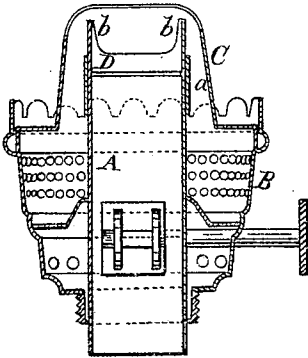


*W. McCaine.*  
*Lamp-Burner.*

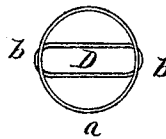
*N<sup>o</sup> 72659*

*Patented Dec. 24, 1867.*

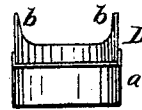
*Fig. 1.*



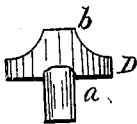
*Fig. 3.*



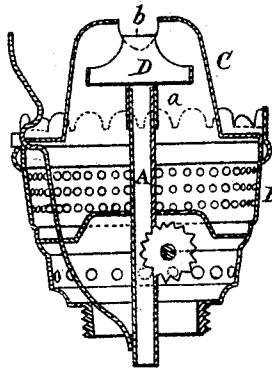
*Fig. 4.*



*Fig. 5.*



*Fig. 2.*



Witnesses:

*Samuel N. Piper*  
*Geo. H. Andrews*

Inventor:

*William McCaine.*

by his attorney

*R. H. Eddy*

# United States Patent Office.

WILLIAM McCAINE, OF GROTON, MASSACHUSETTS, ASSIGNOR TO HIMSELF, DAVID McCAINE, AND DANIEL McCAINE, OF SAME PLACE.

*Letters Patent No. 72,659, dated December 24, 1867.*

## IMPROVEMENT IN LAMP-BURNERS.

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

### TO ALL PERSONS TO WHOM THESE PRESENTS SHALL COME:

Be it known that I, WILLIAM McCAINE, of Groton, in the county of Middlesex, and State of Massachusetts, have invented a new and useful Improvement in Burners for Lamps; and do hereby declare the same to be fully described in the following specification, and represented in the accompanying drawings, of which—

Figures 1 and 2 are vertical sections of a "kerosene-burner" with my invention applied to it.

Figure 3 is a top view of the annulus, to be hereinafter explained, and

Figures 4 and 5 are side elevations of it.

In carrying out my invention, I arrange on or about on a level with the top of the wick-tube, and so as to project equally over opposite sides thereof, a thin and narrow metallic ring, which I affix to a socket-tube, to fit upon and encompass the upper part of the wick-tube. This annulus or ring may be constructed with two projections or ears, to extend upward from it at opposite extremities of its diameter, and so as to be against the edges of that part of the wick which may project above the wick-tube.

In the drawings, A denotes the wick-tube, B the body, and C the conical air-deflector of the burner, they being made and arranged in the usual manner. D is the annulus, mounted on and affixed to a socket-tube or clasp, *a*, and having ears, *b b*, extended up from it, as represented. The wick-tube is for what is termed a flat wick, and the annulus is circular.

It has been found that the addition of the annulus to and its arrangement with the wick-tube, in manner as described, create an important improvement in the illuminating properties of the flame of the wick. To operate to the best advantage, the annulus should not extend below the top of the wick-tube. It contracts the flame at the edges of its base, and extends it, in its middle, just above the wick-tube, and there directs the air upon it in a manner to promote combustion of the oil to good advantage.

I do not pretend to explain all the reasons why the flame is improved in its light-giving property by my invention, with reference to the common pyramidal air-director, described in R. S. Merrill's patent of June 14, 1859. I have found, in practice, that my invention not only renders such an air-director unnecessary, but causes the flame to give out a better and greater amount of light, and renders it less liable to smoke; therefore, I make no claim to a conical or pyramidal air-deflector, to extend around and below a wick-tube, or below and a short distance above it; nor do I claim either of the air-deflectors, as shown in Figures 6 and 7 of the drawings, of J. C. Ambrose's patent, dated April 23, 1861.

The difference between my deflector and these latter is, that its projections, *b b*, extend entirely above the annulus D, whereas the parts *a a*, which, in the said fig. 6, correspond to the projections *b b*, are arranged entirely below the tops of the parts *r r* of the ring, whereby any contraction of the flame widthwise at its base would be counteracted by its breadthwise contraction, occasioned by the parts *r r*. My annulus is circular, and although operating to conduct air to the flame, leaves, by its lateral extension from the wick-tube, in opposite directions, the flame a chance to spread in breadth, and thus enables the parts *b b* to perform their office to good advantage.

I therefore claim my improved air-deflector, as made, with its parts *b b* arranged above the rest of the ring and with respect to the tube *a*, so as when in use to contract the flame widthwise at its base, as set forth.

WM. McCAINE.

Witnesses:

R. H. EDDY,

F. P. HALE, Jr.