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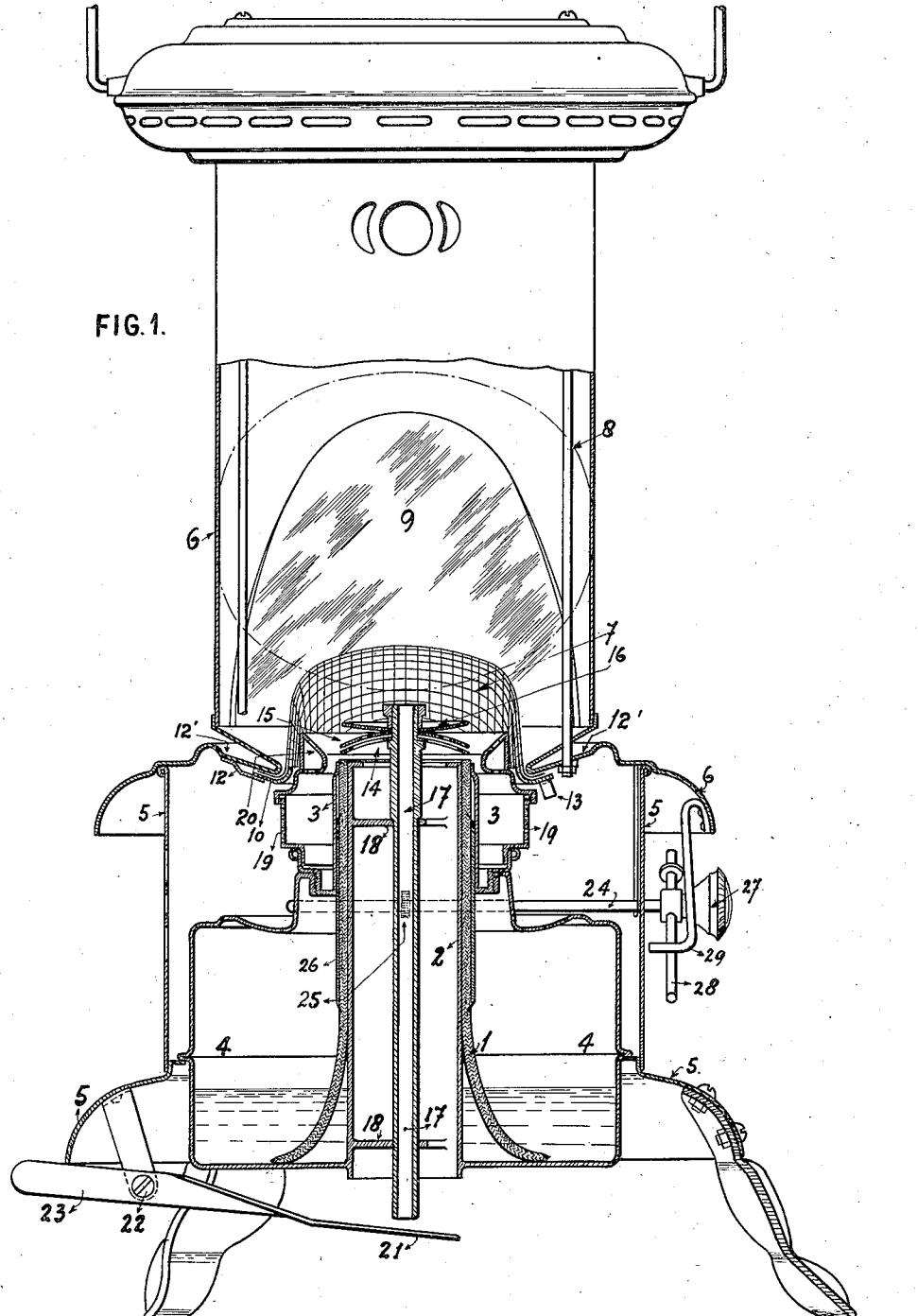
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2,011,982

OIL BURNER FOR HEATING STOVES AND THE LIKE

Filed Aug. 20, 1931

3 Sheets-Sheet 1



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FIG. 2.

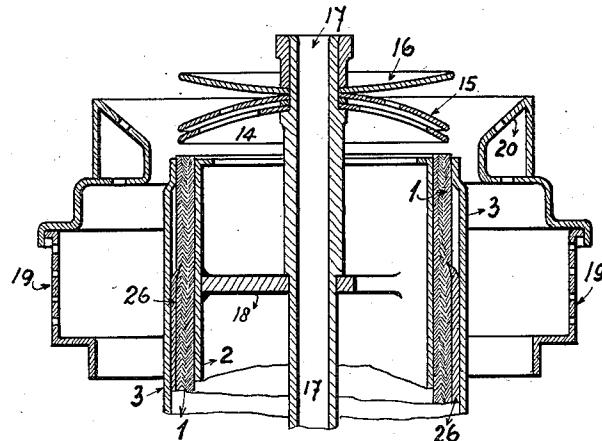
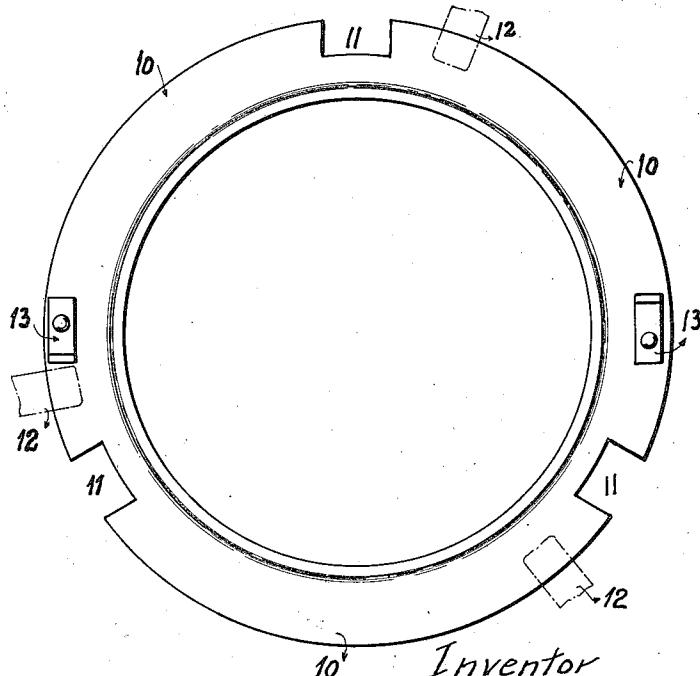


FIG. 3



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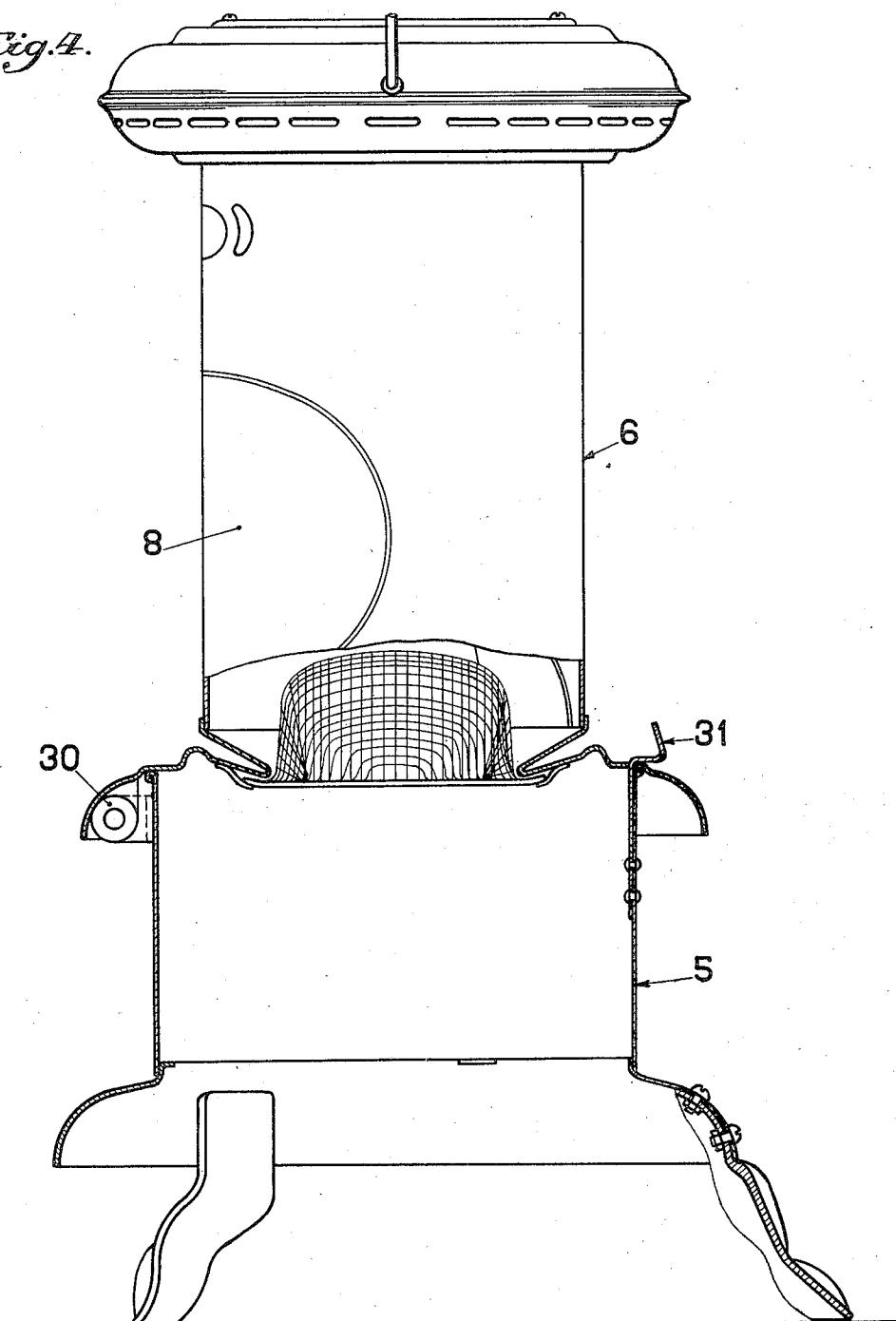
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Fig. 4.



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UNITED STATES PATENT OFFICE

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OIL BURNER FOR HEATING STOVES
AND THE LIKEArthur Whittaker Richardson, London, England
assignor to The Asiatic Petroleum Company
Limited, London, EnglandApplication August 20, 1931, Serial No. 558,343
In Great Britain September 10, 1930

3. Claims. (Cl. 126—96)

The invention relates to wick burners such as used in oil stoves for heating purposes. Such burners, as usually constructed, comprise an annular wick guide, a central air channel surrounded by the wick guide, a spreader arranged for guiding the primary air flowing through the central air channel onto the flame and a cone surrounding the flame. Heat is conducted through the metal parts of the burner to the upper end of the wick so as to vaporize the oil, which consecutively burns with a blue, non-radiating flame.

The object of the invention is to provide an arrangement for distributing part of the heat of combustion from a non-pressure feed oil burner by radiation as distinct from conduction and convection.

According to the present invention there is provided a radiant element, preferably in the form of a wire gauze mantle heated by a blue flame burner.

According to a further feature of the invention the burner is modified so as to supply a sufficient quantity of air to the flame to ensure complete combustion. The usual spreader is altered so as to distribute the primary air at different heights of the flame. In one form of construction the spreader comprises two or more perforated discs, the total area of the openings in the discs decreasing upwardly so as to cause the primary air to flow out evenly distributed at the periphery and/or at the top of the spreader element. The usual cone for secondary air is altered so as to supply this secondary air through a perforated metal dished or conical form at a point adjacent to the flame, so that the air is used efficiently without disturbing the equilibrium of the flame.

The wire gauze mantle may be fixed at its under rim to the upper part of this dished or conical metal form.

The spreader discs and ring are mounted on a vertical rod, mounted in guides so that it may be vertically moved but may be kept in a fixed position during working.

Furthermore, the burner may be provided with a device to stop the wick at its maximum working height.

The invention is illustrated in the accompanying drawings.

In the drawings, Figure 1 is a vertical section, partly in elevation, Figure 2 a detail view to a larger scale, and Figure 3 a detail view. Figure 4 is an elevational view with parts in section.

1 is an annular wick located between inner and

outer wick tubes 2, 3, the wick dipping into an oil container 4 supported in a lower casing 5 to which is pivoted a canopy 6.

7 is a radiant element in the form of a wire mesh or gauze mantle, which is heated by the flame; the canopy is provided with a mica or other panel 8 through which the mantle 7 is visible, and with a reflector 9 which reflects radiated heat. The mantle is preferably detachably mounted in the canopy so as to permit its easy removal and replacement; to effect this, the mantle is secured to a ring 10 formed with cut-away parts 11 which enable the ring to be slipped over retaining tongue pieces 12 secured to a dished or conical plate 12', and then to be turned so that the uncut parts of the ring lie over the tongues, the ring being preferably provided with finger pieces 13.

In order to ensure a complete combustion, primary air for supporting combustion is distributed at different heights to the wick flame; this is effected by providing a spreader comprising two perforated discs 14, 15 of convex form, and an upper concave disc 16, the discs being secured to a central tube 17. The area of the perforations in the upper disc 15 is smaller than the area of those in the lower disc 14, so that the air is caused to flow out evenly distributed at the periphery of the spreader element. The primary air is supplied through the inner wick tube 2 which is cooled thereby and is provided with skeleton supports 18 in which the central tube 17 is slidably mounted.

The mantle and spreader are so designed as to conduct a sufficient amount of heat to the wick guide, as will vaporize enough oil to burn satisfactorily without the wick protruding, so that the wick will need no attention over very long periods.

The secondary air supply passes through an annular gap formed between the fuel container 4 and the lower base 5, through a perforated cylinder 19 spaced apart from the outer wick tube past the upper end of the outer wick tube 3, and thence to a zone adjacent to the top of the wick and also through a perforated dished or conical member 20 to a zone adjacent to the flame, this arrangement providing an efficient air supply without disturbing the equilibrium of the flame, and also maintaining the fuel container 45 and the outer wick tube cool.

The mantle serves the purpose of not only radiating heat but also of effecting the complete combustion of vapour which may not be completely burnt at the region of the wick.

In order to enable the spreader to be lifted clear of the wick from a point outside the casing, the lower end of the central tube 17 is adapted to be engaged by the end of a lever 21 pivoted at 22 and extending at 23 beyond the casing; thus, by depressing the outer or extending end of the lever, the central tube and spreader are raised. The wick raising and lowering device comprises, as is usual, a spindle 24 having a toothed wheel 25 engaging apertures formed in a wick carrying tube 26 which is slidably mounted in the outer wick tube 3 and whose upper end engages a shoulder formed by a reduction in the diameter of the outer wick tube and thereby limits the movement of the wick, the spindle being provided with an actuating knob 27. In the arrangement shown in the drawings, the spindle is also provided with an arm 28 with which co-operates a striking rod 29 so as automatically to determine the height of the wick when the canopy is moved into position. The raising of the spreader is effected when lighting the burner in order to facilitate such lighting. The lever renders such lifting or raising of the spreader quite easy. 25 The mantle is manufactured by a method which is such as not to place the material, preferably

Monel metal, from which the mantle is formed under tension or under substantial tension, the mantle being merely bent into shape and being retained in shape by its rim.

In Figure 4 a hinge 30 is shown by means of which the canopy 6 is connected to the base 5 and the latch 31 illustrates how the canopy is locked in position.

What I claim is:

1. An oil heating stove comprising a base, a 10 canopy hingedly connected to said base, an oil container arranged in said base and carrying a wick burner, and a cap-shaped gauze mantle detachably mounted in said canopy so as to lie in the proximity of the burner when the canopy is 15 in its normal position and be moved away therefrom when the canopy is turned for lighting the burner.
2. An oil heating stove according to claim 1 in which the cap-shaped gauze mantle is secured 20 to a ring, detachably mounted in the canopy.
3. An oil heating stove according to claim 1 in which the canopy is provided with a window and a reflector situated opposite said window.

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