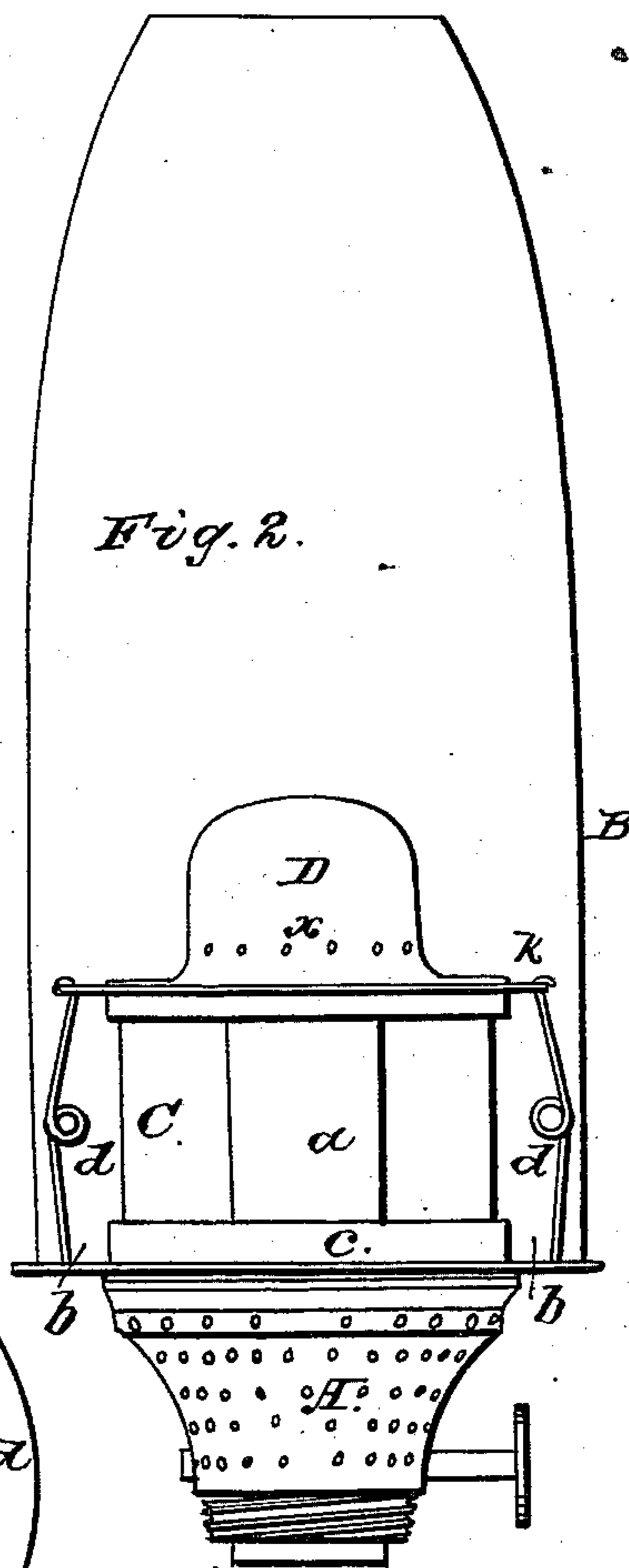
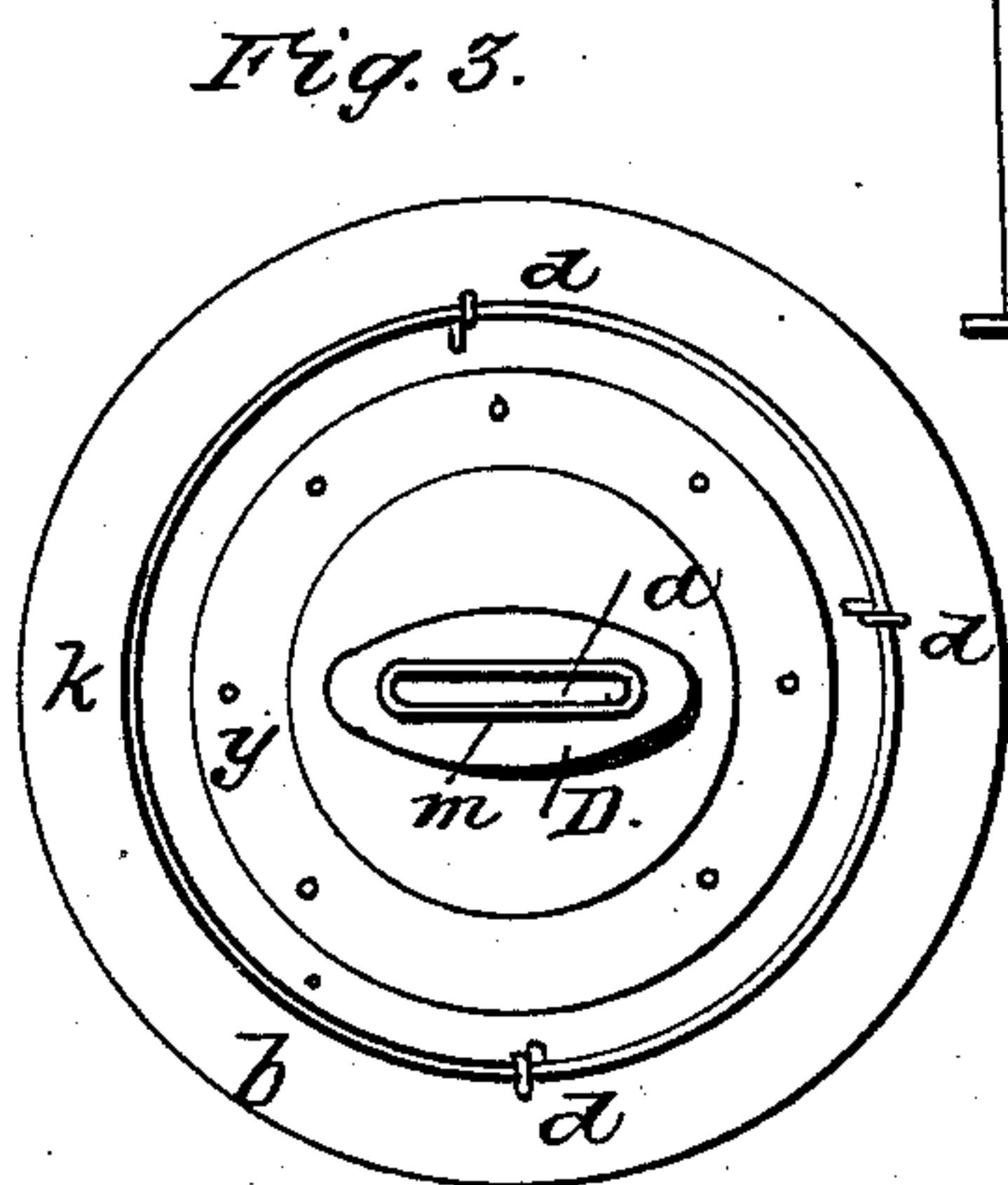
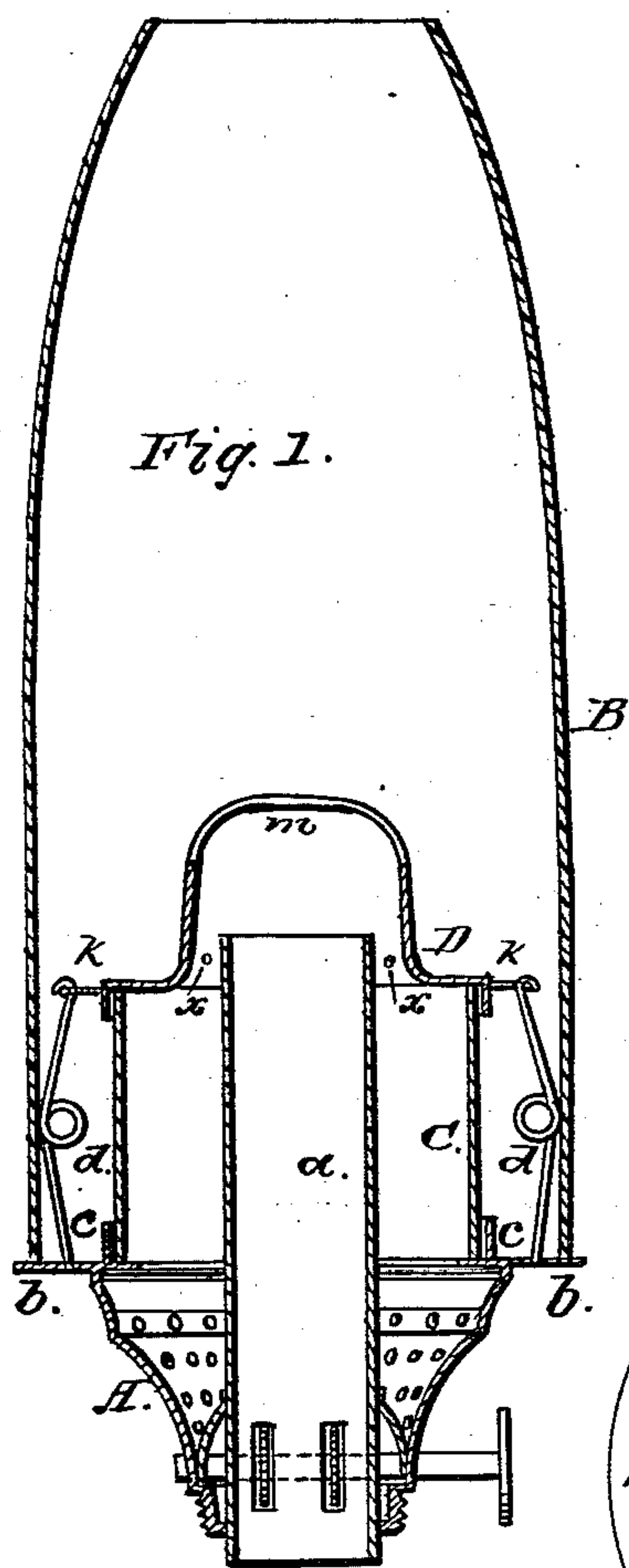


G. NEILSON.  
Lamp Burner.

No. 84,752.

Patented Dec. 8, 1868.



Witnesses,  
*Wm. Baily*  
*Chas. Page Jr.*

Inventor;  
George Neilson  
by his attorney

*A. Belok*



# United States Patent Office.

GEORGE NEILSON, OF BOSTON, MASSACHUSETTS.

Letters Patent No. 84,752, dated December 8, 1868.

## LAMP-BURNER.

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

### To whom it may concern:

Be it known that I, GEORGE NEILSON, of Boston, in the county of Suffolk, and State of Massachusetts, have invented certain new and useful Improvements in Burners for Kerosene and other Hydrocarbon-Fluid Lamps; and I hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings.

My invention relates more particularly to that class of petroleum or other hydrocarbon-fluid burners in which the deflector is elevated some distance above the base, so as to allow the light to pass out from the under side of the deflector.

The main object of my invention is to produce a lamp-burner of this description, in which the chimney shall be entirely isolated and separated from those parts of the burner in the more immediate neighborhood of the flame.

In burners as ordinarily constructed, these parts, when so heated, communicate the heat to the lamp-chimney, which is thus frequently damaged or broken, and is at all times, while the lamp is lighted, too hot to be handled or touched with the bare hand.

Although attempts have heretofore been made to remedy this difficulty, yet, even in the most improved burners now in use, the chimney cannot be kept cool enough to be handled at all times without much difficulty and inconvenience, while, at the same time, it is extremely liable, on account of unequal heating, to crack and break.

To enable others 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 drawings.

The base, A, of the burner is provided with the usual perforation for the admission of air, and carries the wick-tube *a*, with its wick-adjusting pinions and shaft.

Upon the base is secured the ring or annular plate *b*, which forms a support or seat for the chimney B, as well as for the smaller interior cylinder, C, whose lower end fits within a flange, *c*, by which it is steadied and held in place.

The wick-tube *a* extends up a suitable distance above the base, the object of this arrangement being to remove the flame from the immediate neighborhood of the base and parts which support the chimney, so as to prevent the same from being unduly heated.

The cylinder C is of a proportionate height with the wick-tube, as shown in the drawings, so that the cone or deflector D, which fits over and rests upon the upper end of the cylinder, shall be supported in proper position with relation to the said tube.

The chimney B, which is of that kind ordinarily known as "straight chimneys," rests upon the flange or ring *b*. Its diameter is greater than that of the cylinder C and deflector D, so that a continuous annular space or opening intervenes between them, which entirely isolates or removes the chimney from contact

with the highly-heated portions of the burner. The chimney fits over and is held in position by wire or other suitable springs, *d*, which are arranged to bear upon the interior surface of the chimney, as seen in Figure 1. These springs are attached, at their lower ends, to the chimney-seat *b*, and their upper ends are secured upon a hoop or ring, K, which encircles, but is not in contact with, the cylinder or cone, as shown clearly in Figure 3. By means of this hoop, which puts the springs in communication with each other, the pressure of said springs upon the chimney is equalized, which would not be the case if their ends were not confined and held together in this or an equivalent manner.

When the burner is in operation, the air entering through the perforations in the base A, passes up through the cylinder C, impinges against the flame, and is discharged into the chimney through the slot *m* of the deflector, and the perforations *x y* formed therein. None of the heat is communicated to the lower part of the chimney, which remains cool, so that, at any time, it can be removed with the bare hand without inconvenience.

In order to more effectually prevent the chimney from becoming heated, perforations may be formed in that portion of the seat *b* between the chimney and the cylinder.

With regard to this part of my invention, I may here say that the isolation of the chimney can be effected just as well by using a cylinder of metal, or other suitable material, instead of glass. In such case the base, A, and cylinder C, may be made of one piece of metal, the ring or flange *b* being soldered or suitably secured to the base; or the cylinder, instead of being metal, can be of any material suitable for the purpose, which is a non-conductor of heat, and this would further assure the coolness of the chimney.

I much prefer, however, to make the interior cylinder of glass or other suitable diaphanous substance, as thereby a great increase of light is gained, while, at the same time, the base remains sufficiently cool for all desired purposes.

Without some such cylinder the air could not be properly directed to feed the flame, and the employment, for this purpose, of a cylinder which is at the same time transparent or translucent, presents advantages which are too obvious to need recital.

Instead of making this device, for supporting the cone and conducting the air, cylindrical, any other form may be given it. Its form and proportions are immaterial, so long as it performs the functions hereinbefore indicated.

The arrangement of the springs for holding the chimney, it will be noticed, is productive of considerable advantage over the chimney-holding devices usually employed in burners of this description. While arranged to bear against the interior surface of the chimney, like the springs ordinarily attached to the periphery of the deflector, they are entirely disconnected and



separate from the deflector, whose heat is consequently not imparted to them; and, moreover, the space within the chimney is entirely open from the base to the top, the space included between the cone and base being not cut off or divided from that above the cone by the springs which the latter usually carries, so that there is less danger of the chimney breaking from unequal heating or the sudden decrease in heat, which, in this class of burners, takes place in that part of the chimney below the deflector.

All the air needed for the proper combustion of the fluid may pass through the inner cylindrical passage, as indicated by arrows in the drawing. A portion of it passes up along with the flame, through the slot *m*, while the remainder passes up through the perforations *x y*, to meet the flame above the cone.

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 as follows:

1. The combination, with the cone and cone-supporting cylinder, of the chimney-rest, chimney, and spring-device, by which the latter is supported and steadied, under the arrangement and for operation as herein shown and specified.

2. I claim the combination, with the chimney and chimney-rest, of the springs and hoop or ring for holding the upper ends of said springs, in the manner and for the purposes herein shown and described.

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

GEORGE NEILSON.

Witnesses:

SUMNER ALBEE,  
EDGAR L. KIMBALL.