W. HOWARD.

SIGNAL LANTERN.

No. 20,431. Patented June 1, 1858.

Fig. 1.

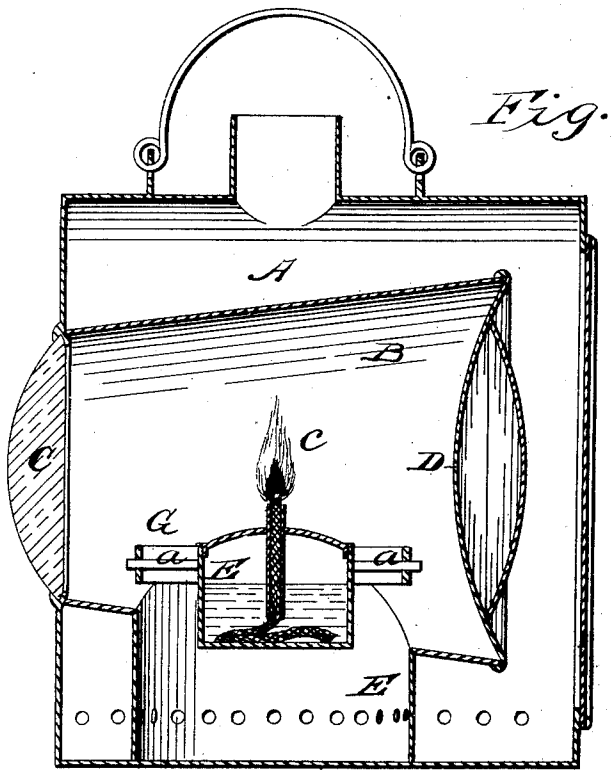
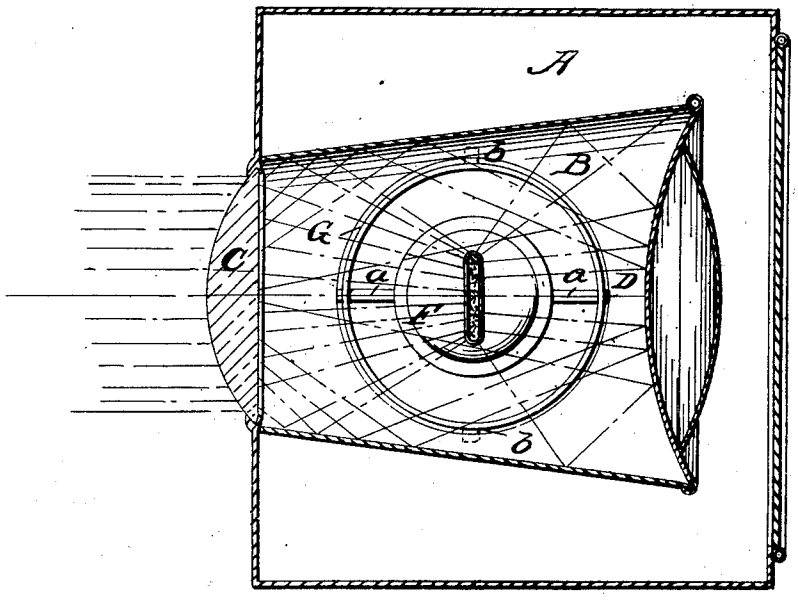


Fig. 2.



THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

WILLIAM HOWARD, OF FLUSHING, NEW YORK.

SIGNAL-LANTERN.

Specification of Letters Patent No. 20,431, dated June 1, 1858.

To all whom it may concern:

Be it known that I, WILLIAM HOWARD, of Flushing, in the county of Queens and State of New York, have invented a new and useful Improvement in Lanterns, Designed Chiefly for Signal-Lanterns; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1, is a vertical central section of my improvement. Fig, 2, is a horizontal central section of ditto.

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

This invention consists in the employment or use of a conical and convex reflector, so combined and arranged as to form a chamber for the reception of the lamp and at the same time throw the light in a concentrated form through a glass plate or, on a lens which is placed at the smaller end of the conical reflector.

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

A, represents a box or case which may be constructed of sheet metal and in any proper form, and B represents a conical case which is fitted permanently within the box A, the front end of case B, which is its smaller end projecting through the front end of the box, but made flush with it. A lens C, either of double convex or plano convex form being fitted in the front end of the case B. The back end of the case B does not extend back quite as far as the back of the box A and a convex reflector D forms the back of the case. This reflector may be hinged to the case so that it may open like a door to afford access to the case for the purpose of trimming the lamp.

The internal surface of the case B, is plated and burnished so as to form as perfect a reflector as possible, and so also is the face side of the reflector D. I do not confine myself to any particular material for the construction of the reflectors B and D, but sheet metal will most probably be used, the face sides being electro-plated with silver.

The conical case or reflector B is supported by a hollow cylindrical support E, which may form a chamber for the lamp F, said lamp being suspended by pivots (*a*) within a hoop G, which works on pivots (*b*) fitted in the upper part of the support E, at its junction with the case or reflector B. The lamp it will be seen by this arrangement is allowed to remain in a vertical position in case the box and other parts is subjected to a swinging or rocking motion which would be the case if used on ships and other navigable vessels. In cases where the lantern will be always stationary the lamp may be permanently secured within the case or reflector B. The lamp G should be so hung or placed that its flame (*c*) will be about at the center of the case, or, in other words, the axis of the case or reflector B, should pass through the center of the flame (*c*).

By means of the conical and convex reflectors B, D, arranged as shown the rays of light will be reflected and thrown on the lens C, in a concentrated form as indicated by the red lines, the rays in passing through the lens being so refracted by it as to project therefrom nearly parallel or very slightly converging, the lens being formed with a view to this end.

I would remark that for signal lights where it is essential that the light be visible a great distance the lens C, cannot be dispensed with as by its refractive powers it controls the direction of the rays of light keeping them concentrated as they issue into space. In cases however where the lantern is used chiefly for illuminating purposes the lens may be dispensed with, a glass plane being used instead the rays of light being sufficiently concentrated by the reflectors B, D.

The usual arrangement in cone reflector lanterns is to place the mouth or large end of the cone in front, with a vertical reflector in the rear or at the small end of the cone, the light being projected through the large end.

My arrangement of the cone reflector is directly the reverse of the above. I project the light through the small end of the cone and have the vertical reflector at the large end. In this manner all the rays of light that fall upon the cone surface are thrown back upon the reflector, and then reflected in parallel lines through the small end of the cone. But in the common cone reflector lanterns the large end of the cone

being the mouth a portion of the rays which fall upon the cone surface are reflected or projected directly out, without being first thrown upon the vertical reflector.

What I claim as new in lanterns, and desire to secure by Letters Patent, is:

The arrangement of the conical reflector B, with its large end placed toward the reflector D, substantially as herein set forth and described.

WILLIAM HOWARD.

Witnesses:
JAMES QUARTERMAN,
GEORGE H. QUARTERMAN.