

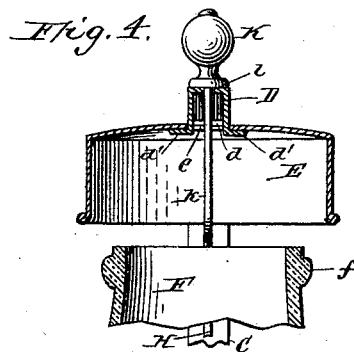
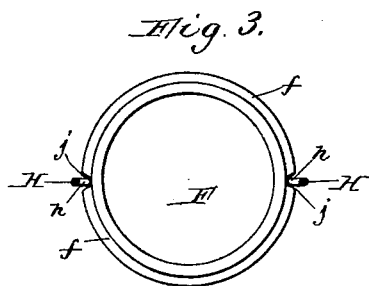
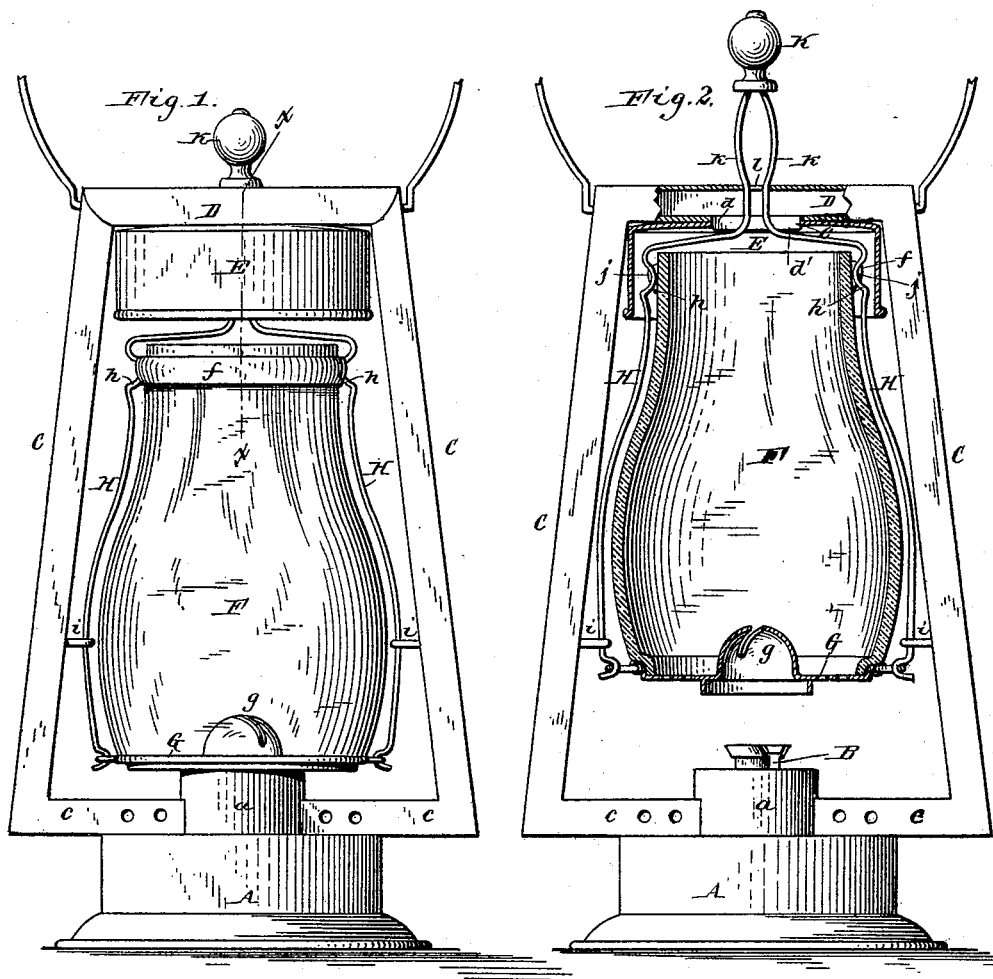
(No Model.)

2 Sheets—Sheet 1.

C. J. HIGGINS.  
TUBULAR LANTERN.

No. 457,350.

Patented Aug. 11, 1891.



Witnesses:

Thos. L. Popp.  
Jacob Nipenblatt

Charles J. Higgins, Inventor.  
By Edward Wilhelm  
Attorney.

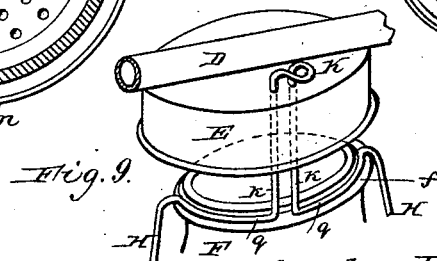
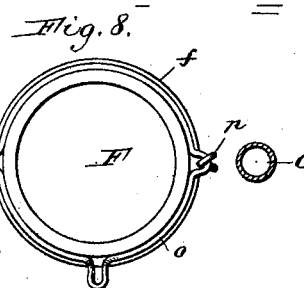
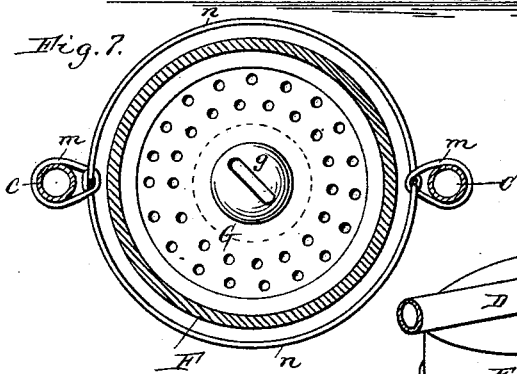
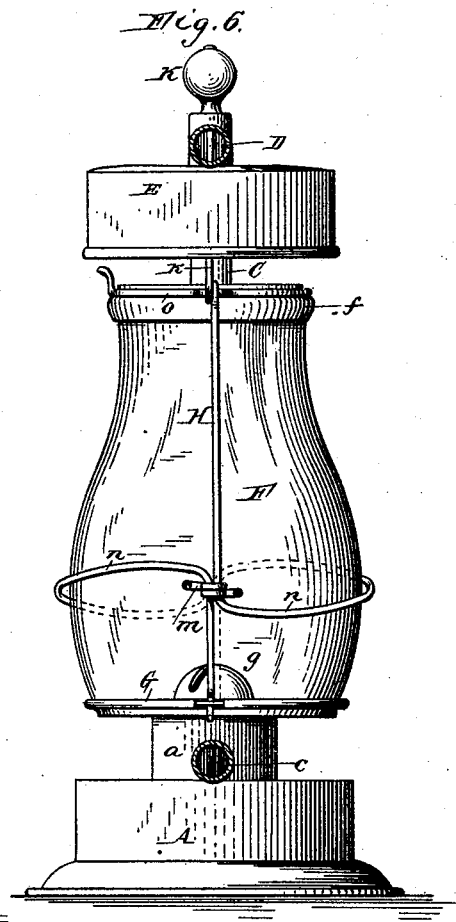
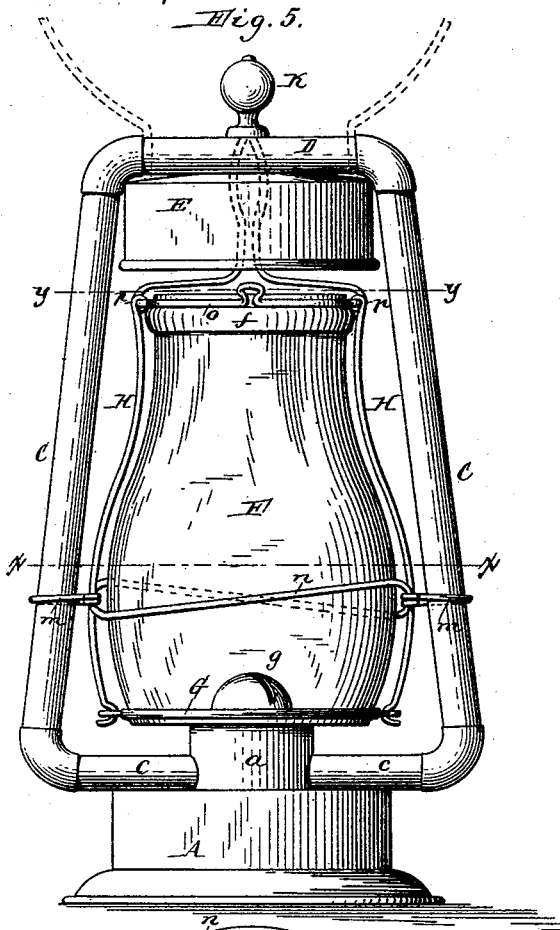
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2 Sheets—Sheet 2.

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By Edward Wilhelm,  
Attorney.

# UNITED STATES PATENT OFFICE.

CHARLES J. HIGGINS, OF HALLOWELL, MAINE.

## TUBULAR LANTERN.

SPECIFICATION forming part of Letters Patent No. 457,350, dated August 11, 1891.

Application filed February 24, 1890. Serial No. 341,567. (No model.)

### *To all whom it may concern:*

Be it known that I, CHARLES J. HIGGINS, a citizen of the United States, residing at Hallowell, in the county of Penobscot and State of Maine, have invented a new and useful Improvement in Tubular Lanterns, of which the following is a specification.

This invention relates to that class of tubular lanterns which are provided with a vertically-movable globe frame or carriage by which the globe can be raised from the burner when access is desired to the same for lighting, extinguishing, trimming, &c., while the globe can be readily removed for cleaning, &c.

The object of my invention is to produce a lantern of this character in which the height of the lantern is reduced and the construction greatly simplified, while the desirable features of the lantern, to wit, the vertical movement of the globe and the removability of the globe from its frame or carriage, are retained.

In the accompanying drawings, consisting of two sheets, Figure 1 is an elevation of my improved lantern, showing the globe in position on the burner. Fig. 2 is a sectional elevation showing the globe raised. Fig. 3 is a top view of the upper end of the globe. Fig. 4 is a vertical section of the upper part of the lantern in line *x x*, Fig. 1. Fig. 5 is an elevation showing the lantern provided with a guard formed by the side wires and showing a modified construction of the top fastening of the globe. Fig. 6 is a sectional elevation at right angles to Fig. 5. Figs. 7 and 8 are cross-sections in lines *x x* and *y y*, Fig. 5, respectively. Fig. 9 is a perspective view showing a modified construction of the globe-frame.

Like letters of reference refer to like parts in the several figures.

A represents the oil-pot; *a*, the air-chamber secured to the top thereof; B, the wick-tube secured in the top of the oil-pot, and C C the side tubes provided with lower branches *c c*, which rest on the oil-pot and communicate with the air-chamber. D represents a cross-tube connecting the upper ends of the side tubes with the bell or dome E, which lat-

ter is arranged between the upper portions of the side tubes and provided in its top with an opening *e*, coinciding with a similar opening *d* in the lower side of the cross-tube D. The opening *d* in the cross-tube is formed by slitting the tube and bending the flaps *d'* of the tube outwardly and against the under side of the top of the bell, as represented in Figs. 2 and 4, whereby the bell and cross-tube are securely attached together. The cross-tube D may be formed of a single piece secured with its ends to the upper ends of the side tubes, or it may be composed of two sections, each forming the top branch of one of the side tubes, as may be preferred.

F represents the globe provided near its upper end with a bead *f*, and G represents the perforated plate upon which the globe rests. This plate is preferably provided with the burner-cone *g*, which latter may be either secured to or formed in one piece with the plate.

H H represent side or lift wires attached with their lower ends to the globe-supporting plate G and extending upwardly on the inner sides of the side tubes to and beyond the top of the globe. The lift-wires are preferably attached to the globe-support G by hinged or swiveling connections—for instance, hooks and eyes—as represented in the drawings. The lift-wires are preferably guided on the rigid lantern-frame by loops *i*, secured to the side tubes and embracing the side wires or other suitable guides. The lift-wires are provided near the top of the globe with indentations or inwardly-projecting portions *h*, which engage in notches or depressions *j*, formed in the upper portion of the globe, preferably in the bead thereof, as represented in Figs. 1, 2, and 3. The upper portions of the lift-wires extend inwardly over the top of the globe and thence upwardly through the bell and cross-tube, and are connected above the cross-tube by a button or thumb-piece K. The upright portions *k* of the lift-wires, which pass through a slot *l* in the cross-tube, are slightly curved to act as springs which resist the movement of the globe-frame either up or down and which hold the globe-frame in either its normal or elevated position.

The globe-frame holds the globe normally with its upper end below the bell, so that an open space is left between the top of the globe and the bell for the admission of external air and the escape of products of combustion. Upon springing the indented portions of the lift-wires out of the notches or recesses in the globe the latter can be removed from the supporting-plate for cleaning or for replacing it by a new globe when broken.

When access is desired to the burner for lighting, extinguishing, trimming the wick, or other purposes, the globe-frame is lifted by taking hold of the thumb-piece at the upper ends of the lift-wires. This lifting of the globe-frame causes the upper end of the globe to enter the bell, which latter is made somewhat larger than the upper end of the globe for receiving it. The upper portions of the side wires are guided in the top portion of the lantern-frame, while the lower portions of the side wires are guided in the loops on the tubes, whereby the globe-frame is held securely in position in the lantern-frame during its vertical movements and when seated with the perforated plate on the burner, thus insuring the proper position of the globe, whether raised or lowered. When the top portions of the side wires are arranged in the central portion of the bell, where they are liable to become very hot, the thumb-piece K is preferably made of wood or some other material which will remain cool.

In the construction of the side wires represented in Figs. 5, 6, and 7 each side wire passes downwardly through a loop *m*, which surrounds the side tubes, thence half around the globe, thence downwardly through the other loop *m*, and thence down to the globe-supporting plate. The loops *m* move vertically on the side tubes with the globe-frame and the portions *n* of the side wires which encircle the globe form a guard for the same. This construction of the guard can be used in connection with the top fastening represented in Fig. 1.

In the construction of the lantern represented in Figs. 5, 6, 7, and 8 the upper end of the globe is held in the vertically-movable frame by a tilting ring *o*, which rests in eyes *p*, formed in the side wires near the upper end of the globe.

In the construction represented in Fig. 9 the upper end of the globe is held by a semi-circular bow *q*, formed by the upper portions of the side wires, and the thumb-piece is formed integral with the side wires. The upper portions of the side wires which pass through the bell are arranged on one side of the bell and not centrally in the same.

My improved construction of the lantern produces a comparatively short and compact lantern, which is very simple and can be produced at comparatively small expense, and which permits ready access to the burner,

while it allows the globe to be easily removed and inserted.

I claim as my invention—

1. The combination, with a tubular lantern-frame provided with a fixed bell or dome communicating at its top with the air-tubes and having an imperforate peripheral wall extending downwardly therefrom, of a globe and a vertically-movable globe-frame extending above the bell or dome and provided with a detachable globe-fastening below the same, whereby the top of the globe is held normally below the bell or dome and is raised into the bell or dome upon lifting the globe from the burner, substantially as set forth.

2. The combination, with a tubular lantern-frame, of a globe-supporting plate, a globe having its top bead provided with depressions or recesses, and top fastenings engaging in said depressions or recesses, substantially as set forth.

3. The combination, with a tubular lantern-frame, of a globe-supporting plate, a globe having its top bead provided with depressions or recesses, and side wires attached to the globe-supporting plate and engaging in said depressions or recesses, whereby the globe is detachably held on said plate, substantially as set forth.

4. The combination, with a tubular lantern-frame provided with a fixed bell or dome, of a vertically-movable globe-supporting plate, a globe, and lift-wires connected with said plate and extending inwardly over the top of the globe and thence upwardly through the tubular frame, substantially as set forth.

5. The combination, with a tubular lantern-frame provided with a fixed bell or dome, of a vertically-movable globe-supporting plate, a globe, and lift-wires connected with said plate and having curved or bent top portions which extend through the tubular frame and operate as springs in holding the globe-frame up or down in the tubular frame, substantially as set forth.

6. The combination, with a tubular lantern-frame, of a vertically-movable globe-supporting plate, a globe provided with recesses or notches near its top, lift-wires connected with said plate and provided with bent portions entering the recesses of the globe and with top portions extending inwardly over the top of the globe and upwardly through the tubular frame, substantially as set forth.

7. The combination, with a tubular lantern-frame, of a vertically-movable globe-supporting plate, a globe, and side wires each composed of an upper and a lower portion arranged on opposite sides of the globe, and a connecting portion partially encircling the globe, thereby forming a guard, substantially as set forth.

8. The combination, with a tubular lantern-frame, of a vertically-movable globe-supporting plate, a globe, loops surrounding the side

tubes and side wires, each passing downwardly through one of said loops, thence partially around the globe, and thence downwardly through the other loop to the globe-  
5 supporting-plate, substantially as set forth.

9. A lantern-globe having its top bead provided with external depressions or recesses, substantially as set forth.

Witness my hand this 14th day of February, 1890.

CHARLES J. HIGGINS.

Witnesses:

THEO. L. POPP,  
C. D. HOWE.