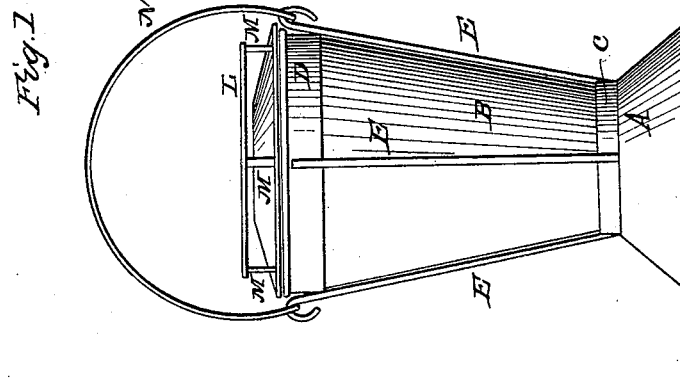
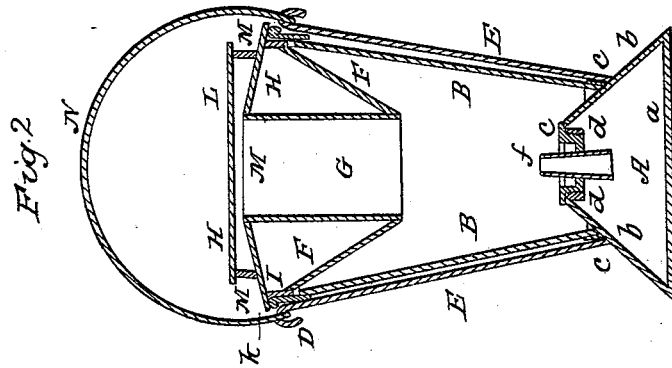


N. WATERMAN.

Lantern.

No. 6.978.

Patented Dec. 25, 1849.



UNITED STATES PATENT OFFICE.

NATHL. WATERMAN, OF BOSTON, MASSACHUSETTS.

PORTABLE LANTERN.

Specification of Letters Patent No. 6,978, dated December 25, 1849.

To all whom it may concern:

Be it known that I, NATHANIEL WATERMAN, of Boston, in the county of Suffolk and State of Massachusetts, have invented a new or Improved Portable Lantern; and I do hereby declare that the same is fully described and represented in the following specification and accompanying drawings, letters, figures, and references thereof.

Of the said drawings Figure 1 denotes a front elevation of my improved lantern. Fig. 2 is a vertical and central section of it.

In the said drawings A represents the lamp or oil reservoir of the lamp. It is made with a broad base *a*, and conical sides *b, b*, which terminate at top in a screw socket *d*, for the reception of the cap *c* of the wick tube *f*.

Resting on the conical sides of the lamp is an inverted hollow glass frustum B, which is supported by two circular rings or flanges C, D, and four or any other suitable number of wires or rods E, E, &c, the lower one of the said flanges being fastened to the lamp while the wires or rods are secured to it and to the upper flanch or ring and hold it in position as seen in the drawings. The glass frustum should fit down upon its seat or the lamp with a close joint, that is one which will not allow the admission of one or more currents of air between it and the lamp so as to disturb the flame of the wick or cause it to waver or flicker.

Within the upper part of the glass frustum is an inverted reflecting conic frustum F, the same being arranged and made to extend down into the glass frustum as seen in Fig. 2. A tube G extends upward from the lower or smaller end of the reflector, and terminates at the top of another metallic conic frustum H, which is joined to the conic reflector by a short cylinder I, I, which has a small flanch K, K, projecting horizontally from and around its upper edge. The said short cylinder is placed on sheets closely within the ring D, and so that the flanch rests on the upper edge of the ring. The tube G is open at both top and bottom and has placed over its top and about one half an inch above the same, a flat circular or other proper shaped disk of metal L, which is made of a diameter somewhat less than that of the cylinder I, I, and is supported in place by four or any other suitable number of wires M, M, &c. A semicircular

bale or handle N is jointed to the upper part of the lantern at or near the flanch or ring D and in such manner as to be either turned up or down as occasion may require.

The cold air which supplies the flame passes over the external surface of the frustum H and down around the interior of the tube G, while the smoke and heated volatile products of combustion pass upward from the flame of the wick and through the descending column of cold air or through the middle of the tube G and impinge against the center of the cap plate or disk L and thence pass off laterally in horizontal directions, and over the entering column or current of cold air.

The advantages derived from my improved lantern are as follows. I obtain a steady flame which is caused by the absence of air holes at the bottom or in the lower part of the lantern, combustion being supported by currents passing through the tube G alone. The glass frustum can be taken out at pleasure either to be cleaned in case of need or to be replaced by another when accidentally broken. It should be made so as to fit its frame rather loosely or sufficiently so to allow of its expansion by heat without danger of fracture.

In consequence of the peculiar mode of supplying the flame with oxygen the smoke is prevented in a great degree from blackening the reflector or the glass frustum. In the construction of my improved lantern, I have particularly had in view two objects, first I wish to produce a lantern whose flame should be steady, and in consequence thereof not liable to smoke the surrounding glass so as to dim the light, second I wish to produce one having a reflector which would equally disseminate the rays of light in all horizontal directions as well as at inclinations to the horizon, I wish furthermore to so arrange the reflector and so protect it that it would not be liable to be smoked by the flame of the lamp. In the attainment of all these advantages I have sought to make a lantern the glass part of which would not be in danger of being broken by expansion when heated, and which could easily be cleaned and in case of being broken by accident, could be readily removed and another and similar glass part put in place of it. All these advantages I have completely attained in my improved lantern.

By means of the inverted conic reflector the light of the lamp is equally distributed in various directions.

What I claim as my invention is—

5 1. The lantern constructed with a closed flame chamber (having glass or transparent sides) in combination with an open air supplying and chimney tube G (extending down through the top of the lantern) and
10 the cap plate or disk; the whole either with or without upper frustum H, and as applied together and made to operate substantially as above specified.

15 2. I make no claim to the use of a reflector in a lantern as it is ordinarily used but what I do claim is the combination of the reflector the lamp, the closed flame

chamber, and the chimney over the flame, (the same being as above specified and as represented in the drawings) in order that 20 the external downward or supplying current of air shall so encircle the upward current of smoke and hot air proceeding from the flame, as to prevent it in a great measure from smoking or soiling the reflector, and 25 thereby cause it to improperly distribute the light which emanates from the flame.

In testimony whereof I have hereto set my signature this seventeenth day of February A. D. 1849.

NATH. WATERMAN.

Witnesses:

R. H. EDDY,
F. GOULD.