J. H. IRWIN.

Coal Oil Lamp.

No. 35,158. Patented May 6, 1862.

Fig. 1

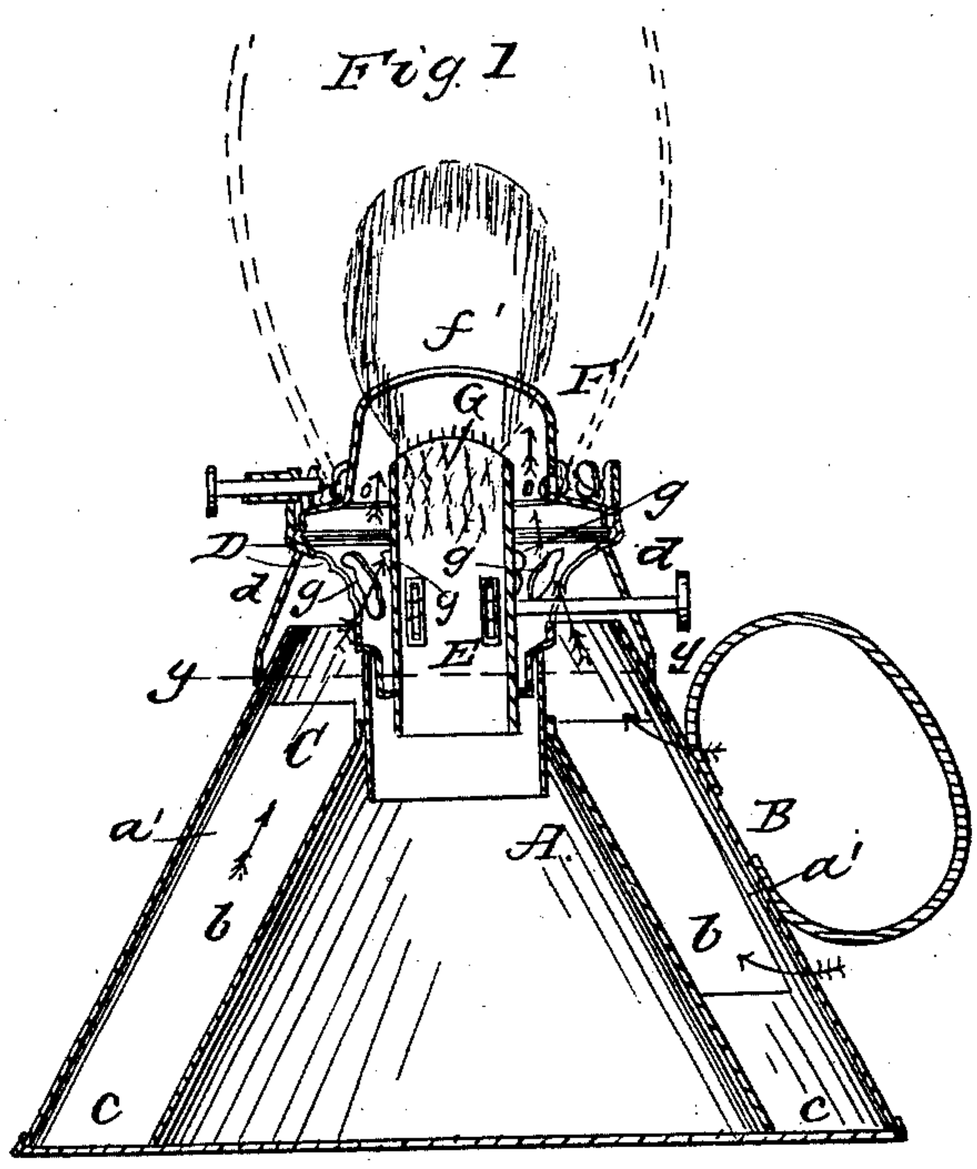

Fig. 2

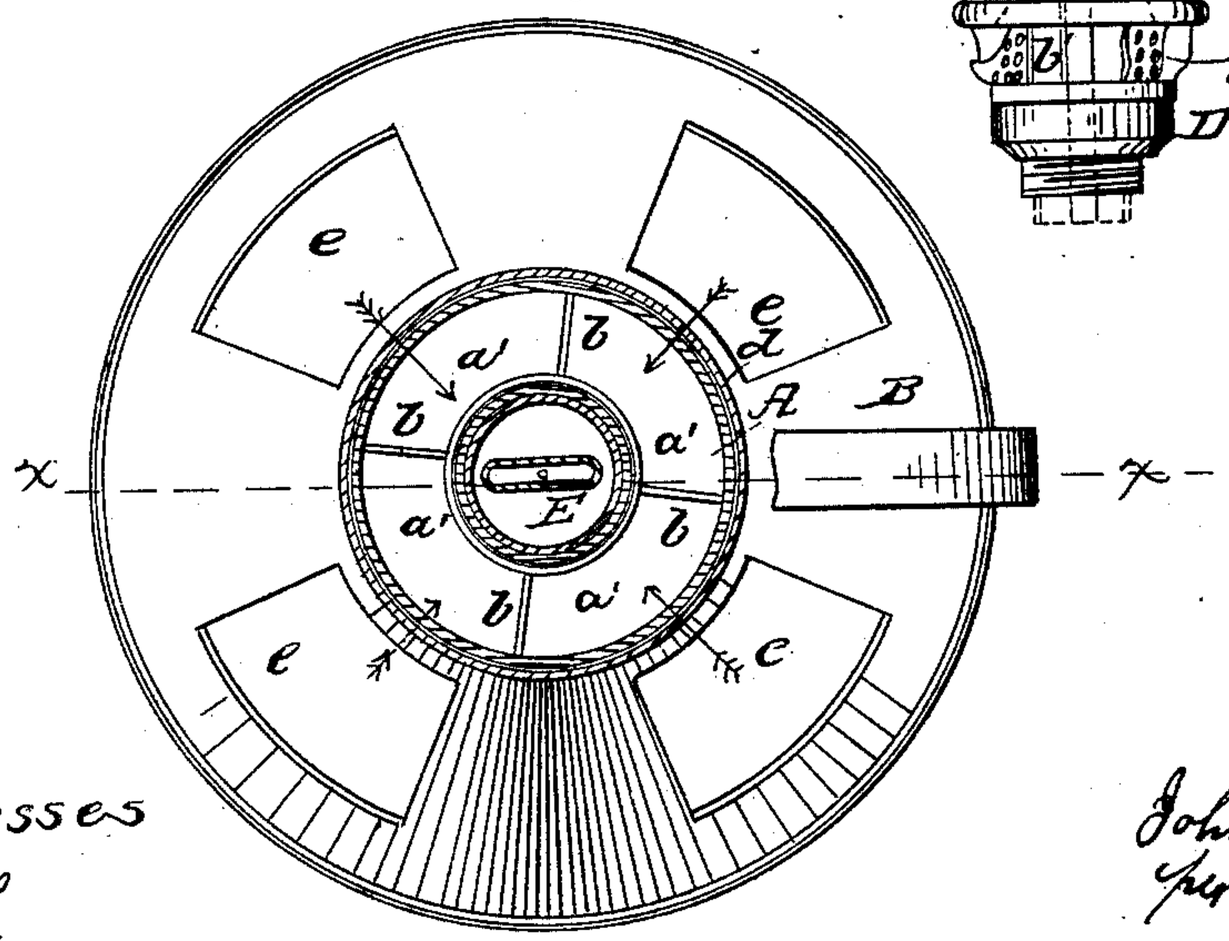

Fig. 3

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JOHN H. IRWIN, OF BEARDSTOWN, ILLINOIS.

IMPROVEMENT IN COAL-OIL LAMPS.

Specification forming part of Letters Patent No. **35,158**, dated May 6, 1862.

To all whom it may concern:

Be it known that I, JOHN H. IRWIN, of Beardstown, in the county of Cass and State of Illinois, have invented a new and Improved Lamp; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a vertical central section of my invention, taken in the line *x x*, Fig. 2; Fig. 2, a horizontal section of the same, taken in the line *y y*, Fig. 1; Fig. 3, a side view of a modification of my invention.

Similar letters of reference indicate corresponding parts in the several figures.

This invention relates to an improvement in that class of lamps which are designed for burning coal-oils and other similar hydrocarbons which volatilize at a rather low temperature and require an excess of oxygen to support proper combustion for illuminating purposes.

Hydrocarbons of this class not only require an excess of oxygen to support proper combustion for the purpose specified, but they also require a uniform supply of it in order to prevent "smoking" or the escape of unconsumed carbon—a contingency which invariably occurs from quite slight disturbing causes—such, for instance, as the moving of the lamp from place to place, variable drafts of air, the turning over of newspapers or the leaves of books in the vicinity of the lamp, &c. There is another difficulty attending the burning or use of these hydrocarbons, and that is the liability of the lamp to smoke in consequence of an unevenly-trimmed wick—a result arising from the difficulty of trimming in a proper or even manner the horizontal top wicks, the corner or angles of the wick being very liable to project upward a trifle above its central position under the action of the trimming scissors or shears.

The above-named difficulties, it is believed, are fully obviated by the within-described invention; and to this end the invention consists, first, in having the burner of the lamp, or the draft-passages which communicate therewith, provided with partition-plates so arranged that horizontal or lateral currents of air below the flame of the lamp are prevented, and, second, in having the upper end of the wick-tube of rounded or of scalloped form, so as to avoid angles, the apex or top of the cone or deflector around its orifice or slot being of corresponding form.

To enable those skilled in the art to fully understand and construct my invention, I will proceed to describe it.

A, Figs. 1 and 2, represents the body or fountain of the lamp, which is inclosed by a case, B, the latter extending all around the body A and leaving a space, C, between it and A. This space C is divided into any proper number of compartments, *a'*, by partition-plates *b*, which extend upward from the bottom *c* of the space nearly to its top, as shown in Fig. 1.

D is the burner, which may be constructed in the ordinary or in any proper way, and is fitted in the top of the body A of the lamp. The burner is provided with a flange, *d*, which fits over the top of the case B when the burner is secured to the body A, and prevents air from entering directly into the burner in a horizontal direction. The case B is perforated with holes *e*, (see Fig. 2,) one for each compartment *a'*.

E represents the wick-tube, which is of the ordinary flat kind; and F is the cone or deflector. The upper end of the wick-tube E is rounded or made of semicircular form, (see Fig. 1,) and the upper part of the cone F, around its slot or orifice *f*, is of corresponding form. The lower part of the burner D is perforated with holes *g*, which form a communication between the interior of the burner and the upper part of the space C.

From the above description it will be seen that the flame of the lamp is supplied with air, which passes through the openings or holes *e* in the case B, and thence up through the compartments *a'* into the burner D, through the perforations or holes *g*. The partition-plates *b* prevent a circulation of air laterally or horizontally through the space C when the lamp is moved about from place to place, and also when it is subjected to sudden gusts of air caused by various disturbing causes. A lateral or horizontal draft of air passing through the burner or underneath it

checks at once the supply of air to the flame, and not only prevents a current of air passing up to the flame, but rather induces a downward draft on the flame, and hence the flame will smoke. My invention fully obviates this difficulty; and I would remark that in order to effect this result it is quite immaterial as regards the position of the partition-plates *b*, so long as they are placed in the draft-passages and present a perfect barrier to lateral or horizontal currents of air. For instance, the partition-plates may be placed within the burner D, as shown in Fig. 3 at *b'*, and the same result attained, for in this latter case horizontal drafts below the flame are effectually prevented.

The lamp and its case (shown in Figs. 1 and 2) are of conical form; but the invention is not confined to that shape. Other forms of lamps may be used with my invention applied to them.

In consequence of having the upper end of the wick-tube of rounded or semicircular form, as shown, a greater burning-surface of wick is obtained, and consequently a larger or broader flame produced, and at the same time the wick (designated by G) may be evenly trimmed without difficulty, as all angles are avoided at the outer ends of the wick, and an ordinary pair of scissors or shears may be used for trimming it, the top of the wick, when trimmed, corresponding in form, of course, to the top of the wick-tube.

In trimming the ordinary flat or horizontal top wicks the scissors or shears, if not quite sharp, are liable to leave the wick with projecting ends at its angles, said result being due to the cutting action of the shears in cutting the wick at right angles.

If desired or necessary, the top of the wick-tube E may be of double-rounded or scalloped form, as indicated by the dotted lines in Fig. 3, the top of the cone around its orifice being curved to correspond in form to the top of the wick-tube. In this modification it will be seen that the angles of the horizontal wick are also avoided and a comparatively large burning-surface of wick obtained.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. Having the draft-passage of the lamp divided into compartments by partition-plates *b* or *b'*, so arranged as to prevent horizontal or lateral currents of air through the draft-passage or burner below the flame, substantially as and for the purpose set forth.

2. Having the upper end of the wick-tube C made of rounded or scalloped form, in combination with a cone or deflector, B, having its apex or top around its slot *f* made of corresponding form, as and for the purpose herein set forth.

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