J. H. IRWIN.

Lantern.

No. 211,405. Patented Jan. 14, 1879.

Fig. 2.

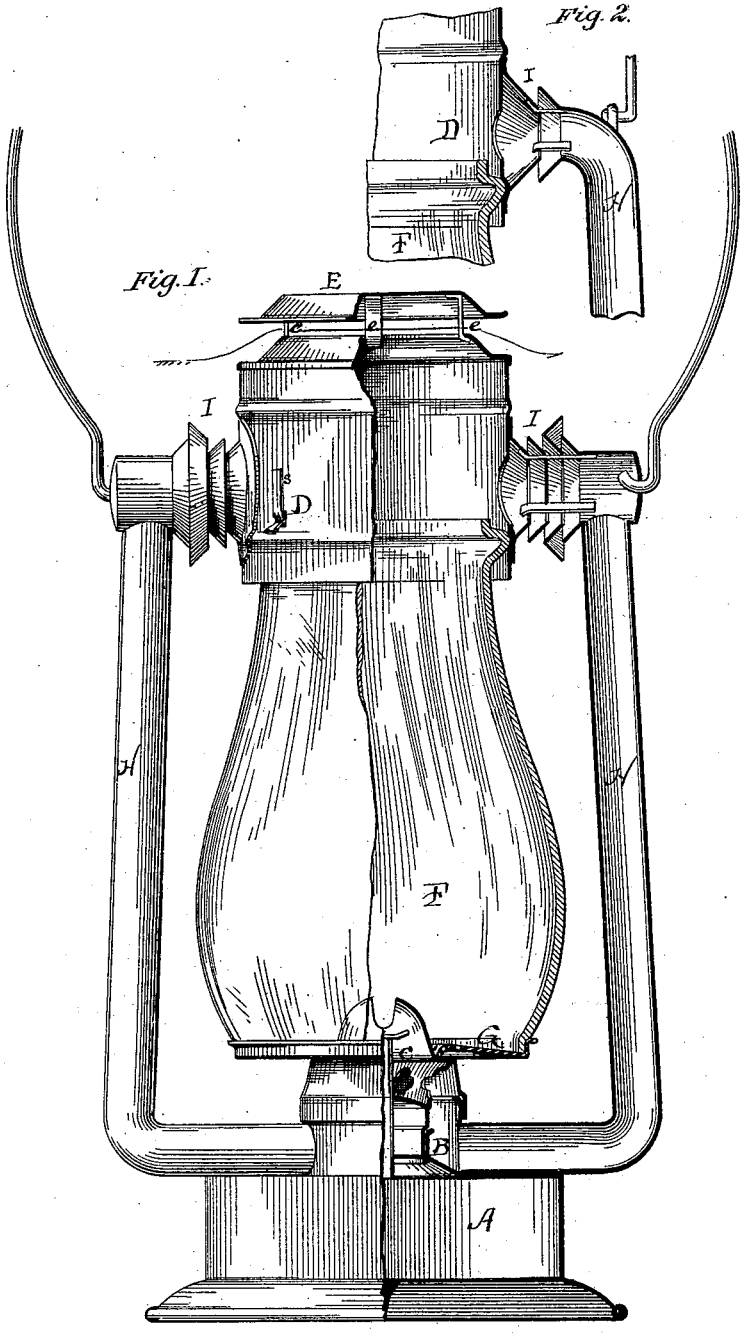

Fig. I.

Attest

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By his Atty

R. D. O. Smith

UNITED STATES PATENT OFFICE.

JOHN H. IRWIN, OF PHILADELPHIA, PENNSYLVANIA.

IMPROVEMENT IN LANTERNS.

Specification forming part of Letters Patent No. **211,405**, dated January 14, 1879; application filed November 29, 1878.

To all whom it may concern:

Be it known that I, JOHN H. IRWIN, of Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented a new and useful Improvement in Lanterns, of which the following is a full and exact description.

This invention relates to that class of lanterns generally known as "tubular lanterns;" and the object of the present improvement is principally to combine with the air-conducting tubes atmospheric injectors and ejectors in a certain definite relation, whereby the structure is cheapened, and access of water when exposed to rain, &c., is prevented.

This improvement more especially relates to the lantern for which Letters Patent No. 205,749 were granted to me July 9, 1878, wherein atmospheric injectors are inserted in the air-tubes between their upper and lower ends.

The structure represented in said patent is found to be objectionable for some purposes, because rain will sometimes gain admission to the air-tubes through the injectors placed with their axes more or less nearly approaching the vertical.

That others may fully understand my improvement, I will particularly describe it, having reference to the accompanying drawings, wherein—

Figure 1 is a vertical sectional elevation of my lantern. Fig. 2 is a similar section, showing a modification of the injector.

This lantern is provided with a base containing an oil-cup, A, and an air-chamber, B, above it, and a burner, C, as usual. It has also a top composed of a metallic band, D, with its upper edge inclined or sloped inward, and a cap, E, correspondingly shaped and supported upon the band D by the legs *e*.

Intervening between the band D and the burner C there is a glass protector, F, to prevent wind or air currents from blowing upon and disturbing the flame. The bottom of the protector rests upon a plate, G, which in turn rests upon the shoulder of the burner-cone, and keeps the same in place.

The plate G is provided with perforations to admit air to the interior of the globe while the lantern is at rest, and to permit the escape of air therefrom when the lantern is swung or oscillated by the bail as it is carried in the hand.

The band D is cylindrical, and is sufficiently wide to permit the protector F, which may be also cylindrical at its top, to slide up therein, so as to admit the easy removal of the plate G and burner C, or to permit the insertion of a match or other lighter for the ignition of the wick.

When the plate G has been removed the protector itself may descend far enough to free its top from the band D, and thereby be itself removed.

A set-screw, spring-catch, or other convenient device may be employed to prevent accidental displacement of the glass protector, as shown at *s*, Fig. 1.

Air to feed the flame is drawn into the air-chamber through the tubes H, which are connected at their top with the space within the band D, so that a part of the warm air within that space may pass into said tubes and descend to the burner in accordance with a law well understood; but sometimes this supply will be insufficient, and it is required to inject additional air from without. The injectors I are therefore placed in the tubes H directly against the side of the band D, so that the axis of the injector is horizontal, and its separate plates are therefore arranged in vertical planes, and drops of water from rain, &c., will pass or drip directly through, entering at one side and escaping at the other, instead of entering the tubes and dripping into the air-chamber. I thus secure the desired effect of injecting air at the proper time without the disadvantage of a location for them which will admit water. The rims of the deflecting-plates necessarily project beyond the surface of the air-tube, and therefore when these plates are placed close to the side of the band D, as shown, they are less exposed to blows and injuries while the lantern is in use than when placed at any other point.

The band D and cap E, being shaped and located as described, will so direct currents of air moving laterally as to the lantern as to cause them to follow the track indicated by the long arrow, and they then tend to exhaust or eject air from the interior of the lantern, and this exhaustion has an effect to draw air

away from the flame and cause imperfect combustion and smoke.

In addition to the above advantages as to position and location there is the additional advantage of cheapness. It costs less to construct the tube H in one section than in two.

The bail may be attached in the manner shown or otherwise, as desired.

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

The tubular lantern, substantially as described, provided with atmospheric injectors placed against the side of the band D, with their axes horizontal and discharging air into the feeding-tubes H, as set forth.

JOHN H. IRWIN.

Witnesses:
R. D. O. SMITH,
CHAS. F. R. HEUCKEROTH.