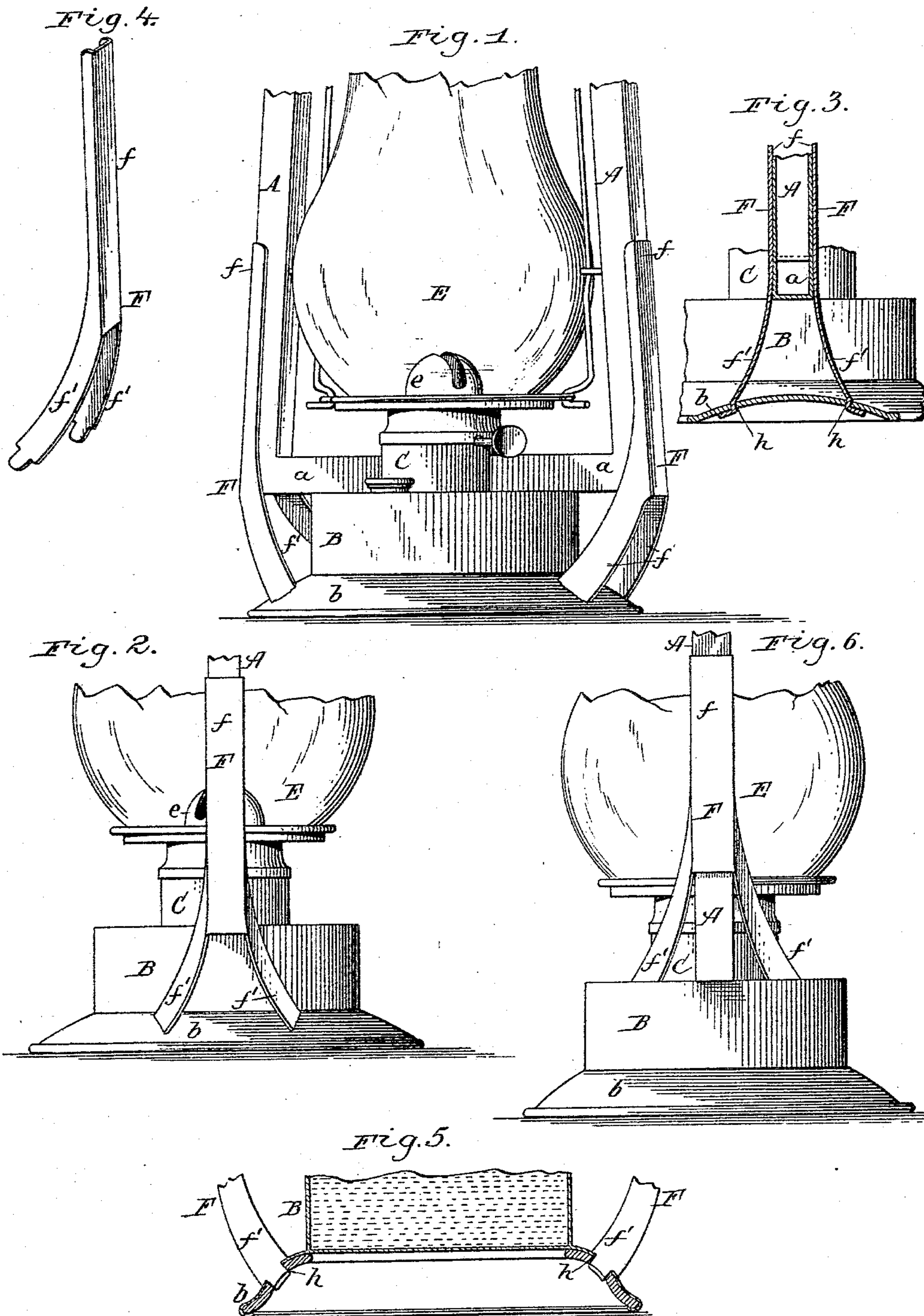


(No Model.)

W. McARTHUR.
TUBULAR LANTERN.

No. 412,286.

Patented Oct. 8, 1889.



Chas. J. Buchheit.
Theo. L. Popp. } Witnesses.

Warren McArthur Inventor.
By Wilhelm Honnert. Attorneys.

UNITED STATES PATENT OFFICE.

WARREN McARTHUR, OF CHICAGO, ILLINOIS, ASSIGNOR TO THE STEAM GAUGE AND LANTERN COMPANY, OF SYRACUSE, AND THE R. E. DIETZ COMPANY, OF NEW YORK, N. Y.

TUBULAR LANTERN.

SPECIFICATION forming part of Letters Patent No. 412,286, dated October 8, 1889.

Application filed May 8, 1889. Serial No. 309,965. (No model.)

To all whom it may concern:

Be it known that I, WARREN McARTHUR, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented new and useful Improvements in Tubular Lanterns, of which the following is a specification.

In tubular lanterns as ordinarily constructed the tubular-lantern frame is secured to the top of the oil-pot by soldering, and is liable to be bent or broken off when the lantern is subjected to rough usage. The tubes are liable to be struck with their backs or outer sides against fixed objects in swinging the lanterns by the bail in ordinary use, and are liable to be bent or jammed.

The object of my invention is to strengthen the lantern so as to avoid these difficulties; and my invention consists of the improvements which will be hereinafter fully set forth, and pointed out in the claims.

In the accompanying drawings, Figure 1 is an elevation of the lower part of a tubular lantern provided with my improvements. Fig. 2 is a side elevation of the lower part of the lantern. Fig. 3 is a sectional elevation of the lower part of the lantern. Fig. 4 is a detached view of one of the braces. Fig. 5 is a sectional view showing a modified construction of the base of the lantern. Fig. 6 is a fragmentary end elevation showing the braces attached to the top of the oil-pot.

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

A A represent the side tubes of the lantern-frame, provided with lower horizontal branches *a a*, and constructed in any suitable or well-known manner.

B represents the oil-pot; *b*, the bottom flange; and C, the air-chamber arranged upon the oil-pot and communicating with the lower branches *a a* of the air-tubes, which latter are secured to the top of the oil-pot by soldering.

e represents the burner, and E the globe.

F F represent braces or connections which are secured with their upper ends to the lower portions of the side tubes A A above the lower elbows or the branches *a a* of the tubes,

and with their lower ends to the base of the lantern, preferably the flange of the oil-pot. The upper portion *f* of each brace is made trough-shaped, so as to fit against the outer side or back of the side tube and overlap both outer edges thereof, while the lower arms *f'* of each brace are flat and diverge toward the bottom plate. Each brace is readily constructed of a single piece of tin. The bottom flange of the oil-pot is provided with openings *h h*, through which the reduced ends of the arms *f'* are passed and then clinched on the under side of the flange to securely connect the arms thereto. The upper portion *f* of the brace is soldered to the side tube. Each brace forms a bifurcated connection, which is secured with its shank to the side tube above the lower branch or elbow thereof and with its diverging arms to the bottom plate, thus establishing a rigid and durable direct connection between the tubular frame and the bottom plate, whereby the solder-joints of the tubular frame with the oil-pot and of the upright portions of the tubes with their lower branches or elbows are relieved from strain, and the parts are prevented from becoming bent or separated by the blows to which the lantern is subjected in use.

The bottom of the oil-pot is preferably constructed of cast-iron or similar rigid material, in order to prevent injury to the oil-pot by striking against fixed objects, and to form a firm foundation for the superposed parts of the lantern. Instead of constructing the entire bottom plate of cast-iron, it may be made of tin and lined with a ring of cast-iron, as represented in Fig. 5. This ring may be secured in place by turning the tin bottom over the edge of the ring, as represented in this figure, or it may be soldered to the tin bottom of the oil-pot.

The braces do not only serve to connect the side tubes firmly with the base of the lantern, but they also serve to strengthen and protect the outer sides of the tubes and enable the latter to maintain their form and position under blows which tend to bend or break the tubes. While I prefer to use bifurcated braces,

as shown, straight braces may be employed, if desired, and may be made of any suitable material.

5 The side tubes and their lower branches shown in the drawings are of the well-known construction in which an elbow-tube is formed of two or more sections having a continuous flat back or outer side; but it is obvious that
10 any other well-known or suitable construction of tubes may be employed—for instance, that in which the lower branches are connected to the side tubes by separate elbows.

Instead of securing the lower ends of the braces to the base-flange, they may be secured
15 to the top of the oil-pot, as represented in Fig. 6.

I claim as my invention—

1. The combination, with the base of the lantern, the side tube, and its lower branch,
20 of a side brace secured to the base of the lantern and to the side tube above the lower branch or elbow, substantially as set forth.

2. The combination, with the base of the lantern, the side tube, and its lower branch,
25 of a bifurcated side brace secured with its shank to the side tube above its lower branch and with its arms to the base of the lantern, substantially as set forth.

3. The combination, with the base of the lantern and the side tube connected therewith, of a brace secured with its upper end
30 to the outer side of the tube and extending downwardly from the outer side of the tube to the base, substantially as set forth.

4. The combination, with the side tube and the base of the lantern, of a brace having its
35 trough-shaped upper portion secured to the outer side of the tube and its lower portion attached to the base of the lantern, substantially as set forth.

5. The combination, with the side tube and
40 the oil-pot having the flange of its bottom plate provided with openings, of a bifurcated brace secured with its shank to the tube and having the reduced ends of its arms passed
45 through the openings in the bottom plate and clinched on the under side, substantially as set forth.

Witness my hand this 2d day of May, 1889.

WARREN MCARTHUR.

Witnesses:

F. L. BELL,
JENNIE CRAWFORD.