Aug. 15, 1939 W. J. KELLER 2,169,735

LANTERN

Filed Feb. 20, 1937 3 Sheets-Sheet 1

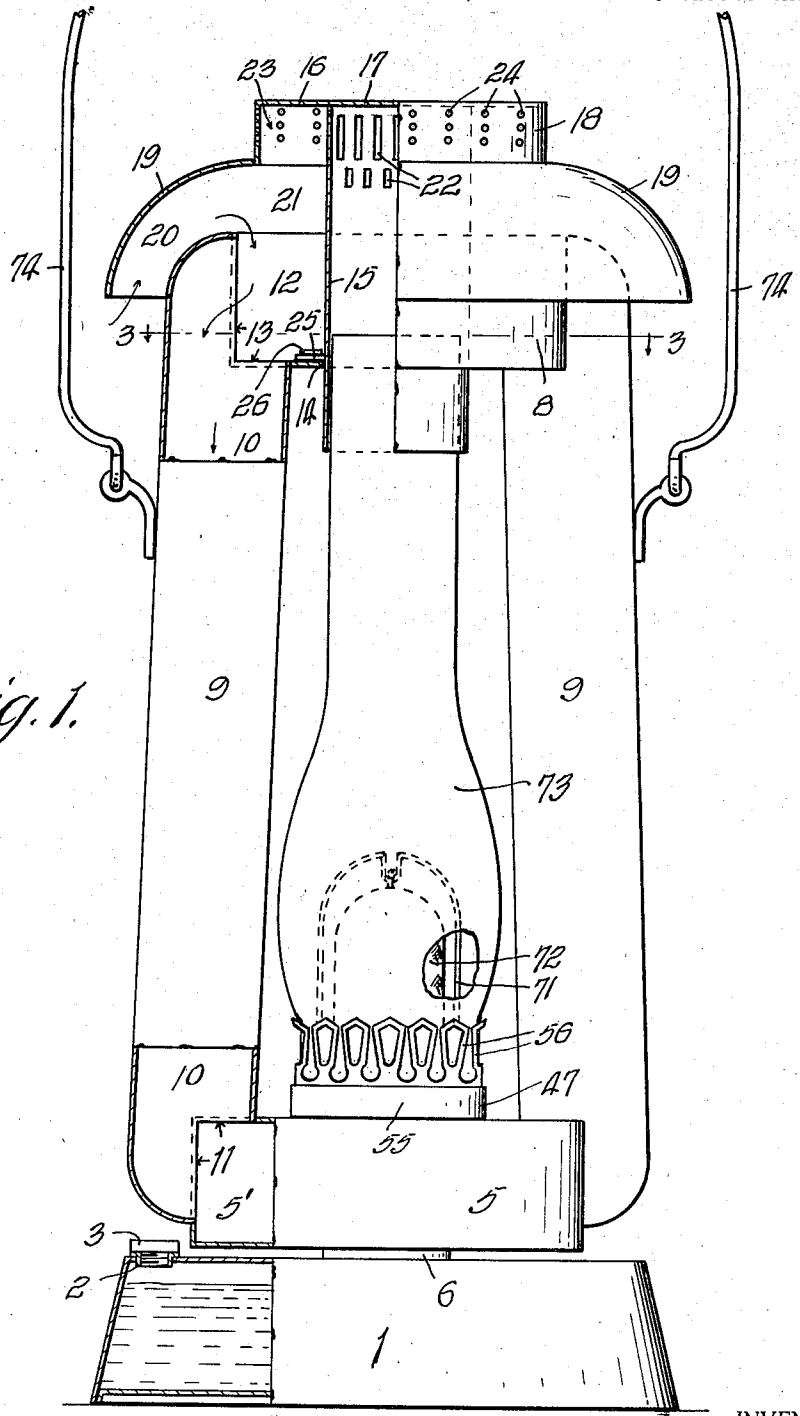

Fig. 1.

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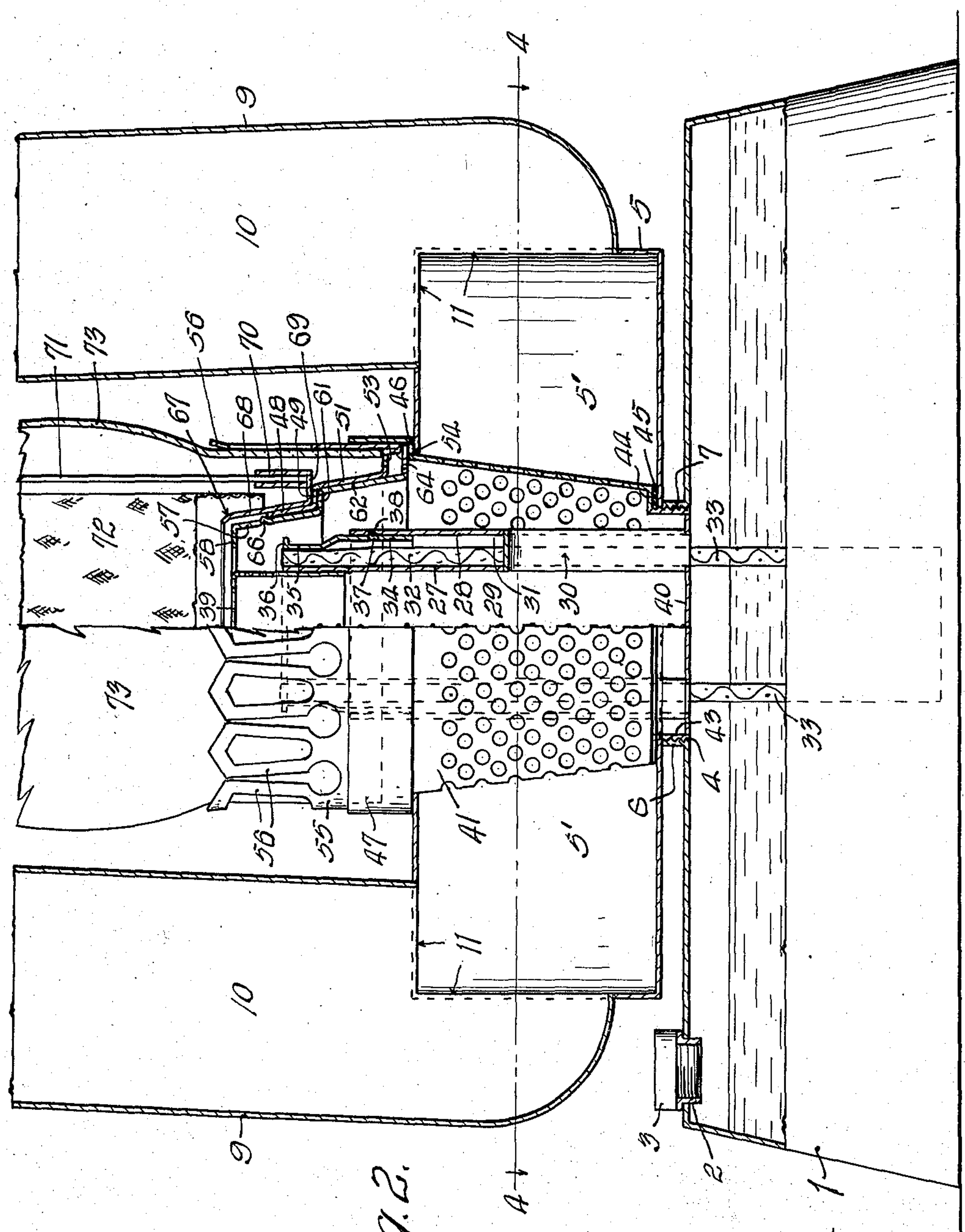

Fig. 2.

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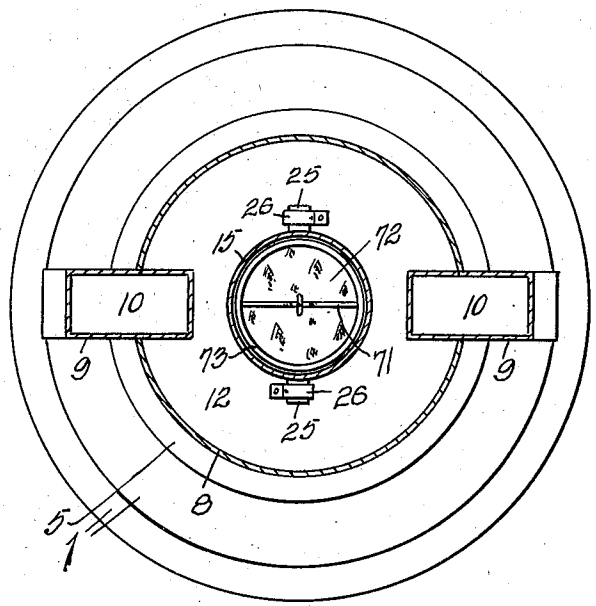

Fig. 3.

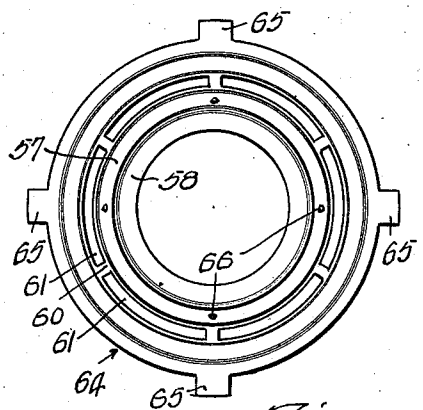

Fig. 5.

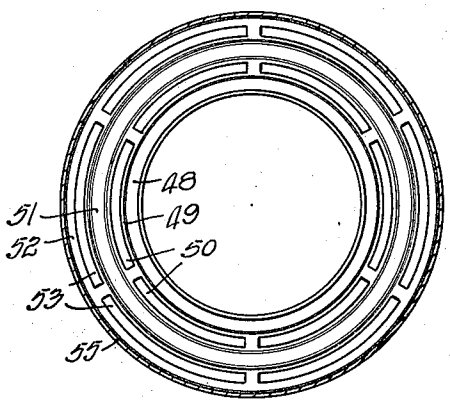

Fig. 6.

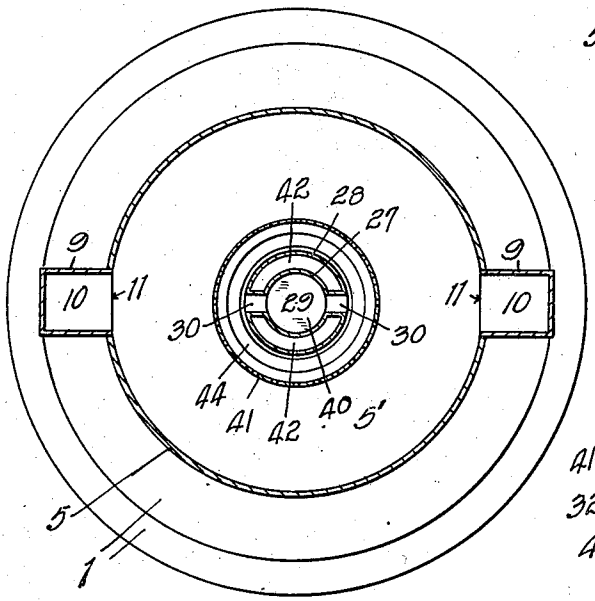

Fig. 4.

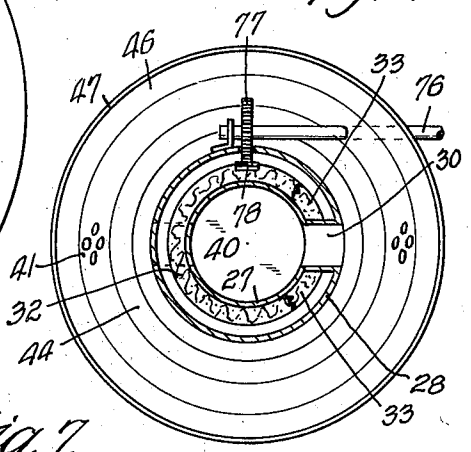

Fig. 7.

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UNITED STATES PATENT OFFICE

2,169,735

LANTERN

William J. Keller, St. Louis, Mo.

Application February 20, 1937, Serial No. 126,796

3 Claims. (Cl. 240—27)

My invention relates to lanterns, and more particularly to a gas mantle lantern, although it can be used as an ordinary wick type of lantern without the use of a mantle.

The object of my present invention resides in the provision of a lantern structure capable of producing greater luminous intensity than the present types of lanterns now in general use, first, due to attainment of complete combustion which produces greater heat, and second, due to the heat generated permitting the use of a gas mantle for lumination.

A further object of the invention is the provision of a lantern structure having its parts so formed and arranged that th light produced either by mantle, or wick, will not be effected by drafts such, for instance, as wind blowing directly against the lantern from any direction.

A further object of the invention resides in the provision of a vertically ventilated separable chimney and gas mantle supporting basket.

A still further object of the invention is the provision of a lantern which possesses advantages in points of simplicity and efficiency, and, at the same time proves itself comparatively inexpensive in cost of manufacture.

With the above and other objects in view, the invention consists in the novel features of construction, arrangement and combination of parts hereinafter more fully described and finally pointed out in the claims hereto appended.

Referring to the accompanying drawings forming a part of this specification, wherein like characters of reference denote similar parts throughout the several views:

Fig. 1 is a view partly in sectional elevation and partly in side elevation of a lantern embodying the features of my invention.

Fig. 2 is a view partly in sectional elevation and partly in side elevation clearly illustrating the lower portion of the lantern.

Fig. 3 is a horizontal sectional view of the lantern taken on line 3—3 of Fig. 1, looking in direction of the arrows.

Fig. 4 is a horizontal sectional view of the lantern taken on line 4—4 of Fig. 2, looking in direction of the arrows and with parts of the wick burner removed.

Fig. 5 is a top plan view of a deflector member.

Fig. 6 is a top plan view of the chimney and mantle supporting member with the outer wall portion thereof in cross-section.

Fig. 7 is a plan view showing the burner structure supported in the perforated cage.

In carrying out my invention, I employ a suitable oil container, or font 1 having a filling neck 2 provided with a detachable cap 3. The top wall of the font is also provided with central screw threaded opening 4. The font, it will be observed, serves as a base for the lantern.

The reference character 5 designates a suitable metal casing, or lower head, providing a lower air chamber 5' therein. The upper wall of the font 1 is provided with an annular upwardly projecting flange 6 which is internally screw threaded, as at 7.

The reference character 8 designates a suitable cup shaped upper head, which is suitably connected with the lower head, or casing 5 by means of a plurality of suitable upright tubular members 9, which serve to provide air passages 10. The air passages 10 have communication at their lower ends with the air chamber 5', as at 11.

The upper head 8 provides an air chamber 12 from which fresh air can enter the upper ends of the air passages 10 of the tubes 9 and have communication therewith, as at 13, for the transmission of air from the upper air chamber 12 to the lower air chamber 5'.

The upper head 8 has a central opening 14 through which a vertically disposed draft tube 15 passes downwardly. The lower end of the draft tube 15 projects downwardly below the lower plane of the upper head 8, as clearly shown in Fig. 1.

A suitable crown cap designated, generally, as 16, has a section 17 closing the upper end of the draft tube 15 and to which the upper end of the tube 15 is suitably secured. Section 17 terminates in an annular downwardly projecting flange 18, which section, in turn, terminates in a suitable curved flange section 19 that projects downwardly beyond the upper edge of the head 8, and the extreme upper ends of the air tubes 9, and, the section 19 is spaced therefrom so as to provide an annular air inlet passage 20 for admitting fresh outside air into the upper air chamber 12. The annular air passage 20 communicates with an upper air chamber 21 which communicates with the upper end of the air chamber 12.

The upper end of the draft tube 15 is provided with a series of suitable lateral fume and hot air outlet openings 22 communicating with an upward projection 23 of the air chamber 21 which surrounds the upper apertured end portion of the draft tube 15. The wall section 18 of the crown cap 16 is provided with a series of suitable fume and hot air outlet openings 24.

The draft tube 15 which is secured at its upper

end to the crown cap 16 is detachably connected with the upper head 8 by means of suitable fastening devices 25 secured to the draft tube 15, which are movable by rotary movement of the tube 15 into position below keepers 26 secured to the floor of the upper head 8 to properly support the crown cap 16 in spaced relation to the upper head 8, as shown in Fig. 1.

A suitable burner construction, which will now be described, is carried by the lower head 5 having the air chamber 5'.

The burner consists of an inner burner tube 27 and an outer burner tube 28. The tubes are concentrically arranged and the inner tube 27 serves to provide a central vertical air passage 29. The air passage 29 communicates by means of a pair of opposed lateral air passages 30, with the lower air chamber 5'. The outer tube 28 is of less height than the inner tube 27 and is so dimensioned from the outer tube 28 as to provide an annular wick passage 31 to receive a tubular wick 32 having its lower end split on opposite sides to provide opposed wick sections 33 to enter the oil font 1.

A suitable ring like member comprising a lower wall portion 34 is telescopically connected with the upper end of the outer burner tube 28 and terminates upwardly in a contracted wall portion 35 to compress the upper end of the tubular wick 32 carried in the wick passage 31. The upper edge of contracted wall portion 35 is bent outwardly to provide a flange 36, which is horizontally disposed and surrounds the upper edge portion of the inner burner tube 27. The said wall portion 35 is provided with an opening 37 to receive an inwardly projecting protuberance 38 on the outer burner tube 28. This prevents the aforesaid ring like member from being displaced upwardly when raising the wick 32.

A suitable perforated generator cap 39 is telescopically connected with the upper end of the inner burner tube 27. The perforated portion of the cap projects upwardly beyond the upper edge of the inner burner tube 27.

The lower ends of the concentrically spaced inner and outer burner tubes 27 and 28, respectively, are secured to a floor member 40 of a suitable perforated basket member 41. The floor member 40 of the basket 41 is provided with a pair of opposed arcuately shaped slots 42 through which the split wick sections 33 pass downwardly into the oil font 1. The lower end 43 of the perforated basket member 41 is externally screw threaded for screw threaded engagement with the screw threads of the opening 4. The lower end of the basket is provided with a shoulder 44 which is seated on a gasket 45 on the floor of the lower head 5, and, the upper end of the basket is provided with an annular shoulder 46, the outer face of which engages the outer upper face of lower head 5 surrounding a central opening in the upper wall thereof for properly supporting the basket in position relative to the lower head 5, and, the Bunsen type of burner structure above described. A flange 47 projects upwardly from the shoulder 46 of the basket structure.

I further employ a suitable separable combination lamp chimney and mantle supporting member and a deflector member, which will now be described.

The lamp chimney and mantle supporting member consists of a frusto-conical ring-like section 48 which terminates at its lower end in an outer annulus, flange or shoulder 49 having a series of circumferentially spaced slotted air passages 50. The shoulder 49 terminates in a downwardly projecting tapered ring-like section 51, which terminates at its lower end in an outstanding flange 52 having a series of circumferentially spaced slotted air passages 53. The flange 52 terminates in a downwardly projecting ring-like section 54 which from its lower ends continues in an upwardly projecting section 55 terminating at its upper end portion in a series of suitable flexibly resilient chimney engaging fingers 56.

The deflector member which is adapted to support lamp chimney and mantle supporting member, consists of an upper frustro-conical ring like upper section 57 with its upper end projecting inwardly a suitable distance, as at 58. The lower end portion of the ring-like section 57 terminates in an outer shoulder or annulus 60 having a series of circumferentially spaced slotted air passages 61 disposed below the air passages 50. The shoulder 60 terminates in a downwardly projecting section 62, which in turn terminates in an outwardly projecting flange having a series of circumferentially spaced slotted air passages 64 below the air passages 53. Projecting from the flange are a plurality of radially projecting lips 65 which are adapted to be seated on the basket shoulder 46.

The frustro-conical ring-like section 57 is provided with a plurality of suitable outwardly projecting protuberances 66 so that the upper edge of the frustro-conical ring-like section 48 will slip behind the protuberances 66 when the chimney and mantle supporting member is seated in telescopic relation on the deflector member, as will be apparent from Fig. 2. This arrangement permits the combined chimney and mantle supporting member and the deflector member to be removed from the basket and placed in position thereon, as a unit.

The reference character 67 designates, generally, a mantle supporting device which comprises a frustro-conical ring-like wall 68 having its lower edge terminating in opposed outstanding ears 69. The ears 69 are provided with a pair of opposed upstanding tubular arms 70 formed integral therewith, to securely receive the lower ends of an inverted U-shaped wire member 71 serving as supporting means from which a gas mantle 72 is suspended.

The mantle supporting device 67 is adapted to be supported by the annulus 49 of the chimney and mantle supporting member for holding the device 67 and the mantle 72 in vertical axial alignment with generator cap.

The reference character 73 designates a suitable glass chimney which is supported by the lamp chimney supporting member in the usual well known manner.

The reference character 74 designates a suitable wire or similar handle or bail which is suitably connected at its ends to the air tubes 8 connecting the upper and lower heads of the lantern frame structure.

As illustrated in Fig. 7, the wick can be raised and lowered by means of a suitable supported shaft or stem 76 carrying a gear like member 77 which meshes with a rack gear 78 suitably secured to the wick 32.

The many advantages of the herein described invention will readily suggest themselves to those skilled in the art to which it appertains.

From the foregoing description, it is evident that a simple device for this purpose has been disclosed, but it is to be understood that I do not desire to restrict, or limit myself to the very details of the construction shown and described,

which is merely illustrative, it being obvious that changes, not involving the exercise of invention, may be made without conflicting or departing from the spirit of the invention within the scope of the appended claims.

What I claim is:

1. A lantern of the mantle type burning liquid fuel, a base container for the fuel, a lower head forming an air supply chamber surrounding the lower part only of a burner and detachably secured to and supported in spaced relation above the fuel container, a glass chimney of the long contracted neck type, a draft tube into which the upper end portion of the chimney projects, an upper open top head member forming an annular open top air chamber surrounding an intermediate portion of the draft tube, an inverted cup shaped crown member formed with apertures for the escape of heat supported by the upper end of the draft tube, the upper end of the draft tube formed with apertures for the escape of heat and gaseous products of combustion above the upper air chamber, a pair of intake tubes for conducting discharged heat and gaseous products of combustion to the lower air supply chamber, a flange projecting outwardly and downwardly from the lower edge of the crown member and so spaced from the upper edge of the upper head member to form an unobstructed air inlet completely around and above the upper edge of the upper head member, and the lower edge of the flange being disposed below the upper edge of the upper head member and spaced from the side wall thereof so as to overlie and project outwardly beyond the upper ends of the intake tubes.

2. A lantern having, in combination, a base fuel container, a lower head detachably secured to and spaced above the fuel container, an upper open top head and a central draft tube so related as to form an annular open top air chamber intermediate the ends of the draft tube, air conducting tubes connecting the upper and lower heads, an inverted cup shaped crown member seated on and closing the upper end of the draft tube and forming a hot air chamber around the upper end portion of the draft tube and spaced from the upper edge of the upper head to provide an outside air inlet space between the hot air chamber and the air chamber formed by the upper head, there being outlet openings in the upper end portion of the draft tube for the escape of hot air and gaseous products of combustion to the annular chamber formed within the crown member, there being apertures in the side wall of the crown member for the escape of hot air from the chamber formed therein above the outside air inlet space, and a skirt flange projecting from the lower edge of the crown member, spaced from the upper edge of the upper head and terminating at its lower edge in spaced relation to the side wall of the upper head member below the upper edge thereof.

3. A lantern having, in combination, a lower air distributing chamber for supplying a burner with air, an upper annular open top air supply chamber, tubes conducting air therefrom to the lower air distributing chamber, an upper annular hot air chamber disposed directly above and spaced from the annular air supply chamber to provide an underlying space for the inlet of fresh outside air to the annular air supply chamber, a draft tube and draft tube openings for the escape of hot air and gaseous products of combustion from said draft tube to the hot air chamber, and hot air outlets for the hot air chamber.

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