

M. W. HOUSE.
Lamp Chimney.

No. 112,460.

Patented Mar. 7, 1871.

Fig. 2.

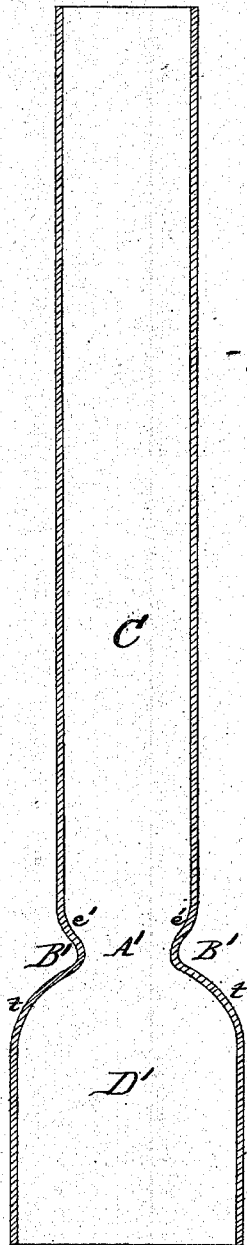
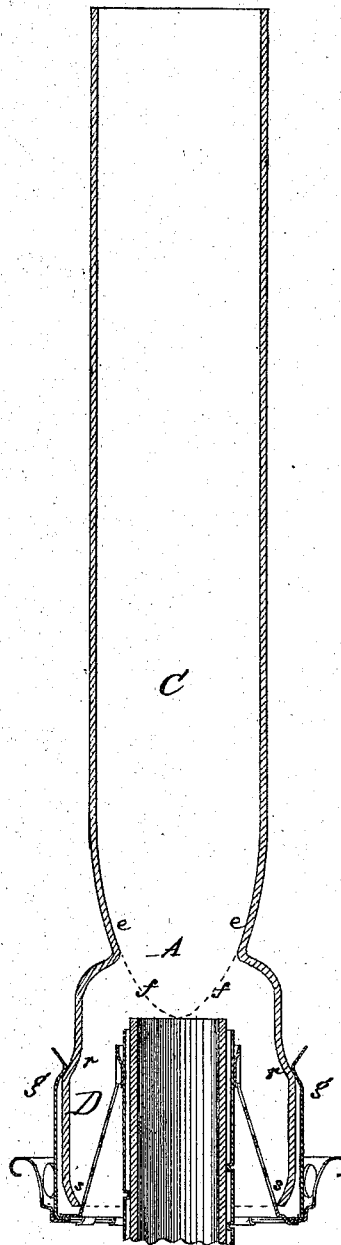


Fig. 1.



Witnesses.
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Inventor
M. W. House
by his attorney
E. S. Penwick

United States Patent Office.

MARK WIGGINS HOUSE, OF CLEVELAND, OHIO, ASSIGNOR TO THE CLEVELAND NON-EXPLOSIVE LAMP COMPANY, OF SAME PLACE.

Letters Patent No. 112,460, dated March 7, 1871; antedated March 1, 1871.

IMPROVEMENT IN LAMP-CHIMNEYS.

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, MARK WIGGINS HOUSE, of Cleveland, in the county of Cuyahoga and State of Ohio, have made an invention of certain new and useful Improvements in Lamp-Chimneys; and that the following is a full, clear, and exact description and specification of the same.

The objects of my improvements are to improve the light of circular-wick lamps, and to secure the chimney to the lamp. To this end

The first part of my invention consists in constructing the portion of the lamp-chimney immediately above the choke or throat substantially in the form of a parabolic spindle, whose apex is at or in the vicinity of the level of the upper edge of the wick when burning. This form tends to prevent the formation of eddy currents in the portion of the chimney immediately above the throat, and, in connection with the enlargement of the cylindrical shaft of the chimney, greatly increases the light obtained from the lamp as compared with the light obtained with choke-chimneys of the usual construction.

My next improvement consists in the construction of the lower end of a slip-choked lamp-chimney rounded in an inward direction, so that, when such a choked chimney is applied to slip-chimney fastenings, it readily enters between them, and the risk of catching a point of a fastening within the rim of the chimney is avoided.

My next improvement consists in the construction of a slip-lamp chimney with a supplementary shoulder below the shoulder of the choke which deflects the air upon the flame, the object of the said supplementary shoulder being to provide an abutment with which the points of slip-chimney fastenings can engage, so as to hold the chimney more securely to the lamp.

In order that my invention may be fully understood, I have represented in the accompanying drawing two sectional views of chimneys of the natural size,

Figure 1 representing my improved chimney in connection with some parts of a lamp to which it is fitted; and

Figure 2 representing a chimney of the old construction.

Choke-chimneys of the old construction are choked abruptly, as seen at B', fig. 2, so as to form a throat, A'; and this choked portion A' is connected with the straight chimney-shaft C', above, by a short circular curve, e, so as to produce an abrupt enlargement of the sectional area of the chimney. As there is a strong current of heated air passing through the throat, and as currents of fluid tend to issue from such a throat in the form of what is known in hydraulics as the "*vena contracta*," the effect of the sudden enlargement of the chimney above the throat is, as I believe, to afford

space for the formation of counter eddies, which diminish the intensity of the draught and affect the quantity of the light produced by the lamp.

To obviate this defect, I construct the portion e, fig. 2, of the chimney between the throat or choke A and the straight shaft C, above, in the form of a parabolic or elliptic spindle, whose apex, as shown by the dotted lines f, is at or about the level of the wick when burning. By this mode of construction the sectional area of the chimney above the throat may be made to increase substantially as required to produce the best draught, and the enlargement vanishes into the straight shaft C, above, with an easy curve, so that no space is afforded above the throat for the formation of eddies at the sides of the main current passing through the throat.

The construction of the portion of the chimney above the throat in the above-described manner permits the straight shaft C to be made of larger diameter with advantage; and the practical results are, a greater draught, an increased and more perfect combustion of the burning fluid, and a great increase in the volume of light obtained from the wick, as compared with that obtained from the same wick with a chimney of the old construction, such as is represented at fig. 2.

Slip-chimneys previous to my invention have been constructed with their bases D', fig. 2, cylindrical down to their lower ends. Hence, inasmuch as the slip-chimney fastenings are constructed to converge with a yielding pressure for the purpose of grasping the chimney, and converge to a circle smaller in diameter than the exterior of the chimney-base when it is withdrawn from them, the application of such a chimney to the fastenings generally results (unless care is exercised) in engaging one or more chimney-fastenings inside of the base of the chimney, thereby requiring the withdrawal and replacement of the chimney, and sometimes resulting in the bending of the chimney-fastenings.

To obviate these defects, I construct the base D, fig. 1, of a slip-chimney with its lower end or rim s rounded inward, so that the lower end of the chimney may be contracted to a circle of smaller diameter than the circle to which the points of the chimney-fastenings tend to converge. Hence the base of the chimney can always be readily entered between the points of the chimney-fastenings, and the risk of engaging them in the chimney and of bending them is greatly reduced, if not wholly prevented.

Slip-chimneys previous to my invention have been constructed with cylindrical bases, as at D', fig. 2, so that the chimney-fastenings hold the chimney by lateral pressure only; for, although such lamp-chimneys are generally constructed with a shoulder, as at t, fig.

2, the fastenings cannot be extended upward to engage with such a shoulder, because they would then intercept the passage of light laterally from the wick.

The holding of the chimney by lateral pressure alone is precarious, and, therefore, I construct the base of the slip-chimney with a supplementary shoulder, *r*, fig. 1, intermediate between the lower end of the chimney and the choke or throat.

This supplementary shoulder furnishes an abutment with which the ends of the spring slip-chimney fastenings *g* of the chimney-holder can engage by overlapping it, so that the chimney is held not only by the lateral pressure of the fastenings, but also by their downward pressure; hence, the chimney with the supplementary shoulder is held in its place much more securely than chimneys of the old construction are.

Having thus described my improvements, I declare that I do not limit them to the exact form represented in the drawing; but.

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

1. The lamp-chimney, constructed above the throat substantially in the form of a portion of a parabolic spindle, as hereinbefore described.

2. The slip-lamp chimney, constructed both with a choke between its base and shaft, and with the lower end of its base rounded inward, as hereinbefore described.

3. The slip-lamp chimney, constructed with a supplementary shoulder upon its base for engagement with the ends of slip-chimney fastenings, as hereinbefore set forth.

In testimony whereof I have hereto set my hand this 11th day of July, A. D. 1870.

MARK W. HOUSE.

Witnesses:

E. S. RENWICK,
W. L. BENNEM.