwardly toward its bottom at a point medially of its length and inwardly of the point of discharge of liquid fuel thereinto, thereby to promote vaporization and combustion of the fuel at a point outwardly and away from the open end of the housing and to urge a flame originating at such point inwardly and toward the open end of the housing, the arrangement being such that in low fire the flame originating within the housing will transmit its heat by conduction to the housing bottom and sides without substantial dissipation to the container bottom, thereby to further promote vaporization of the fuel within the housing.

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