

(No Model.)

F. RHIND.
ARGAND LAMP.

No. 481,674.

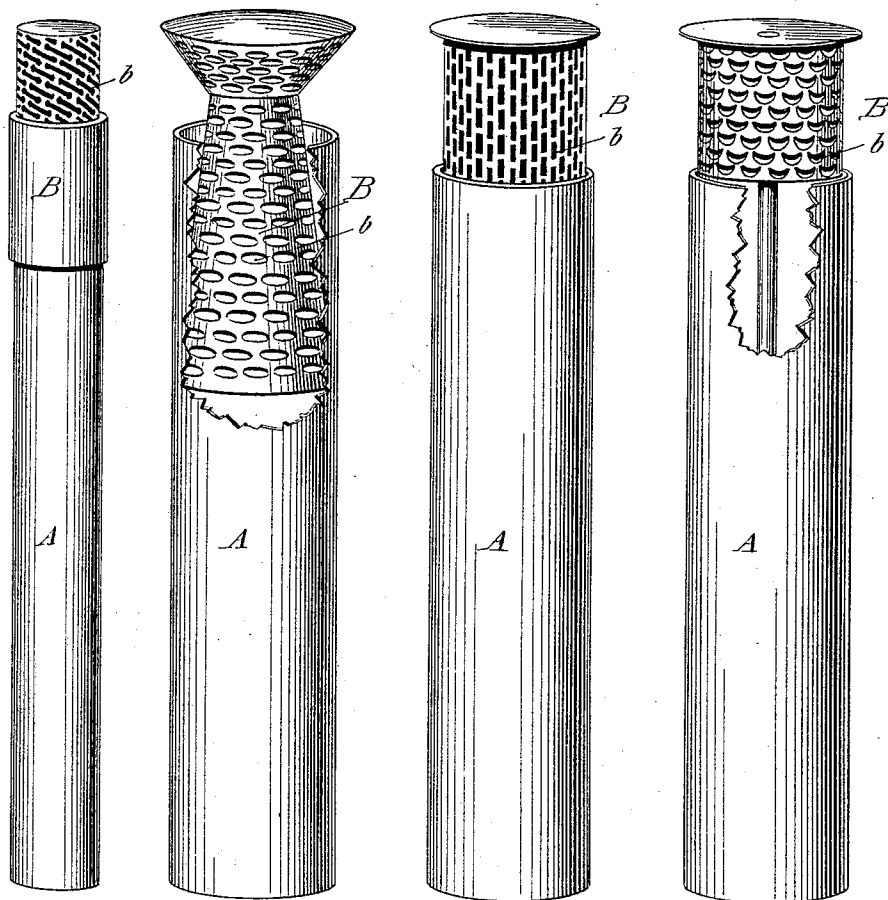
Patented Aug. 30, 1892.

Fig. 1.

Fig. 2.

Fig. 3.

Fig. 4.



WITNESSES.

A. F. Sanborn
Geo. M. Chittenden

BY

Frank Rhind
INVENTOR.
Geo. L. Cooper
ATTORNEY.

UNITED STATES PATENT OFFICE.

FRANK RHIND, OF MERIDEN, CONNECTICUT, ASSIGNOR OF ONE-HALF TO
THE EDWARD MILLER & COMPANY, OF SAME PLACE.

ARGAND LAMP.

SPECIFICATION forming part of Letters Patent No. 481,674, dated August 30, 1892.

Application filed March 30, 1892. Serial No. 427,116. (No model.)

To all whom it may concern:

Be it known that I, FRANK RHIND, a citizen of the United States, residing at Meriden, New Haven county, Connecticut, have invented a new and useful Improvement in Argand Lamps, of which the following is a specification.

My invention relates to the inner air-distributors of Argand lamps, and is intended to increase the flow of air through such distributors, at the same time effectually checking eddies and causing an even flow.

In the accompanying drawings, Figure 1 represents so much of an Argand lamp as is necessary to show my invention. Figs. 2, 3, and 4 shows various modifications.

The same letters refer to like parts in the several views.

A designates the inner air or central draft-tube of an Argand lamp; B, an inner air-distributor or thimble; *b*, perforations in the thimble B.

In the example of my invention illustrated in Fig. 1 of the drawings the central draft-tube A is shown as surmounted by a distributor or thimble B, similar to that shown in United States Patent No. 364,438, granted on my application June 7, 1887, except that the perforations shown in the inner air-distributor of that patent are circular. In the distributor or thimble B herein shown these perforations *b* are obliquely-placed oblong holes with their sides parallel and their ends semi-circular. It will be seen that the perforations *b* are so arranged on the distributor B that no vertical line can be drawn on the surface of the distributor B that does not pass through several of the perforations. By this means air is supplied to the tip of the flame in a sheet rather than in jets, and serration of the flame is avoided. In some forms of construction this system of oblique perforations obliquely arranged on the distributors is particularly advantageous.

In Fig. 2 of the drawings is shown oval perforations *b*, placed with their longer axes at right angles to the axis of the thimble B. In Fig. 3 I have shown perforations or slots

b of rectangular form, their longer dimensions parallel with the axis of the thimble. In Fig. 4 the perforations *b* are shown of U shape.

It will be noticed that I have shown in the different figures the distributors B as of different shapes and differently supported. I have done this to show that the shape of the distributor or the manner of supporting it is non-essential to my present invention.

In accordance with well-known laws of fluid motion air drawn upward through the inner air-tube of an Argand lamp tends to a rhythmic pulsation, and still more noticeably to move in a helical or spiral curve. A principal function of a foraminous inner air-distributor is to check these irregularities and deliver the air to the inner mantle of the flame regularly and evenly. To secure these results it has heretofore been considered necessary to perforate the sides of the distributor with fine holes. To produce an intense white flame, it is necessary to supply a large volume of air. The frictional resistance of the small perforations is often too great to permit the passage of the desired quantity, the height of the distributor or thimble above the tube being necessarily limited. To attempt to remedy the defect by increasing either the size or the number of the perforations would structurally weaken the thimble, so that it would not stand ordinary handling. A smaller number of larger circular holes is found in practice to fail to check the "whirling" or spiral delivery of the air to the flame. I have heretofore attempted to check this spiral flow and to get the benefit of relatively large perforations in the thimble by various devices.

In United States Patents Nos. 382,270, 387,258, and 407,492 I have shown different forms of foraminous linings or inner shells within the thimble. In patent No. 416,236 I have secured a diametric partition, either solid or foraminous.

My present invention consists in perforating the inner air distributor or thimble with non-circular holes, preferably holes whose greater diameter or dimension is considerably more than the diameter or dimension trans-

verse thereto. I am in this way able to secure the three prime necessities—*i. e.*, sufficient structural strength, great air capacity, and thorough breaking up of eddies, spiral currents, and pulsations. I am also able to dispense with linings, partitions, and other cumbersome and somewhat expensive devices.

I am aware that perforations in the outer skirts of burners have sometimes, for the sake of ornament, been made of non-circular form. As, however, the air which passes through these apertures has not previously been drawn upward through a vertical tube or in any way had a spiral or pulsatory motion imparted to it, no function, save that of ornament, could be subserved.

What I claim as my invention, and desire to secure by Letters Patent of the United States, is as follows:

1. In an Argand lamp, in combination, a central draft-tube through which air is supplied to the inner mantle of the flame and a distributor coacting therewith and provided with perforations one diameter or dimension of which is greater than a diameter or dimension transverse thereto, substantially as described.

sion transverse thereto, substantially as described.

2. In an Argand lamp, in combination, a central draft-tube through which air is supplied to the inner mantle of the flame and a distributor coacting therewith and provided with perforations one diameter or dimension of which is greater than a diameter or dimension transverse thereto, said greater diameter being at an angle with the axis of said distributor, substantially as described.

3. In an Argand lamp, in combination, a central draft-tube through which air is supplied to the inner mantle of the flame and a distributor coacting therewith and provided with perforations one diameter or dimension of which is greater than a diameter or dimension transverse thereto, said perforations being so disposed that no vertical line can be drawn on said distributor between said perforations, substantially as described.

FRANK RHIND.

Witnesses:

GEO. L. COOPER,
ELLA H. COOPER.