

I. W. SHALER.

Lamp.

No. 124,017.

Patented Feb. 27, 1872.

Fig. 1.

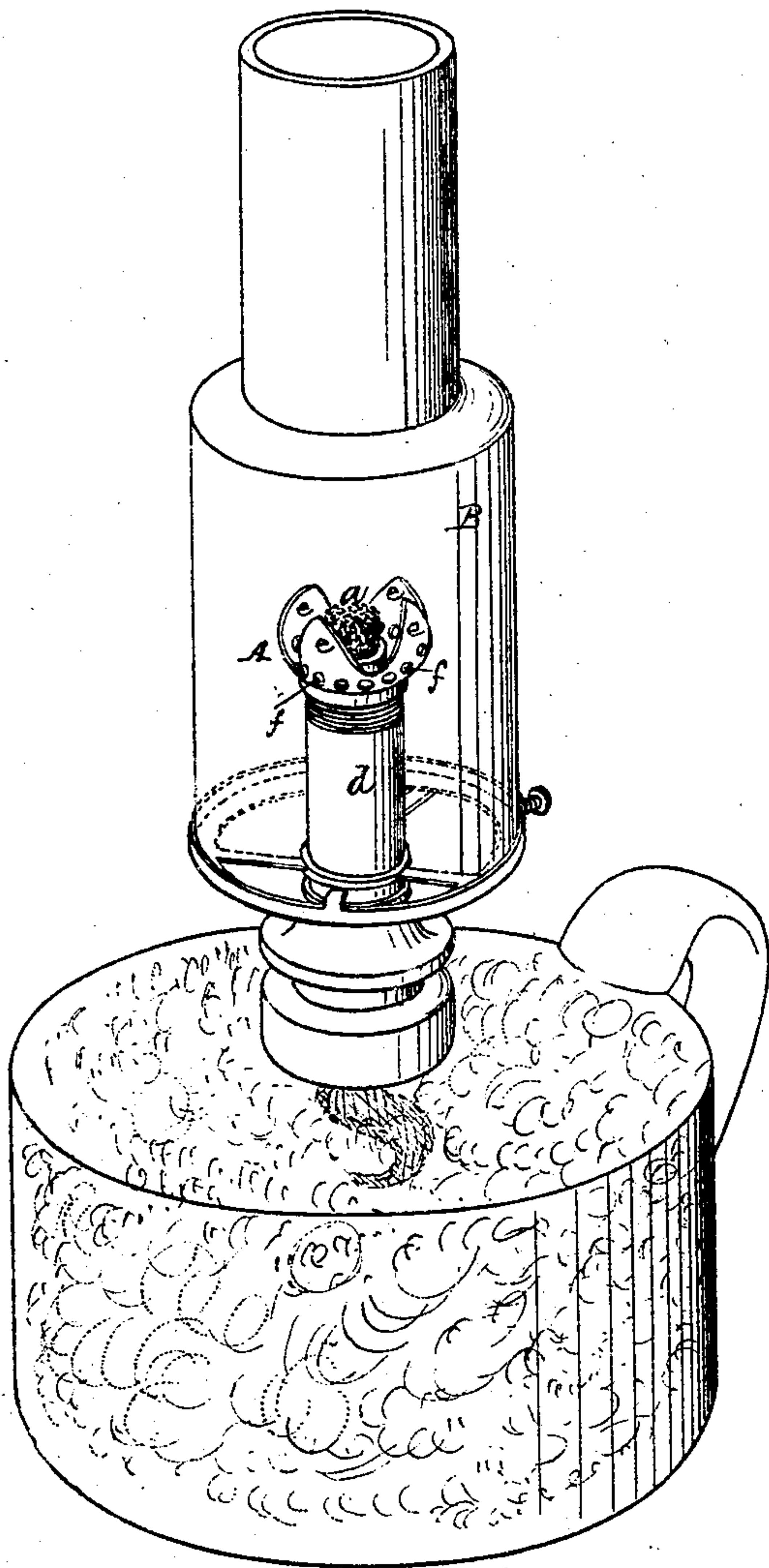
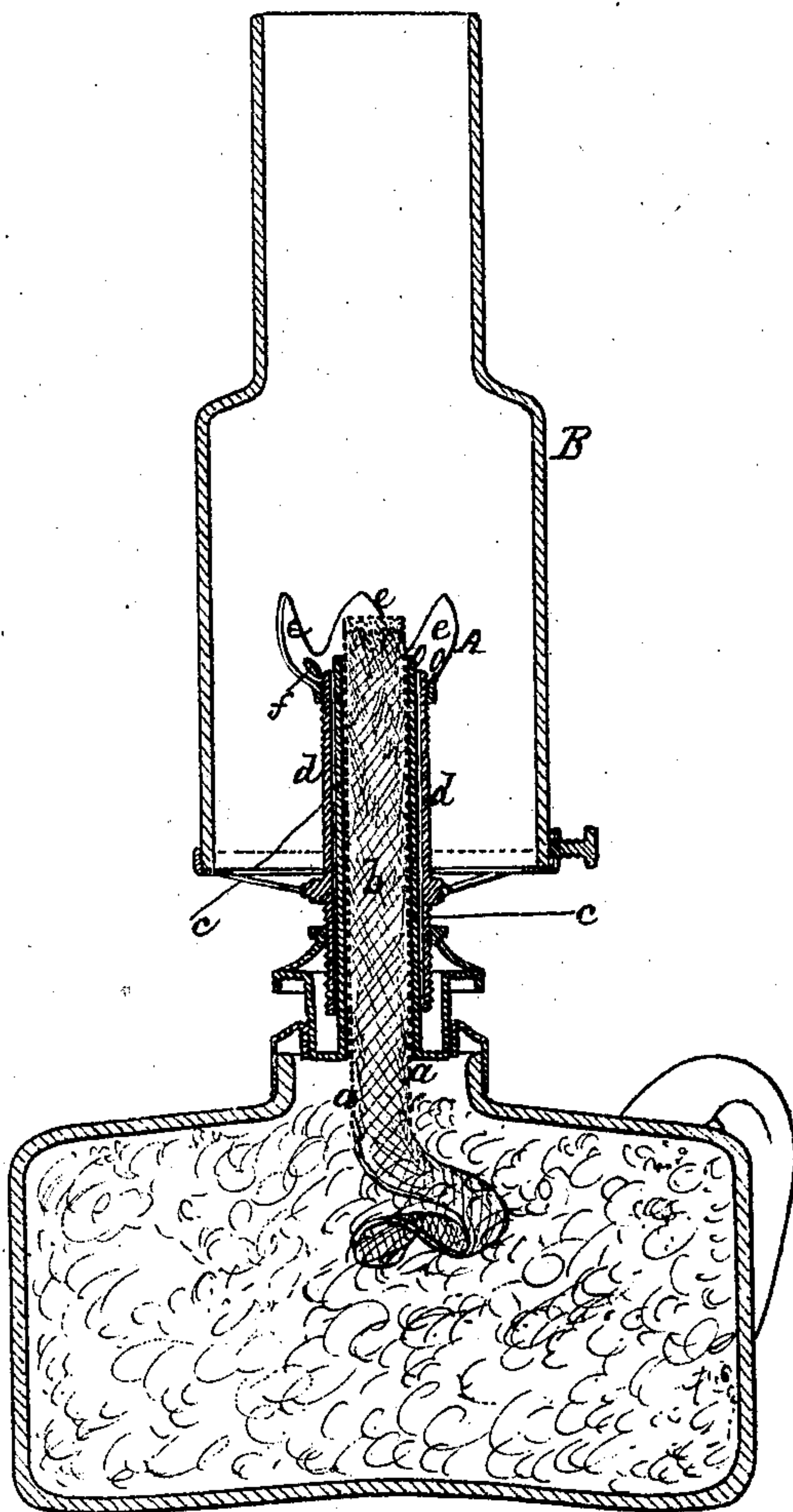


Fig. 2.



Witnesses.

Chas. B. Nottingham
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UNITED STATES PATENT OFFICE.

IRA W. SHALER, OF BROOKLYN, NEW YORK.

IMPROVEMENT IN LAMPS AND BURNERS.

Specification forming part of Letters Patent No. 124,017, dated February 27, 1872.

To whom it may concern:

Be it known that I, IRA W. SHALER, of Brooklyn, Kings county, in the State of New York, have invented certain new and useful Improvements in Lamps and Lamp-Burners, of which the following is a specification:

My invention relates to means for perfecting the combustion and increasing the light in chimney-lamps and lamp-burners, particularly such lamps and burners as are adapted to burn the lighter and more volatile hydrocarbons; and it consists in the combination, in such a lamp or burner, with a chimney having a contracted neck, of a device which I call a "flame-regulator," constructed and applied substantially in the manner hereinafter described, so as to break up or divide the body of the flame, changing the form which said flame would otherwise have, and introducing air into its interior for the purpose of obtaining more complete combustion.

In illustration of my invention, I have shown this device combined with a lamp or lamp-burner substantially such as patented to me on the 10th October, 1871, and it is in a lamp of this character that the beneficial effect of the employment of this device is especially noticeable.

Figure 1 is a perspective view of the lamp. Fig. 2 is a vertical central section of the same.

I shall describe the lamp only so far as is necessary to enable the operation of my invention to be understood, and will then describe more particularly the construction, arrangement, and operation of the flame-regulating device.

In this lamp a wire tubular wick, *a*, is used, with a filling of cotton wicking, *b*, which extends down into the lamp-reservoir. The latter is filled with cotton or other suitable absorbent material, upon which is poured no more of the light hydrocarbon than the absorbent material will hold in suspension. The wire-gauze wick is surrounded by a wick-tube, *c*, from the top of which the gauze projects a suitable distance. Surrounding the wick-tube is a sleeve, *d*, which screws into the base of the burner. The size of the flame can be regulated by screwing up the sleeve more or less, to expose a greater or less portion of the upper part of the wick. When the lamp is filled and ready for use, it is lighted by applying a

match to the top of the wire-gauze. The flame streams up in a round or cylindrical form, corresponding to the shape of the wick in this case. My present invention is directed to the dividing of the flame, so as to increase the light and perfect the combustion. To this end I employ a flame-regulator, *A*, of the form substantially as shown. It is a cup-shaped device, the body of which is divided so as to form diverging concavo-convex leaves *e*, surrounding the top of the wick and base or lower part of the flame, the upper ends or points of the leaves being slightly drawn in toward the flame. When in operation this device occupies about the position shown in the drawing, and may be attached to and so as to move with the sleeve *d*, or it may be arranged to screw onto the sleeve; or, again, it may screw or slide on the wick-tube, or may be otherwise connected with the burner, so as to occupy the position shown with relation to the wick. The base of this cup may be perforated or not, as preferred. In the drawing perforations *f* are shown. The effect of this leafed flame-regulating cup is to divide the flame and to so separate it as to allow an increased supply of oxygen to be incorporated with it, so as to greatly increase its size and brilliancy. The flame appears to rise from the leaves *e*, being somewhat contracted in the spaces between the leaves, owing to the action of the air admitted at those points, and by the operation of the device is divided into four distinct parts, which, rising some distance above the cup, again reunite in the form of a single flame, say, at or a little below the point indicated by the contraction in the glass chimney *B*. By this means the character of the flame is radically changed from that which it would have were the regulator omitted. Its size or dimensions is increased, and much more light is obtained. By increasing the number of leaves of the regulator the flame will be divided into a greater number of jets, and by lessening the number a correspondingly-reduced number of jets will result. I have found a four-leafed or three-leafed cup will answer for my purposes.

The device can, of course, be employed with lamps or lamp-burners of other than the special construction I have shown. It is of value especially with burners for the more volatile hydrocarbons, as it produces a decided change

in the form of the flame, increases the light greatly, and effects much more complete combustion. With a lamp such as shown, and with the flame-regulator, I use a chimney, B, with a contracted neck standing above the top of the wick at about the distance represented. The part of the chimney above the contraction may be considerably shorter than is usual in ordinary contracted-neck chimneys. The chimney is supported on a chimney-rest or seat of ordinary or suitable construction, and the air admitted to the flame should pass through the usual perforated diaphragm or air-distributor, (not shown in the drawing,) which is an indispensable adjunct of all chimney-burners, in order to steady the draught and prevent flickering of the flame.

In a lamp such as described, rigoline, gasoline, and other of the volatile products of dis-

tillation of petroleum can be burned with safety to produce a brilliant illuminating flame.

Having 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—

The combination, with a chimney-lamp or burner, of a flame-regulator, constructed and adapted to operate, in connection with a contracted-neck chimney, substantially as shown and set forth.

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

IRA W. SHALER.

Witnesses:

M. BAILEY,
EDM. F. BROWN.