

R. S. MERRILL.

Lamp Burner.

No. 100,653.

Patented March 8, 1870.

FIG. 1.

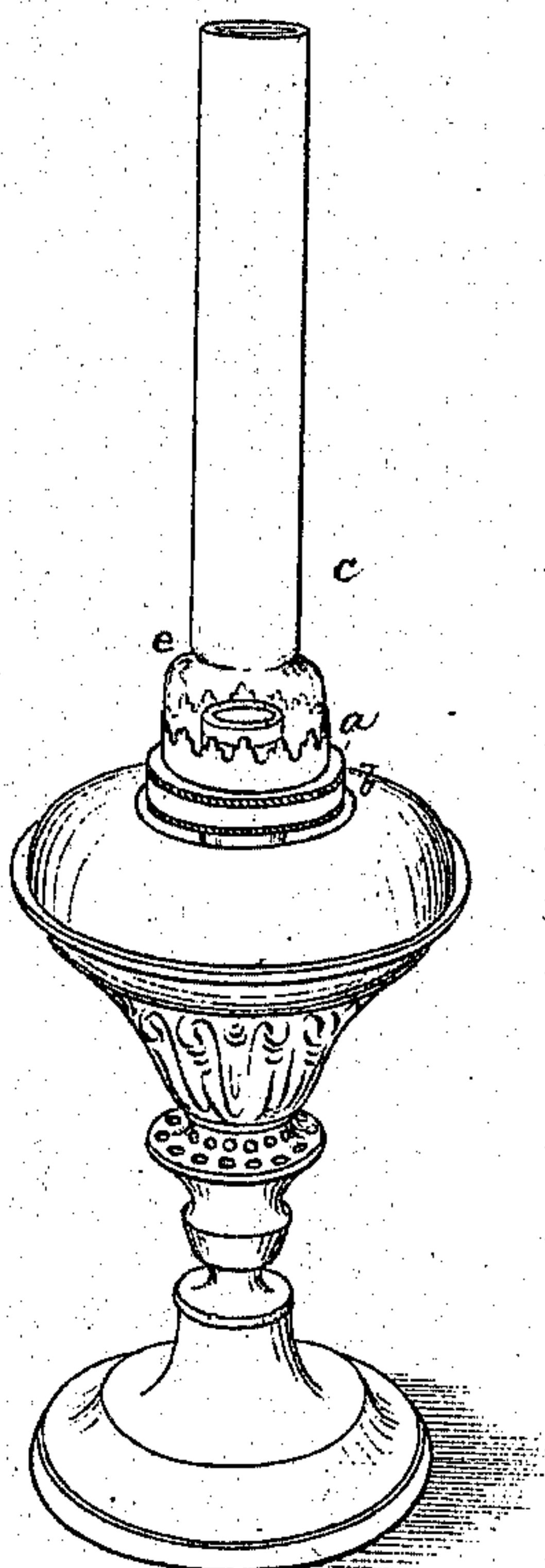


FIG. 2.

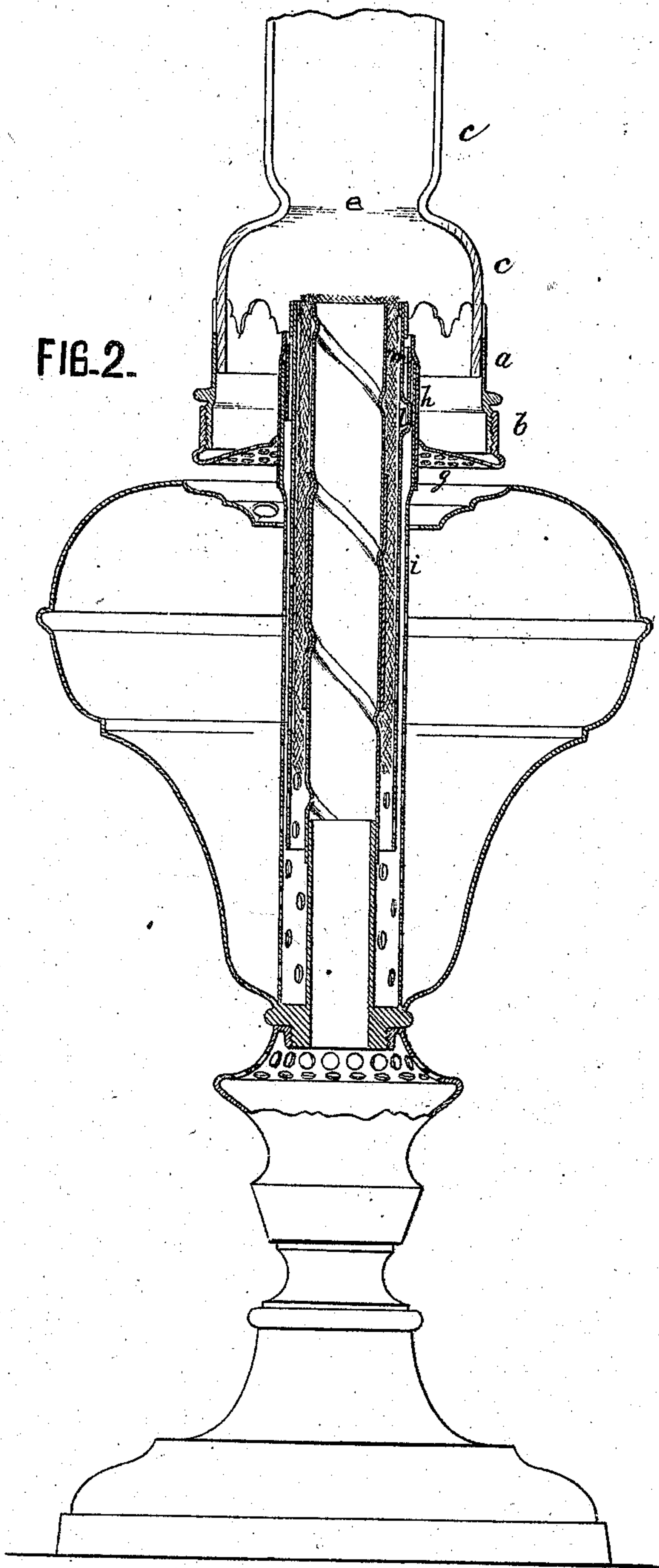


FIG. 3.

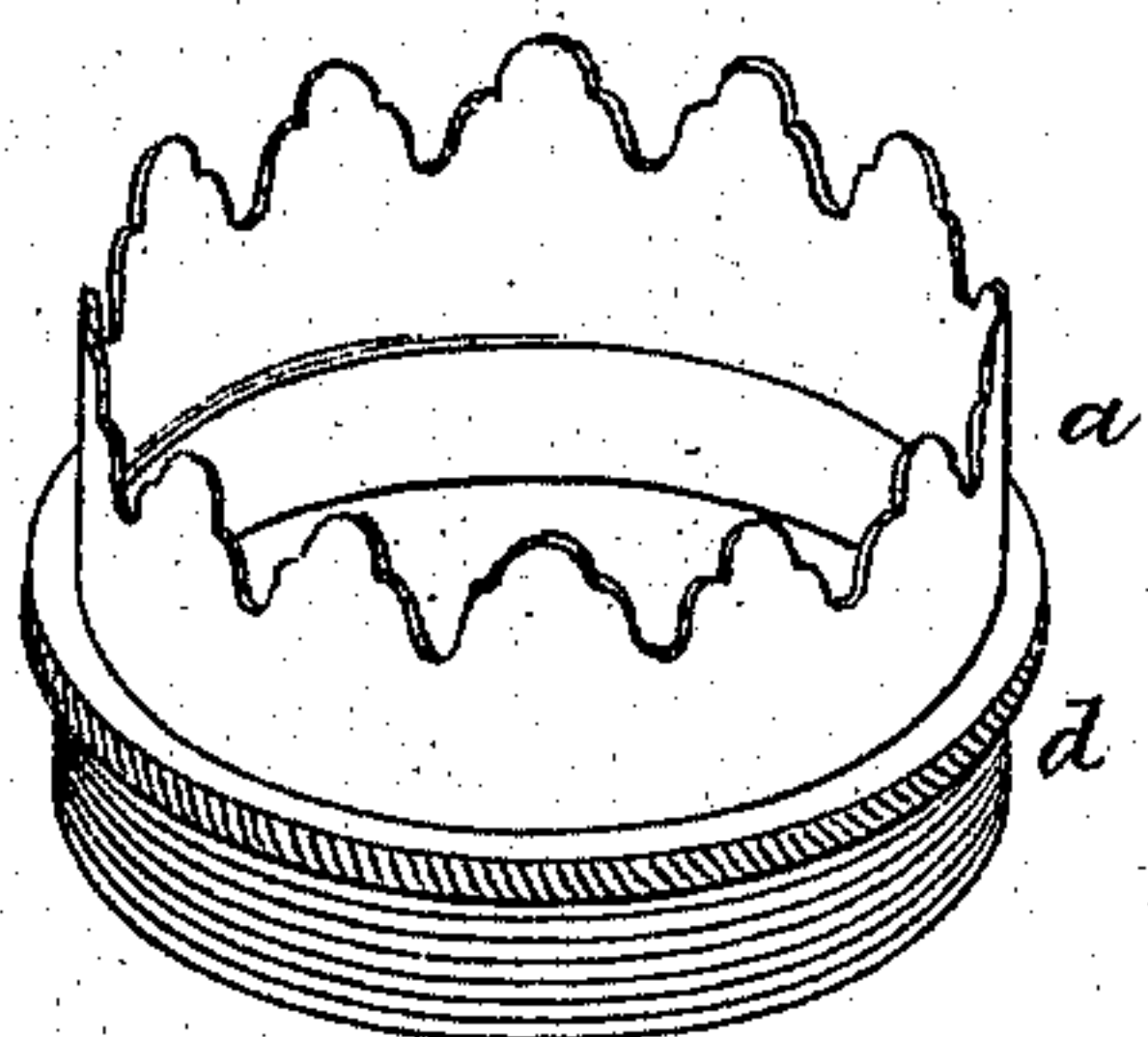
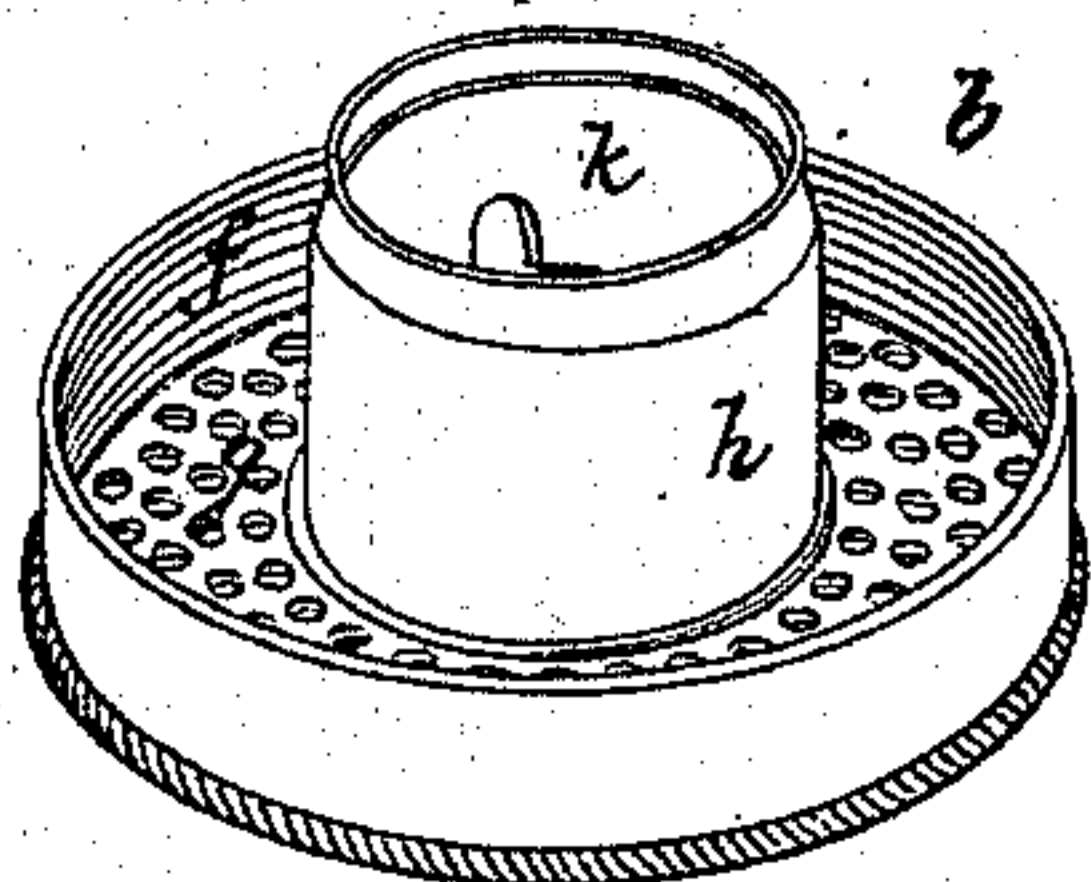


FIG. 4.



WITNESSES

*Wm. Bailey*  
*William H. Bailey*

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*by his attorney*  
*M. H. A.*



# United States Patent Office.

RUFUS SPAULDING MERRILL, OF CAMBRIDGE, ASSIGNOR TO HIMSELF, WILLIAM B. MERRILL, AND JOSHUA MERRILL, OF BOSTON, MASSACHUSETTS.

*Letters Patent No. 100,653, dated March 8, 1870.*

## IMPROVEMENT IN LAMP-BURNERS.

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 Cambridge, county of Middlesex, and State of Massachusetts, have invented certain new and useful Improvements in Lamp-Burners; and I hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawing, in which—

Figure 1 is a perspective view of a lamp provided with a burner made in accordance with my invention.

Figure 2 is a vertical central section of the same.

Figures 3 and 4 are views of two parts of which the burner is composed.

My invention relates to lamps for burning hydrocarbon fluid, in which the chimney is used in lieu of the ordinary deflector to contract air-passage above the flame, such chimneys being now generally used with Argand burners and "student lamps," so called. The chimneys are contracted or drawn in, so as to have at their lower end the bell-shape well known to those who have had occasion to use lamps of the class referred to, and it is this contraction of the chimney which narrows the air-passage, and causes the air to impinge upon the flame at the proper point above the wick.

In order to obtain complete combustion, it is necessary that the point of contraction in the chimney should be a certain and determinate distance above the wick or point of combustion, this being a well-known condition in lamps of this class, as well as in lamps employing the ordinary slotted metallic deflector. But while this result may be approximately attained, yet it is obvious that if the chimney be placed in the position required for the wick, at a certain elevation, either the raising or lowering of the wick will disturb the relations of the two, and will necessitate the re-adjustment of the chimney. In order to meet this difficulty, chimneys have been made to slide up and down, but this method of adjustment is at once insecure and ineffective, for the reason that the chimney or the rest or holder which receives it, is liable, by any sudden jar or motion of the lamp, to slip down upon the wick-tube, and thus disturb the adjustment; and as the chimney-holder slides bodily up and down upon the tube, it is a matter of some difficulty to adjust it accurately. To remedy this, the holder for the chimney or other device for contracting the opening above the flame has been screwed upon the wick-tube. But this, while preventing the chimney or deflector from being disturbed when adjusted, renders it inconvenient to remove the chimney-rest or holder from or apply it to the tube.

The object of my invention is mainly to produce a rest or holder, which, while allowing the screw-adjustment of the holder for the chimney, or other device

for contracting the opening above the flame, may also be slipped on or off the tube or other part to which it is fitted, or upon which it rests; and to this end,

My invention consists in the construction of the device which supports the chimney, in two parts, the one part adjustable with respect to the other, and both parts capable of being removed from or applied to the wick-tube or other part upon which they are supported or rest, bodily and together.

A further feature of my invention consists in the construction of the lower portion of the divided chimney-support with screw-threaded sides, to receive the correspondingly screw-threaded part of the adjustable chimney-rest or holder, and a perforated base, to admit air to the flame. By thus using the sides to receive the adjustable rest, and the base for the draught, I am enabled to reduce materially the height of the burner, and to locate the air-passages where they will not be apt to be affected by sudden draughts.

To enable those skilled in the art to understand and use my invention, I will now proceed to describe the manner in which the same is or may be carried into effect, by reference to the accompanying drawing.

The lamp to which my invention is applied may be of any ordinary or suitable construction, provided, as shown, with an Argand burner. I may here say that the tubes for holding the wick and for obtaining the central draught may be arranged in any suitable way. They may extend down to the base of the lamp, as shown in the drawing, or they need have no connection with the base, being suspended from the top of the lamp, in which case their construction should be modified so as to still obtain the central draught, air-passages being formed in the top of the lamp to communicate with the bottom of the tubes, and thus supply the air required to pass up through the central space of the burner. This method of construction is well known, and employed in lamps now in the market, and need not be further explained. The arrangement shown in the drawing is applicable where heavy oils are to be used, while the other arrangement referred to is adapted to the use of ordinary kerosene-oil.

That portion of the burner which embraces my invention is shown at *a b*, *a* being the chimney-rest or holder proper, that is to say, that part which receives the chimney or forms the immediate support for the same, and *b* being the part which supports or receives the chimney-rest.

The part *a* is of any ordinary or suitable construction adapted to form a rest or holder for the chimney *c*, which in this case is fitted tightly into the holder.

The lower portion of the holder is made cylindrical, and upon its periphery is cut a screw-thread, *d*.

The chimney is contracted at *e* in the usual manner, so as to form a deflector for the flame.



The part *b* is also provided with a cylindrical piece, upon the interior of which a screw-thread, *f*, is cut to correspond to the thread upon the holder.

In order to lessen the height of the burner as much as possible, I make the cylindrical portion of the part *b* of such height only as will admit of the formation of a screw of the requisite number of threads for the adjustment of the chimney, and instead of admitting the air through the sides, I provide a perforated base, *g*, with which the cylindrical part is united, and which forms a draught-plate, to admit the air to the flame. The draught is thus located in the base, and not in the sides, which are only of such limited height as needed for the screw-thread *f*, thus allowing the dimensions of the burner to be reduced, so as to render it exceedingly compact and neat in appearance.

The perforated base *g* is held to a sleeve, *h*, which fits upon the outer tube *i* of the burner, while within this sleeve is another, *K*, which is slotted, so as to engage with the lugs *l*, on the inner wick-elevating tube *m*. There is an annular space between the two sleeves *h* and *k*, in which the upper part of the outer tube *i* is received when the part *b* is fitted upon the tube.

In fig. 2 the chimney is represented as at the proper height above the wick. If, however, the wick be raised or lowered from the position shown, it will be manifest that the distance between the end of the wick and the point of contraction *e* in the chimney will be correspondingly lessened or increased, thus disturbing the relations of the two and causing imperfect combustion. To adjust the chimney, therefore, the holder must be turned so as to be screwed up or down, thus rendering it easy to effect the most accurate and delicate adjustment. The screw should have a low pitch, so that this adjustment may be the more readily obtained, and so that the position of the holder may not be liable to be disturbed by any sudden jar or movement of the lamp.

It will be seen from the foregoing that the device employed for holding the chimney in position consists of a divided chimney-support, formed in two parts—the one the adjustable chimney-rest or holder above described, the other the part which receives and holds the chimney-rest; the chimney-rest being capable of being adjusted up or down independently of the base which supports it, while both are adapted to be removed from or fitted to the tube or lamp, bodily and together.

Instead of the contraction in the chimney, any other means, such as the ordinary deflector for contracting the opening above the flame, may be employed, the same being adjustable in all cases by means of the screw.

The position of the screws on the two parts of the divided chimney-support may also be reversed, the female screw being formed on the upper part, and the male screw on the lower.

Having now described my invention, and the manner in which the same is or may be carried into effect,

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

1. The divided chimney-support, formed in two parts, the upper screwing into the lower, so as to be adjustable in relation thereto, and both parts being adapted to be removed from or applied to the lamp bodily and together, substantially as shown and set forth.

2. The construction of the lower portion of the divided chimney-support, with a cylindrical screw-threaded piece to fit the adjustable chimney-rest, and a perforated base for the passage of the air to the flame, substantially as and for the purposes set forth.

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

RUFUS SPAULDING MERRILL.

Witnesses:

M. BAILEY,  
A. POLLOK.