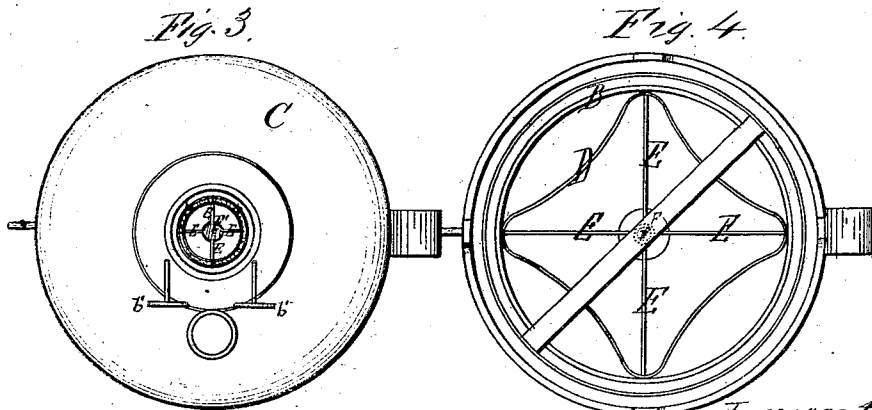
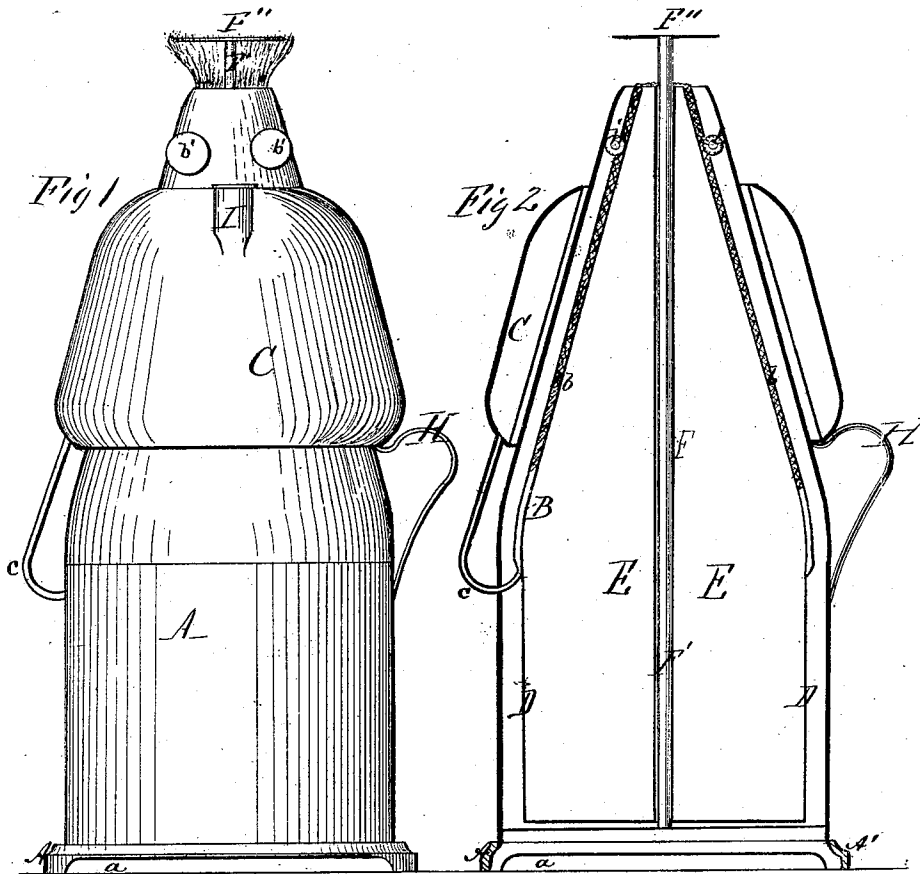


A. ALBERTSON.

Lamp.

No. 110,816.

Patented Jan. 10, 1871.



Witnesses  
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# United States Patent Office.

ALBERT ALBERTSON, OF JERSEY CITY, NEW JERSEY.

Letters Patent, No. 110,816, dated January 10, 1871; antedated December 30, 1870.

## IMPROVEMENT IN LAMPS.

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, ALBERT ALBERTSON, of Jersey City, in the county of Hudson and State of New Jersey, have invented certain Improvements in Lamps, of which the following is a specification.

The object of my improvements is to secure the advantages of a perfect lamp without the aid of a chimney.

The great desideratum in all oil-burning lamps is perfect combustion, in order to obtain a white and brilliant flame, without odor or smoke. To attain this desirable result the flame requires a continuous and sufficiently large supply of atmospheric oxygen to combine with the carbon and hydrogen of the oil.

Among the many methods hitherto adopted for this purpose the most effective is the ordinary glass-chimney, which, being placed above and surrounding the flame, confines the air around the latter until it becomes rarefied and loses its oxygen in the flame, and ascends rapidly through the chimney, necessarily drawing fresh air to the flame after it.

By this process, however, the air, before it reaches the flame, is more or less heated and rarefied by contact with the outside of the lamp-burner; the oxygen is diffused, and less supplied to feed the flame than if the air were admitted at a cooler temperature and fed to the flame before losing any of its properties essential to combustion.

It is, therefore, proper, in order to attain such an advantage, that the fresh air should be admitted at a distance below the burner, into suitably-arranged flues, which will convey it in the form of a rapid current to the flame without loss of oxygen.

The means which have hitherto been devised for carrying this principle into effect, consisting of rotary blowers, &c., have been more or less objectionable and defective.

The method I adopt, and which constitutes the basis of my invention, is of rarefying the fresh air in heated flues, through which it will then ascend rapidly and intact to the flame.

I am well aware that a method has already been devised with the intent of accomplishing the same result, consisting in the arrangement of an auxiliary lamp or burner, at the base of the rarefying chamber, to rarefy the air as quickly as it is admitted through the surrounding apertures, and thence cause it to flow upward to the flame. But in this method the defect is obvious. The auxiliary flame will oppose the purpose of its use by extracting for its own support the atmospheric oxygen from the air which it is intended should be conveyed, without loss, to the main flame.

The method involving my invention overcomes the

above-mentioned defect in this, that, instead of an auxiliary lamp, I employ heat-conducting metal in the construction of the rarefying-chambers or flues, by means of which the heat is conducted to the base of such chambers or flues directly from the main flame, thereby heating and rarefying the air without extracting its combustible properties or permitting the escape thereof until it has reached the flame to which it will flow in a rapid current, and sufficient in copiousness to generate a white and brilliant light.

Such being the general nature of my invention, I will proceed to describe in detail a lamp involving my invention, and constructed with the view of carrying out, as seems best, the principles on which it rests.

The accompanying drawing represents such a lamp, of which—

Figure 1 is an elevation;

Figure 2, a vertical section;

Figure 3, a top view, deflector removed; and

Figure 4, a bottom view.

As the proper heat-conducting material, I employ copper in the construction of this lamp, because copper is the only available metal which will fully answer the purpose, being the best heat-conducting and retaining metal, excepting gold, silver, and platinum.

In the drawing—

A represents the casing or jacket, resting on a suitable base, A', having apertures  $a$ , for the admission of fresh air to the interior of the lamp.

The lower half of this casing is cylindrical and the upper half conical in form.

Within said casing, and situated in the conical portion thereof, is the wick-holder B, consisting of two concentric cones, between which the wick is contained. The upper end of the wick-holder is open; the lower end is closed, so as to hold oil, which is conveyed thereto from a reservoir, C, surrounding and apart from the upper half of the casing A, by means of a conduit-pipe,  $c$ .

The wick  $b b$ , consisting of equal halves, which, when lighted, forms a circular or hollow flame, is elevated by means of a pair of ordinary elevating devices  $b' b'$ , properly arranged, as shown in the drawing.

Connected with the lower end of the wick-holder, and extending therefrom to the base of the lamp, is a wall or casing, D, within which and the wick-holder is a series of vertical radial wings, E, centering in a hollow column, F, so formed to hold the rod F', supporting a horizontal deflector, F''.

The position of the latter is above the wick-holder, so that as the rarefied air rushes from the flues it will be deflected directly into the flame.

The purpose of having the flues and air-passages

conical or tapering is that the rarefied air shall, on principles well known, increase the rapidity of its current as it ascends and cause a better draught.

It should be observed that the air, as it ascends toward the flame, becomes more rarefied by the increased heat of the flue-metal.

H is the handle by which the lamp is carried.

I is the filling-tube of the oil-reservoir.

Inasmuch as this lamp is, from its nature, liable to become very much heated on the outside, rendering it inconvenient to handle, I coat or cover the lamp with some non-conducting material; for instance, plaster of Paris, surrounded by a wall of tin, woolen-cloth, white-lead, or any other equivalent. The handle should also be so covered.

It will be observed that the air-passages are formed, both inside the casing D and wick-holder B, as well as between them and the casing A, so that the rarefied air passes through the center of the flame as well as on the outside.

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

1. The combination of the tapering jacket A with openings *a*, hollow tapering wick-case B, and wall D.

when such parts are constructed of heat-conducting metal, and so arranged as to form air-rarefying chambers, to conduct air to the interior and exterior of a hollow flame, as and for the purpose set forth.

2. In combination with the elements of first claim, the annular oil-reservoir C, with filling-tube I, as and for the purpose set forth.

3. Coating or covering the outside of lamps, operating with heat-conducting draught-flues or chambers, as described, with a non-conducting substance, for the purpose specified.

4. The deflector F", and rod F', in combination, with the tapering jacket A, and hollow tapering wick-holder B, as and for the purpose set forth.

5. The combination and arrangement of the jacket A, wick-case B, wall D, radial wings E, rod F', deflector F", constructed of heat-conducting metal, and annular oil-reservoir C, or equivalent, as and for the purpose specified.

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Witnesses:

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