H. J. BALLENTINE.

LAMP BURNER.

APPLICATION FILED FEB. 17, 1909.

951,791. **Patented Mar. 15, 1910.**

2 SHEETS—SHEET 1.

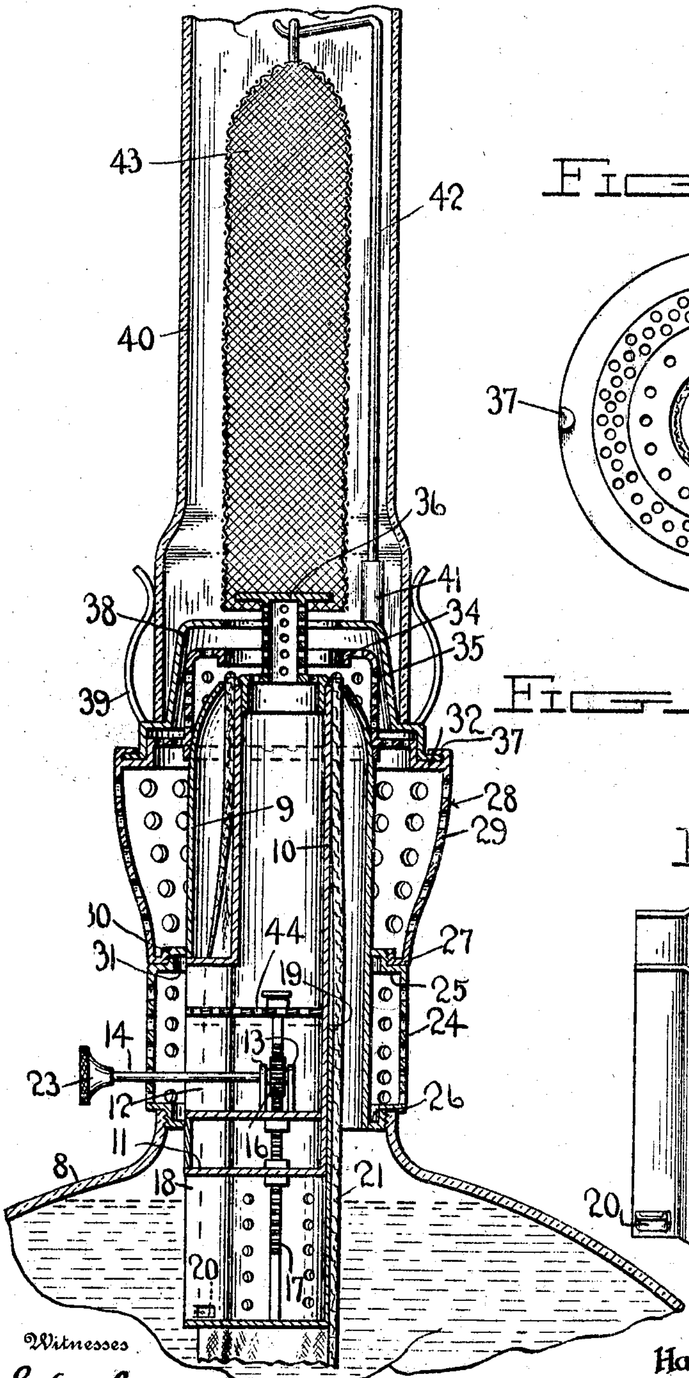


FIG_1_

FIG_2_

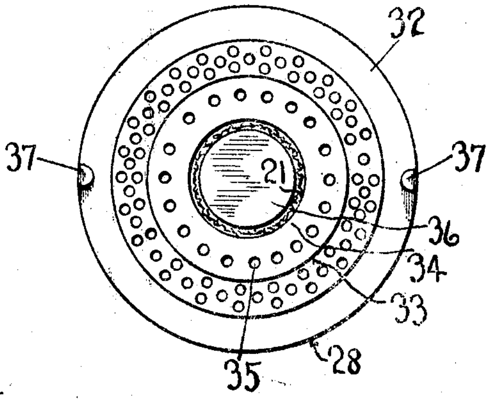
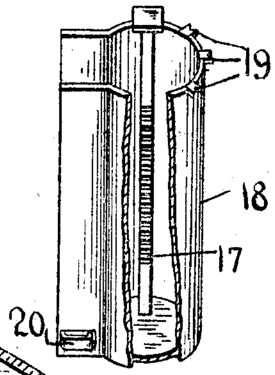


FIG_3_



Witnesses

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2 SHEETS—SHEET 2.

Fig. 4.

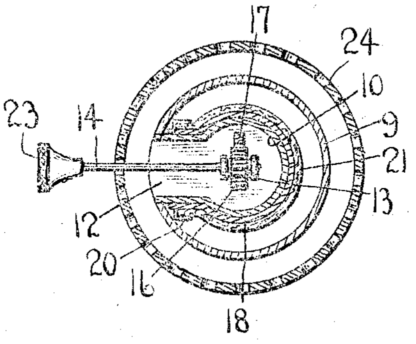
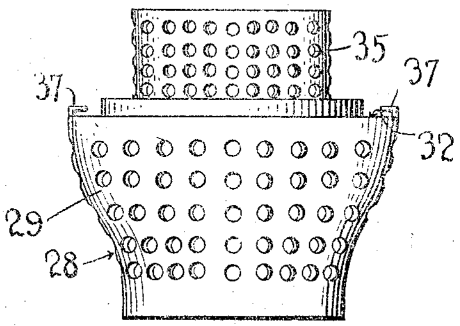


Fig. 5.



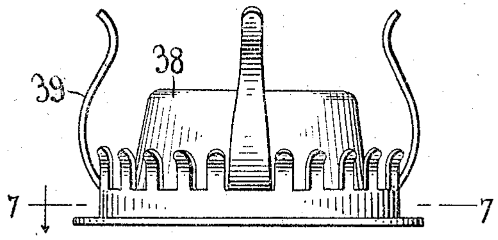
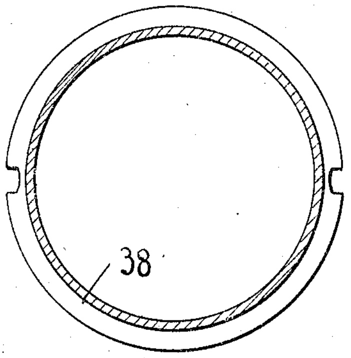


Fig. 6.

Fig. 7.



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UNITED STATES PATENT OFFICE.

HARLAN J. BALLENTINE, OF SYCAMORE, ILLINOIS.

LAMP-BURNER.

951,791. Specification of Letters Patent. Patented Mar. 15, 1910.

Application filed February 17, 1909. Serial No. 478,354.

To all whom it may concern:

Be it known that I, Harlan J. Ballentine, a citizen of the United States, residing at Sycamore, in the county of Dekalb, State of Illinois, have invented certain new and useful Improvements in Lamp-Burners; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The invention relates to a lamp burner and more particularly to the class of fluid burners employing an incandescent mantle.

The primary object of the invention is the provision of a burner in which a draft of air is fed centrally through the wick and also a supply of air is supplied circumferentially exteriorly of the wick so as to increase and make more efficient the air carrying capacity of the burner and therefore the condition and heat carrying capacity of the flame and illumination or incandescence of the mantle.

Another object of the invention is the provision of a burner of this character which can be readily taken apart for the easy cleaning thereof and that is simple in construction, thoroughly efficient in operation and inexpensive in the manufacture.

With these and other objects in view the invention consists in the construction and combination of parts as will be hereinafter more fully described in detail, illustrated in the accompanying drawings which disclose the preferred form of embodiment of the invention to enable those skilled in the art to practice the same and as brought out in the claims hereunto appended.

It is to be understood that minor changes, variations and modifications may be made such as come properly within the scope of the claims hereunto appended without departing from the spirit of the invention.

In the drawings: Figure 1 is a vertical central sectional view through the burner and an elevation of the major portion of the mantle and its support. Fig. 2 is a top plan view of the burner with the conical deflector and spring chimney holder removed. Fig. 3 is a perspective view of a rack for actuating the wick of the burner. Fig. 4 is a sectional view transversely of the burner showing the mounting of the pinion and its shaft and the engagement thereof with the rack. Fig. 5 is a side elevation of the perforated burner head. Fig. 6 is a side elevation of the removable perforated outer shell of the burner. Fig. 7 is a sectional view on the line 7—7 of Fig. 6.

Similar reference characters indicate corresponding parts throughout the several views in the drawings.

In the drawings, the numeral 8 designates the oil font which may be of any well known construction to which is detachably connected the lamp burner comprising a wick tube 9 the same having its upper free ends contracted and within said wick tube is arranged a central draft tube 10 the same being of a length corresponding to said wick tube and having a closed bottom 11 directly above which is formed a chamber 12 which opens through the side of the wick tube.

Within the chamber 12 are spaced bearing pieces 13 in which is journaled a horizontal shaft 14 which latter has fixed thereto a toothed pinion 16 the same having its teeth engaging a rack bar 17 passing through a suitable opening formed in the closed lower end of the draft tube 10 and rising vertically in the chamber 12 from the closed end of a wick raising element 18, the latter being of substantially semi-circular shape in cross section so as to conform to the shape of one-half of the draft tube 10 to lie contiguous with the exterior face thereof and also to move longitudinally between the draft tube and said wick tube. Projecting from the upper edge of the wick raising element 18 are spurs 19 and fixed at diametrically opposite sides of the wick raising element near the bottom thereof are spring fingers 20 which latter with the spurs 19 engage and hold fast to the wick raising element a wick 21 which latter is adapted to move longitudinally between the draft and wick tubes respectively when turning the shaft 14 upon gripping the finger disk 23 fixed to the outer free end of said shaft.

Surrounding the wick tube is a burner body comprising an annular perforated wall 24 the latter having at its upper edge an inwardly extending annular flange 25 which latter encircles and is secured to the outer face of the wick tube 9 and the lower edge of said wall is formed with an annular flange 26 secured to the lower end of the wick tube. The said annular wall 24 is notched to accommodate the shaft 14 projecting outwardly from the chamber 12 of the burner. In threaded engagement with the flanged top edge of the wall 24 of the burner body is an annular bearing flange 27 integral with an outer casing or shell 28.

The shell or casing 28 comprises a bulged annular wall 29 the same being contracted at its lower edge and having interior screw threads 30 adapted to engage external threads 31 formed on the burner body above its flange 27 so as to detachably secure the said shell or casing to the burner body and circumferentially of the wick tube of the burner. The said shell or casing 28 is provided with a flat annular top 32 the latter extending from the wall 29 inwardly to a point in close proximity to the exterior face of the wick tube 9 and has rising from said top, a deflector tube 33 formed at its upper cylindrical edge with an inturned flange 34 the latter disposed above the upper edge of the wick tube. The said shell or casing with its deflector tube and inturned flange are provided with a plurality of draft openings 35 to permit a supply of air to the wick circumferentially about its outer surface.

Mounted in the upper end of the draft tube 10 is a perforated burner head 36 forming a flame spreader for the burner and also to permit a current of air to pass from the draft tube 10 centrally of the wick.

Secured to the top 32 of the shell or casing 28 near the marginal edge thereof are engaging tongues or lips 37 for detachably securing in superimposed position upon the shell or casing, an outer deflector element 38 which is in the form of an imperforate casing and has secured thereto chimney engaging fingers 39 for supporting upon the burner a chimney 40. Rising vertically at one side of the deflector element 38 is a vertical tube 41 in which is detachably mounted a standard or hanger 42 which holds and suspends a mantle 43 above the wick. The lower edge of said mantle surrounds the outer deflector element 36 of the burner so as to be illuminated by the flame from the wick of the burner. The top wall of the chamber 12 is provided with a series of openings 44 so as to permit a draft of air to enter said chamber from one side of the burner and pass upwardly through the openings into the draft tube 10 where it is discharged or delivered at the top of the burner centrally of the wick. It is obvious that the burner also receives a draft of air through the perforated shell or casing 28 to the outside of the wick at the top of the burner and at which point the draft taken through the draft tube 10 and the outside draft tend to unite so that the flame produced by the wick will be caused to burn a larger per cent. of air than the ordinary oil burner and present a blue gaseous flame.

It is thought the foregoing description will make clear the construction, operation and advantages of the burner and therefore a further detailed description of the same is deemed unnecessary.

What is claimed is—

1. The combination with a burner having a wick tube and a central draft tube arranged within the same, of a substantially U-shaped wick raising member slidable between the wick and draft tubes and having straight parallel longitudinal edges, a split wick disposed between said member and the wick tube, outwardly projecting spurs formed at the upper edge of said member and engaging the wick, and spring fingers horizontally disposed and cut from the member near the lower end thereof to engage the split edges of the wick.

2. The combination with a burner having a wick tube and a central draft tube arranged within the same, of a substantially U-shaped wick raising member slidable between the wick and draft tubes and having straight parallel longitudinal edges, a split wick disposed between said member and the wick tube, outwardly projecting spurs formed at the upper edge of said member and engaging the wick, spring fingers horizontally disposed and cut from the member near the lower end thereof to engage the split edges of the wick, a rack bar rising centrally within said member and adapted to travel within the draft tube, bearing ears fixed to said draft tube, a turning shaft having its inner end journaled in said bearing ears and a gear fixed to said shaft and engaging the rack bar.

3. The combination with a burner having a wick tube and a central draft tube arranged within the same, of a substantially U-shaped wick raising member slidable between the wick and draft tubes and having straight parallel longitudinal edges, a split wick disposed between said member and the wick tube, outwardly projecting spurs formed at the upper edge of said member and engaging the wick, spring fingers horizontally disposed and cut from the member near the lower end thereof to engage the split edges of the wick, a rack bar rising centrally within said member and adapted to travel within the draft tube, bearing ears fixed to said draft tube, a turning shaft having its inner end journaled in said bearing ears, a gear fixed to said shaft and engaging the rack bar, and a perforated shell formed of separable sections surrounding the wick tube.

In testimony whereof, I affix my signature, in presence of two witnesses.

HARLAN J. BALLENTINE.

Witnesses:
Arthur C. Smith,
Geo. A. James.