

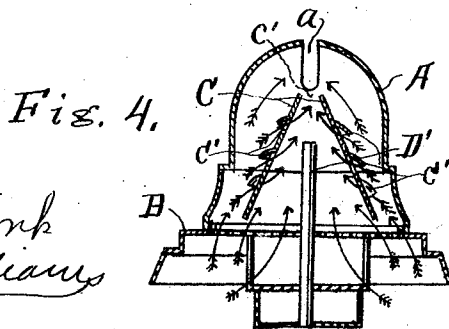
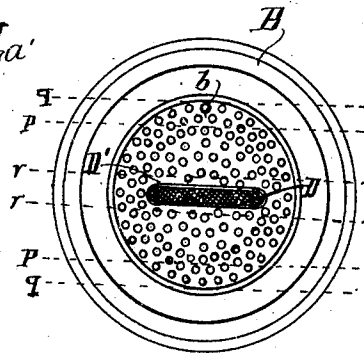
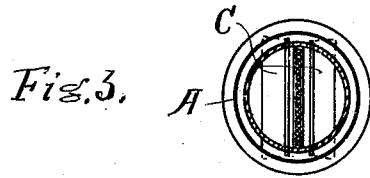
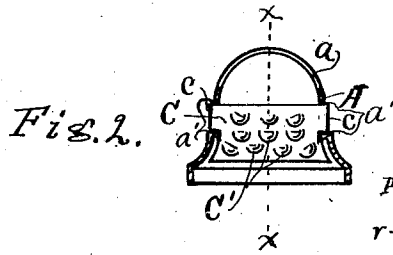
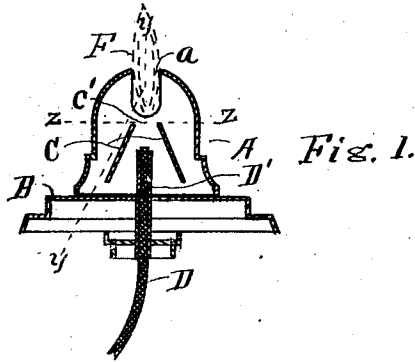
F. E. HANVEY & L. W. DAVIS.

LAMP BURNER.

APPLICATION FILED JULY 25, 1910.

991,441.

Patented May 2, 1911.



Witnesses

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FRANK E. HANVEY AND LESLIE W. DAVIS, OF GRAND RAPIDS, MICHIGAN.

LAMP-BURNER.

991,441.

Specification of Letters Patent.

Patented May 2, 1911.

Application filed July 25, 1910. Serial No. 573,776.

To all whom it may concern:

Be it known that we, FRANK E. HANVEY, and LESLIE W. DAVIS, citizens of the United States, residing at Grand Rapids, in the county of Kent and State of Michigan, have invented certain new and useful Improvements in Lamp-Burners, of which the following is a specification.

Our invention relates to improvements in burners for use upon kerosene lamps, and its objects are: First, to provide a means whereby the air that flows into the cap through the perforations in the base of the burner will be so concentrated, just above the top of the wick tube, as to form a gaseous space above the wick so that all soot and carboniferous substances in the oil will be destroyed in the intense heat between the top of the wick and the lower end of the flame proper. Second, to provide a means whereby the heat at the end of a burning wick will be greatly intensified and the light produced will be more intense and clear than can be produced with an ordinary lamp burner, and, third, to provide a means whereby the combustion will be so perfect as to greatly increase the brilliancy and clearness of the flame without increasing the consumption of oil or wick. We attain these objects by the mechanism illustrated in the accompanying drawing, in which—

Figure 1 is a sectional elevation of a burner on the line *x x* of Fig. 2. Fig. 2 is a sectional elevation of the cap of a burner on the line *y y* of Fig. 1 showing the manner of inserting and securing the concentrating plates, and showing perforations in the plate for more perfectly concentrating the inflow of air to a line directly above the top of the wick tube. Fig. 3 is a sectional plan of the cap of the burner on the line *z z* of Fig. 1. Fig. 4 is a vertical section of a complete burner on the line *x x* of Fig. 2 showing the relative and proportional flow of air from the perforations in the base into, through and around the concentrating plates and the cap of the burner, and, Fig. 5 is a plan of the base of the burner showing the perforations therethrough, and indicating the concentration of inflowing air and gases as they pass from the base to the point of combustion above the wick tube.

Similar letters refer to similar parts throughout the several views.

Our invention consists in placing two thin metal plates or partitions, as C, in the cap A

of a lamp burner, in such a position that they will form an opening at the lower ends or edges, into which the air that passes through a broad perforated space in the base B, as between the lines *p p* in Fig. 5, will pass between these plates, while the upper edges of the plates are so close together as to form a narrow space between these edges, as between the lines *r r* in Fig. 5, so that a strong draft will be formed through the space between these plates, by means of which the visible blaze or flame of a lighted lamp will be a considerable distance above the top of the wick tube D', with the effect that the vaporized oil from the wick D will be raised to a perfectly combustible gas between the top of the wick and the visible portion of the flame F, which is, practically, all above the line that marks the lower end of the slot *a* in the burner cap A, as indicated in Fig. 1. We find that the effect is much better with the plates C so placed that a considerable space is left open between their lower edges and the upper surface of the base B, so that free circulation is attainable over the entire surface of the base. We find, further, that to perforate these plates in such a manner that the metal that is pressed out from the punctures will form downwardly and outwardly inclined caps to the apertures, as C', indicated in Figs. 2 and 4, further facilitates the action of the burner by allowing, or rather, causing a majority of the air that passes through the perforations between the lines *p* and *q*, see Fig. 5, to pass through, as indicated by the arrows in Fig. 4 that are shown as passing through the apertures, while but a very small portion of air passes into the visible flame, as is indicated by the two arrows shown above the plates C in Fig. 4. To insure the perfect operation of these plates we find it very desirable, if not absolutely necessary, to pass them entirely across the inner diameter of the cap, and for this purpose we form slots, or elongated holes or mortises, as *a'*, through the walls of the cap, and corresponding short wings, as *c c*, on the ends of the plates and pass these wings through the slots, as indicated in Fig. 2, thus allowing a free flow of air to the extreme edges of the wick. The application of these plates to the burner of a lamp, when placed with a considerable space between their lower edges and the surface of the base B requires no change whatever in the number or distri-

5 bution of the perforations, *b*, in the base, or
 in the form or arrangement of the cap or
 any other portion of the burner, except to
 form the receiving slots *a'* in the cap for
 10 securing the plates to place, and as the com-
 bustion is greatly facilitated by its use, we
 are enabled to produce a much more clear
 and brilliant light, to turn the flame much
 higher without danger of smoking, and to
 15 consume less oil and wick, and with far
 better results than can be obtained with an
 ordinary burner, and with little added cost
 for construction. Another, and very de-
 cided advantage gained by this construction
 20 is that the use of the plates *C*, as they are
 applied to the cap, tends to greatly
 strengthen the cap and to avert the danger
 of bending or warping the cap out of shape,
 either by the action of heat when the lamp
 25 is burning, or by too heavy pressure with
 the hands when removing it to trim the
 wick.

What we claim as new, and desire to
 secure by Letters Patent of the United
 25 States, is:

1. In combination with the base and cap
 of a lamp burner, plates secured in the cap
 of the burner and inclined so that a broad
 opening is formed near the base and a nar-
 30 row opening is formed above the top of the
 burner, said plates perforated and caps

formed to incline downward and outward
 over said perforations.

2. In combination with the base and cap
 of a lamp burner, plates secured in the cap 35
 upon an incline from the perpendicular to
 form a wide opening near the surface of the
 base and a narrow opening above the wick
 tube, said plates so set as to leave a consid-
 erable space between their lower edge and the 40
 surface of the burner and an open flue across
 the entire diameter of the cap of the burner.

3. In combination with the base and cap
 of a lamp burner, plates secured in the cap 45
 of the burner with the lower edges above the
 surface of the base, and so inclined that a
 wide opening is formed near the surface of
 the base and a narrow opening is formed
 above the wick tube, said plates perforated
 and downwardly and outwardly inclined 50
 caps formed over said perforations, and said
 plates so located that a wedge shaped flue
 is formed between them across the entire
 diameter of the cap of the burner.

Signed at Grand Rapids Michigan July 55
 22, 1910.

FRANK E. HANVEY.
 LESLIE W. DAVIS.

In presence of—

ITHIEL J. CILLEY,
 ALEXANDER S. PALMER.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents,
 Washington, D. C."