(No Model.)

A. HARCUM.

ADJUSTABLE CAP FOR LAMP CHIMNEYS.

No. 246,950. Patented Sept. 13, 1881.

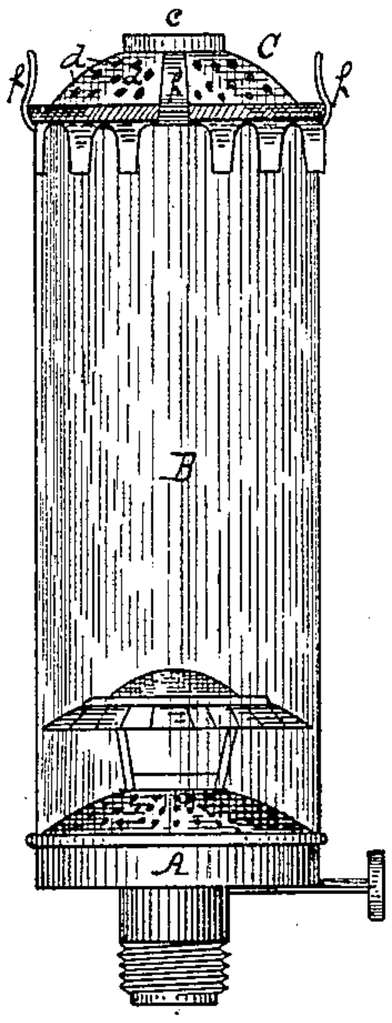

Fig. 1.

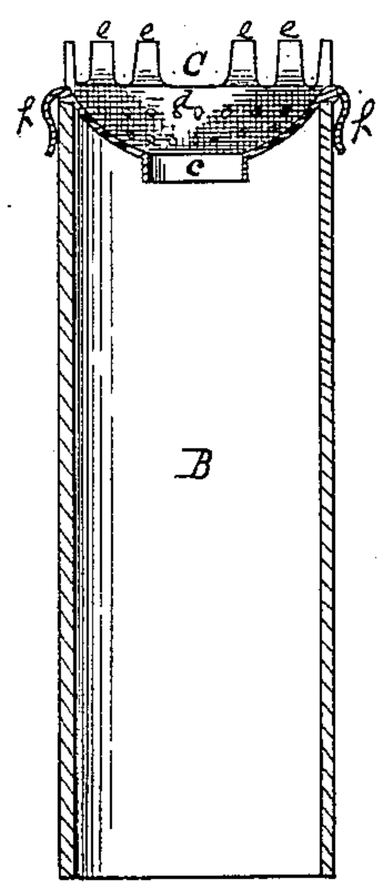

Fig. 2.

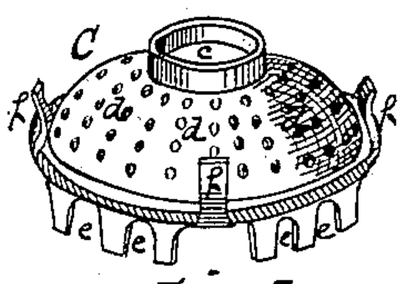

Fig. 3.

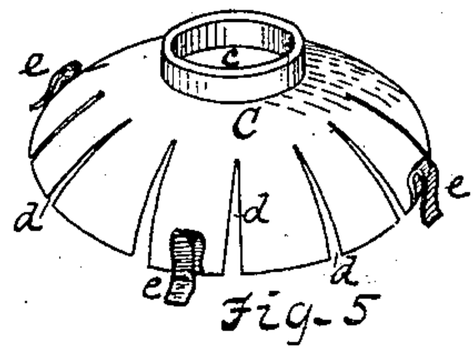

Fig. 5

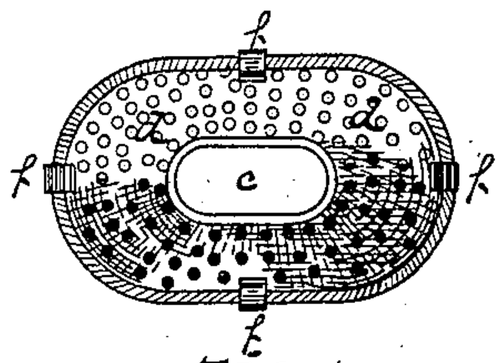

Fig. 4.

Witnesses.

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UNITED STATES PATENT OFFICE.

ANDREW HARCUM, OF SCOTT TOWNSHIP, ALLEGHENY COUNTY, ASSIGNOR TO HIMSELF AND JAMES L. IRWIN, OF PITTSBURG, PENNSYLVANIA.

ADJUSTABLE CAP FOR LAMP-CHIMNEYS.

SPECIFICATION forming part of Letters Patent No. 246,950, dated September 13, 1881.

Application filed May 5, 1881. (No model.)

To all whom it may concern:

Be it known that I, ANDREW HARCUM, of Scott township, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Adjustable Caps for Lamp-Chimneys; and I do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawings, forming a part of this specification, in which—

Figure 1 is a side view of my improved lamp-chimney and cap. Fig. 2 is a longitudinal section of the same, showing the cap inverted in the chimney. Fig. 3 is a perspective view of the cap. Fig. 4 is a top view of an oval cap adapted for use, with an oval or flat chimney, and Fig. 5 is a perspective view of another form of cap.

Like letters of reference indicate like parts in each.

My invention relates to certain improvements in the chimneys used with lamps for burning refined petroleum and other hydrocarbon oils; and its object is to provide a means whereby a short straight chimney may be used in burning these oils, and to guard the flame against the outer currents of air, as well as to arrange the ordinary lamp for heating purposes.

My invention consists in a glass lamp-chimney having straight or approximately-straight sides, in combination with a removable metallic ring or cap fitting on top of the chimney, and provided with a large central opening, and a series of perforations or slots around said opening to regulate the draft of the chimney, and to prevent the passage of any outer air-current down the chimney to cause the flickering or extinguishment of the flame, said cap being reversible and provided with lips to secure it to the chimney in either position.

To enable others skilled in the art to make and use my invention, I will describe its construction and operation.

In the drawings, A represents the lamp-burner, which is of any desired construction, the one shown being the usual sun-burner with a flat wick. The burner is arranged on a lamp and the flame regulated in the usual manner.

The chimney B is formed of a straight cylinder of glass, being, when round in cross-section, of the same diameter throughout, or at least of such construction from the burner to the top, and secured to the burner in any desired manner. As its sides are straight the glass is of the same thickness throughout, and is consequently affected by the heat in the same manner at all points, thus overcoming in a great measure the liability to break on account of the unequal expansion and contraction of the parts.

C is my improved ring or cap, this cap being formed of sheet brass, tin, or other suitable metal, and having a large central opening, *c*, through which the greater portion of the draft and products of combustion pass, and the series of smaller openings *d* between the central opening and the rim of the cap to aid in carrying off the draft. These openings *d* may either be made in the form of perforations, as shown in Figs. 1 to 4, or in the form of slits extending in from the rim, as shown in Fig. 5. The cap is secured to the top of the chimney by means of the spring-lips *e*, formed around the rim, the lips being generally made in the form of serrations, as shown, to give the cap a strong hold on the chimney and impart a neat finish to its edge.

The cap is generally made oval in cross-section, to add to its appearance on the top of the chimney, though a straight cap or even a depressed cap serves well to guard the lamp-flame from outer air-currents. Some of the serrations around the cap are formed long, and turned over so as to extend upward above the edge of the cap, as at *f*, these lips serving to secure the cap upon the chimney in an inverted position, and thus form a rest for a cup or like small vessel, when it is desired to use the lamp for heating purposes. In this case the cap is secured upon the chimney by the lips *f*, and the cup or other vessel supported on the lips *e*, the draft of the lamp passing out between the lips.

The operation of my improved lamp-chimney is as follows: The draft supplying air to the flame passes up under the burner in the usual way. After passing the flame it is carried upward and passes out through the central opening and perforations or slits *d*, the greater portion of the draft and products of combustion passing out through the central opening, but

a portion passing out through the perforations or slits around it, so as to secure an even upward draft throughout the whole chimney-space, and consequently an even-burning flame. The burning flame also causes an upward draft, which draws in all around the burner, and next to the chimney-walls a thin film or current of cold air, which does not approach the flame, and, on account of the perforations or slots in the cap, passes out around the edge of the chimney without being highly heated, and this surrounding film or current prevents the flame when turned high from coming in contact with the chimney and cracking it. Where also the flame of the lamp is turned high, instead of striking the contracted top of the chimney and causing it to crack from the sudden heat the flame comes in contact with the cap and has no injurious effect upon it. The perforated or slotted cap, while in no way impairing the draft through the chimney, forms also a very effective guard against side and downward currents or drafts of air, and prevents their passage down the chimney and the consequent flickering or extinguishment of the flame. It thus causes the flame to burn evenly, where with the ordinary chimney it would be so uneven as to prevent reading, and consequently enables me to use a wide chimney and obtain a wider flame, and to shorten the length of the chimney without fear of its being affected by the outer air-currents.

Where it is desired to use the lamp for heating purposes the cap may be inverted, as above described, and in that position serves to guard equally well against outer air-currents and impart an even draft for the flame, and the chimney, being a strong straight cylinder, will sustain a heavier weight.

Where it is desired to use a wide flat burner to obtain a broad flame the chimney may either be formed oval in cross-section throughout and fit an oval seat on the burner, or it may be formed circular below the burner and flat above it, the sides in both cases being straight from the burner to the top, and an oval perforated or slotted cap, as shown in Fig. 4, being employed with the chimney.

The caps can be rapidly and cheaply formed by stamping in dies, and the chimneys blown in wooden or other molds to the exact size, so that any cap will fit them, both parts being interchangeable, and being cheaply made. As the chimney-walls are of the same thickness throughout, they are stronger and more durable than the common lamp-chimney. Being short and broad, they are also very easily cleaned—an advantage appreciated by all users of oil. They also present a very neat appearance, the cap imparting a fine finish to the chimney.

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

In combination with the lamp-chimney B, the reversible cap C, provided with the central opening, *c*, surrounding perforations or slits *d* and lips *e f*, for securing the cap on the chimney in either position, substantially as and for the purposes set forth.

In testimony whereof I, the said ANDREW HARCUM, have hereunto set my hand.

ANDREW HARCUM.

Witnesses:
JAMES L. IRWIN,
JAMES I. KAY.