No. 864,404. PATENTED AUG. 27, 1907.

C. L. BETTS.

TUBULAR LANTERN.

APPLICATION FILED JUNE 22, 1904.

Fig. 1.

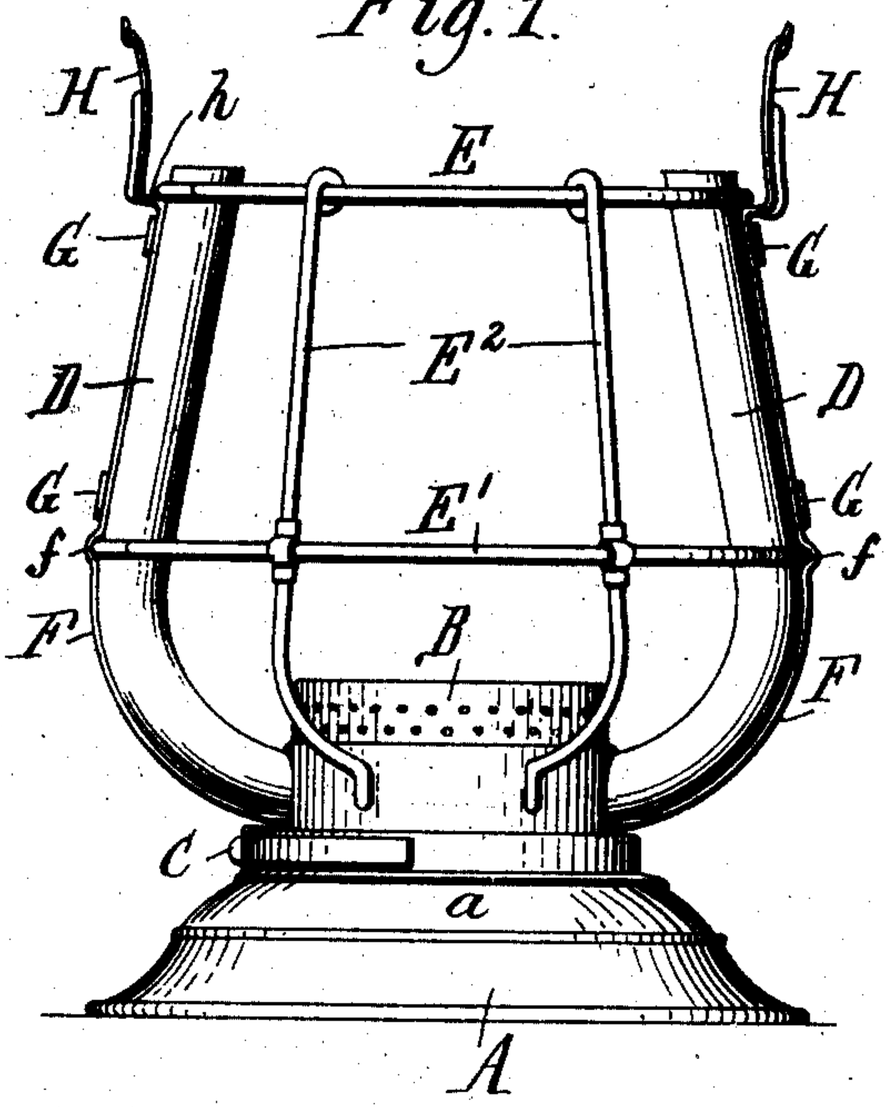


Fig. 2.

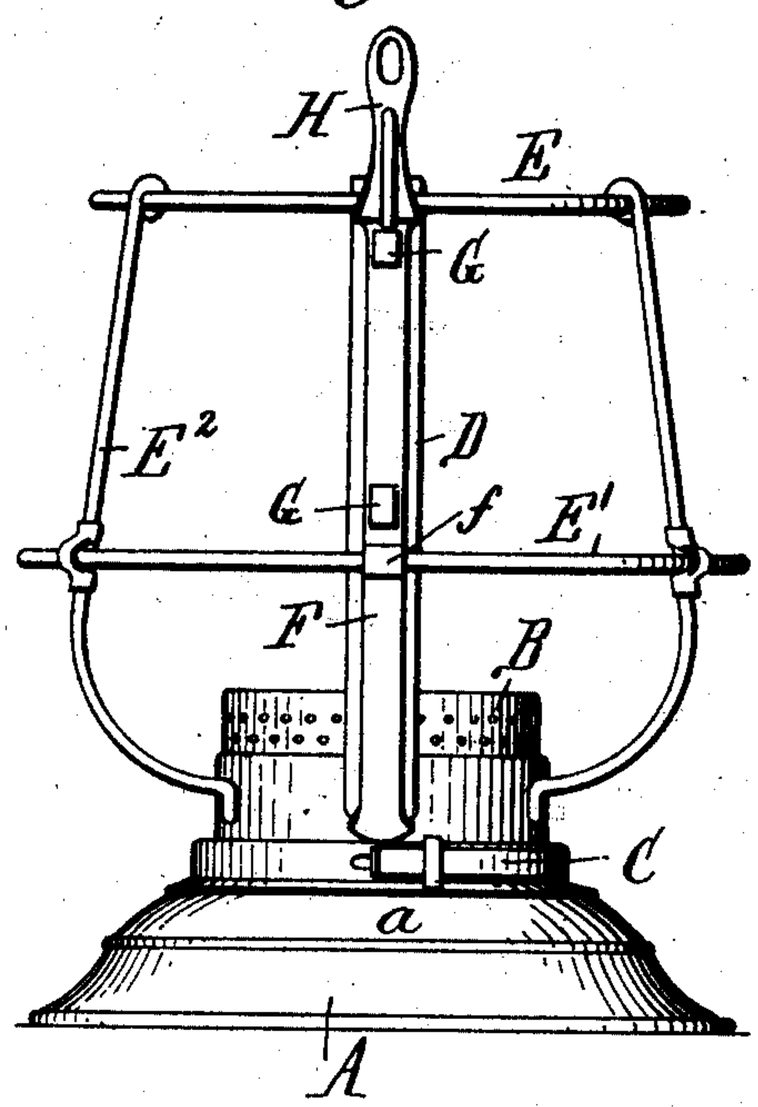


Fig. 4.

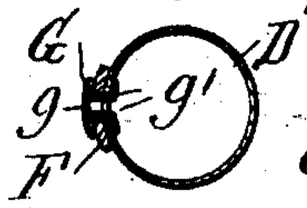


Fig. 3.

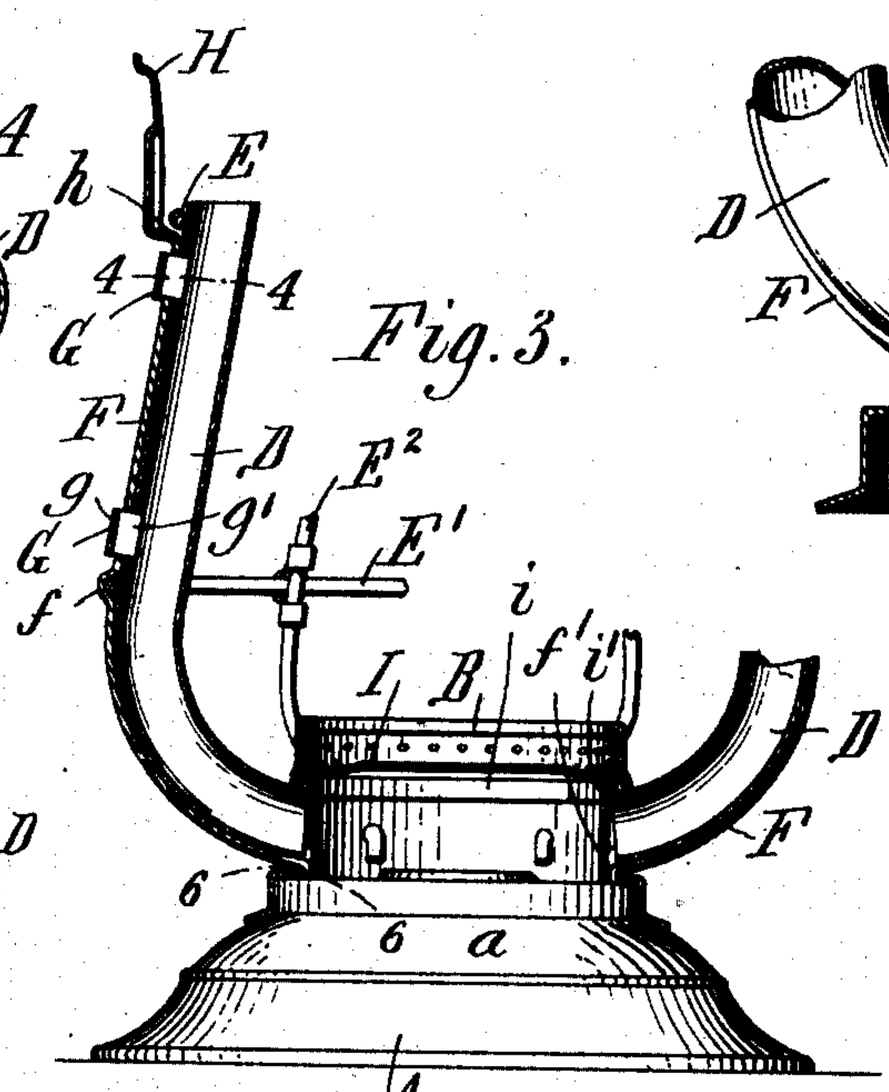


Fig. 5.

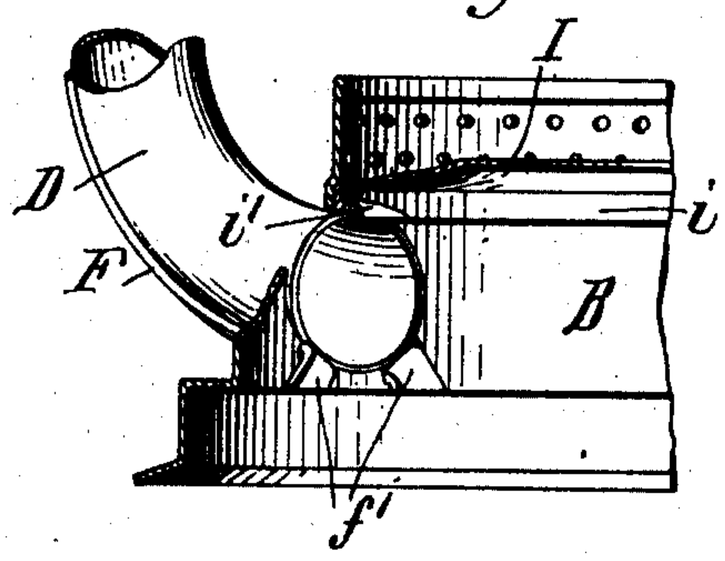


Fig. 7.

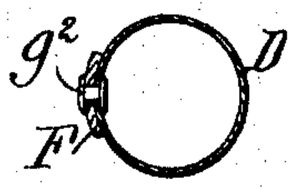
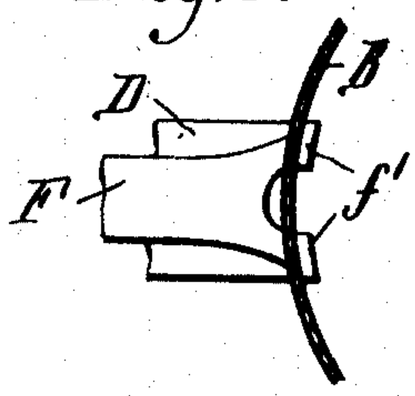


Fig. 6.



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UNITED STATES PATENT OFFICE.

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TUBULAR LANTERN.

No. 864,404. Specification of Letters Patent. Patented Aug. 27, 1907.

Application filed June 22, 1904. Serial No. 213,630.

To all whom it may concern:

Be it known that I, CHARLES L. BETTS, a citizen of the United States, and a resident of New York, borough of Brooklyn, county of Kings, and State of New York, have invented a new and useful Improvement in Tubular Lanterns, of which the following is a specification.

This invention relates to the devices which are employed for connecting the different parts of a tubular lantern frame and has the object to improve these devices with a view of rendering the assembling of the parts easy and convenient, reducing the cost of the structure, and rendering the frame strong and durable.

The invention is particularly desirable for use in tubular lanterns of the kind which are designed for railroad use and which contain, in addition to the tubes, a wire guard frame and an oil pot which is removably arranged in the body hoop or lower cylinder of the frame, as shown, for instance, in my Letters Patent No. 598,072, Feb. 1, 1898, but the invention is also applicable to ordinary tubular lanterns.

In the accompanying drawings: Figure 1 is a front elevation and Fig. 2 a side elevation of the frame of a tubular railroad lantern provided with my improvement. Fig. 3 is a fragmentary sectional elevation through the tubes. Fig. 4 is a horizontal section in line 4—4, Fig. 3, on an enlarged scale. Fig. 5 is a vertical section through the body hoop, on an enlarged scale, showing the lower end of one of the tubes viewed from the interior of the body hoop. Fig. 6 is a horizontal section in line 6—6, Fig. 3, on an enlarged scale, viewed from below and showing a bottom plan view of the lower portion of the protecting strip and its attaching lips. Fig. 7 is a horizontal section through the tube, showing the protecting strip secured to the tube by rivets.

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

A represents the base containing the oil pot *a*, B the body hoop or lower frame ring, C the spring catch or fastening connecting the base to the body hoop, D the air tubes secured at their lower ends in openings formed in the body hoop, E the upper horizontal frame ring, and E′ the intermediate horizontal frame ring, both arranged on the outer sides of the tubes, and E^2 the uprights connecting these rings between the tubes and secured at their lower ends to the body hoop. All of these parts may be of any ordinary or suitable construction and the upper frame rings and uprights are preferably formed of wire, as shown.

F represents an upright flat strip of sheet steel or other suitable strong material which is secured to the outer side of each tube for the purpose of protecting and strengthening the same and its connection with the other parts of the frame. This strip extends along the outer and lower side of the tube to the body hoop and is secured by metallic fastenings to the tube and to the body hoop. The fastenings which secure the lower end of the strip to the body hoop are formed in one piece with the strip, while the fastenings which secure the strip to the tube are preferably clenching devices of sheet metal, having a head *g* arranged on the outer side of the strip and legs *g′* which extend through slits in the strip and tube into the latter and are clenched or bent over on the inner side of the same, as represented in Figs. 3 and 4. Rivets g^2 may, however, be substituted for this clench fastening, as represented in Fig. 7. One of these fastenings is preferably arranged near the upper end of the strip and one near the middle.

The protecting strip F is provided at its upper end with a bail ear H which is preferably formed integrally with the strip, as shown. The upper horizontal frame ring E is arranged on the outer side of the tubes and the bail ears are offset outwardly to form shoulders *h* on which the frame ring rests. The protecting strip is provided with a bent portion *f* which straddles the intermediate frame ring E′ and supports the same.

The lower end of each protecting strip is provided with one or more attaching lips *f′*, two being shown, Figs. 3, 5 and 6. These lips extend inwardly through slits in the body hoop and are clenched on the inner side of the latter, whereby the lower end of the strip is firmly secured to the hoop. These metallic fastenings secure the parts of the lantern frame, comprising the body hoop, tubes, protecting strips and guard together in a very secure and permanent manner, whereby the operations of assembling the parts and tinning or dipping the frame are greatly facilitated and a stronger and more rigid frame is produced at small expense.

I represents the annular plate which is secured in the body hoop above the mouths of the air tubes and which forms the top of the air chamber into which the tubes deliver the air and from which the air passes into the burner cone which projects upwardly through the central opening in this plate. The plate is provided with a downwardly-projecting marginal flange *i* by which it is soldered or otherwise secured to the body hoop. This flange extends across the upper portions of the mouths of the air tubes, as shown at *i′* in Figs. 3 and 5. The portions *i′* of the flange form stops against which the lower ends of the tubes abut and which assist in firmly holding the tubes in place on the body hoop. The stops *i′* also hold the tubes against the inward pressure which is applied to them when the attaching lips

of the protecting strips are bent over on the inner side of the body hoop.

I claim as my invention:

1. In a tubular lantern, the combination of a body hoop, a tube having its lower end connected with the body hoop, a flat protecting strip arranged against the outer and under side of the tube and extending to the body hoop, metallic fastenings securing the strip to the tube and having enlargements on the outer side of the strip and on the inner side of the tube, and metallic fastenings which secure the lower end of the strip to the body hoop, substantially as set forth.

2. In a tubular lantern, the combination of a body hoop, a tube having its lower end connected with the body hoop, a flat protecting strip arranged against the outer and under side of the tube and having its lower end provided with an attaching lip which extends through a slit into the hoop and is bent over on the inner side thereof, and metallic fastenings securing the strip to the tube and having enlargements on the outer side of the strip and on the inner side of the tube, substantially as set forth.

3. The combination of a body hoop having an opening for the reception of a tube, a tube secured therein, and an annular plate secured in the body hoop and having a stop which is arranged adjacent to said opening and against which the tube abuts, substantially as set forth.

4. The combination of a body hoop having an opening for the reception of a tube, a tube secured therein, and an annular plate secured in the body hoop above the tube and having an annular flange which extends across the upper portion of said opening and forms a stop against which the tube rests, substantially as set forth.

5. The combination of a body hoop having an opening for the reception of a tube, a tube secured therein, an annular plate secured in the body hoop and having a stop against which the tube abuts, and a protecting strip arranged against the outer side of said tube and provided with an attaching lip which extends through a slit into the hoop and is bent over on the inner side thereof, substantially as set forth.

Witness my hand, this 17th day of June, 1904.

CHARLES L. BETTS.

Witnesses:
J. C. BROWN,
OSCAR WARNER.