

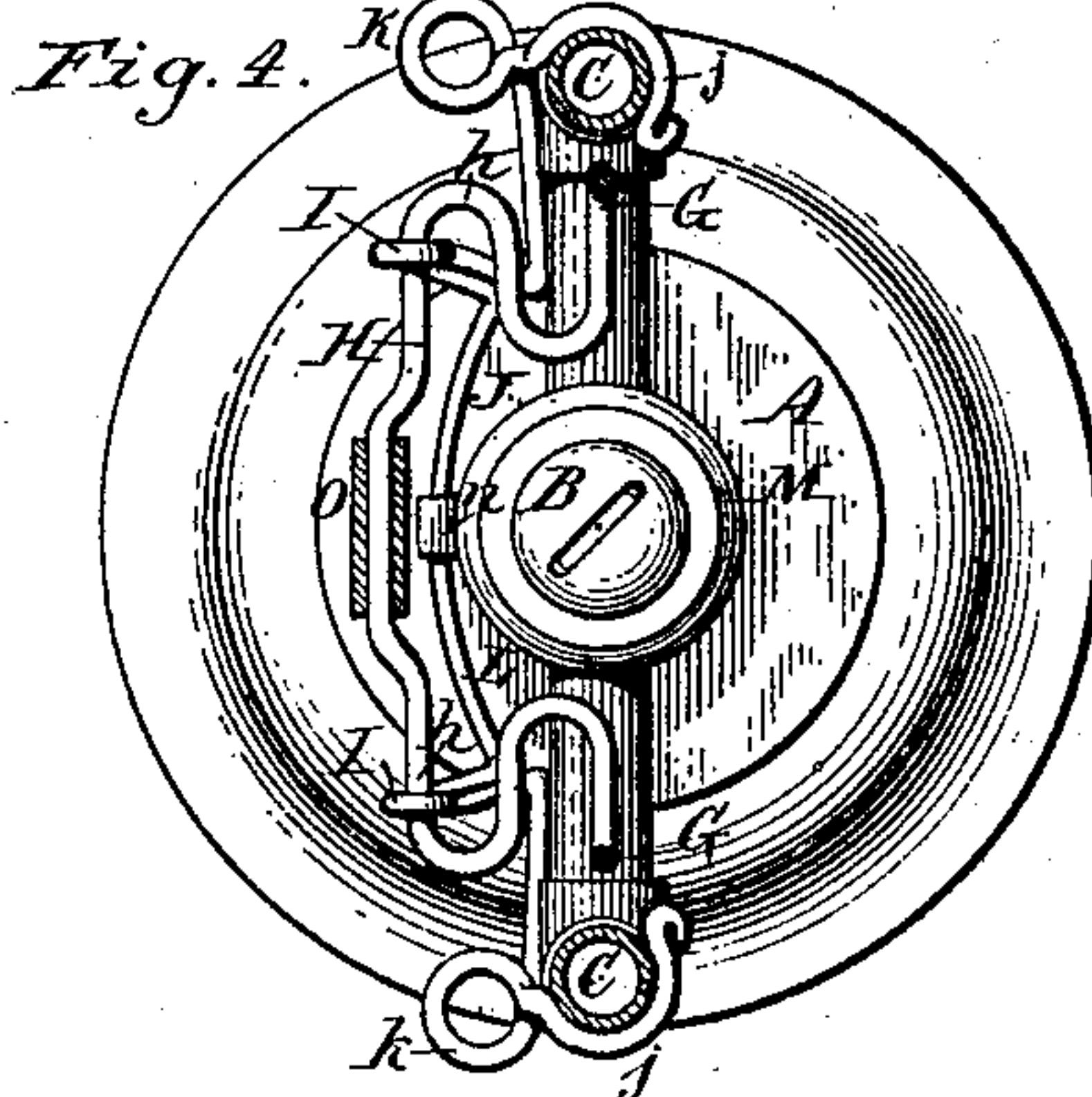
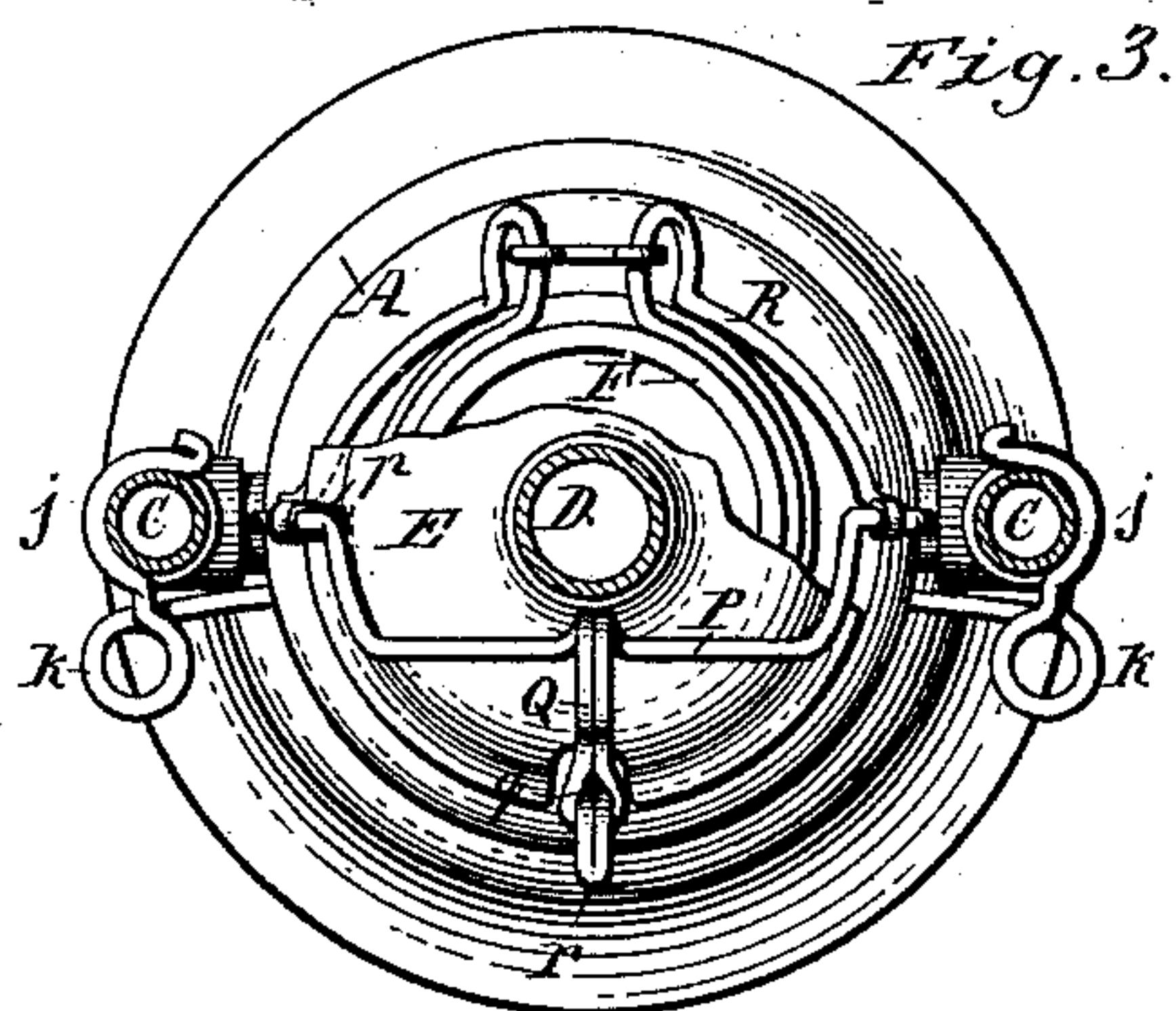
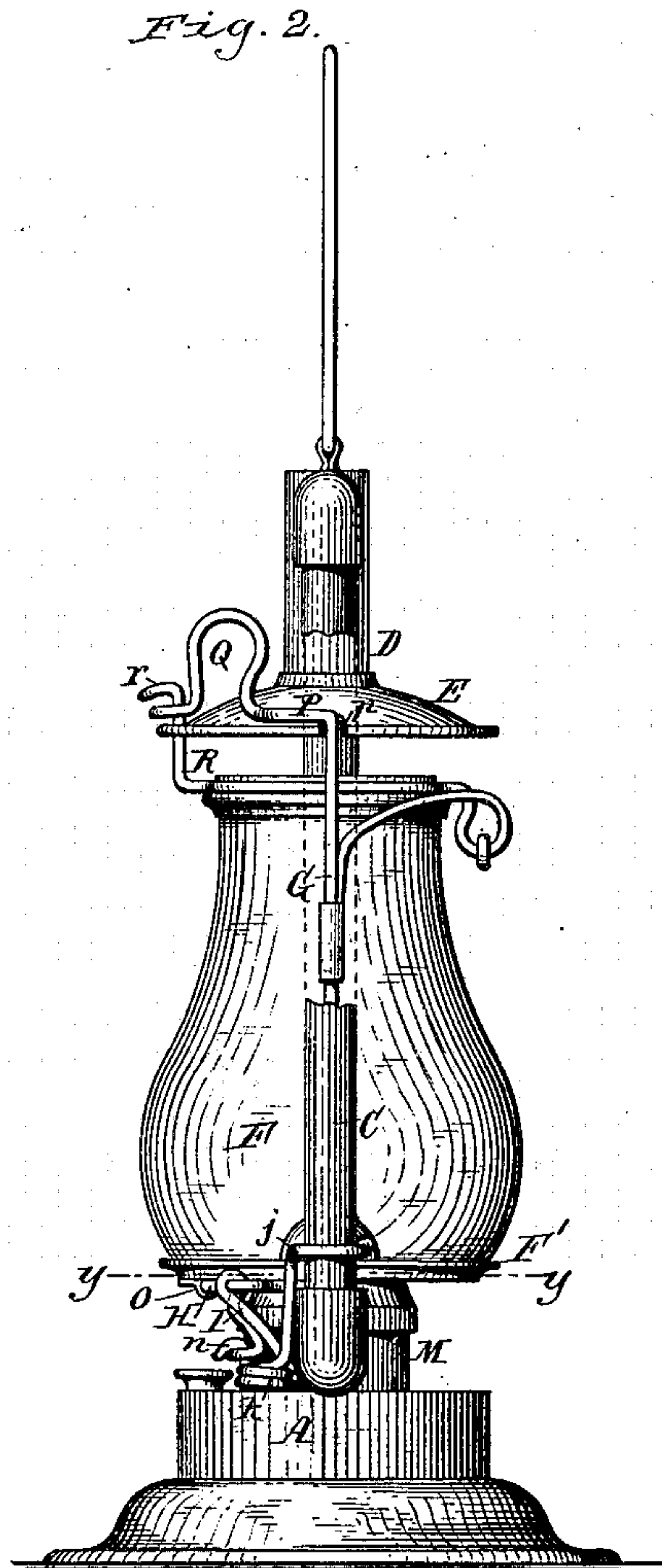
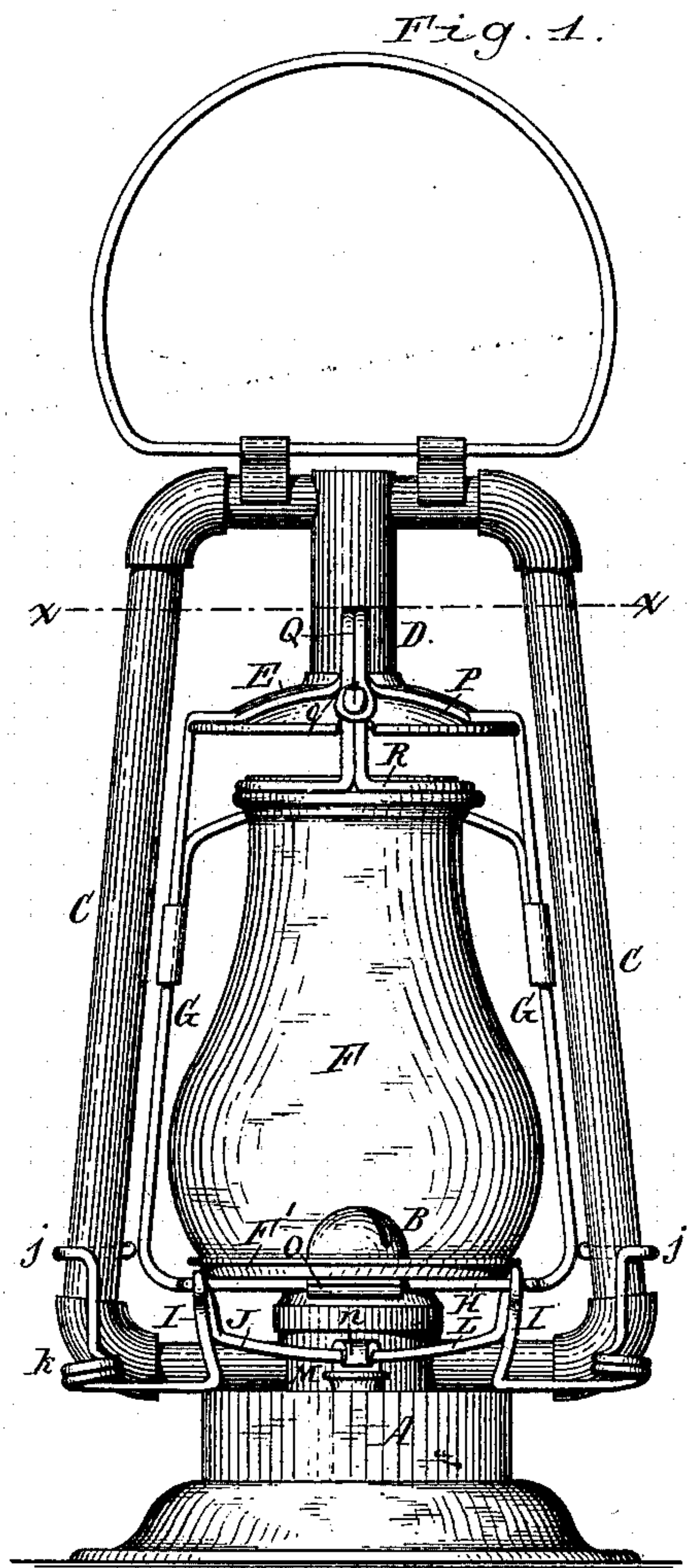
(No Model.)

2 Sheets—Sheet 1.

D. C. KLINE.  
TUBULAR LANTERN.

No. 364,825.

Patented June 14, 1887.



Theodore L. Popp  
Geo. Buchheit Jr. Witnesses.

D. C. Kline Inventor  
By Wilhelm H. Pomeroy  
Attorneys.

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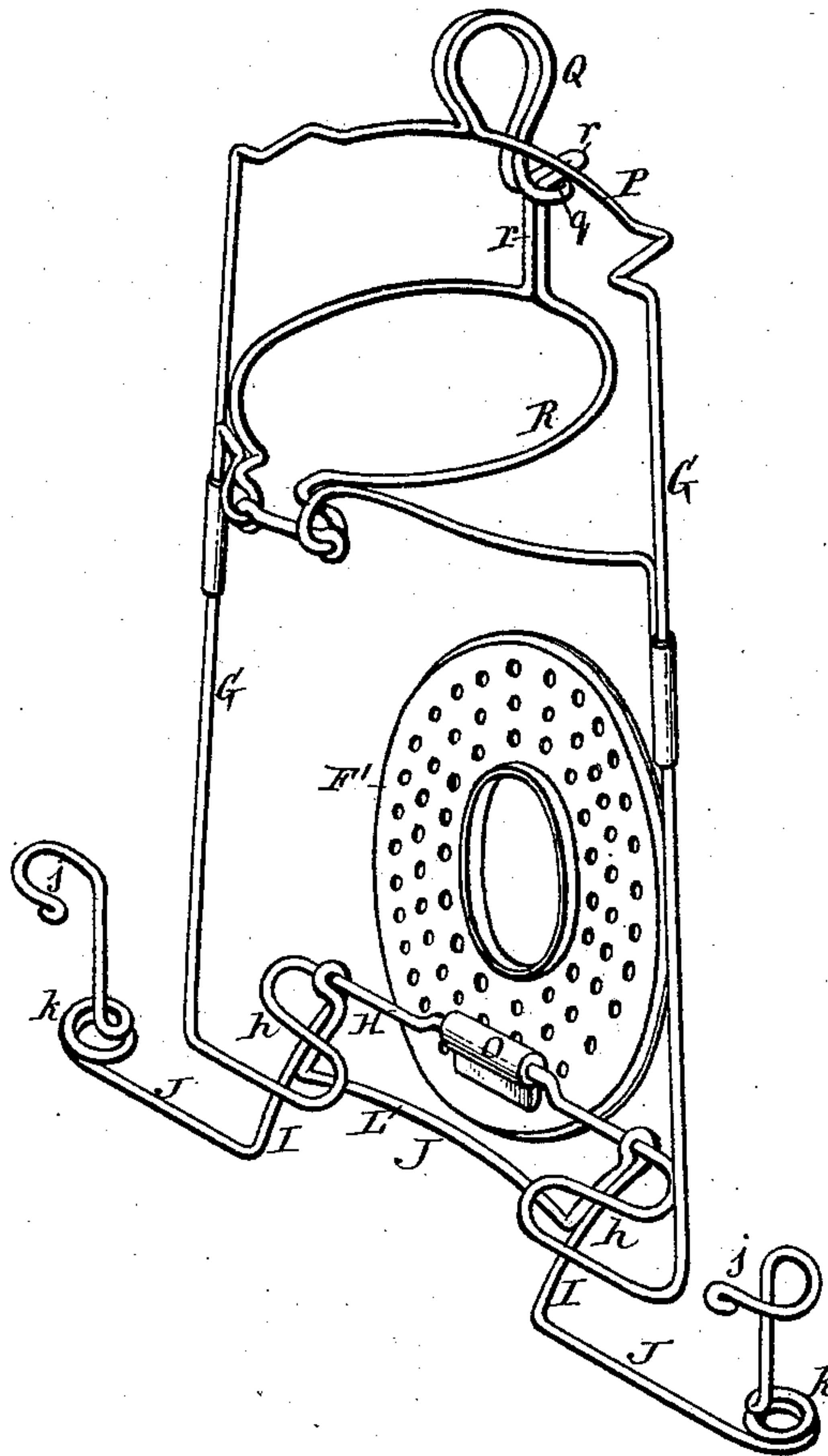
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*Fig. 5.*



*Theodore L. Popp*  
*Geo. Buchheit Jr.* } Witnesses.

*D. C. Kline* Inventor.  
*By Wilhelm Bonnet*  
Attorneys.



# UNITED STATES PATENT OFFICE.

DAVID C. KLINE, OF ROCHESTER, NEW YORK.

## TUBULAR LANTERN.

SPECIFICATION forming part of Letters Patent No. 364,825, dated June 14, 1887.

Application filed May 17, 1886. Serial No. 202,360. (No model.)

*To all whom it may concern:*

Be it known that I, DAVID C. KLINE, of the city of Rochester, in the county of Monroe and State of New York, have invented new and useful Improvements in Tubular Lanterns, of which the following is a specification.

This invention relates to a tubular lantern in which the globe is mounted in a cage or frame which is hinged to the base of the lantern in such manner that the globe and its supporting-frame can be swung aside when it is desired to expose the burner cone for trimming, lighting, extinguishing, &c. Heretofore these globe frames or cages were permanently secured to the lantern structure or frame. This necessitated the renewal of the entire lantern when the globe-frame was broken or injured so as to be no longer serviceable.

The object of my invention is to remedy this defect; and it consists, principally, of a globe-frame detachably secured to the lantern-frame, as will be hereinafter fully set forth, and pointed out in the claims.

In the accompanying drawings, consisting of two sheets, Figure 1 is a front elevation of a tubular lantern provided with my improvements. Fig. 2 is a side elevation of the same. Fig. 3 is a horizontal section in line *x x*, Fig. 4 is a horizontal section in line *y y*, Fig. 5 is a perspective view of the globe-frame detached from the lantern.

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

A represents the oil-pot or base; B, the burner-cone; C, the side tubes; D, the short central tube at the top of the lantern; E, the bell or concave plate secured to the lower end of the central tube, D; F, the globe, and F' the perforated plate or gallery upon which the globe rests.

The oil-pot A, side tubes, C, central tube, D, and bell E constitute the rigid lantern-frame.

G represents the side bars or wires of the globe-frame, connected at their lower ends by a cross-piece, H, which is arranged on one side of the burner-cone and formed in one piece with the side bars, G, to which the cross-piece H is connected on opposite sides of the burner-cone by S-shaped bent portions *h*. The

cross-bar H is pivoted to pivot supports or arms I, forming part of a frame, J, which is detachably connected to the base of the lantern. This frame is provided at both ends with spring-clamps *j*, which embrace the lower portions of the side tubes, C, and which are connected with the arms I by coils *k*. The latter render the clamps sufficiently elastic to permit them to be sprung around the tubes in attaching the frame J to the lantern.

L is a cross-bar which is formed in one piece with or rigidly secured to the arms I, and which connects the same on one side of the burner. The cross-bar L rests against the front side of the air-chamber M, secured to the top of the oil-pot, and said air-chamber is provided with a hook or claw, *n*, which overlaps the cross-bar L and prevents the latter and the frame J from moving upwardly. The lower portions of the arms I rest upon the oil-pot, whereby the frame J is prevented from moving downwardly.

In order to attach the globe-frame to the lantern, the lower frame, J, is placed on the oil-pot, its cross-bar L is sprung under the hook *n*, and its clamps *j* are sprung around the tubes C. Upon disconnecting the clamps from the side tubes, the cross-bar L can be withdrawn from under the hook *n*, whereby the globe-frame is detached from the lantern. If the globe-frame should be broken or otherwise injured, so as to require to be repaired or renewed, it is readily detached from the lantern, and either returned to its place after having been repaired, or replaced by a new globe-frame, which can be cheaply furnished.

The globe-supporting plate or gallery F' is preferably hinged to the cross-bar H of the globe-frame by a sleeve, O, so that the plate F' can be turned on its hinge and placed in an inclined position independent of the globe-frame for inserting or removing the globe.

P represents a bow which connects the upper ends of the side wires, G, of the globe-frame, and which extends over the bell E on the front side of the tube D when the globe-frame is in its normal position.

*p* represents notches formed in the edge of the bell E for the reception of the upper portions of the side wires, G, which latter are sprung into these notches when the globe-frame



is in its normal position, and whereby the globe-frame is locked in this position. The bow P is provided at its middle with a forwardly and downwardly projecting thumb-piece, Q, which is provided at its lower end with an opening, *q*. The bow P and thumb-piece Q may be bent from a single length of wire, and they may be formed in one piece with the side wires of the globe-frame.

10 R represents the ring-shaped catch which embraces the upper end of the globe, and which is secured to the upper portions of the side wires. The catch R is provided with a thumb-piece, *r*, which projects through the  
15 opening *q* of the thumb-piece Q.

While my invention is more particularly designed for use in tubular lanterns in which the tubes supply air to the burner, it may be employed in lanterns having tubular frames  
20 which supply no air to the burner.

I do not wish to claim in this application the construction of the devices whereby the globe-frame is attached to the bell and whereby the upper end of the globe is held, because  
25 these devices are claimed in another application filed by me May 17, 1886, Serial No. 202,359.

I claim as my invention—

1. The combination, with the tubular-lantern frame, of a removable globe-frame provided with a globe-supporting plate, a catch which holds the top of the globe, and clasps whereby the globe-frame is detachably secured to the lantern-frame, substantially as set forth. 30

2. The combination, with the tubular-lantern frame, of a lower frame, J, detachably secured to the lantern-frame, and a globe-frame hinged to said detachable frame J, substantially as set forth. 35

3. The combination, with the tubular-lantern frame having side tubes, of a detachable globe-supporting frame provided with spring-clamps which embrace the side tubes and secure the globe-frame thereto, substantially as set forth. 40

4. The combination, with the tubular-lantern frame having side tubes and provided with a hook, *n*, of a detachable globe-supporting frame engaging with said hook and provided with spring-clamps *j*, which embrace the side tubes, substantially as set forth. 45

Witness my hand this 8th day of May, 1886.

D. C. KLINE.

Witnesses:

G. E. KLINE,

P. L. SALMON.