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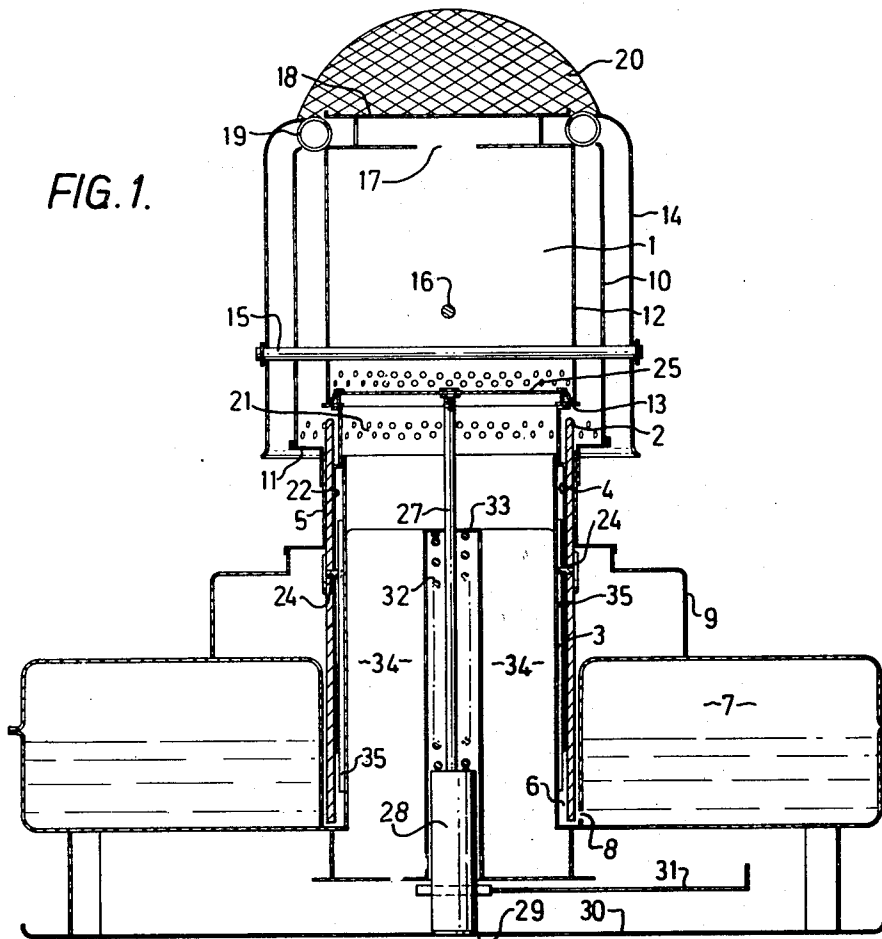
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LIQUID FUEL BURNING HEATERS

Filed Feb. 12, 1971

2 Sheets-Sheet 1



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FIG. 2.

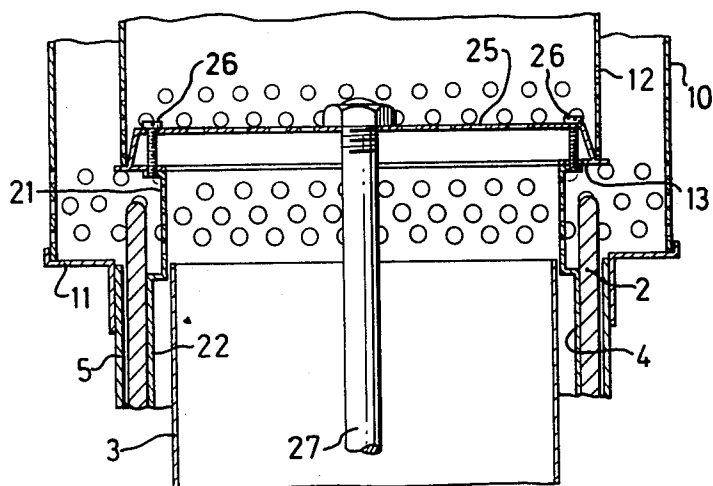
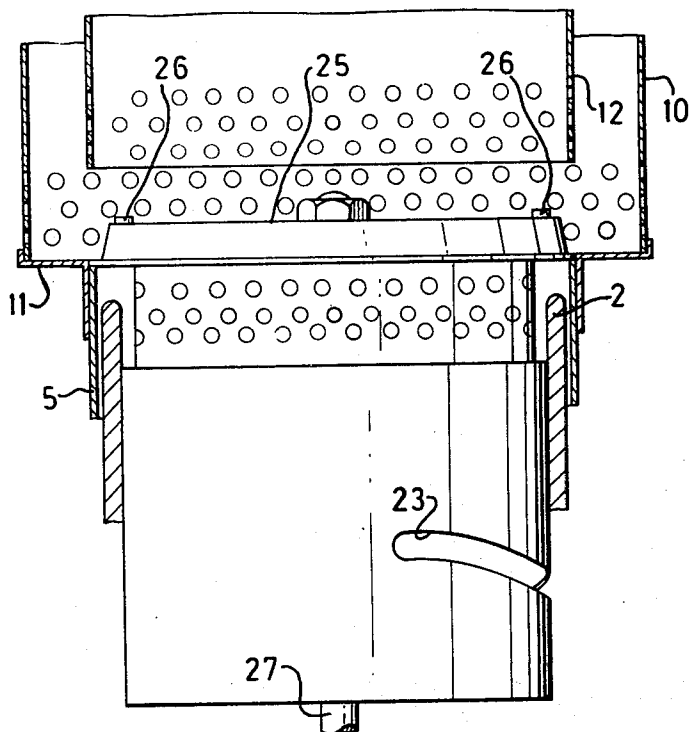


FIG. 3.



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LIQUID FUEL BURNING HEATERS

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8 Claims

ABSTRACT OF THE DISCLOSURE

A liquid fuel burning heater having a wick fed radiant burner of the "short drum" type, is provided with an extinguishing device which is operative, upon tilting of the heater, to retract the wick and close the space between the inner and outer wick tubes under the influence of a spring acting upon a rod, the upper end of which is secured to the extinguishing device and the lower end of which engages the ground when the heater is standing upright.

This invention relates to liquid fuel burning heaters of the kind having a radiant burner of the "short drum" type, the output of which is controlled by raising and lowering the wick, and the principal object of the invention is to provide a heater of this kind with a mechanically operated device which serves to effectively extinguish the burner when the heater is tilted or overturned.

In conventional heaters of this kind a cylindrical wick connected to the usual wick raising mechanism is concentrically arranged in the annular space between a fixed inner wick tube provided at its upper end with an inwardly turned flange upon which rests the inner perforated shell of a short drum burner and a fixed outer wick tube provided at its upper end with an outwardly turned flange upon which rests the outer perforated shell of the burner. The diameter of the wick is thus approximately equal to the mean diameter of the two burner shells.

In accordance with the present invention, a liquid fuel burning heater comprises a radiant burner of the "short drum" type having concentric perforated shells, the outer one of which extends downwardly for a greater distance than the inner one, and a wick, the diameter of which is no greater than that of the inner burner shell, vertically movable relative to the burner in the annular space between an outer wick tube having an outwardly turned flange at its upper end for engagement by the outer burner shell and an inner wick tube consisting of a fixed lower portion and an upper portion slidably mounted on said lower portion and operatively connected to said wick, said movable upper portion of the inner wick tube being provided at its upper end with an annular flange which overlies the space between said wick tubes and engages the lower end of the inner burner shell in the operative position of the burner and with a perforated cover plate secured to the upper end of a rod which normally extends into engagement with the surface on which the heater stands and, upon tilting of the heater, is spring urged downwardly to lower said movable wick tube portion and the wick until the annular flange closes the upper end of the space between the wick tubes and isolates the wick from the burner.

A preferred form of the invention will be described, by way of example, with reference to the accompanying drawings in which:

FIG. 1 is a section through the heater in its operative condition;

FIG. 2 is a view of a detail of FIG. 1 on an enlarged scale; and

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FIG. 3 is a view similar to FIG. 2 showing the movable wick tube portion in elevation and the parts in the positions taken up upon tilting of the heater.

The heater shown in the drawings comprises a burner 1 of the "short drum" type, a cylindrical wick 2 which passes through the annular space between an inner wick tube, comprising a fixed lower portion 3 and a movable upper portion 4, and a fixed outer wick tube 5 into the well portion 6 of a non-spill tank of the kind described in British patent specification No. 1,001,029, having an outer compartment 7 provided with a closable vent (not shown) and communicating with the bottom of the well through a small hole 8 and an upper compartment 9 communicating with the upper end of the well and of sufficient volume to contain all the oil from the well when the heater is overturned.

The burner 1 includes an outer perforated shell 10 which rests on a flange 11 secured to the upper end of the wick tube 5, an inner perforated shell 12 which ends short of the shell 10 and rests on a flange 13 on the upper end of the movable portion 4 of the inner wick tube when the heater is in its operative position shown in FIGS. 1 and 2 and a draught shield 14 which is secured to the shells 10 and 12 by cross-bars 15 and 16. The upper end of the shell 12 is closed except for a central aperture 17 and is surmounted in conventional manner by a plate 18 surrounded by a wire coil 19 above which is mounted a conventional gauze dome 20.

The movable portion 4 of the inner wick tube includes a perforated part 21 of reduced diameter which slides on the upper end of the fixed portion 3 and a skirt portion 22 of larger diameter which slidably engages the inner surface of the wick 2 and is formed with helical slots 23 (FIG. 3) through which pass studs 24 secured to the wick. The upper end of the movable portion 4 of the inner wick tube is covered by a perforated plate 25 integral with the flange 13 and secured by screws 26. A rod 27 secured at its upper end to the plate 25 is provided at its lower end with a foot 28 adapted to project through an aperture 29 in the base 30 into engagement with the surface upon which the heater stands and carrying a handle 31, rotation of which acts through the part 4, helical slots 23 and studs 24 to raise or lower the wick 2 relative to the wick tubes. The rod 27 is urged in a downward direction by a spring 32 acting between the foot 28 and the top 33 of a central tube defined by the intersecting portions of vanes 34 on the inner surface of the wick tube 3, the outer surface of which is provided with vanes 35 which co-operate with the studs 24 to prevent the wick from rotating when the handle 31 is turned.

In normal operation contact between the supporting surface and the foot 28 maintains the flange 13 in contact with the inner burner shell 12, but when the heater is lifted or tilted the spring 32 acts through the rod 27 to urge the movable portion 4 of the inner wick tube downwards to the position shown in FIG. 3 in which the outer edge of the flange 13 contacts the top edge of the outer wick tube 5 and the inner edge of the flange 13 engages the upper edge of the fixed part 3 of the inner wick tube. At the same time the top edges of the slots 23 co-operate with the studs 24 to push the wick 2 downward to a cooler part of the heater where it is effectively sealed from the space between the burner shells 10 and 12. These features combined with the use of the non-spill tank ensure effective extinction of the burner flame if the heater is tilted or overturned.

I claim:

1. A liquid fuel burning heater of the kind having a radiant burner of the "short drum" type, the output of which is controlled by raising and lowering a cylindrical wick concentrically arranged in the annular space between inner and outer wick tubes, said heater being provided

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with an extinguishing device operable automatically when the heater is tilted or overturned, to lower the wick within said annular space and isolate the latter from the burner.

2. A heater according to claim 1, wherein said extinguishing device is slidably mounted on the inner wick tube in operative connection with the wick, is supported in its inoperative position by a member extending into engagement with the surface on which the heater stands and is urged towards its operative position by a spring.

3. A heater according to claim 1, wherein said extinguishing device is a tube, the upper end of which is covered by a perforated cover plate and provided with an external flange which, in the operative position of the device, closes the upper end of said annular space and, in the inoperative position of the device, engages the lower end of the shorter of two perforated burner shells, the longer of which rests upon an out-turned flange at the upper end of the outer wick tube.

4. A liquid fuel burning heater comprising a radiant burner of the "short drum" type having concentric perforated shells, the outer one of which extends downwardly for a greater distance than the inner one, and a wick, the diameter of which is no greater than that of the inner burner shell, vertically movable relative to the burner in the annular space between an outer wick tube having an outwardly turned flange at its upper end for engagement by the outer burner shell and an inner wick tube consisting of a fixed lower portion and an upper portion slidably mounted on said lower portion and operatively connected to said wick, said movable upper portion of the inner wick tube being provided at its upper end with an annular flange which overlies the space between said wick tubes and engages the lower end of the inner burner shell in the operative position of the burner and with a perforated cover plate secured to the upper end of a rod which

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normally extends into engagement with the surface on which the heater stands and, upon tilting of the heater, is spring urged downwardly to lower said movable wick tube portion and the wick until the annular flange closes the upper end of the space between the wick tubes and isolates the wick from the burner.

5. A heater according to claim 4, wherein said movable wick tube portion has an upper perforated portion in sliding contact with said fixed wick tube portion and a larger diameter skirt portion in sliding engagement with the inner surface of the wick.

6. A heater according to claim 5, wherein said skirt portion is formed with helical slots which receive studs secured to the wick and said rod is rotatable about its axis to raise and lower the wick through the medium of said co-operating studs and slots.

7. A heater according to claim 6, wherein radial vanes on said fixed inner wick tube portion co-operates with said studs to prevent the wick from rotating with said movable wick tube portion.

8. A heater according to claim 1, wherein the lower end of the wick enters the well portion of a non-spill tank.

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