

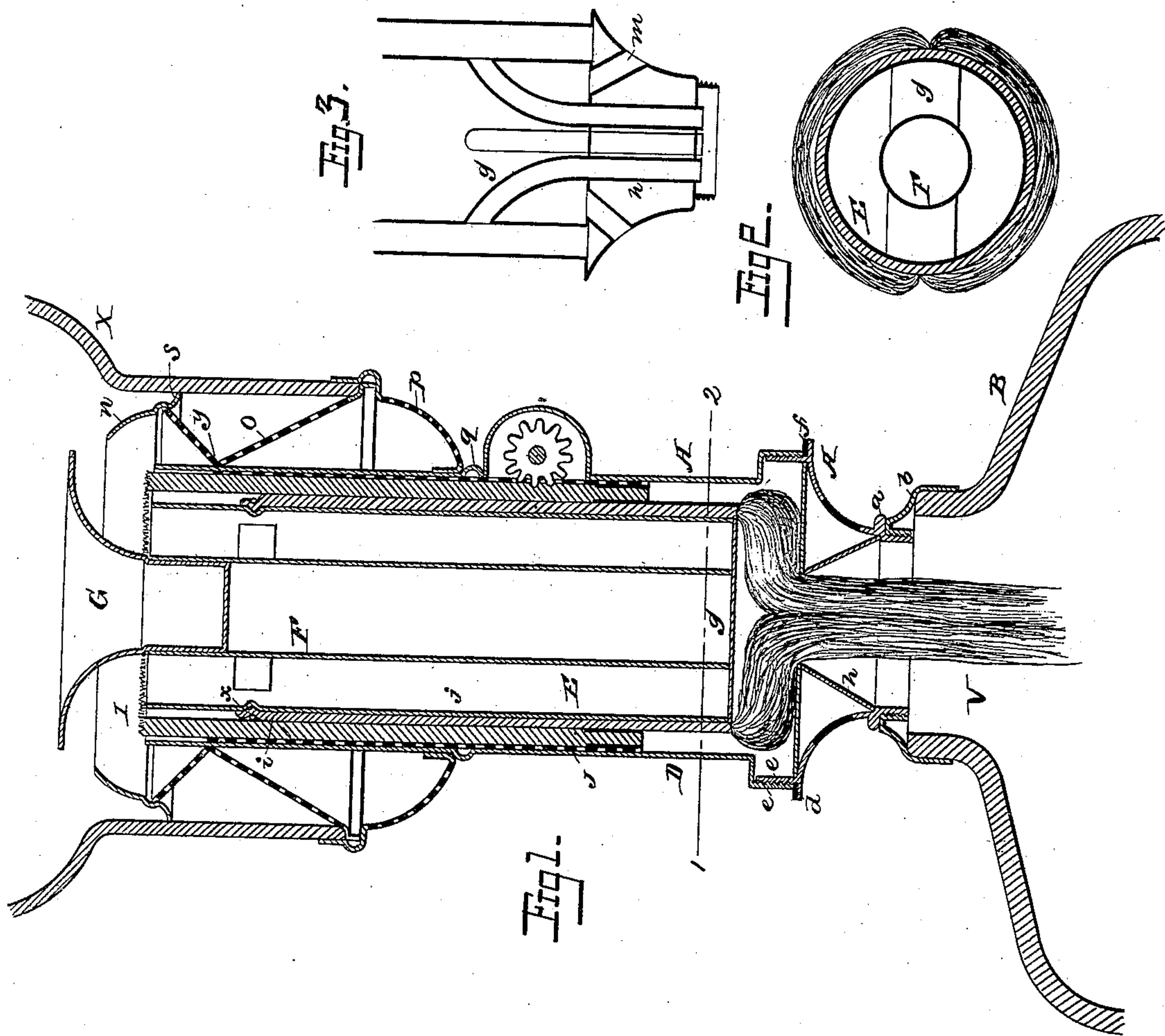
(No Model.)

C. H. HIGBEE.

LAMP BURNER.

No. 334,017.

Patented Jan. 12, 1886.



Attests:
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UNITED STATES PATENT OFFICE.

CHARLES H. HIGBEE, OF NEW YORK, N. Y., ASSIGNOR TO ANDREW J. DAVIES, OF SAME PLACE.

LAMP-BURNER.

SPECIFICATION forming part of Letters Patent No. 334,017, dated January 12, 1886.

Application filed April 4, 1885. Serial No. 161,223. (No model.)

To all whom it may concern:

Be it known that I, CHARLES H. HIGBEE, a citizen of the United States, and a resident of the city, county, and State of New York, have invented certain new and useful Improvements in Lamp-Burners, of which the following is a specification.

My invention relates to that class of oil-burners in which annular wicks are used; and my invention consists in means for supplying the movable annular wick with oil from the reservoir, and also of certain improvements in the construction of the burner, whereby to prevent the same from becoming unduly heated.

In the drawings, Figure 1 is a sectional elevation of my improved burner, showing the same applied to an ordinary reservoir. Fig. 2 is a section on the line 1 2, Fig. 1. Fig. 3 is a sectional view illustrating a modification of the parts for supplying oil to the movable wick and air to the central air-tube.

In that class of oil-lamps heretofore devised for use with Argand burners and annular wicks the reservoir for the oil has been provided with a central air-tube arranged to supply the central tube of the burner with air. This has necessitated a comparatively limited use of Argand oil-burners, inasmuch as they could not be employed in connection with oil-reservoirs not specially adapted for use therewith.

In order to employ an annular wick without modifying the ordinary form of the reservoir, I construct the burner in the manner which I will now describe. The base A of the burner is provided at the lower end with the usual coupling-threads upon the shoulder *a*, whereby it may be connected to the ring or cap *b*, secured to or forming part of an ordinary oil-reservoir, B. The base A is perforated, and is provided with a threaded flange, *c*, and with a horizontal flange, *d*, and to the threaded flange is adapted a threaded flange, *e*, upon the wick-tube D, a packing, *f*, of vulcanized fiber or other suitable material, lying upon the flange *d*, and serving to pack the joint at this point, for a purpose set forth hereinafter. An air-tube, E, is concentric with the wick-tube D, and the space between the two forms an annular wick-chamber closed at the lower end and open at the upper end, the air-tube E be-

ing supported by the base, and communicating with the space inclosed thereby, so that the air may flow freely through the perforations in the base into the wick-tube, and upward through the latter to the annular flame. Within the air-tube is supported a tube or stem, F, which supports at its upper end the flame-spreader G, constructed in any suitable manner, and with the lower end of the wick-chamber communicates a wick-tube, *g*, which, as shown, extends across the air-tube, with its ends opening into the wick-chamber, and communicating centrally with a flaring or conical tube, *h*, communicating with the reservoir. The tubes *g h* are so arranged as to form a communication between the reservoir and the wick-chamber without cutting off the free passage of the air through the base to the air-tube, and without admitting any air to the wick-chamber. A supply-wick, V, of suitable form, extends from the reservoir through the tube *h*, and toward both ends of the tube *g*, and is carried round the outside of the tube E within the wick-chamber, so as to be in contact with the annular wick within the said chamber, which wick, therefore, will be supplied with oil fed upward from the reservoir to the wick-chamber by the supply-wick.

The burning-wick may be of any suitable construction so as to fit the annular-wick chamber and be in contact with the supply-wick, and it may be raised and lowered in any suitable manner. I prefer, however, to use a continuous annular wick, I, carried by a cylindrical wick-feeding tube, J, within which the wick is confined, and to cover the outer side of the air-tube E with fibrous material, *j*, which is in contact with the supply-wick at the lower end, and with which the annular wick I slides in contact. This fibrous material, which constitutes, in fact, a stationary portion of the wick, may be an annular wick secured to the outside of the air-tube, or it may consist of lamp-wick wound spirally round the air-tube. I prefer, however, to use an annular wick of felt, cotton, or other absorbent or fibrous material.

To secure the upper end of the stationary portion *j* of the wick in position, I prefer to indent the air-tube E, forming an annular groove, *x*, over which the end of the wick *j*

extends, and to then secure said ends by means of a fine binding-cord, *i*, drawn tightly around it, so as to force it into the groove *x*. By thus using a compound wick consisting of a stationary portion communicating or forming part of the supply-wick, and another portion moving upon said stationary portion, in connection with the devices above specified, I am enabled to raise and lower the wick to any necessary extent, in order to regulate the flame without imparting any movement to the supply-wick, and yet maintain a continuous feeding of the oil to the burning-wick. By this arrangement, also, I am enabled to utilize nearly the entire length of the annular wick I, as this wick may be drawn upward from the wick-carrying tube as the wick is burned away until the wick is nearly consumed, the contact of the annular wick I with the stationary portion *j* being maintained whatever may be the extent to which the portion I is drawn upward in the carrying-tube.

Any usual or suitable appliances may be employed for imparting the vertical movement to the wick-carrying tube necessary to regulate the extent of the flame. For instance, a toothed feed-wheel, K, may be arranged upon the tube D, to engage with perforations in the wick-carrying tube, or with a rack upon the latter.

As shown, the wick-carrying tube J is slotted or perforated throughout, so that the teeth of the wheel K will engage with the said carrying-tube, whatever may be the position in which the latter is inserted in the wick-chamber.

By providing the burner with a chamber containing a vertically-adjustable wick and a stationary wick in contact with or forming part of a stationary supply-wick extending from the wick-chamber into the reservoir, and by providing a passage for the air through the base of the burner to the bottom of the air-tube, I construct the burner in such manner that it may be used in connection with any of the ordinary reservoirs, and may be sold as an article of manufacture, adapted for application wherever an ordinary burner is used, so that the advantages of an Argand burner can be secured to those having lamps of ordinary construction without any change in the character of the reservoirs. It will also be seen that inasmuch as the annular wick I is adjustable within the wick-carrying tube, and is maintained in contact with the stationary supply-wick, a much larger proportion of the annular wick may be utilized than is possible when the said wick must always have its lower end within the oil in the reservoir.

It is not necessary to adopt the precise construction of parts shown in Figs. 1 and 2 in order to bring the supply-wick into the wick-chamber without admitting air. For instance, a continuous bent tube, *g*, or a series of such tubes, may extend between the wick-chamber and the reservoir, and the air may be conducted from outside the base to within the air-

tube E by means of inclined tubes *m*, as shown in Fig. 3.

In order to prevent the undue heating of the wick-tube by the conduction of heat through the dome to its support in contact with the said wick-tube, I construct the dome as illustrated in the drawings—that is, with a curved or inclined upper flange or ring, *n*, extending from the upper edge to a point a short distance below the top of the wick-tube, and with a body, *o*, made of perforated metal, the said body resting upon a perforated basket, *p*, having its bearing upon an annular rib, *q*, of the wick-tube, the upper edge of the basket having a shoulder and flange for the support and retention of the chimney X. This construction of the dome permits a free flow of the air through the greater portion of the same; but to secure an increased cooling effect I contract the diameter of the dome between the upper and lower edges of the perforated portion, so as to bring it at the point *y* close to the wick-tube, and by this means compel the air in its upward passage to flow first through the lower and then through the upper portion, thereby maintaining it at a low temperature, and preventing some of the heat from being conducted downward to the basket and to the tube. The lower edge of the ring *n* is extended outward to form an annular flange, *s*, of such diameter as to be very nearly in contact with the inside of the chimney, the said flange aiding to support and steady the chimney, and further intercepting the rays of light and heat passing downward from the flame, and thereby reducing the heating effect upon the tube.

In order to properly adjust the stationary wick and its connection with the supply-wick, it is desirable that the wick-tube D may be detachably connected to the base. I therefore use the screw-connection above described, and in order to prevent the oil which is carried into the wick-chamber from passing to the outside of the burner I seal the joint between the tube D and the base by means of the packing *f*.

Without limiting myself to the precise construction and arrangement of parts shown and described, I claim—

1. The combination of the perforated base, tubes D and E, and transverse tube *g*, communicating at the ends with the space between the tubes D and E and tube *h*, substantially as set forth.

2. The combination, in a lamp-burner, of a base, tubes arranged to form an annular-wick chamber, a flame-deflector, a stationary annular wick connected to or forming a part of a supply-wick extending through the base, and an annular burning-wick arranged to slide outside of and in contact with the stationary wick, and a wick-carrying tube supporting the annular wick and adjustable within the wick-chamber, substantially as set forth.

3. The combination, in a lamp-burner, of a stationary annular wick, a supply-wick extending to the base of the burner connected with the stationary wick, an adjustable annu-

lar wick, and an adjustable tube carrying the said adjustable wick, substantially as set forth.

5 4. The air-tube E of a lamp-burner, provided with an annular groove, *x*, adapted to receive a portion of a stationary wick, in combination with a tube, D, and with a wick-carrying tube vertically adjustable and supporting an annular wick, I, substantially as set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

CHARLES H. HIGBEE.

Witnesses:

CHARLES E. FOSTER,
F. L. FREEMAN.