

R. S. MERRILL.

Lamp Burner.

No. 104,625.

Patented June 21, 1870.

FIG. 1.

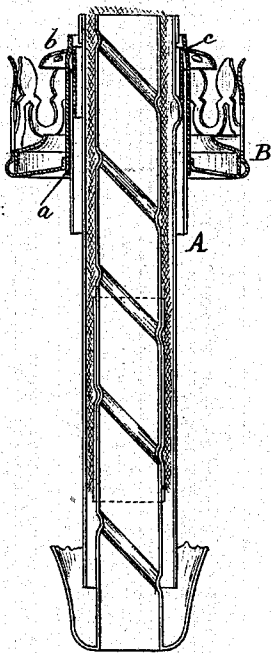


FIG. 2.

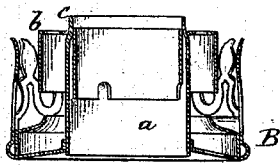


FIG. 3.

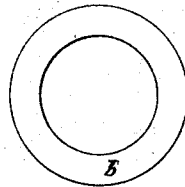


FIG. 4.

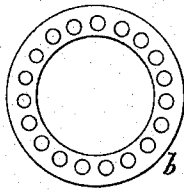


FIG. 5.

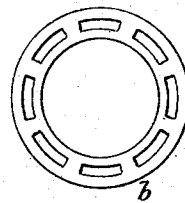


FIG. 6.

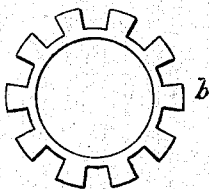


FIG. 7.

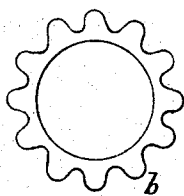
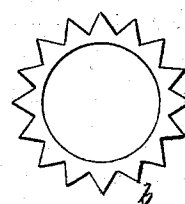


FIG. 8.



Rufus S. Merrill  
by his attorney  
*A. Pollock*

WITNESSES.

*Wm. H. McLeat*  
*Wm. Bailey*

# United States Patent Office.

RUFUS SPAULDING MERRILL, OF HYDE PARK, ASSIGNOR TO HIMSELF, W. B. MERRILL, AND JOSHUA MERRILL, OF BOSTON, MASSACHUSETTS.

Letter's Patent No. 104,625, dated June 21, 1870.

## LAMP-BURNER.

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

### To whom it may concern:

Be it known that I, RUFUS SPAULDING MERRILL, of Hyde Park, in the county of Norfolk and State of Massachusetts, have invented certain new and useful Improvements in Lamp-Burners, of which the following is a specification.

My invention relates to Argand or other similar burners having a round wick-tube; and

Its object is to regulate, divide, or deflect the currents of air which pass through the burner, and impinge upon the exterior of the flame, so as to produce as perfect combustion, and, consequently, as brilliant a flame, as possible.

The point at which I have found it best to thus divide, regulate, or deflect the air passing up through the burner, is near the top of the wick-tube, and near the base of the flame; and I therefore provide the wick-tube or the burner at that point with a metallic cap or flange, of suitable shape and construction, with or without perforations, either scalloped or indented on its edge, or not, as preferred, which serves to deflect the air passing up around the wick-tube to the flame, or to deflect, and divide, and distribute the currents, so that the air may be supplied to the flame to better advantage, and to produce a very perfect combustion.

The manner in which my invention is or may be carried into effect will be readily understood by reference to the accompanying drawing, in which—

Figure 1 is a sectional view of an Argand or round-wick burner to which my improvement is applied.

Figure 2 is a sectional view of the removable portion of the burner detached from the wick.

Figures 3, 4, 5, 6, 7, and 8 are plan views of different forms in which the cap may be made.

The construction of the round wick-tube shown at A, fig. 1, is too well understood to need description.

Upon the wick-tube is slipped the removable part of the burner B, consisting of the chimney-holder and supporting-springs, connected with a central sleeve, which fits upon or around the wick-tube.

It is upon this sleeve *a* that the annular cap or flange *b*, for dividing or deflecting the air, is, in this instance, held; and I prefer, when using the sleeve *a*, to form an offset or shoulder, *c*, near its upper end, which will constitute the seat or support of the cap *b*.

The position that the cap occupies with relation to the wick and flame will be readily understood by reference to the drawing, and its function, as above stated, is to divide, deflect, and distribute the air passing up around the wick-tube to the flame.

It is needless to say that the cap may not only be held in position in the manner shown in the drawing, but may be secured to the wick-tube, or supported in any other suitable manner.

In Argand or round-wick burners, hitherto the air

which is intended to feed the exterior of the flame has been permitted to pass through the burner, and around the wick-tube, in such a manner that the course of the current is tangential to, or nearly, if not quite, parallel with the flame, and there is, therefore, but a comparatively small portion of this air that is brought in contact with the flame. The cap which I employ is intended to break up and direct this current, so that it shall be caused to impinge at a decided angle upon the flame, or to divide the air, so that one portion shall pass up directly to the flame in a divided state, while the other portion shall, as before, impinge against the flame, the two currents thus formed serving, by their combined action, to induce very perfect combustion of the products arising from the burning wick.

In fig. 3, I have represented an imperforated annular cap or flange, which, when fitted in place around the wick-tube, and in position relative thereto, as above explained, will deflect the current of air, so that, instead of passing up tangentially to the flame, it must pass out around the edge of the cap, and thence back toward the wick, so as to impinge against the flame at a decided angle.

The annular cap or flange may be flat, concavo-convex, or of any other suitable shape, and, when made imperforate, as shown, it will serve simply to give a new direction to the upward current of air.

More satisfactory results, however, are produced by dividing the air into two currents, the one passing directly, but in a highly-divided state, to the flame, the other being deflected outward around the edges of the cap, so as to impinge upon the flame at an angle, as in the case just described. To this end, I make use of a cap, such as shown in fig. 1, of which the cap in fig. 4 is a plan view, of annular form, resembling the one in fig. 3, but with a series of perforations formed in it. With a cap such as this, the air must be divided into two currents, the one passing up through the perforations, the other being deflected outward around the edges of the cap. This form of cap, like that shown in fig. 3, is capable of many modifications; for instance, the perforations, instead of being round, may be rectangular, as seen in fig. 5, or any other suitable shape.

In fig. 2, the cap is made with perforations in the top, and with sides, which extend down a distance more or less great, as desired, so as to form an annular space between the cap and the wick-tube.

Instead of perforating the cap, its edges may be notched, scalloped, or serrated, as shown in figs. 6, 7, and 8, and, under this arrangement, the air will pass up around the cap in a continuous sheet, but at varying distances from the wick-tube, owing to the irregular form of the cap, thus breaking up the direct upward current, and, to a certain extent, dividing it.

Many other modifications of the cap might be made,

and these are given only by way of illustration of the various ways in which the result I aim at by the use of the cap may be secured.

Having now described my invention, and the manner in which the same is or may be carried into effect, I would observe that deflecting plates have been used in Argand and flat-wick burners in combination with independent deflecting cones or air-directors; but my invention relates to the use of deflecting plates where this cone or air-deflector is dispensed with.

What I claim, and desire to secure by Letters Patent, is—

1. In an Argand or other like round-wick burner, the employment of a cap or flange, arranged near the top of the wick-tube, substantially in the manner described, so as to deflect and change the direction of the current of air passing upward around the wick-tube, and cause it to impinge at an angle upon the flame, as set forth.

2. The combination, with an Argand-burner, of an air-deflecting shield or cap below the flame, through which cap a portion of the air will pass in a divided state to the flame, as shown and set forth.

3. The combination, with an Argand-burner, of a deflector or cap below the flame, constructed substantially as herein described, so as to cause the air to pass up around it in a continuous sheet, at varying distances from the wick-tube, as set forth.

4. The combination, with the sleeve connected with the chimney-seat and gallery, of the deflecting cap, supported upon a shoulder or offset formed on said sleeve, substantially as shown and set forth.

In testimony whereof I have signed my name to this specification before two subscribing witnesses.

RUFUS S. MERRILL.

Witnesses:

M. BAILEY,

EDM. F. BROWN.