J. B. ALEXANDER,

Lamp-Chimney Holder.

No. 87,898. Patented March 16, 1869.

Fig. 1.

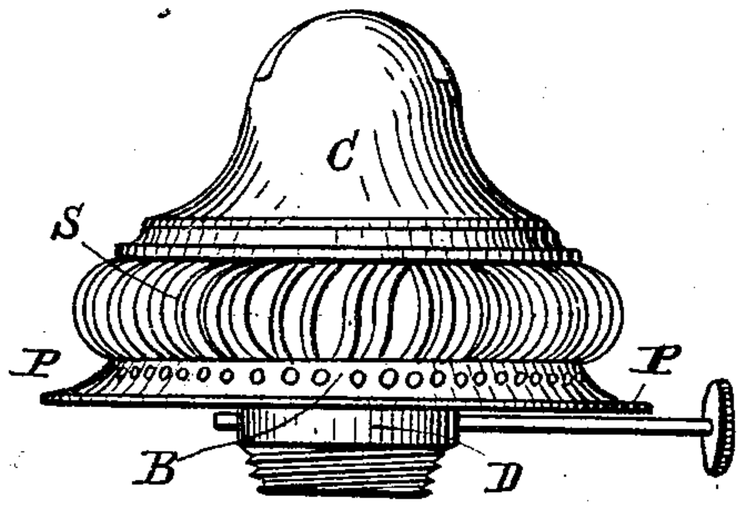


Fig. 2.

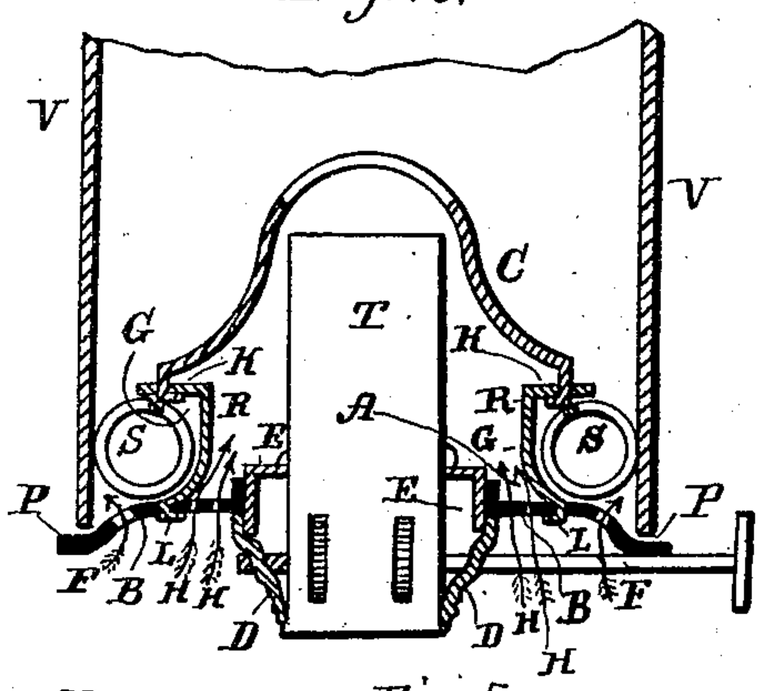


Fig. 3.

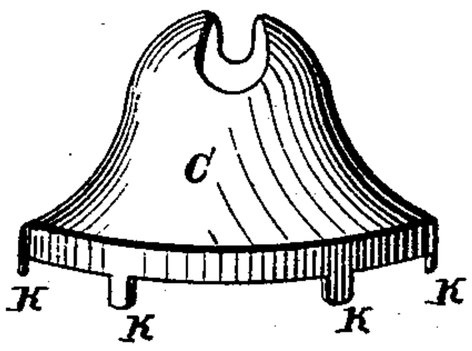


Fig. 4.

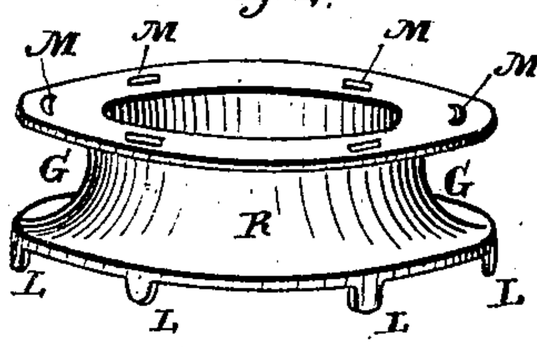


Fig. 5.

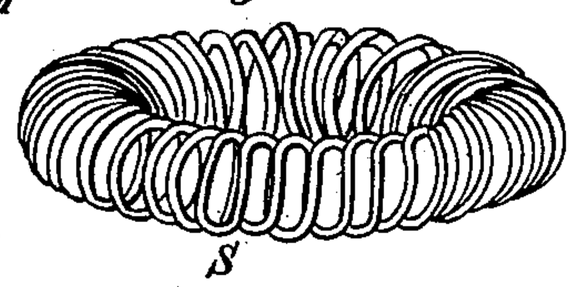


Fig. 6.

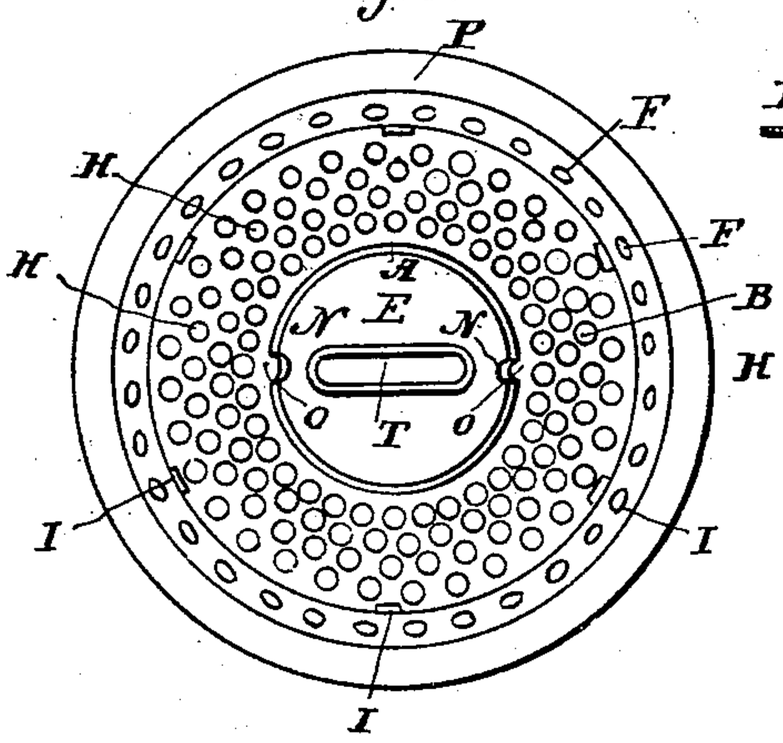


Fig. 7.

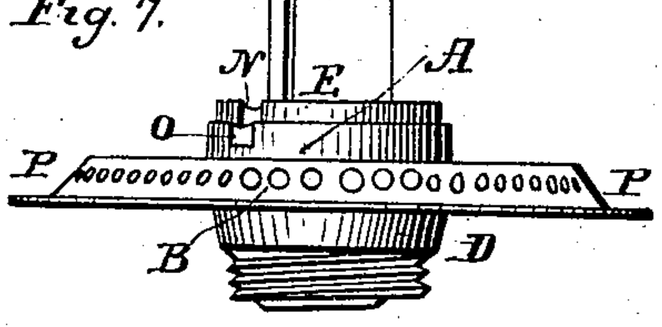


Fig. 8.

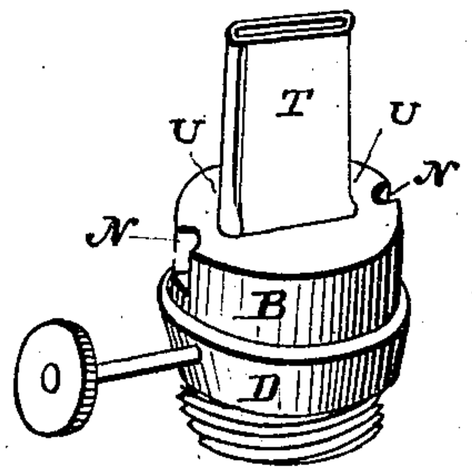
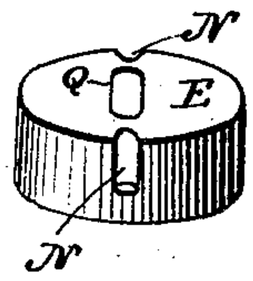


Fig. 9.



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JOSEPH BELL ALEXANDER, OF WASHINGTON, DISTRICT OF COLUMBIA.

Letters Patent No. 87,898, *dated March* 16, 1869.

IMPROVEMENT IN LAMP-BURNERS.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, JOSEPH BELL ALEXANDER, of Washington, in the county of Washington, and District of Columbia, have invented a new Improvement in Lamp-Burners; and I do hereby declare the following, when taken in connection with the 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 side view in perspective;

Figure 2, a vertical section;

Figure 3, the deflector in perspective;

Figure 4, the spring-holder in perspective;

Figure 5, the helical spring in perspective;

Figure 6, the draught-plate, with wick-tube and casing inserted, in perspective;

Figure 7, a side view of the draught-plate, with the wick-tube inserted, in perspective;

Figure 8, the wick-tube and its casing, as separated from the draught-plate, in perspective; and in

Figure 9, a cap with indentures on its sides, forming a part of the casing of the wick-tube, when in union with the base, in perspective.

Similar letters of reference denote like parts.

This invention relates to an improvement in that class of burners designed for burning kerosene and similar oils; and consists in the peculiar construction of the burner, and the arrangement for the support of the chimney.

To enable others to construct my improvement, I will proceed to describe the same as illustrated in the accompanying drawings.

By referring to the letters of reference, it will be seen that they denote, as follows:

A, a circular sleeve, struck up in the centre of the draught-plate B, with the inward-projecting teeth O O, to admit and adjust the wick-tube, with its casing E and D.

B, the draught-plate.

C, the deflector.

D, the base, on which is cut the usual screw.

E, the cap enclosing the wick-tube and wick-adjuster, struck up with the indentures N N, to correspond with the teeth O O, and made to slip easily into the sleeve A.

F F, a circle of air-holes in the draught-plate B, to keep the chimney cool, and to supply a certain quantity of air to the flame from the outer side of the deflector C.

G, a groove formed in the ring R, for the purpose of holding a helical spring, in which said spring fixes itself by its own contraction.

H H, several circles of air-holes in the draught-plate B, to supply sufficient air directly through the deflector to the flame.

I I, a number of slots in the draught-plate B, to admit the tongues L L, by which the spring-holder, or ring, R is made fast to said draught-plate.

M M, several slots in the top rim of the ring R, to admit the tongues K K, by which the deflector C is made fast to said ring R.

N N, two indentures struck in the cap E, to correspond with the inward projections O O of the sleeve A.

P, a flanch on the periphery of the draught-plate B, as a rest for the base of the chimney.

R, a grooved ring, or spring-holder, which comes between the deflector and draught-plate.

S, a helix, of spring-wire, with the ends united, so as to form a continuous circle.

T, the wick-tube, attached to the base, D, and cap E; and

V, the glass chimney.

With proper dies, I should make a draught-plate, as shown in B, figs. 6, 7, and 1, like an inverted dish, with sufficient air-holes, H H and F F, to supply the flame both inside and outside of the deflector; also, I should strike, from its centre upwards, a band, or sleeve, A, and at opposite points on this band A, I should strike inwardly two projections O O; and I should also punch several slots, I I, to admit the tongues L L L.

I should then make a cylinder, or ring, like fig. 4, with the groove G, the slots in the upper rim M M M, and the downward-projecting tongues L L L, which tongues must correspond in number and position with the slots I I I in the draught-plate.

I now insert the tongues L L L into the slots I I I, and turn their points with a stroke of a die, as seen in fig. 2, thus attaching firmly the ring R to the plate B.

I then make a deflector like that shown in fig. 3, with the tongues K K K projecting downward, which must correspond in number and position with the slots M M M.

I now insert the tongues K K K into the slots M M M, and turn their points with the stroke of a die, as seen in fig. 2, thus attaching firmly the deflector C to the ring R.

I then make a spring-wire helix of sufficient length, and unite the ends with solder, or otherwise, and slip it over the deflector C, allowing it to contract into the groove G.

This part of the burner is now finished.

I then strike up a base, D, in the usual form, and cut a screw on the shank, in the usual manner, and through the base of the shank, I cut a slot, for the insertion of the foot of the wick-tube.

In this base, D, I also punch holes, to admit the axle of the wick-adjuster, which adjuster I now make and fix in place.

I then make the cap E, with the indentures N N at opposite points, which must correspond with and fit the projections O O in the sleeve A. I also cut a slot, Q, in the top of the cap E, as in fig. 9, to admit the wick-tube T.

I then form a wick-tube, T, of sufficient length, and at a proper point on the edges, I punch out two knots U U, in the usual manner.

I then slip the foot of the wick-tube T through the

slot Q in the cap E, and also through the slot in the bottom of the base, D, the wick-adjuster being in place, until the knots U U are in contact with the top of the cap E.

I now spread the foot of the wick-tube with a die, and all the parts are joined firmly together, as seen in fig. 8.

This may now be screwed into the collar of a lamp, and the plate, B with its ring R, spring S, and deflector C, attached together, may be slipped on or off the cap E, at will.

The glass chimney is attached by merely slipping it down over the spring S, the convolutions of which, not being able to yield by receding in a direct line, on account of the unyielding groove G, turn obliquely, and make a most powerful spring, not only firmly holding on the chimney, but readily adapting itself to all the variations in size which occur in the various chimneys in the market.

The action of the spring S is peculiar. A helical spring, with its convolutions twisted through little holes for the purpose, punched around the edge of an elevated deflector, has been used as a support for a glass chimney on a lamp-burner, and being held by its continuous attachment to the edge of the deflector, it does not require its ends to be united, while its convolutions yield in a direct line from the circumference toward the centre, by turning backward under the edge of the deflector, thus displaying the weakest power of the spring, and requiring to be well elevated to sustain the chimney in its place.

My spring, having its internal circle held firmly against an unyielding ring of metal, by its own elasticity, cannot recede in a direct line from the pressure of the chimney; consequently its convolutions assume, under pressure of the chimney, an oblique direction, thus giving great power to the spring, and firmness in the support of the chimney.

The action of the two springs will be seen, at a glance, to be entirely different, the one requiring to be elevated, while the other acts upon the base of the chimney.

The chimney can always be removed by the hand while the lamp is burning, its base being kept cool by the free flow of air through the outer circle of holes in the plate B, marked F F, while the whole body of the burner, with the wick-tube, is kept cool by the free flow of air through the holes H H.

The advantages of this improvement are as follows:

It is symmetrical in form; it admits of a very short wick-tube; it is easy to clean, the spring being slipped off and on at will; and it can be trimmed and lighted with facility, as the plate B, holding the chimney, slips readily off and on the cap E, being adjusted by the projections O O in plate B, slipping into the notches N N in cap E.

I do not claim, broadly, the use of a helical spring, for the purpose of supporting a chimney upon a lamp-burner.

What I do claim as new, and as my invention, and desire to secure by Letters Patent, is—

1. The use of a helical spring to hold the chimney on a lamp-burner, when the said spring has its ends united, so as to form a ring, and is attached to the burner by its elasticity only, and when its inner circle rests against an unyielding back, causing the convolutions of said spring to assume an oblique direction under pressure, the chimney being put on by a twisting motion, substantially as described, and for the purpose set forth.

2. The cylindrical ring R, with its groove G, its slots M M M, and its tongues L L L, substantially as described, and for the purpose set forth.

3. The helical spring S, in combination with the groove G, substantially as described, and for the purpose set forth.

4. The attachment of a circular helical spring to a lamp-burner, by the contraction of the spring only, its inner circle resting against an unyielding base, and grasping the chimney at or near its lower rim, substantially as described, and for the purpose set forth.

5. The combination of the cylindrical ring R, and its groove G and spring S, with the deflector C and draught-plate B, together with the wick-tube T, cap E, base, D, and any of the wick-adjusters in use, when arranged together, substantially as described, and for the purpose set forth.

J. B. ALEXANDER.

Witnesses:

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H. F. READ.