Aug. 6, 1940. H. W. STRONG 2,210,861

WICK ASSEMBLY

Filed Feb. 6, 1939

Fig. 1.

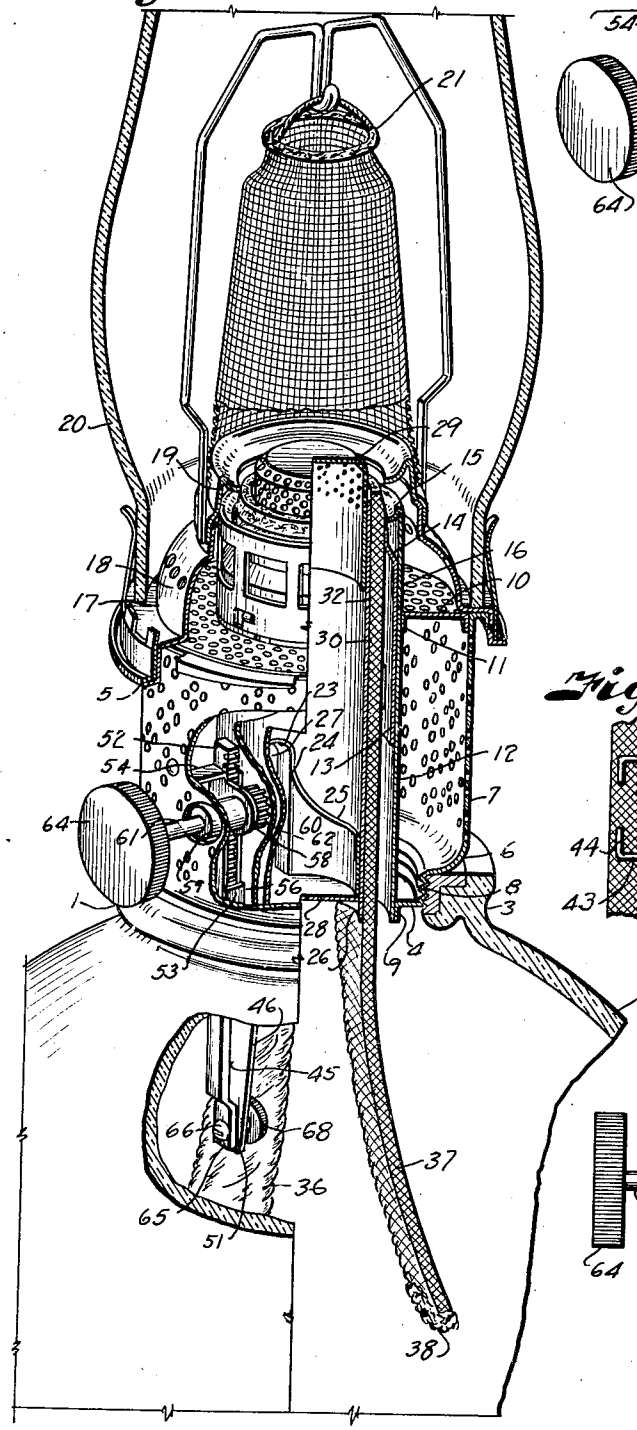


Fig. 2.

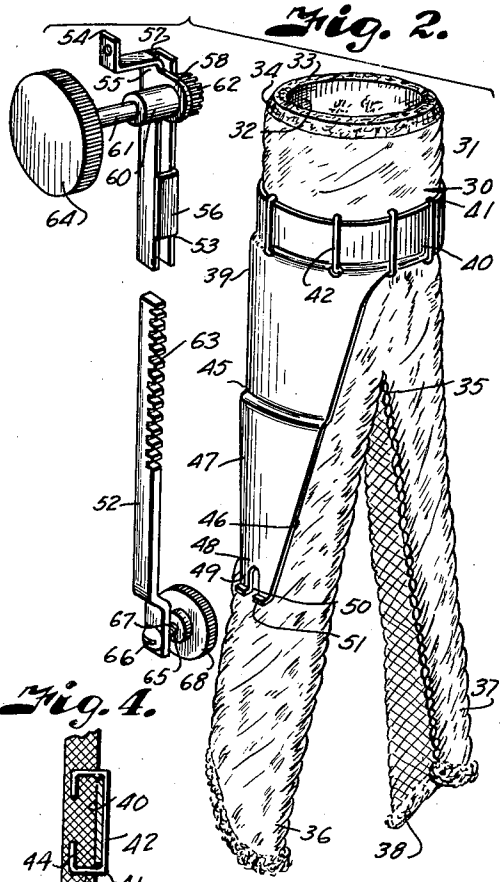
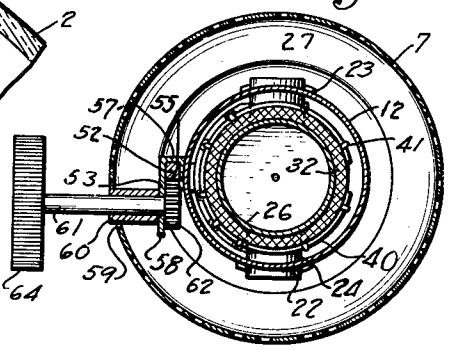


Fig. 4.

Fig. 3.



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WICK ASSEMBLY

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Application February 6, 1939, Serial No. 254,776

8 Claims. (Cl. 67—69)

This invention relates to a wick assembly particularly for oil lamps and similar appliances, and has for its principal objects to provide a wick which facilitates mounting thereof in a burner; to provide a wick carrier that is readily connected with a raising and lowering mechanism; and to provide an improved attachment of the carrier to the wick.

Further objects of the invention are to provide a bifurcated wick having branch portions designed to facilitate capillary movement of the fuel through the wick; and to provide a wick having the flame end treated with a stiffening material to retain the shape of the wick and retard vaporization of the fuel on the inner face thereof.

In accomplishing these and other objects of the invention, as hereinafter pointed out, I have provided improved details of structure, the preferred form of which is illustrated in the accompanying drawing, wherein:

Fig. 1 is a perspective view of a lamp equipped with a wick assembly embodying the features of the present invention, parts of the lamp and wick assembly being broken away and shown in section to better illustrate the construction thereof.

Fig. 2 is a detail perspective view of the wick raising and lowering mechanism and the wick assembly detached therefrom.

Fig. 3 is a horizontal section through the basket portion of the lamp burner showing the relation of the raising and lowering mechanism, the wick, and wick tubes.

Fig. 4 is a detail section through the wick carrier and wick particularly illustrating the interconnection thereof.

Referring more in detail to the drawing:

I have illustrated my invention as applied to a lamp 1 including a font 2 for containing a liquid hydrocarbon fuel, such as kerosene, and having a neck 3 provided with an opening 4 in which is mounted a burner assembly 5.

The burner assembly 5 may be of a type which includes a basket 6 having a cylindrical wall 7 terminating at the bottom thereof in a flange 8 terminating in an inwardly and downwardly extending annulus 9. Mounted in the top of the basket and secured to the rim of the basket wall is a damper plate 10 having an inner annulus 11 registering with the annulus 9 for supporting a concentric outer wick tube 12 that extends completely through the basket to form the outer enclosure of the wick assembly. Sleeved within the upper end of the wick tube 12 is an upper wick tube 13 extending above the damper 10 and terminating in an inwardly swedged collar 14 forming a bearing support for the upper end of the wick, as later described.

The burner also includes a flame flange 15 encircling the wick at a point spaced above the collar portion 14 of the wick tube 13 and which is shown as carried by a skirt-like flange 16 sleeved over the projecting end of the wick tube. The burner further includes a gallery 17 carrying a burner cone 18 and a burner cap 19 which are supported circumferentially about the flame flange and the upper or burning end of the wick. The gallery also includes the usual chimney 20 and a mantle unit 21 that is supported over the burner cap as clearly shown in Fig. 1.

Supported in diametrically arranged openings at the lower end of the wick tube 12 are arch-shaped terminals 22 and 23 of a bridge 24. The intermediate portions 25 of the bridge are of arcuate shape and conform to the inner diameter of an inner wick tube 26 having openings for accommodating the arch-shaped ends of the bridge so that ports 27 are formed through which combustion supporting air is admitted from the basket to the inner wick tube. The inner wick tube 26 is located concentrically within the outer wick tube and has its lower end closed by a plate 28. The inner wick tube extends upwardly above the tip of the collar 14 to provide an extended support for the wick assembly later described. The upper end of the tube 26 is closed by a flame spreader 29 whereby the air is directed laterally across the top of the wick to effect spreading of the flame.

The parts just described are covered in my copending application on Lamp burner assembly, Serial No. 254,775, filed of even date herewith, and specifically form no part of the present invention but are illustrated to give a better understanding of my improved wick assembly which is associated therewith, as now to be described.

The wick assembly includes a wick 30 formed of strands suitably woven to provide a tubular portion 31 having an inner face 32 corresponding to the outer circumference of the inner wick tube and of a wall thickness so that its outer circumference is adapted to move in close contact with the constricted end portion 14 of the outer wick tube 13. The threads forming the upper end of the wick may be adhered together and/or the inner surface 32 stiffened by treatment with a solution such as Bakelite, urea-formaldehyde, cellulose acetate, glue, starch, paste, or the like, which is capable of carbonizing with the wick under heat of the flame and without softening

or leaving a residue which would interfere with operation of the wick or stability of the flame.

The upper end of the wick may be charred to form a flat end face 33 having a downwardly bevelled periphery 34. The lower portion of the wick is bifurcated diametrically thereof, as indicated at 35, to provide diverging branches 36 and 37 of sufficient length to extend a material distance within the font 2. The terminal ends 38 of the branches are formed on a bias to provide points for facilitating threading of the wick into the space between the wick tubes and over the arch-shaped terminals of the bridge.

The wick as described is secured to a wick carrier 39 having a relatively narrow split band 40 encircling the tubular portion of the wick at a point spaced below the upper end thereof and which is secured thereto by wire-like staples 41 having bar portions 42 bridging the band and prongs 43 projected in the fabric of the wick and having terminal ends 44 bent over to imbed within the body of the wick so that they do not engage the inner wick tube. The split character of the band compensates for any variation in the thickness of the wicks and therefore facilitates assembly in manufacture. Depending from one side of the band 40 is an arm 45 of arcuate cross-section as indicated in Fig. 2 and having converging side edges 46 and 47 so that it is sufficiently rigid to maintain fixed relationship with respect to the axis of the wick. In the form of the invention illustrated the arm is of sufficient length to project within the font when the upper end of the wick projects above the wick tubes and terminates in a bifurcated portion 48 having spaced branches 49 to form a screw engaging notch therebetween. The terminal ends 51 of the branches 49 are bent laterally in an outward direction to abut against the lower end of a wick raising and lowering bar 52. The bar 52 is slidably supported in a channel-shaped guide 53 having its lower end anchored in an opening at the bottom of the basket and its upper end supported from a side of the basket by a bracket-like arm 54. The side flanges 55 of the guide closely engage the sides of the bar 52 and one of which is provided with a laterally bent tongue 56 cooperating with the web 57 of the channel-like guide to slidingly retain the bar 52.

Extending from the flange 55 is an ear 58 carrying a bearing sleeve 60 which has its outer end projecting through an opening 59 in the side of the basket. Rotatably supported in the bearing sleeve is a shaft 61 having a pinion 62 on its inner end meshing with teeth 63 on the bar 52. The opposite end of the shaft projects from the basket and carries a knurled disk 64 whereby the shaft may be rotated to effect raising and lowering of the bar. The lower end of the bar has an offset ear 65 abutting against the bifurcated end of the arm and engaging against the terminal ends 51 thereof. The ear 65 carries a screw 66 having its shank 67 projecting through the notch 49 and which carries a knurled nut 68 by which the ear is drawn into clamping contact with the bifurcated end of the wick carrier.

The wick is mounted in the lamp by threading the bifurcated ends 36 and 37 through the annular space formed between the wick tubes and in such position that they pass over the arch-shaped ends of the bridge which supports the inner wick tube. The bias or diagonally formed ends of the branches facilitate threading of the wick to the position as shown in Fig. 1. In this position the notch 50 of the bifurcated end of the arm 45 will pass over the shank 67 of the screw 66. Upon slacking off of the nut 68 the ends 51 will then pass over the inner face of the ear so that they may be moved into engagement with the lower edge thereof as shown in Fig. 1. The knurled nut is then tightened to rigidly clamp the ear against the bifurcated end of the wick carrier. The wick may then be readily raised and lowered with respect to the ends of the wick tubes for adjusting the size of the flame by manipulation of the knurled disk 64. The stiffening of the inner surface of the upper end of the wick retains the shape thereof so that it is raised and lowered evenly relatively to the inner wick tube. The adherence of the strands at the upper end of the wick provides smooth burning surfaces so that the flame is even around its entire periphery.

From the foregoing it is obvious that I have provided a wick assembly which is readily mounted within the burner of a lamp and which is adapted for ready attachment to the raising and lowering mechanism.

What I claim and desire to secure by Letters Patent is:

1. In combination with a wick raising and lowering bar having a laterally extending shank, a wick assembly including a tubular wick, a wick carrier fixed to said wick and having a depending arm provided with a bifurcated end providing spaced branches with a shank engaging notch therebetween, said branches having lateral stop portions on terminal ends thereof for engaging the end of said bar to cooperate with said shank engagement of the notch to limit longitudinal movement of the bar with respect to the arm, and a nut having threaded connection with said shank for drawing the bifurcated end of the arm in clamping engagement with said bar.

2. A wick assembly including a tubular wick, a relatively narrow band in encircling contact with the wick, staples bridging the band and having prongs imbedded in the wick at the respective edges of the band, and an arm integral with the band and depending from the lower edge thereof, said arm being of arcuate cross-section and having a bifurcated terminal end forming branches on the respective sides of a screw engaging notch.

3. A wick assembly including a tubular wick, a relatively narrow band in encircling contact with the wick, staples bridging the band and having prongs imbedded in the wick at the respective edges of the band, and an arm integral with the band and depending from the lower edge thereof, said arm being of arcuate cross-section and having a bifurcated terminal end forming branches on the respective sides of a screw engaging notch, said branches having laterally projecting lugs.

4. A wick assembly including a woven strand tubular wick, a wick carrier having a relatively narrow band encircling the exterior face of the wick at a point spaced below the upper end, the strands forming the inner portion of the wick above said band being adhered to one another by a stiffening material and charable with the wick, the lower end of said wick being bifurcated for admitting air to the center of the wick with said bifurcations terminating short of said band, means securing the band to said wick, an arm rigidly depending from said band exteriorly of the wick and along the exterior side of said bifurcated portion, and attachment means on the lower end of said arm adapted for connection with

a raising and lowering means of a lamp in which the wick assembly is installed.

5. A wick including a body having a tubular upper portion and a bifurcated lower portion providing oppositely arranged branches, said branches being formed with one side edge on one branch longer than the adjacent side edge of the other branch to form substantially bias shaped tips on the ends of said branches to facilitate threading of the wick in a burner.

6. A wick assembly including a tubular wick, a wick carrier having a relatively narrow band portion encircling the wick and provided with a depending arm for connecting the wick with a raising and lowering mechanism, and staples having bar portions extending longitudinally of the axis of the wick in bridging engagement with the outer face of the band portion and provided with prongs closely engaging upper and lower edges of the band portion and imbedded in the wick with the terminal ends of said prongs overlying the inner face of the band portion, said arm having openings for passing the prongs of selected staples.

7. In combination with a wick raising and lowering bar having a laterally extending shank, a wick assembly including a tubular wick, a wick carrier fixed to said wick and having a depending arm provided with a bifurcated end for engaging over said shank, and a nut threaded on said shank for drawing the bifurcated end of the arm in rigid clamping engagement with said bar for restraining movement between the bar and said arm.

8. A wick assembly including a tubular wick, a wick carrier including a relatively narrow band encircling the wick, and an arm integral with the band and embracing substantially half the circumference of the wick at the point of connection with the band and having side edges tapering downwardly from the band to form an attaching connection with a raising and lowering mechanism of a lamp in which the wick assembly is installed.

HIRAM W. STRONG.