

Nov. 16, 1937.

W. J. KELLER

2,099,608

LATERAL DRAFT BURNER

Filed Sept. 20, 1935

2 Sheets-Sheet 1

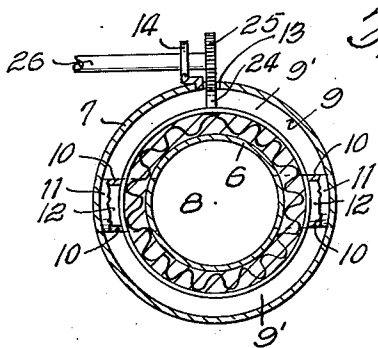
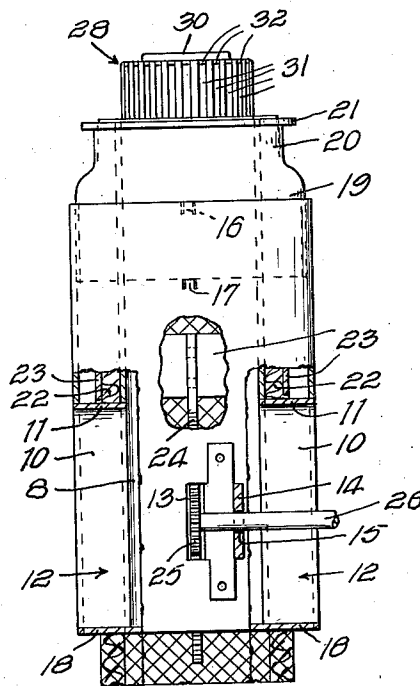
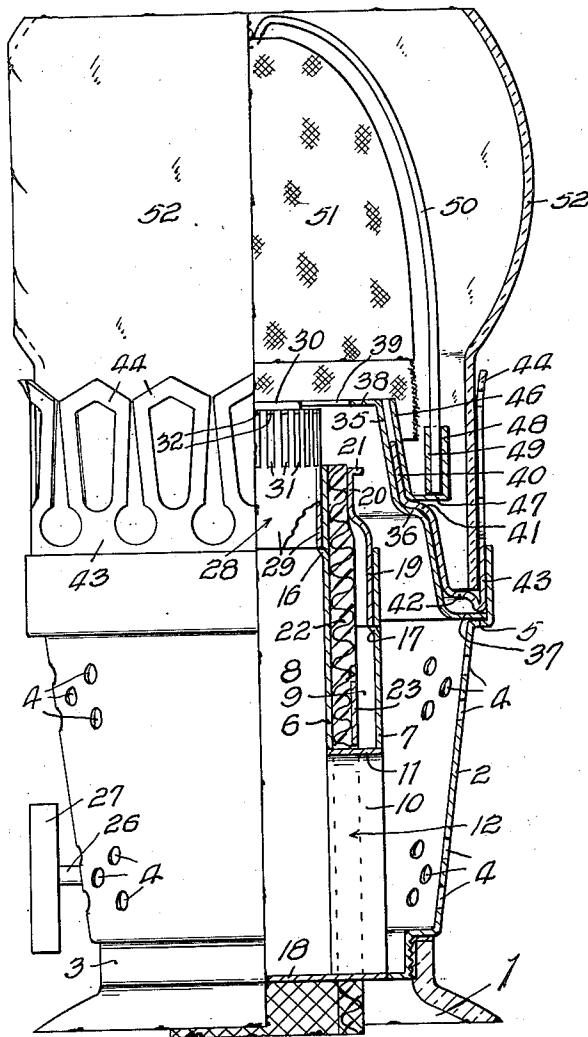


Fig. 1.

Fig. 3.

Fig. 2.

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2 Sheets-Sheet 2

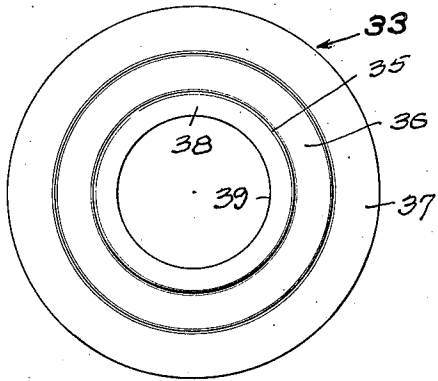


Fig. 4.

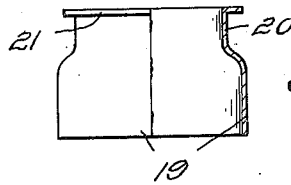


Fig. 5.

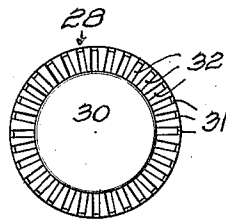


Fig. 6.

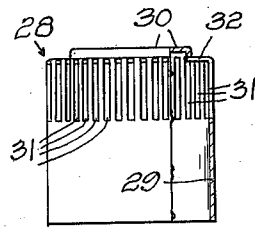


Fig. 7.

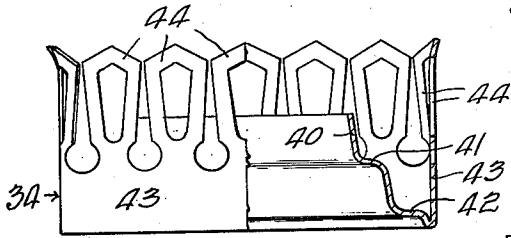


Fig. 8.

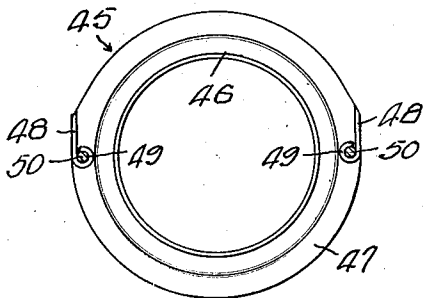


Fig. 9.

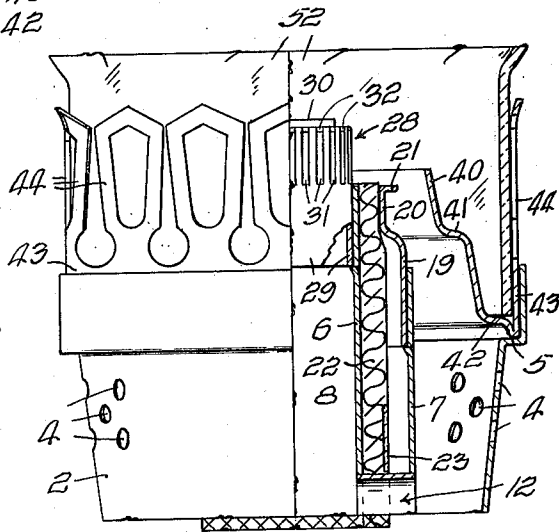


Fig. 10.

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UNITED STATES PATENT OFFICE

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LATERAL DRAFT BURNER

William J. Keller, St. Louis, Mo.

Application September 20, 1935, Serial No. 41,430

7 Claims. (Cl. 67-38)

This invention relates to lateral draft burners for kerosene burning lamps wherein wicks are employed to transmit fuel from a font to the flame producing part of the burner.

5 An object of the invention is the provision of a lateral draft burner which is highly efficient in producing a blue, or a yellow flame, as desired, low in the cost of fuel consumption, and, which, due to its separable construction, the several parts
10 can be easily and thoroughly cleaned.

A further object of the invention is the provision of a base cage, or basket construction applicable for use with various forms of kerosene burner constructions.

15 A further object of the invention is the provision of a lateral draft burner tube construction.

A further object of the invention is the provision of a detachable burner member serving as means for completing the upper end of a wick
20 passage and for compressing the upper end of a tubular wick.

A further object of the invention is the provision of a new and novel generator cap for the burner construction.

25 A further object of the invention is the provision of a deflector member adapted to be supported by the base cage, or basket.

A further object of the invention is the provision of a chimney basket construction adapted to be either detachably supported by the cage,
30 or basket member, or by the deflector member.

A still further object of the invention is the provision of a mantle wire supporting member adapted to be detachably supported by the chimney basket.
35

A further object of the invention is to provide novel means for raising and lowering a tubular wick.

A still further object of the invention is the provision of a lateral draft burner for kerosene burning lamps, which possesses advantages in points of simplicity and efficiency, and, at the same time proves itself comparatively inexpensive in cost of manufacture.

40 With the above and other objects in view, the invention consists in the new and novel construction of the several parts and their arrangement relative to each other as hereinafter more fully described and finally pointed out in the
50 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:

55 Fig. 1 is a partly vertical and sectional view

of a burner construction embodying all of the devices hereinafter described.

Fig. 2 is a horizontal sectional view of the burner tubes and wick.

Fig. 3 is a side elevation of the burner tube
5 construction with portions thereof broken away.

Fig. 4 is a top plan view of the deflector member.

Fig. 5 is a view partly in side elevation and partly in section of the burner tube and wick
10 compressing member.

Fig. 6 is a top plan view of the generator cap.

Fig. 7 is a partly side elevation and partly sectional elevation of the generator cap.

Fig. 8 is a view partly in side elevation and partly in sectional elevation of the chimney supporting basket.
15

Fig. 9 is a top plan view of the mantle supporting member.

Fig. 10 is a view in modification showing the deflector member removed from the burner construction.
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Referring to the drawings, the reference character 1 designates a suitable fluid font, or reservoir such, for instance, as a lamp font, or other type of kerosene reservoir. While I have illustrated in the drawings a lamp construction, it will be understood that by the elimination of certain burner parts, as will be hereinafter mentioned, the burner may be used in a kerosene stove construction.
25

The reference character 2 designates, generally, a suitable cup shaped burner cage, or basket having a suitable contracted neck 3 at its lower end for suitable connection with the font 1 to support the cage, or basket 2 in position relative to the font 1. The cage, or basket 2 has its wall provided with suitable perforations 4 for the purpose of ventilation. A suitable endless internal shoulder 5 is formed adjacent the upper edge of the cage, or basket 2.
30

Disposed within the cage, or basket 2, are a pair of concentrically arranged burner tubes designated 6 and 7 known, hereinafter, as the inner and outer burner tubes, respectively. The inner tube 6 serves to form a central vertical air passage 8.
35

The outer tube 7 is of less height than the inner tube 6 and is so dimensioned from the inner tube 6 as to provide an annular wick passage 9 which extends downwardly a suitable distance from the top edge of the outer tube 7. Below said distance the wick passage is divided into two communicating passages 9' which are open at their lower ends and formed by suitable walls
40
45
50
55

19 connected at their upper ends, as at 11, and suitably secured to the inner and outer burner tubes which are suitably cut away to accommodate the walls 10 and their upper end connections 11. The walls 10 and their upper connected ends 11 serve to form lateral air inlets 12 communicating at their inner ends with the lower end of the central vertical burner air passage 8. Disposed at a right angle to the lateral air inlets 12 is a vertical slotted opening 13 formed in the wall of the outer tube 7, and arranged adjacent one side of the slotted opening 13 is a suitable outstanding vertical bracket 14 suitably secured to the wall of the outer tube 7 and provided with a bearing opening 15. The inner tube 6 is provided adjacent the upper edge thereof with a plurality of suitable inward wall projections 16 serving as stops, and the outer tube 7 is provided adjacent the upper edge thereof with a plurality of suitable inward wall projections 17, serving as stops.

The lower ends of the central vertical air passage 8 and the lateral air inlets 12 may be closed by means of a suitable plug, or equivalent closure member 18. The lower end of the outer burner tube 7 is suitably secured to the lower apertured wall of the burner cage, or basket 2, so that the tubes 6 and 7 will be disposed longitudinally of and in axial alignment with the burner cage, or basket 2. The upper edge of the outer burner tube 7 is disposed in an approximate plane with the upper edge of the burner cage, or basket 2.

A tubular burner member, or wick compressing ring comprising a lower wall portion 19 is telescopically connected with the upper end of the outer burner tube 7 and is seated upon the inward projections on the outer burner tube 7. The ring member 19 is provided adjacent its upper end with a circumferential recess to provide a contracted neck 20, the upper end of which is provided with an outstanding horizontal flange 21 of less diameter than the ring member 19. The upper plane of the flange 21 is adapted to lie in an approximate plane with the upper edge of the inner burner tube 6.

The burner ring member serves to reduce the width of the wick passage at the upper end thereof so as to compress a tubular wick 22 between the inner tube 6 and the contracted neck section 20 of the burner ring member. The lower end portion of the tubular wick 22 receivable in the wick passage between the burner tubes 6 and 7 is split on opposite sides to divide the wick into two sections to straddle the lateral air inlets 12 and pass downwardly through the divided or separated wick passages 9' and into the oil font 1.

Encircling the wick 22 a suitable distance above the split end thereof, is a metallic band 23 which tightly embraces the wick. A suitable gear rack 24 is suitably secured at its upper end to the wick band 23 and is disposed in such a position relative to the slotted opening 13 in the wall of the outer burner tube 7 as to register therewith, and, meshing with the rack teeth is a gear 25 which passes through the slotted opening 13. The gear 25 is secured to a horizontally disposed stem 26 journaled at its inner end in the opening 15 in the bearing bracket 14 secured to the outer burner tube 7. The outer end of the stem 26 passes through an opening in the cage, or basket 2 and the outer end of the stem 26 is provided with a button 27 for turning the stem and gear for raising and lowering the wick 22, as desired.

It will be understood that the wick 22 does not fit tight the full length of the wick passage, but only between the upper end of the inner burner tube and the contracted neck 20 of the burner ring member telescopically connected with the upper end of the outer burner tube 7. A vertical passage is provided between the outer face of the tubular wick and the inner face of the outer burner tube 7 below the neck 20 and communicates at its lower end with the oil font 1.

The reference character 28 designates, generally, a generator cap which is telescopically connected with the upper end of the inner burner tube 6. The generator cap comprises a tubular wall 29, the lower edge of which rests on the inwardly projections 16 on the wall of the inner burner tube 6 to properly position the generator cap at the upper end of the inner burner tube 6. The cap 28 has a flat top wall 30 depressed at its margin to provide a step-off. The upper portion of the cap is adapted to project upwardly beyond the upper edge of the inner burner tube 6, and, its side wall is provided with a series of longitudinal slotted air outlets 31 which merge at their upper ends with a like series of radial air outlet slots 32 in the step-off portion of the top wall of the generator cap. It will thus be observed that air drawn upwardly through the inner burner tube 6 is divided into a series of upwardly moving streams when leaving the generator cap and without materially retarding the velocity of the air flow.

The reference character 33 designates, generally, a deflector member which also serves, in one instance, to support a chimney supporting basket designated, generally, as 34.

The deflector member 33 comprises a frusto-conical portion ring like member 35 having an annulus 36 formed at its lower end and which projects downwardly and then flares outwardly to provide an outstanding base flange 37. The upper end of the frusto-conical portion 35 is bent inwardly a short distance to provide a flange 38 forming an opening 39 into which projects the generator cap 28. The upper horizontal flat wall 30 of the generator cap 28 is adapted to lie in an approximate plane with the inwardly projecting flange 38 at the upper end of the frusto-conical portion of the deflector member 33. The upper opening 39 in the deflector member 33 is disposed in axial alignment with the generator cap 28 and the opening 39 is of greater diameter than the diameter of the generator cap 28 so as to provide an annular flame passage around the burner cap.

The chimney supporting basket 34 comprises a frusto-conical ring like portion 40 having its lower end emerging into an annulus 41 and the lower end of which merges into outstanding flange 42 which merges with an upstanding ring like member 43 which is suitably stamped out to provide a series of flexibly resilient fingers 44.

The ring like member 40 of the chimney supporting basket and its annulus is fashioned to correspond in shape to the frusto-conical portion of the deflector member 33 and thereby provide a nesting fit between the two members when the chimney basket is mounted in position on the deflector member. When said members are so positioned, the upper edge of the ring like member 40 of the chimney basket is disposed a suitable distance below the inwardly projecting flange 38 of the deflector member 33. When the two members are nested together, they fit with

such tightness that leakage of upward air currents therebetween is avoided, and, when the chimney basket is removed from the cage 2 the deflector member 33 is carried therewith, thus the two members can be removed from the cage 2 in one operation.

The reference character 45 designates, generally, a mantle supporting member which comprises a frusto-conical ring like wall 46 having its lower edge terminating in an outstanding flange 47. The flange 47 is provided with a pair of upstanding arms 48 formed integral therewith, and, one vertical edge of each arm is curled or folded inwardly, as at 49, to securely lock the lower ends of an inverted U-shaped wire 50 serving as means from which a gas mantle 51 is suspended.

The mantle supporting ring like member 46 is adapted to be supported by the annulus 41 of the chimney supporting basket 34 for holding the ring member 46 and the mantle in vertical axial alignment with generator cap 28.

The reference character 52 designates a suitable glass chimney which is supported by the basket 34.

Due to the construction of generator cap 28 illustrated and herein described, it is possible to use a shorter chimney than when the conventional types of perforated generator caps are employed in a burner construction.

The burner construction illustrated and described produces a blue flame when the deflector member 33 is employed, but should a mantle become broken, the deflector member can be removed from the structure and an ordinary yellow lamp light can still be had.

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 kerosene lamp burner having, in combination, a tubular base cage having a perforated wall and provided with an internal shoulder adjacent its upper edge, a pair of concentrically arranged burner tubes so dimensioned apart as to provide a wick passage therebetween, the inner of said tubes projecting beyond the upper edge of the outer tube and serving to form an upright central air passage, lateral air inlets communicating with the lower end of the upright central air passage, a tubular wick receivable in the wick passage, the lower end of the wick being split whereby the wick straddles the lateral air passages, a removable tubular burner member having a reduced neck portion and an outstanding flange telescopically connected with the upper end of the outer burner tube to reduce the dimension of the wick passage, the flange at upper end of the inner tube, a deflector member adapted to lie in an approximate plane with the burner end of the inner tube, a deflector member removably supported by the internal shoulder on the tubular base cage, said member having an annular shoulder midway its ends, a chimney supporting basket having an annular shoulder

removably seated on the deflector member shoulder, a generator cap removably and telescopically supported within the upper end of the inner burner tube, and a mantle supporting member removably seated on the shoulder of the chimney supporting basket, and means whereby the wick can be raised and lowered.

2. A generator cap for a wick type lamp or like burner comprising a vertical cylindrical wall closed at one end by means of a horizontal top wall, said cylindrical wall having a multiplicity of longitudinal slots formed therein and disposed in uniform spaced parallel relation with the upper ends of the slots merging with radially disposed slots formed in the marginal portion of the horizontal top wall.

3. A generator cap for a wick type lamp or like burner having a flat upper wall, a cylindrical wall having a series of longitudinally disposed and parallel arranged slots at the upper end thereof and merging with a like series of co-operating radial slots at the edge portion of the flat upper wall.

4. A one-piece lamp chimney supporting basket comprising a frusto-conical portion provided midway thereof with an annulus to provide a seat for the support of a mantle carrier, the upper edge of the frusto-conical portion terminating in an inwardly projecting flange, the lower end of the frusto-conical portion terminating in an outstanding flange and said flange merging with an upstanding ring-like member stamped out to provide a series of flexibly resilient fingers spaced from contact with the conical portion of the basket.

5. A burner construction having, in combination, a perforated cage open at opposite ends, an internal shoulder adjacent the upper edge of the cage, a deflector having a frusto-conical portion terminating at its base in an outstanding flange and at its upper end in an inwardly projecting flange and having telescopic connection at its base with the cage, the outstanding base flange being seated on the internal shoulder of the base cage, and a chimney supporting basket having a frusto-conical portion adapted to be removably mounted on the frusto-conical portion of the deflector and the deflector flange in such fashion as to prevent the upward passage of air currents between the deflector and the chimney supporting basket, and the upper end portion of the frusto-conical portion of the deflector projecting upwardly beyond the upper edge of the frusto-conical portion of the chimney supporting basket.

6. A generator cap for burners comprising a cylindrical wall closed at one end with a flat wall depressed at its margin to provide an annular step-off having radial slots merging with vertical slots in the upper side wall portion of the cap.

7. An incandescent wick lamp having, in combination, a basket having an internal shoulder adjacent its upper edge, a frusto-conical ring-like deflector, the lower edge of the deflector terminating in an outstanding flange removably seated on said basket shoulder, the upper edge of the deflector terminating in an inwardly projecting flange, and an annular shoulder formed on the deflector intermediate ends thereof, and a chimney supporting basket seated upon the outstanding flange and the annular shoulder.