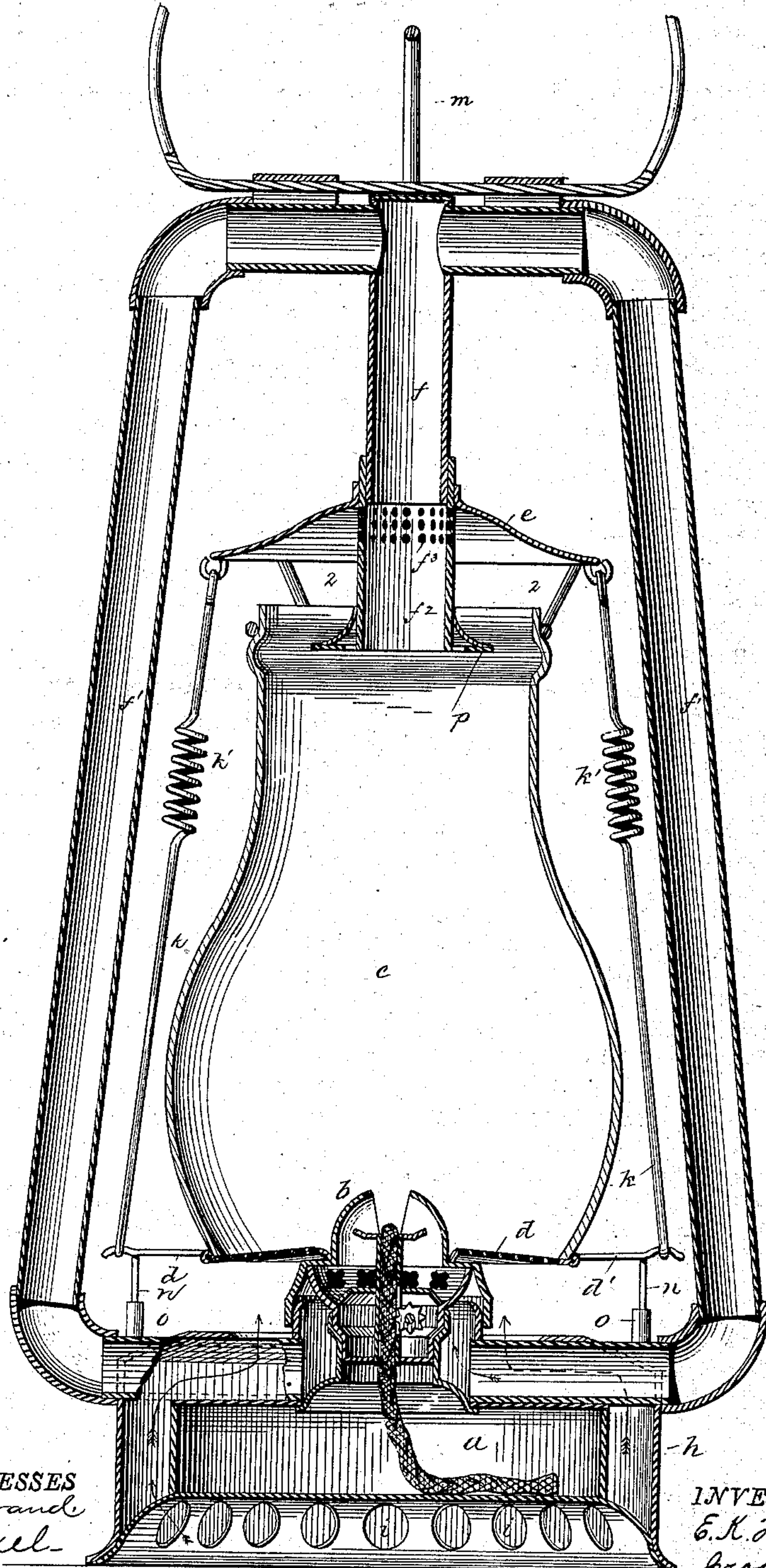


(No Model.)

E. K. HAYNES.  
LANTERN.

No. 322,448.

Patented July 21, 1885.



WITNESSES  
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# UNITED STATES PATENT OFFICE.

EDGAR K. HAYNES, OF BOSTON, MASSACHUSETTS.

## LANTERN.

SPECIFICATION forming part of Letters Patent No. 322,448, dated July 21, 1885.

Application filed February 1, 1884. (No model.)

*To all whom it may concern:*

Be it known that I, EDGAR K. HAYNES, of Boston, county of Suffolk, State of Massachusetts, have invented an Improvement in Lanterns, of which the following description, in connection with the accompanying drawing, is a specification, like letters on the drawing representing like parts.

My invention, relating to lanterns of the class known as "tubular lanterns," has for its object to produce a steady light when the lantern is exposed in high winds.

The invention is embodied in a lantern having an oil-reservoir and burner at its lower end, a globe or chimney above the said burner, a cap at the top of the said chimney, and tubes leading from the said cap to the burner for supplying air thereto; and the invention consists, mainly, in extending the main tube, which leads from the cap, downward from the said cap into the body of the chimney, and providing the oil-receptacle of the lantern with an air passage or jacket communicating with the surrounding atmosphere at the under side of the said reservoir, and also at the top of the said reservoir and below the usual perforated plate at the bottom of the chimney, there being an open space between the upper end of the said passage and the perforated plate, the whole operating to produce a steady flame under all atmospheric conditions, as hereinafter described.

The drawing shows in vertical longitudinal section a lantern embodying this invention.

The oil-reservoir *a*, burner *b*, globe or chimney *c*, perforated plate *d* at the bottom thereof, and cap *e* at the top of the said chimney may all be of substantially the same construction as in the well-known tubular lanterns, the said cap *e* having leading from it tubes *f f'*, by which air is supplied to the burner *b*, it being essential that the air should also be supplied to the flame above the burner through the perforated plate *d*.

In the construction most generally adopted for tubular lanterns the main tube *f* opens directly from the under side of the cap *e*, and the air entering the space at 2 between the said cap and chimney, in a strong wind or draft of air, will force the air up into the said tube, which in entering the burner will force the flame into

narrow tongues or wholly extinguish it. This effect is obviated by extending the tube *f* below the cap *e*, as shown; or, rather, by providing the cap *e* with a tube, *f*<sup>2</sup>, which will slide upon the tube *f*, and forms a continuation thereof, as shown, the said tube *f*<sup>2</sup> preferably being provided with a number of small openings, *f*<sup>3</sup>, to admit some of the air entering laterally through spaces at 2, although the said openings will not admit a sufficient amount of air to disturb the flame. When the tube *f*, or a continuation thereof, is thus extended down into a lantern having the usual reservoir, and lower portion of the lantern constructed in the usual manner, the flame will almost invariably be extinguished in a high current of wind. I have discovered that this objection can be overcome by providing the reservoir *a* with an air-passage (shown as a jacket, *h*) provided with inlet-openings *i*, communicating with the external atmosphere below the reservoir *a*, the said jacket opening above the said reservoir, as shown at 3, just below the perforated plate *d*, so that a strong lateral or up current of air, striking the said jacket and reservoir, will pass upward toward the perforated plate *d*, entering the same, and thereby preventing the extinguishment of the flame, which would otherwise take place. There is an open space between the opening of the jacket above the top of the oil-reservoir and the perforated plate *d*, to admit air when passing in lateral currents.

The air-jacket *h*, when employed in a lantern having the tubes connected with the cap *e* in the usual manner, will not produce the desired effect, and it is also useless to construct the tube *f* with an extension below the cap unless the air-jacket *h* is also employed; and I do not claim either the jacket or the extension of the tube separately, but only when both are employed in conjunction in the same lantern.

The perforated plate *d* is provided with ears or projections *d'*, to receive the lower ends of wires *k*, pivoted upon the edges of cap *e*, and corrugated or coiled, as shown at *k'*, to give them lengthwise elasticity and enable them to be applied to the ears *d'*, so that they hold the chimney securely between the plate *d* and cap *e*.

The portion *f*<sup>2</sup> of the tube slides vertically upon the portion *f*, which constitutes a guide, and the cap *e* is provided with a handle, *m*, by



which it and the connected plate  $d$  and chimney may be raised to afford access to the burner for lighting and extinguishing.

The lower portion of the chimney may be guided in this vertical movement, if necessary, by guide-wires  $n$ , entering guide-tubes  $o$  connected with the jacket or base of the lantern.

The portion  $f^2$  of the tube is preferably provided at its lower end with an annular laterally-projecting deflector,  $p$ , which prevents currents of air entering at 2 from passing directly downward toward the base of the chimney and flame therein. There is a space between the tube and deflector, which latter operates to break up currents of air flowing diagonally downward past the end of the tube  $f^2$ .

I claim—

1. A tubular lantern comprising an air-inlet at its base surrounding the oil-reservoir, the chimney-cap  $e$ , having the air-inlets 2 at the top of the chimney, and the tubular portion  $f^2$  of the chimney-cap, forming an extension of the air-tube and projecting down into the chimney, substantially as shown and described.

2. In a tubular lantern, the combination, substantially as shown and described, of the air-jacket surrounding the oil-reservoir and opening into a clear space below the perforated air-distributing plate, the chimney-cap  $e$ , and the tubular extension  $f^2$  of the air-tube  $f$ , projecting from said cap into the chimney below its upper end when in burning position, and the air-inlets 2 in the chimney-cap, forming an air-supply between the mouth of the chimney and its cap, as and for the purpose set forth.

3. In a tubular lantern, the tube  $f$  and its downward extension, combined with the annular deflector  $p$ , projecting laterally at the lower end of the said extension.

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

EDGAR K. HAYNES.

Witnesses:

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