

R. HITCHCOCK.

Lamps.

No. 134,547.

Patented Jan. 7, 1873.

Fig. 1.

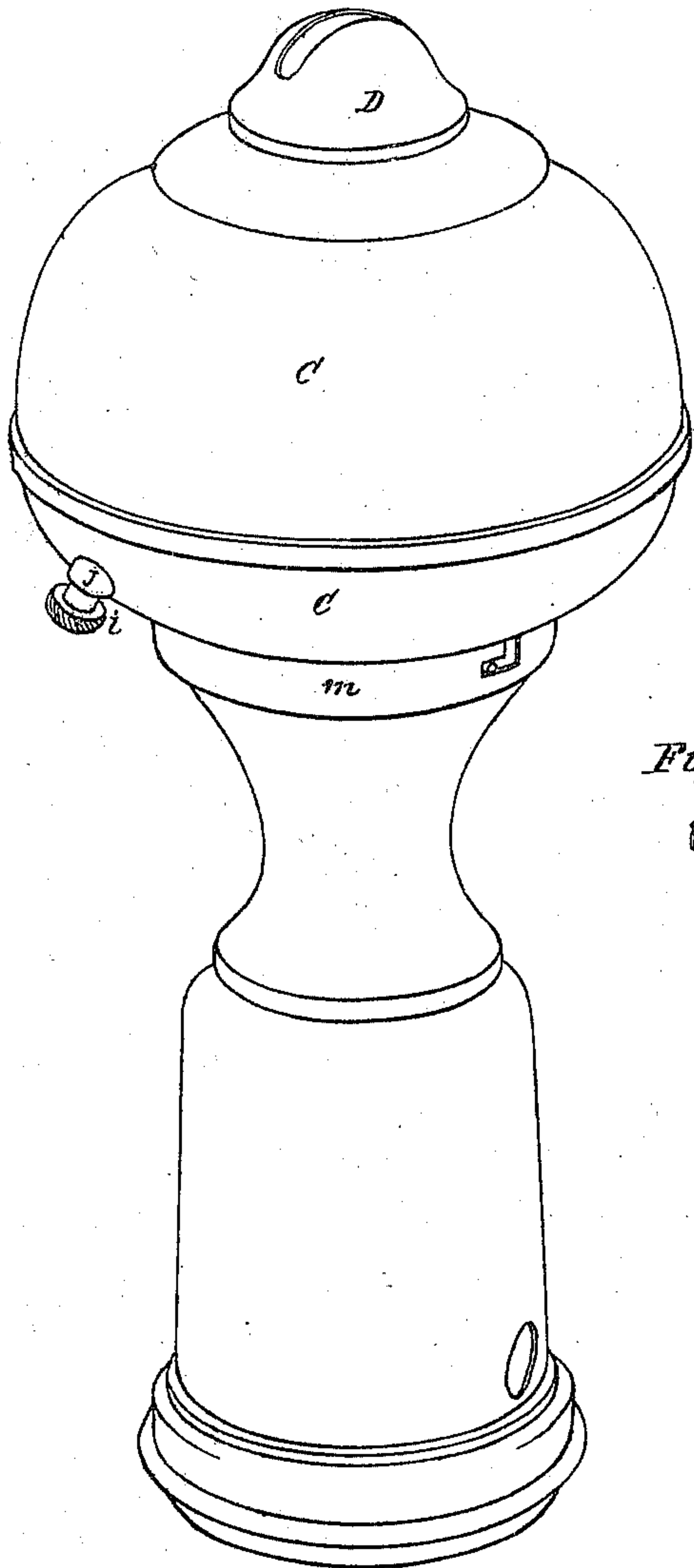


Fig. 2.

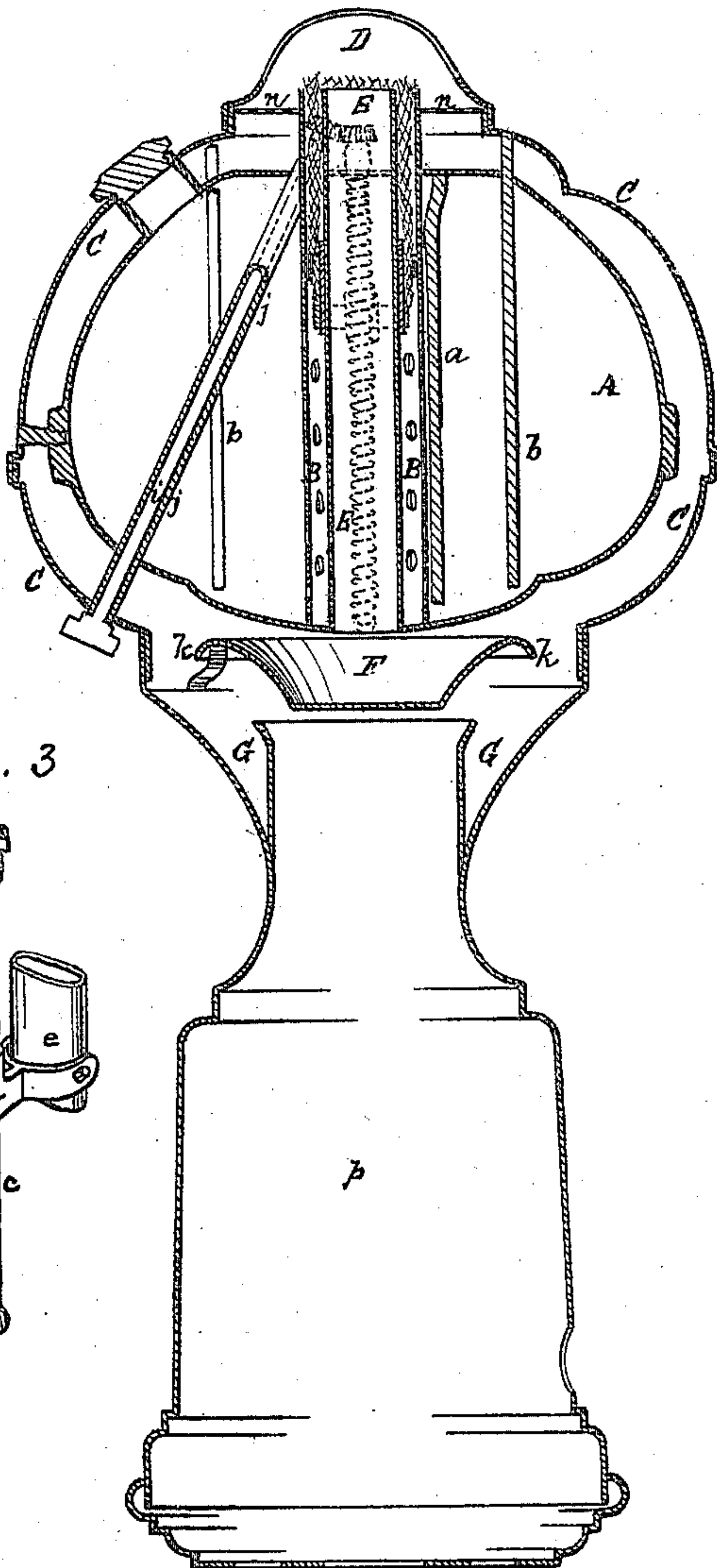


Fig. 3.

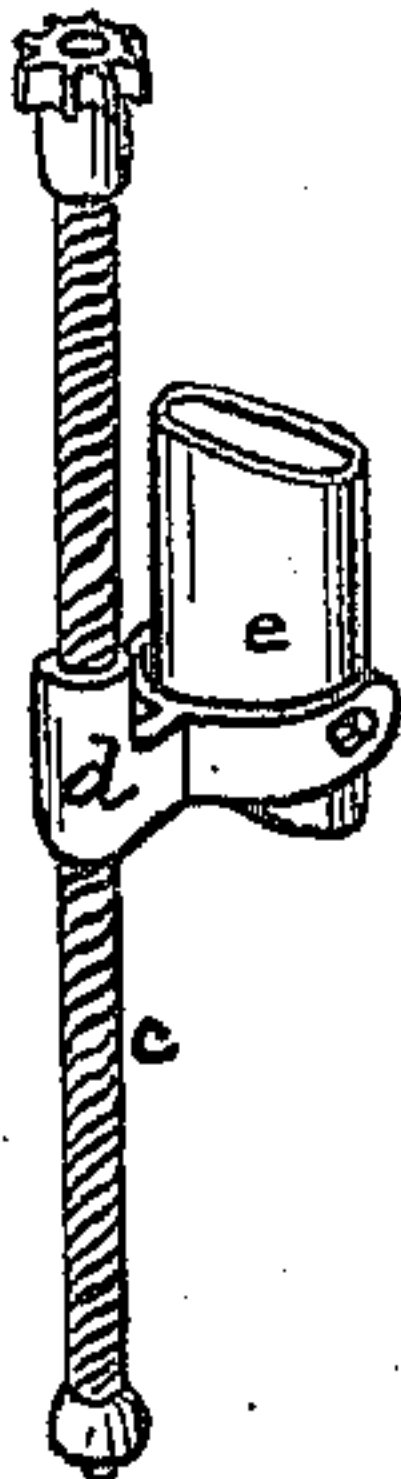
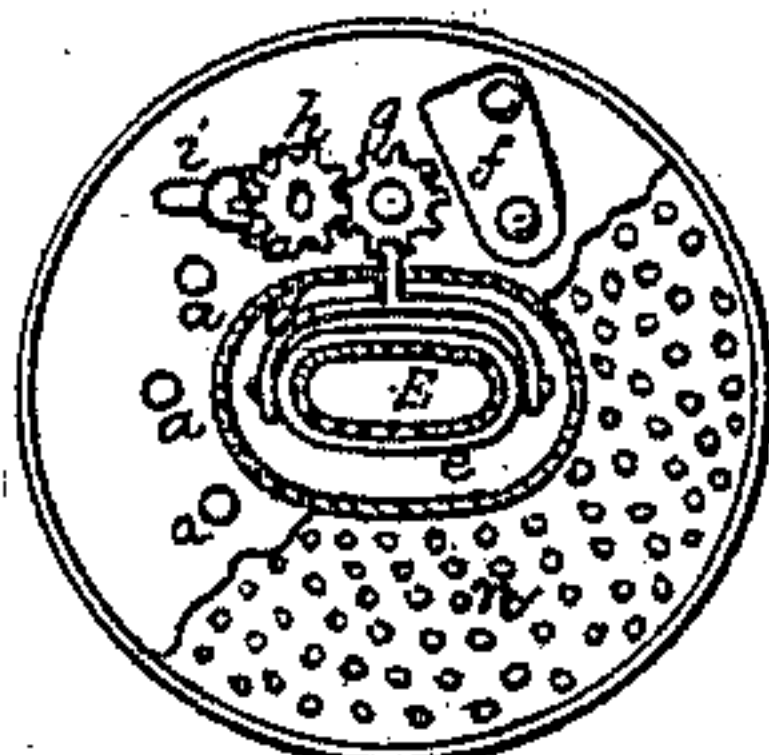


Fig. 4.



Witnesses

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Inventor.

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UNITED STATES PATENT OFFICE.

ROBERT HITCHCOCK, OF WATERTOWN, NEW YORK.

IMPROVEMENT IN LAMPS.

Specification forming part of Letters Patent No. 134,547, dated January 7, 1873.

To all whom it may concern:

Be it known that I, ROBERT HITCHCOCK, of Watertown, Jefferson county, New York, have invented certain new and useful Improvements in Lamps, of which the following is a specification:

My invention relates to a lamp for burning heavy oils without a chimney, embodying many of the characteristics of the lamp secured to me by Letters Patent No. 125,954, dated April 23, 1872.

My invention may be considered as an improvement on the lamp described in said Letters Patent; and it relates principally to the means for heating the oil in the reservoir, to the feed or wick raising devices, and to the arrangement of the ash-boxes. It also is designed to dispense with the tubes for supplying air to the exterior of the flame, which in the Letters Patent referred to passed up through the body of the lamp.

In the accompanying drawing, Figure 1 is a perspective view of a lamp made in accordance with my invention; Fig. 2 is a vertical central section of the same; Fig. 3 is a side view; and Fig. 4 is a plan of a portion of the wick-raising devices, hereinafter referred to.

In my former Letters Patent the lamp was provided with an auxiliary reservoir on top of the main reservoir, and in the immediate vicinity of the flame, for the purpose of quickly heating a sufficient portion of the oil to enable the lamp to burn well until the main body of the oil could be brought to the proper temperature. This arrangement, however, to be of any avail, required the lamp to be filled each time it was used. To avoid this objection, and yet to quickly heat the oil in the lamp, I now dispense with the auxiliary reservoir, and employ rods or wires, arranged within the compass of the body of the lamp, and designed to carry off the heat from the deflector, outer shell of the lamp, and such other parts of the lamp as are in the immediate vicinity of the flame, and conduct it into the body of the oil in the reservoir.

A number of rods, one of which is shown at *a*, are secured in the top of the oil reservoir or vessel *A*, around the wick-jacket *B*, and being bent so as to be in contact or in close proximity with the jacket, extend along it down to or nearly to the bottom of the reser-

voir. Another series of heaters, shown at *b*, I attach to the exterior jacket *C*, at points closely adjoining the base of the cone or deflector *D*, which rests upon the top of said jacket. These heaters extend through the inner oil-shell *A*, and down into the body of the oil contained in the same. They absorb and take up the heat received from the cone or deflector, and transmit it to the interior of the oil-reservoir, leaving the jacket *C* comparatively cool below the point where they are connected with it, so that the lamp can be used to much greater advantage than heretofore, and without requiring the separate and additional cooling-jacket hitherto found necessary.

The heaters distribute the heat uniformly throughout the oil-tank, and the inner series of rods materially assist in heating the wick-tube, wick-jacket, and the oil immediately surrounding the wick. The jacket *C* is so arranged that there is a space on all sides between it and the oil-tank, which takes the place of the exterior air-tubes in my former patent, and serves as a passage for the impelled current of air to the exterior of the flame.

The wick-raising mechanism shown in the drawing is intended to take the place of the ordinary wick-raising ratchets or toothed wheels, which are apt to impede the circulation of oil in the wick and to tear the wick, especially when they become worn, and which are objectionable on other accounts.

I employ a screw-rod, *c*, which is slipped down through the top of the lamp, and is supported in proper bearings in an upright position alongside of the wick-jacket, which has a slot formed in it throughout its length at the point where the screw adjoins it. Through this slot passes the neck of a coupling-sleeve, *d*, which is screw-threaded internally and fits on the screw-rod *c*. The coupling-sleeve is jointed to a thimble, *e*, which fits around and is capable of sliding up and down on the inner wick-tube *E*. The lower end of the tubular wick is drawn over the upper part of the thimble *e*, and is there secured by a band or by thread wound around it. The wick is thus attached to, and caused to follow, the movement of the thimble *e*, which can be made to rise or descend on the wick-tube *E* by revolv-

ing the shaft *c*, which imparts, according to the direction in which it is revolved, an up or down motion to the coupling-sleeve *d*. It is not necessary that the lower end of the screw-rod should fit and be secured in a bearing, as the coupling serves to hold it in place. The upper end of the rod projects up through a sleeve or bearing in the top of the oil-tank, and is revolved by means of suitable gearing. When in place it is held down by a pivoted button, *f*, (see Fig. 4,) which can be turned so as to bring it over the top of the rod. If it be desired, however, to draw out the rod, for the purpose of either removing the old wick or putting in a new one, the button can be turned away from the top of the screw-shaft, which, with the parts connected with it, can then be lifted out. The devices for rotating the screw-shaft consist of a pinion, *g*, on the projecting end of the rod, which meshes with a pinion, *h*, on the end of a rod, *i*, held in a sleeve, *j*, which passes through the oil-tank. The outer end of the rod *i* which projects beyond the jacket *C* is provided with a milled head or button by which it may be rotated in either direction at pleasure. The thumb-rod *i* may be arranged at any angle desired, and so that its milled head shall project at any desired point from the lamp. In the present instance it is arranged so that it projects at or near the bottom of the jacket *C*, and this arrangement is preferable on many accounts.

The arrangement above described of the screw-rod or shaft, so that it shall extend down into the reservoir from the top of the lamp, serves also as an additional means of heating the oil, as the rod serves as a conductor for conveying the heat from the heated part of the lamp to the body of the oil, by which it is surrounded in the reservoir. The same is true of the thumb-shaft and sleeve or tube through which it passes, for these devices extend from the heated part of the lamp through the body of the reservoir, and so serve to conduct the heat and give it out to the oil in the reservoir.

Below the central wick or draft-tube *E* is placed an ash-box or shield, *F*, substantially as shown and described in my former Letters Patent. This ash box, however, is here attached to that part of the lamp in which the fan or air-forcing mechanism is located; and it is combined with an annular lower ash-box, *G*, which is designed to receive my sediment or refuse matter that may chance to pass down through the outer air-passage between the oil-tank and the jacket *C*, and also to catch any drippings from the central shield *F*. The upper box is provided with a curved

and bent-over flange, *k*, which overhangs the lower ash-box, and is so formed as to deliver into the latter box any drippings which might otherwise run down upon the blower. The outer shell or jacket *C* is made detachable from the lower part or base of the lamp at any point—as, for instance, at *m*—most convenient to permit the ash-boxes to be emptied. Above the feed-gears and closing the top of the lamp around the wick is a perforated plate or strainer, *n*, preferably made removable, which catches and retains all such pieces of charred wick or burned matches as would clog the exterior air-passage.

The clock-work mechanism for producing the blast is not here shown. It is located in the base of the lamp, in the chamber *p*.

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—

1. In combination with the inner oil-tank and surrounding jacket, the two series of heat-conductors extending down into the oil-tank, the one from the jacket and the other from the top of the tank, under the arrangement, substantially as shown and described.
2. In combination with the wick-raising screw rod or shaft, the thumb-rod geared to said shaft and supported in a sleeve or open tube passing through the oil-tank, substantially as shown and set forth.
3. The arrangement of the thumb-rod and its supporting-sleeve to extend diagonally or in a slanting direction downwardly through the oil-tank, as herein shown and described, so that the milled head of the rod, by which the same is operated, may project from the lamp at or near the base of the external jacket *C*.
4. The combination, with the central ash shield or box under the central wick or draft tube, of an annular ash-box located in the stem or base of the lamp, beneath the central ash-box and between it and the blower, substantially as shown and set forth.
5. The wick-raising screw-shaft carrying the coupling-sleeve and jointed wick-thimble, and arranged to extend from the top of the lamp down alongside the wick-tube and within the reservoir, substantially as shown and described.

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

ROBERT HITCHCOCK.

Witnesses:

W. V. V. ROSA,
JNO. M. SIGOURNEY.