R. HITCHCOCK.
Ship-Lamp.

No. 205,640. Patented July 2, 1878.

Fig. 1.

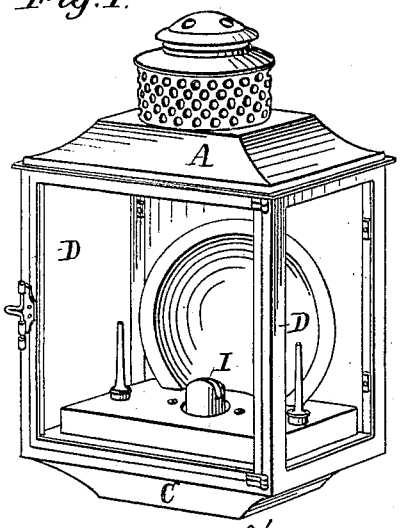


Fig. 2

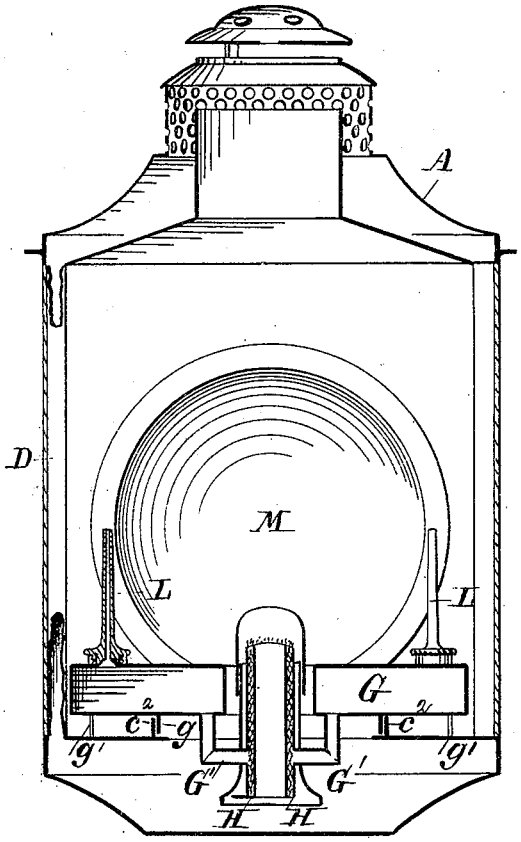
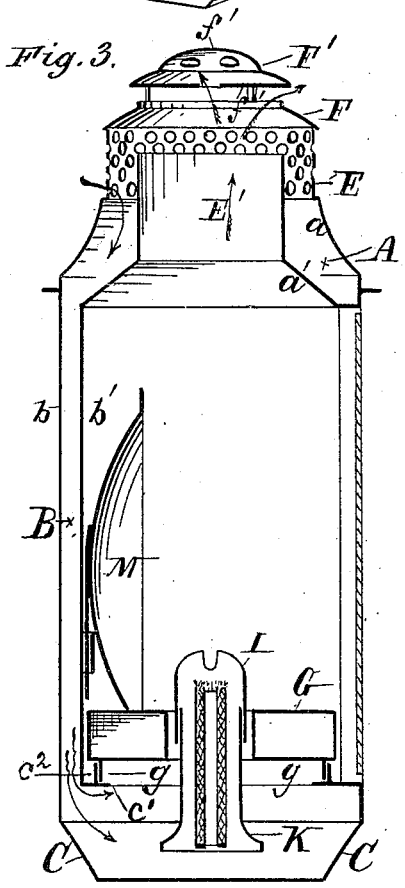


Fig. 3.



Witnesses:
E. A. Dick
J. A. Dick

Inventor
Robert Hitchcock
by A. Pollok
his attorney

UNITED STATES PATENT OFFICE.

ROBERT HITCHCOCK, OF WATERTOWN, NEW YORK.

IMPROVEMENT IN SHIP-LAMPS.

Specification forming part of Letters Patent No. **205,640**, dated July 2, 1878; application filed June 14, 1878.

To all whom it may concern:

Be it known that I, ROBERT HITCHCOCK, of Watertown, Jefferson county, and State of New York, have invented a new and useful Improvement in Ship-Lamps, which improvement is fully set forth in the following specification.

This invention relates to what are known as "ship standing-lights," or "box-lamps," which, of necessity, are exposed to the weather. In view of the important purpose which they subserve, and the danger and inconvenience consequent on their extinguishment or failure to shed their light properly, the production of a ship-lamp which, in spite of the blasts of wind and rain or rolling and pitching of the vessel, shall give a steady, unflickering, and constant light was a matter much desired and sought for by those interested in the transportation, by water, of merchandise and passengers. The lamps of this class heretofore made have failed more or less signally in accomplishing the end sought. Either the light does not burn clear and bright or it is liable to be made to flicker and go out by reason of the penetration of blasts of air thereto or by the rolling and pitching of the vessel.

The object of this invention is the production of a ship-lamp which shall possess, in a very perfect manner, these essential advantages; and it consists, in the improved ship-lamp, in the combination and construction of parts for supplying and regulating the air-supply to the burner, and for receiving the same into the lamp-case and discharging therefrom the products of combustion; in the construction of the wick-tube or burner and the air-passages connected therewith; in the construction and combination of parts for preventing danger of overheating the oil in the tank by the lamp-flame, while maintaining compactness of structure; and in combination, with the oil-tank, of means to maintain the steadiness of the light, as will be hereinafter more fully set forth.

The following description will enable those skilled in the art to which my invention appertains to make and use the same, reference being had to the accompanying drawing, in which—

Figure 1 is a perspective view of my invention, and Figs. 2 and 3 views, in vertical sections, at right angles to each other.

The lamp-case is provided with glass, secured in suitable frames, on three sides, and with a reflector secured at the back.

In the drawings, A represents the top of the case, B the back, C the bottom, and D uprights or standards at the corners, connecting the top and bottom, and to which the frames of glass are secured, one of the frames being hinged to serve as a door.

The top, bottom, back, and uprights are all made hollow, and form a series of intercommunicating air-chambers, as is clearly shown in the various figures. In Fig. 2 one of the uprights is shown with a part of its wall cut away to more clearly show that it is hollow.

E E′ represent concentric exterior and interior cylinders, the former being foraminous, and the two forming flanges to an annular chamber between. F F′ represent two caps. The upper one, F′, is elevated sufficiently above the lower to give an annular space between them, and its edges extend beyond the edges of the opening in the lower cap. It is constructed, as shown in Figs. 2 and 3, of two plates, *f f′*, united at their edges, and provided with perforations.

G represents the oil-tank, made with a cylindrical opening in the middle, and connected with an elliptical wick-tube or burner, H, placed in the opening, by pipes G′. The wick-tube is surrounded by a cylindrical tube, K, made flaring at the bottom, and supporting a deflector, I, at its upper end. It is connected with the oil-tank by suitable braces, so as to allow passages on both sides between itself and the wick-tube and the walls of the cylindrical opening in the oil-tank. Vents or air-admission tubes L are connected with the oil-tank. They serve to readily admit air into the tank, or to allow it to escape therefrom, and, by the aid of a screw-connection, they may be used as stoppers, to be removed for filling the tank.

M represents the reflector at the back of the case, removably attached to the inner wall thereof.

a a′ represent the outer and inner walls of the top; *b b′*, the walls of the back, and *c c*[1] the exterior wall and the top of the hollow

bottom. This top or partition c^1 has a round opening therein and a circular flange, c^2, surrounding the opening. The wick-tube H and enveloping-tube K pass through this opening into the air-chamber of the bottom C.

A circular flange, g, depends from the oil-tank and fits within the flange c^2, so as to prevent passage of air between. The flanges also serve to hold the oil-tank steadily in position, and to assist in this service strips g' are secured on the lower side of the oil-tank from front to rear.

From the foregoing description it will be perceived that, when the door is shut, the lamp-case is closed to the external air on all sides, except at the top, where passage into and out of the case may be had through the perforations in the foraminous cylinder E and cap F′ and through the annular opening between the caps F and F′. It will also be perceived that the escape from the interior of the case of the products of combustion from the burner is through the internal cylinder E′, and thence naturally through the annular opening between the caps and the perforations in the upper one.

The air chambers or passages in the top, back, and tubular uprights of the case carry the air drawn in through the perforations in the cylinder E into the chamber in the bottom C; thence the air passes to feed the burner through the interior of the elliptical wick-tube and through the space between the outside of the wick-tube and the surrounding tube K, the deflector I serving to direct the air into contact with the flame of the lamp. The annular opening between the tube K and the wall of the oil-tank also serves as a passage for air, the current of which passing therethrough serves to keep the oil in the tank cool and prevent danger arising from the overheating thereof by the lamp-flame. The lamp, thus being entirely excluded from the direct or indirect action of blasts of air, while at the same time a liberal supply is furnished for the purposes of combustion, will burn with a clear steady flame, without flickering or liability to suddenly going out. The due supply of air is assisted by the elliptical form of the wick-tube, as the current of air passing through the interior thereof is brought wholly into contact with the flame, and not the outer layer only, as in round burners, and also the broadened flame produced thereby is more suitable for the desired illumination. The liability of the oil-tank to become too hot being avoided, as above explained, mineral oils may be used in the lamps without danger; and by the provision of these air-vents or admission-tubes to the oil-tank the steadiness of the light is maintained, as the flow of the oil to the wick-tube is regular, and the oil is not likely to be thrown thereout by rolling and pitching of the vessel, on account of the length and shape of the tubes.

It will be evident that a round wick-tube, or one other than elliptical, might be used with the tube surrounding the wick-tube, and located within the cylindrical opening in the oil-tank, and also in connection with the construction of the lamp-case, as described, but with not so good an effect.

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

1. A ship standing-light or ship box-lamp in which all the parts, with the exception of the glass panes and their frames, are communicating air-chambers, receiving all the air for the supply of the lamp from without and discharging the products of combustion through the same top, substantially as shown and set forth.

2. The combination, in a lamp case or box, of a double roof, a double back, a double bottom, and tubular uprights uniting the roof and bottom, all constituting substantially air-tight intercommunicating chambers, as set forth.

3. The combination, with the double and internally-communicating top and bottom and uprights of a ship-lamp, of a top consisting of an exterior and interior cylinder, the former of which is foraminous, the two forming flanges to the annular opening of the air-chamber, the said top being surmounted by two caps having an annular opening between them, the upper being a chamber provided with openings, as shown and set forth.

4. For ship or other lamps burning heavy or light oils, fat, or other illuminating material, a lamp proper provided with an elliptical burner, in combination with a box or case surrounding the same, through the parts of which, made hollow, as shown and set forth, all the air used for the combustion passes, as specified.

5. In a ship or other lamp, in combination with an Argand burner of cylindrical or elliptical formation of wick-tube, the wick-tube surrounded by a jacket or cylinder extending below the tank, said cylinder being provided with the deflector, as shown and set forth.

6. In a lamp for ship and other uses, the burner communicating with an air-chamber and oil-tank, as herein shown and described, so as that the air shall pass both through and around the burner between it and the tank, substantially as and for the purposes described.

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

ROBERT HITCHCOCK.

Witnesses:
EWELL A. DICK,
L. J. DORWIN.