Nov. 18, 1924. 1,516,374

E. DARBY

OIL BURNER

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Fig. 1.

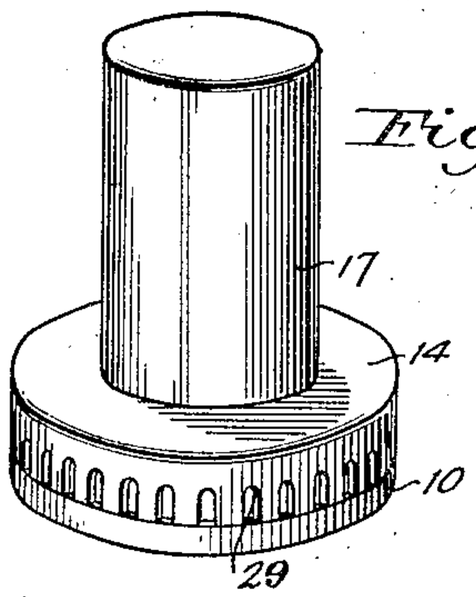


Fig. 5.

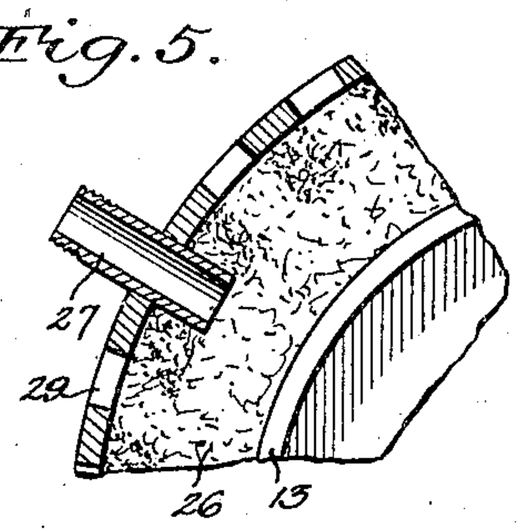
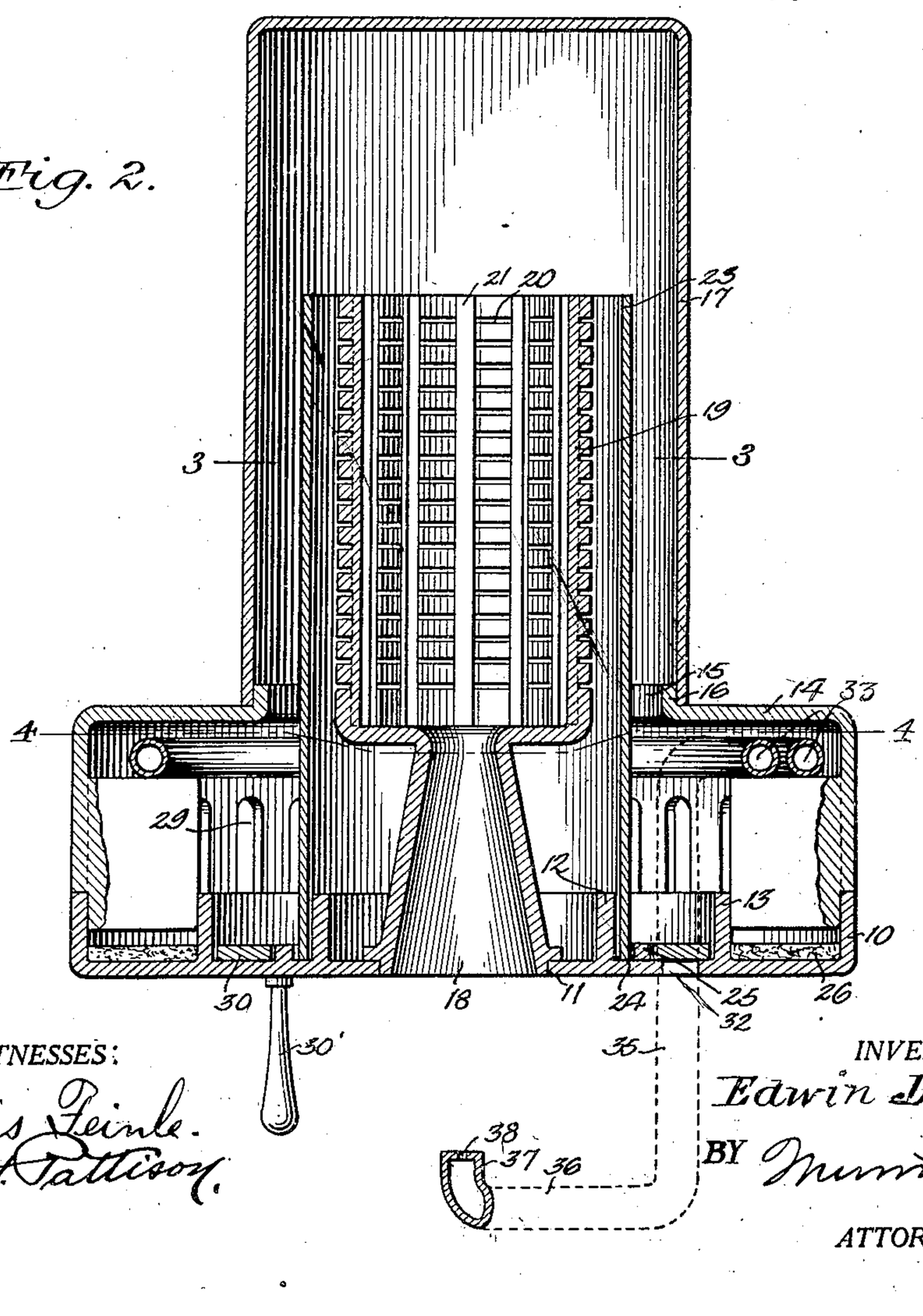


Fig. 2.



WITNESSES:

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Fig. 3.

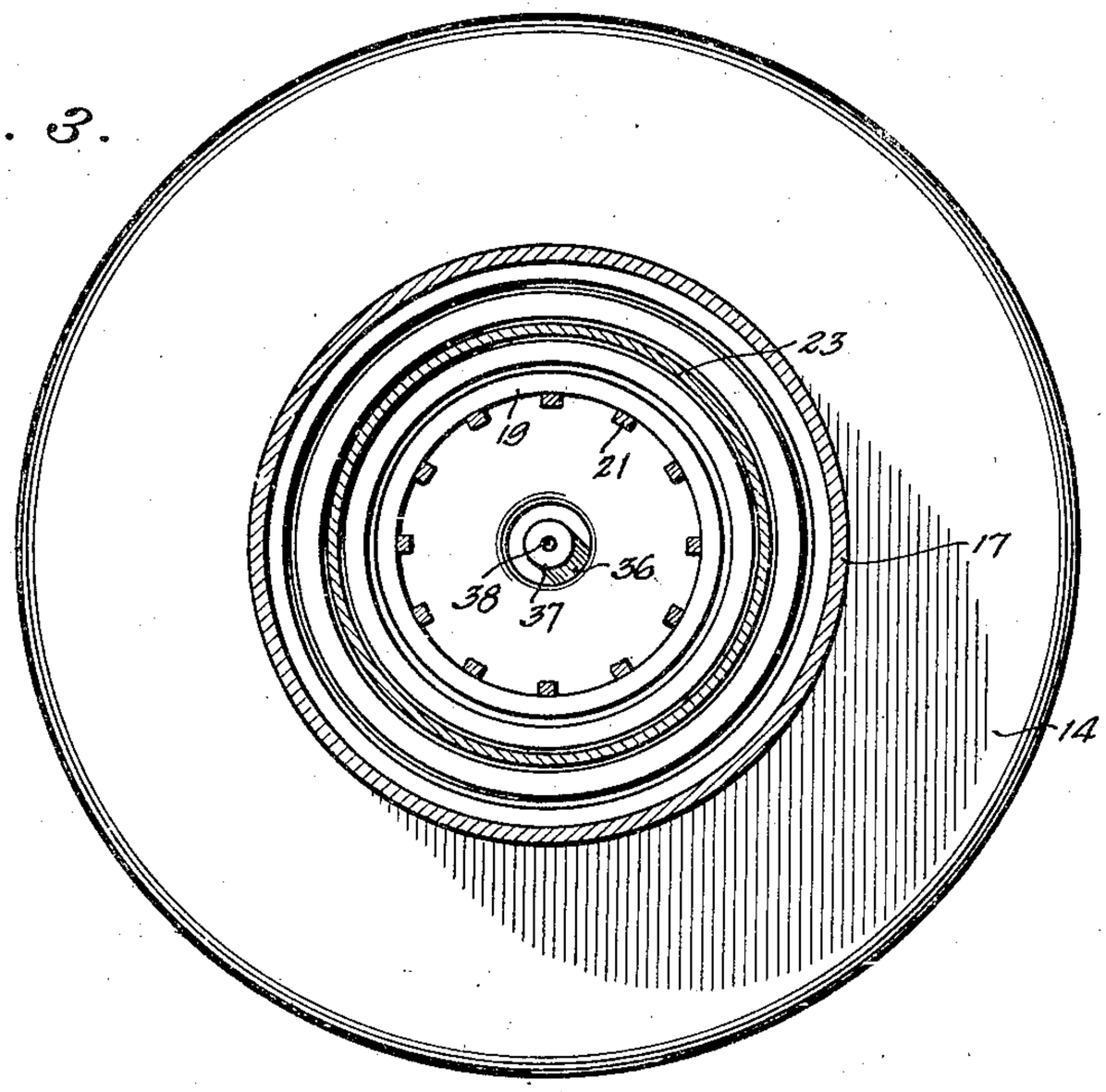
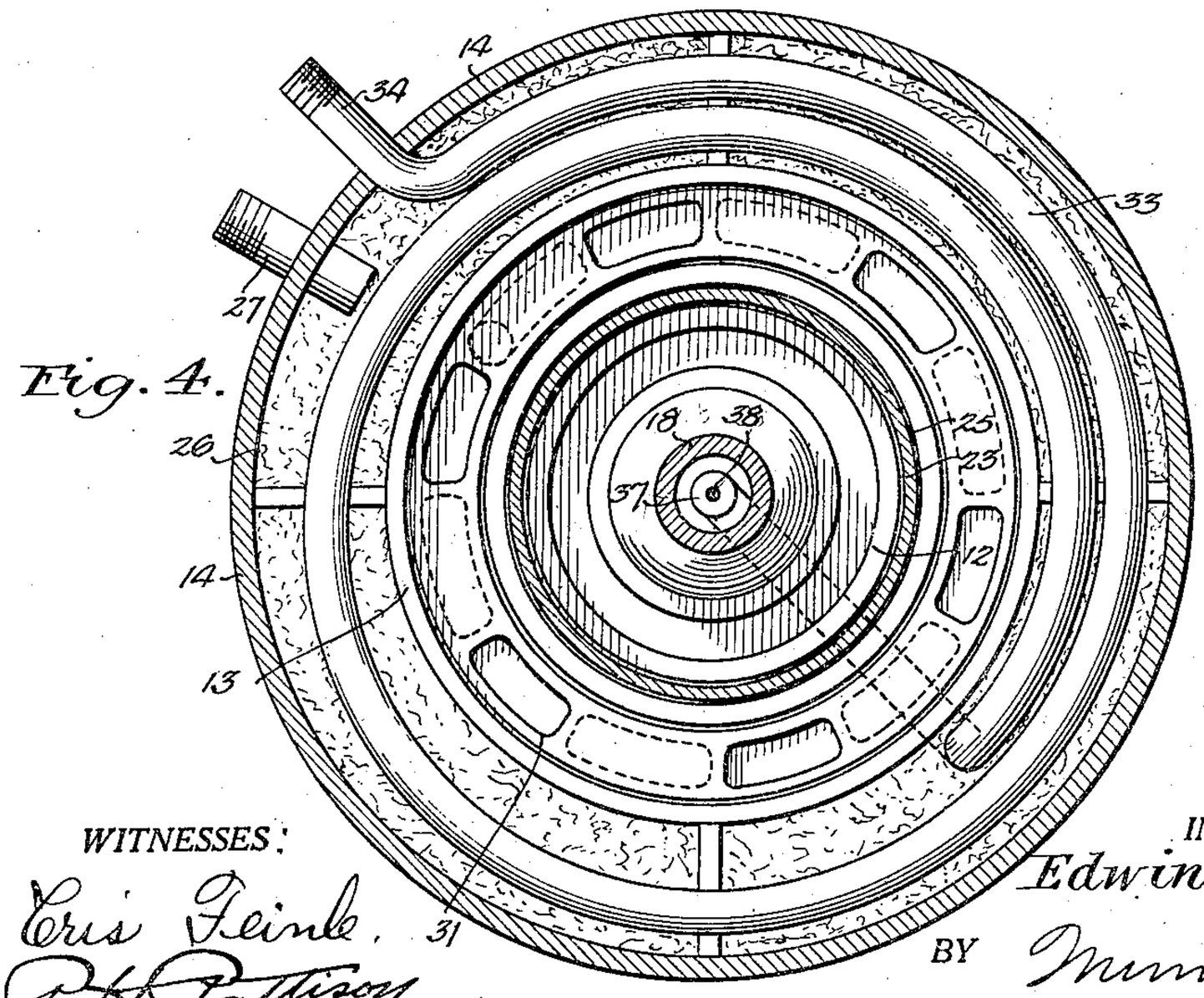


Fig. 4.



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UNITED STATES PATENT OFFICE.

EDWIN DARBY, OF WATERLOO, IOWA, ASSIGNOR OF ONE-HALF TO CHESTER J. SHAW, OF CASTLE HILL, IOWA.

OIL BURNER.

Application filed February 15, 1924. Serial No. 693,044.

To all whom it may concern:

Be it known that I, EDWIN DARBY, a citizen of the United States, and a resident of Waterloo, in the county of Black Hawk, and State of Iowa, have invented a new and Improved Oil Burner, of which the following is a full, clear, and exact description.

The present invention relates to new and useful improvements in oil burners, and it pertains more particularly to oil burners of the retort type.

It is one of the primary objects of the invention to provide a new and improved oil burner which will constitute a heater.

With the above and other objects in view, reference is had to the accompanying drawings, in which—

Figure 1 is a perspective view of a burner constructed in accordance with the present invention;

Fig. 2 is a vertical sectional view on an enlarged scale;

Fig. 3 is a horizontal sectional view taken on the line 3—3 of Fig. 2;

Fig. 4 is a horizontal sectional view taken on the line 4—4 of Fig. 2, and

Fig. 5 is a detail sectional view of a portion of the burner showing the manner in which the priming oil is introduced to the burner.

Referring more particularly to the drawings, the burner comprises a pan-like member 10 and such pan-like member 10 is formed with a central opening 11 and two internal concentric flanges 12 and 13. Adapted to rest upon the pan-like member 10 there is a housing 14, and such housing has a central opening 15 defined by an upstanding flange 16. The reference numeral 17 designates a cover or similar member which is supported upon the housing 14 by engagement with its flange 16, as more clearly shown in Fig. 2.

Supported by the bottom wall of the member 10 and in the opening 11, there is a tapered inlet member 18. Projecting from the upper end of this member 18, there is a cylindrical member 19, which latter is preferably cast integral with the member 18 and is provided with a plurality of circumferentially arranged radial openings 20. Extending longitudinally of this member 19, upon its inner surface, there are spaced ribs 21, which are preferably cast integral with the member 19 and form reinforcing elements therefor. Surrounding the member 19 and spaced therefrom there is a cylindrical member 23, and this member 23 rests upon the bottom wall of the member 10, as designated by the reference character 24, said member 23 enclosing the flange 12 of the bottom wall of the member 10 and maintained in position by a relatively low flange 25. The pan-like member 10 is provided with asbestos or other absorbent material 26 in the space formed by the flange 13 and the side walls of said pan-like member, and leading through the side wall of the pan-like member 10 in proximity to this absorbent material 26, there is a pipe 27, which is connected to a suitable oil supply and controlled in any suitable manner by a valve (not shown).

The housing 14 is provided in its side wall with a plurality of openings 29, and such openings form the means for the passage of the flame from the space between the cylindrical member 23 and the cover member 17.

Mounted between the relatively low flange 25 and the flange 13, there is a circular plate 30, provided with a plurality of openings 31. The bottom wall of the pan-like member 10 is provided with a plurality of openings 32, and the plate 30 is adapted to be rotated by means of a handle 30′ in order that its openings may be brought into register with the openings 32, or partially so, to permit of regulating the flow of air upwardly through the bottom wall of the pan-like member 10 to the interior of the housing 14, during the starting operation of the burner.

Mounted in the upper part of the housing 14, there is one or more coils of pipe, as designated by the reference numeral 33, and one end of the length of pipe so coiled, as shown at 34, is passed through the side wall of the housing 14. The other end is shaped to form a downward projecting portion 35 having a right angular portion 36 terminating in a vertical portion 37, perforated, as at 38, to permit the flow of gas upward into the member 18, and from thence into the member 19.

The burner operates in the following manner:

Oil is admitted by means of the pipe 27, to the absorbent material 26, and when suffi-

cient quantity thereof has been absorbed by the material 26, the same is ignited. At the same time, oil is fed through the coils 33 and the oil in these coils 33 under the influence of the heat of the ignited oil carried by the absorbent material 26, is transferred into gas. The gas then passes by way of the pipe 35 to the extension 37 thereof and is projected through the perforations 38 therein upward through the member 18 to the interior of the member 19. In its travel upward, a certain amount of air is mixed therewith and this is ignited as it leaves the member 19 and passes into the space between the member 23 and the cover member 17, and out through the openings 29.

As long as the burner is ignited gas will be generated in the coils 33 and the same will continue to operate. When, however, the burner is extinguished, due to the absence of heat, gas is no longer generated in the coils 33. During the operation of the burner, air is admitted through the openings 29 and is controlled, to a certain extent, by adjustment of the openings in the circular plate 30 relative to the openings in the bottom wall of the pan-like member 10.

What is claimed is:

1. A liquid fuel burner comprising a pan-like member having a central opening, a plurality of inwardly disposed concentric flanges formed on the bottom of said pan-like member, a housing supported on the peripheral edge of said pan-like member, said housing having an opening in its top wall concentric with the opening in the pan-like member, a flange defining the opening in the top wall of the housing, a cover supported on the housing and embracing said flange, a tapered member forming an inlet and supported by the pan-like member in the opening thereof, said inlet member having a plurality of laterally disposed openings therein, and a cylindrical member supported by the pan-like member and projecting upwardly between the inlet member and said cover.

2. A liquid fuel burner comprising a pan-like member having a centrally-disposed opening, an inlet member mounted in said opening and having an enlarged upper end formed with laterally disposed openings, a housing having a plurality of openings in its side walls, a cover supported by said housing, a cylindrical member supported on the pan-like member and interposed with respect to the flared end of the inlet member and said cover, and means for supplying gas to said inlet member, said means comprising a coil mounted within the housing and a pipe extending therefrom and having a discharge nozzle in axial alinement with said inlet member.

3. A burner comprising a pan-like member, a plurality of spaced upstanding concentric flanges on the upper face of the bottom of said pan-like member, a housing supported by said housing, an intake member having an upper enlarged end and supported by the pan-like member and engaging the same between two of said concentric flanges, a cylindrical member interposed between said cover and said intake member, the lower end of said cylindrical member embracing the innermost flange, a plurality of openings formed in the bottom of the pan-like member and between two of the flanges thereof, and a circular plate slidably mounted between the two flanges and having a plurality of openings adapted to coincide with the openings in the pan-like member to regulate the draft of air therethrough.

EDWIN DARBY.