

(No Model.)

S. W. BABBITT & H. B. BEACH.

LAMP.

No. 382,936.

Patented May 15, 1888.

Fig. 1

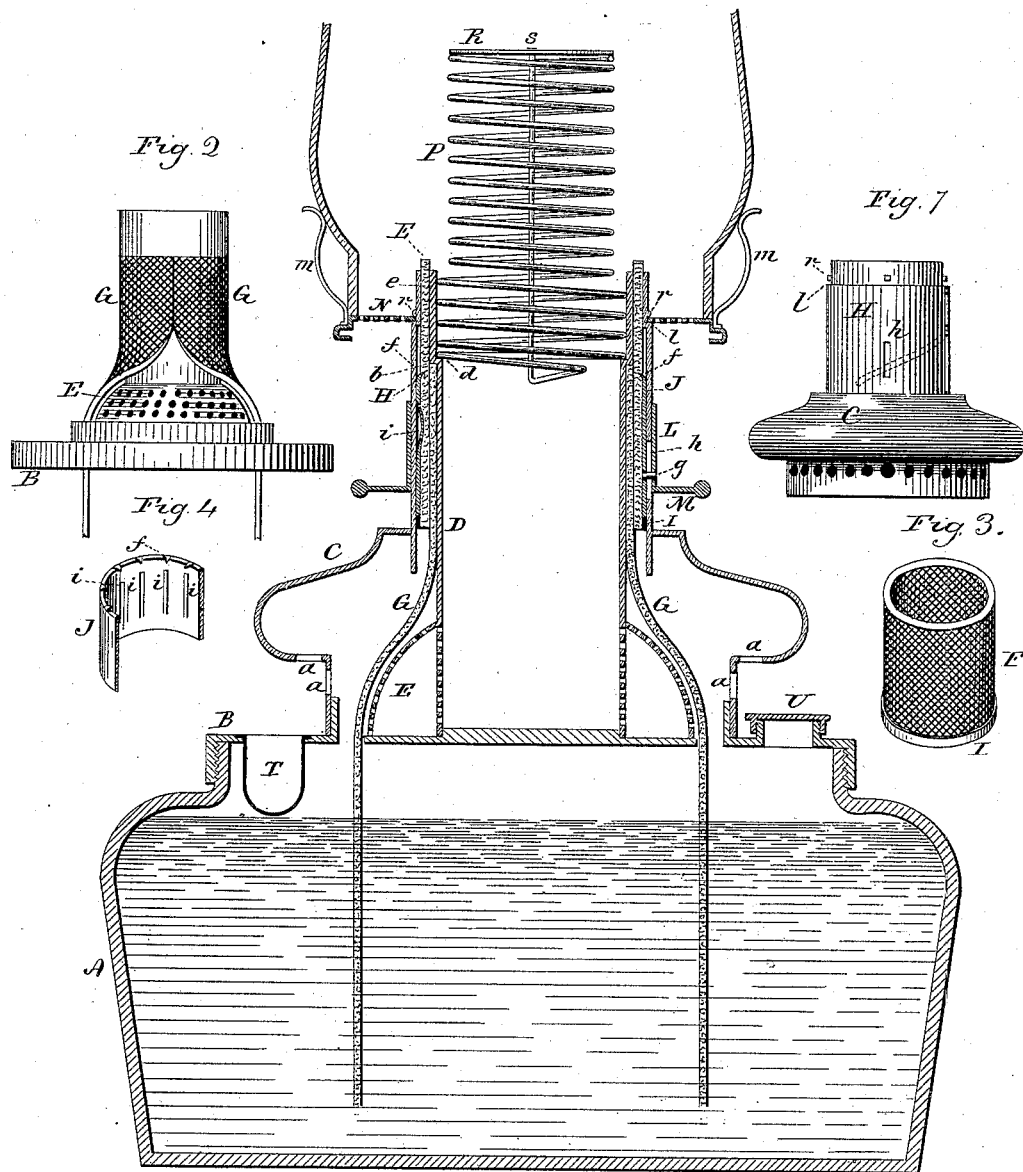


Fig. 2

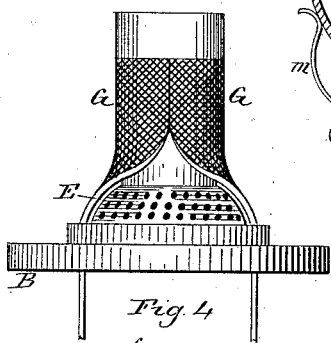


Fig. 4

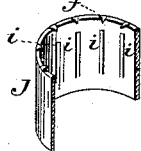


Fig. 7

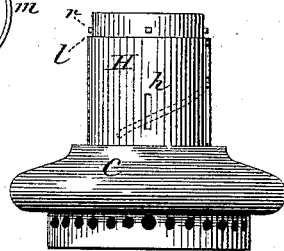


Fig. 3.

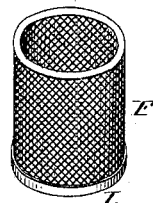


Fig. 5

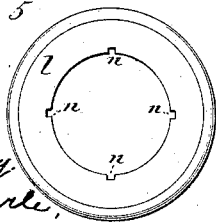
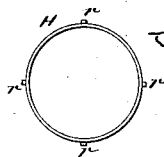


Fig. 6.



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UNITED STATES PATENT OFFICE.

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LAMP.

SPECIFICATION forming part of Letters Patent No. 382,936, dated May 15, 1888.

Application filed February 28, 1887. Serial No. 229,143. (No model.)

To all whom it may concern:

Be it known that we, S. WILLIAM BABBITT and HENRY B. BEACH, of Meriden, in the county of New Haven and State of Connecticut, have invented a new Improvement in Lamps; and we do hereby declare the following, when taken in connection with accompanying drawings and the letters of reference marked thereon, to be a full, clear, and exact description of the same, and which said drawings constitute part of this specification, and represent, in—

Figure 1, a vertical central section of the lamp; Fig. 2, a detached view showing the feeder-wicks as they extend over the enlarged inlet or chamber below; Fig. 3, the wick detached, showing the ring secured at its lower end; Fig. 4, a detached view of the wick-feed; Fig. 5, a plan view of the chimney-gallery; Fig. 6, an upper end view of the outer wick-tube; Fig. 7, a modification in the wick-adjuster.

This invention relates to an improvement in that class of lamps in which the wick is tubular and receives a supply of air centrally through the tubular wick, and such as are commonly called "central-draft lamps," the object being to increase the illuminating power of the lamp, to insure a regular supply of oil, and to afford improved facilities for trimming.

A represents the fount, which may be of any desirable shape or any suitable material. On the top B of the fount stands the base C of the burner. Within the base is a central tube, D, which tube forms the central draft. Around the lower end of the tube D is an air-chamber, E, its outer wall perforated and with perforations from the chamber into the lower end of the central tube, D. The base C is also provided with numerous openings *a*, into a chamber surrounding the chamber E, and so that the air admitted through the perforations *a* into the outer chamber will freely flow through the perforations in the wall of the chamber E, and thence into the central-draft tube D. Near the upper end the tube D is enlarged, so as to form both an outer shoulder, *b*, and an inner shoulder, *d*, above. The enlarged portion *e* of the tube D corresponds in diameter to the internal diameter of the wick

F. Around the tube D feeder-wicks G are applied, more or less in number, but sufficient to completely surround the inner tube, D, as indicated in Fig. 2, but to spread over the outer spherical surface of the chamber E and expose the perforations opening into the chamber, as seen in Fig. 2. These wicks G extend down into the fount to take up the oil therein. The wicks extend and abut against the shoulder *b* of the tube D, and in thickness correspond substantially to the projection of the shoulder *b*, as seen in Fig. 1. The wick F surrounds the feeder-wicks G, but so as to be freely moved up and down. From the base a tube, H, extends up concentric with the inner tube and outside the wick, so that the wick-chamber is formed between the outer tube, H, and the inner tube, D. The wick F does not extend below the base C—that is to say, the wick is a short tubular wick, as seen in Fig. 3. To the lower end of the wick F a metal ring, I, is secured, the diameter of which corresponds to the interior of the outer tube, H, and so as to give firmness to the lower end of the wick. The upper ends of the tubes H and D should terminate in the same plane, as seen in Fig. 1, so as to form a base for the flame, as in the usual construction of this class of lamps.

Various known devices may be employed for adjusting the wick F; but we have devised an adjuster of peculiar construction. Our adjuster consists of a ring, J, the internal diameter of which corresponds to the external diameter of the wick, and it is arranged inside the outer wick-tube, H, the outer tube being somewhat enlarged to permit the wick-adjuster ring J to move freely up and down therein. The ring J is provided with numerous inwardly-projecting spurs *f*, (see Fig. 4,) adapted to engage the wick F.

The adjusting-ring J is movable up and down, guided by the tube within which it is arranged, so as to always maintain the same horizontal plane, and because of the engagement of the spurs with the wick any up-and-down movement of the adjuster will impart a corresponding up-and-down movement to the wick, and because the adjuster is engaged with the wick at numerous points in its circumference the

regular and uniform rise or fall of the wick is insured.

The adjuster is best raised and lowered by applying a concentric ring or collar, L, outside the tube H, which is engaged with the adjuster-ring J—say by a stud, *g*, connecting the two through a slot, *h*, as seen in Fig. 1—and the ring L is provided with a laterally-projecting flange, M, as a convenient means for moving the collar L up or down, so that to adjust the wick take hold of the flange M and raise or lower it, as the case may be, and the wick F will be correspondingly adjusted.

The wick-adjuster ring J may to advantage be provided with inwardly-compressing springs *i*, as seen in Figs. 1 and 4, to bear against the wick and increase the friction between the wick-adjuster and the wick, as well as to hold the wick against the feeders.

The base C sets upon the top of the lamp, and is connected directly to the outer tube, H, so that the base of the outer tube, with the wick-adjuster, may be removed entirely from the inner tube and the feeder-wicks by simply lifting it from its place, and when so lifted from the lamp the wick F may be readily removed or introduced, as for removing the remains of an old wick and supplying a new.

N represents a chimney-gallery, which is in the form of a concentric ring, having an opening through it corresponding to the external diameter of the outer tube, H, and so as to rest upon an outward shoulder, *l*, on the tube H, as seen in Fig. 1. This gallery is simply a flat ring, perforated for the admission of air within the chimney outside the wick-tubes, and is provided at its outer edge with springs *m*, or equivalent device, to engage the chimney and hold it in place upon the gallery.

In Fig. 5 is seen a top view of the gallery-ring, and in Fig. 6 a top view of the outer tube, H, over which the gallery sets. To lock the gallery-ring in place, it is constructed with several notches, *n*, and the tube is constructed with corresponding projections, *r*, (see Fig. 6,) above the shoulder *l*, equal to the thickness of the gallery-ring, and so that the ring may be set over the tube, and the notches *n* passing over the projections *r* will permit the ring to come to its seat upon the shoulder *l* and then turn to the right or left, the ring will be interlocked with the projection *r*, as seen in Fig. 1, and so as to firmly hold the chimney in its proper position. The gallery may be removed by reversing the operation. By this simple construction of the gallery, making it easily removable, the upper end of the wick is clearly exposed for trimming—a great convenience in this class of lamp.

In this class of lamps air distributors of various characters have been introduced into the upper end of the inner tube extending above the upper end of the wick, so as to discharge the air coming through the inner tube laterally into the flame. These distributors have usually been of a perforated metal, and produce a good result, but the air is injected

into the flame in finestreams. We have found it advantageous to introduce the air into the flame in horizontal sheets, instead of the fine streams, as heretofore. To this end we construct the central air-distributor in the form of a helical coil, P, as seen in Fig. 1. This helical coil is of a diameter to rest upon the shoulder *d* inside the tube D, and is made from wire, like a helical spring. It extends above the wick-tube to the extent to which it is desired to deflect air into the flame. The upper end of the distributor is closed by a metal cap, R, and this cap is held in place, preferably by turning the lower end of the wire upward centrally through the tube and connecting it with the deflector above, as at *s*. This connection from the lower end of the spring to the deflector serves to give strength to the distributor and maintain it in its proper length, and that length may be adjusted to give a greater or less extent of projection by shortening or lengthening the connection between the top and bottom, as may be desirable.

The distributor above the top of the wick-tubes should be of considerably less diameter than the diameter of the wick. To this end we make the lower portion of the deflector P of a diameter corresponding to the internal diameter of the tube D, and so as to rest upon the shoulder *d*, this diameter continuing nearly to the top of the wick-tubes, and at that point the convolutions are made of smaller diameter, as seen in Fig. 1. They may, however, be of a continuous diameter throughout.

The air coming through the inner tube, D, rises into the distributor in the usual manner, and passes directly through the spaces between the convolutions into the flame, thus giving a continuous spiral sheet of air into the flame in contradistinction to numerous jets or streams, as in perforated distributors, and by which not only is the extent and intensity of the flame very greatly increased, but its steadiness is greatly improved.

We have said other wick-adjusters than that we have described may be employed. To illustrate a modification for such wick-adjuster, the slot *h* in the tube H, instead of being vertical, as seen in Fig. 7, and so that the adjusting-ring L is moved up and down, the slot may be inclined, as seen in broken lines, Fig. 7. Then by a rotative movement of the ring L the stud *g* will follow the inclined slot up or down, as the case may be, and impart the same up-and-down movement to the wick-adjuster, substantially as in similar constructions of wick-adjusters.

In filling a lamp-fount other than glass it is difficult to determine when the fount is properly filled. To provide a means to determine this fact, we introduce into the fount a glass cup, T, which is set through the top of the fount, and extends downward therein to about the desired level of oil in the fount. This cup should be firmly secured in the fount. The fount is also provided with the usual filling-tube, U. In filling the lamp, so soon as the oil

reaches the cup T it will be perceived, and thus the over or short filling will be easily avoided.

The feeder-wicks G G take the oil from the fount and carry it up inside the burner-wick F, the burner-wick absorbing its oil from the wicks G. Under this construction the burner-wick may be made very short, and yet be fully supplied with oil, and because it does not dip into the oil and only absorbs sufficient for burning purposes, it follows that when the burner with the burner-tube is removed from the lamp the usual dripping from the wick-tube will be entirely avoided.

The enlargement or chamber E around the lower end of the inner tube causes the feeder-wicks to spread, as before described, to expose the perforations admitting air to the inner tube. This device may be employed in central-draft lamps in which the wick is composed of several vertical strips, in the aggregate sufficient to form the tubular wick at the upper end. By this enlargement the wicks are spread below, so as to freely admit air to the inner tube. This part of the device may therefore be employed without feeder-wicks.

We do not wish to be understood as broadly claiming the introduction of glass into a fount for the purpose of internal observation, as such, we are aware, is not new; but under our invention the cup shape of the glass extends down into the fount, so that the oil comes in contact with that cup before the fount is completely filled, and that contact is readily observable through the cup.

We claim—

1. In a tubular-wick lamp, the combination of the outer tube surrounding the wick, constructed with an outwardly-projecting shoulder, L, and with projections r above, and the ring chimney-gallery N, corresponding in diameter to the upper end of the wick-tube, and with notches upon its inner edge corresponding to the projections on the wick-tube, the said ring-gallery provided with devices to secure the chimney thereon, substantially as described.

2. In a tubular-wick lamp, the combination

of a concentric inner tube and an outer tube forming a wick-chamber between them, a wick-feed consisting of a ring arranged within the outer tube and adapted to move up and down therein, the said ring constructed with inwardly-projecting spurs to engage the wick, and a collar, L, surrounding the said outer tube and adjacent to the said ring, the said outer tube slotted vertically between the said ring and collar, and the said ring and collar connected through said tube, substantially as described.

3. In a tubular-wick lamp, the combination of a concentric inner tube and an outer tube forming a wick-chamber between them, the said inner tube having an annular shoulder upon its outside near its upper end and in said wick-chamber, a feeder-wick surrounding the inner tube, and so as to abut against said shoulder, a burner-wick surrounding the upper end of said feeder-wick, and a wick-adjuster within the outer tube and adapted to surround the burner-wick, the said ring having a projection therefrom outside the outer tube, whereby the said ring is made adjustable vertically, and the said ring constructed with springs adapted to bear upon the said burner-wick and press it against the feeder-wick, substantially as described.

4. In a central-draft lamp, the combination of the inner tube, an enlarged chamber, E, around the lower end of the said tube, said chamber being perforated for the admission of air to the tube, and a base surrounding said perforated chamber, the base having perforations to admit air to the said chamber, substantially as and for the purpose described.

5. In a lamp-fount, the glass cup T, introduced from the top of the fount and extending therein, substantially as and for the purpose described.

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