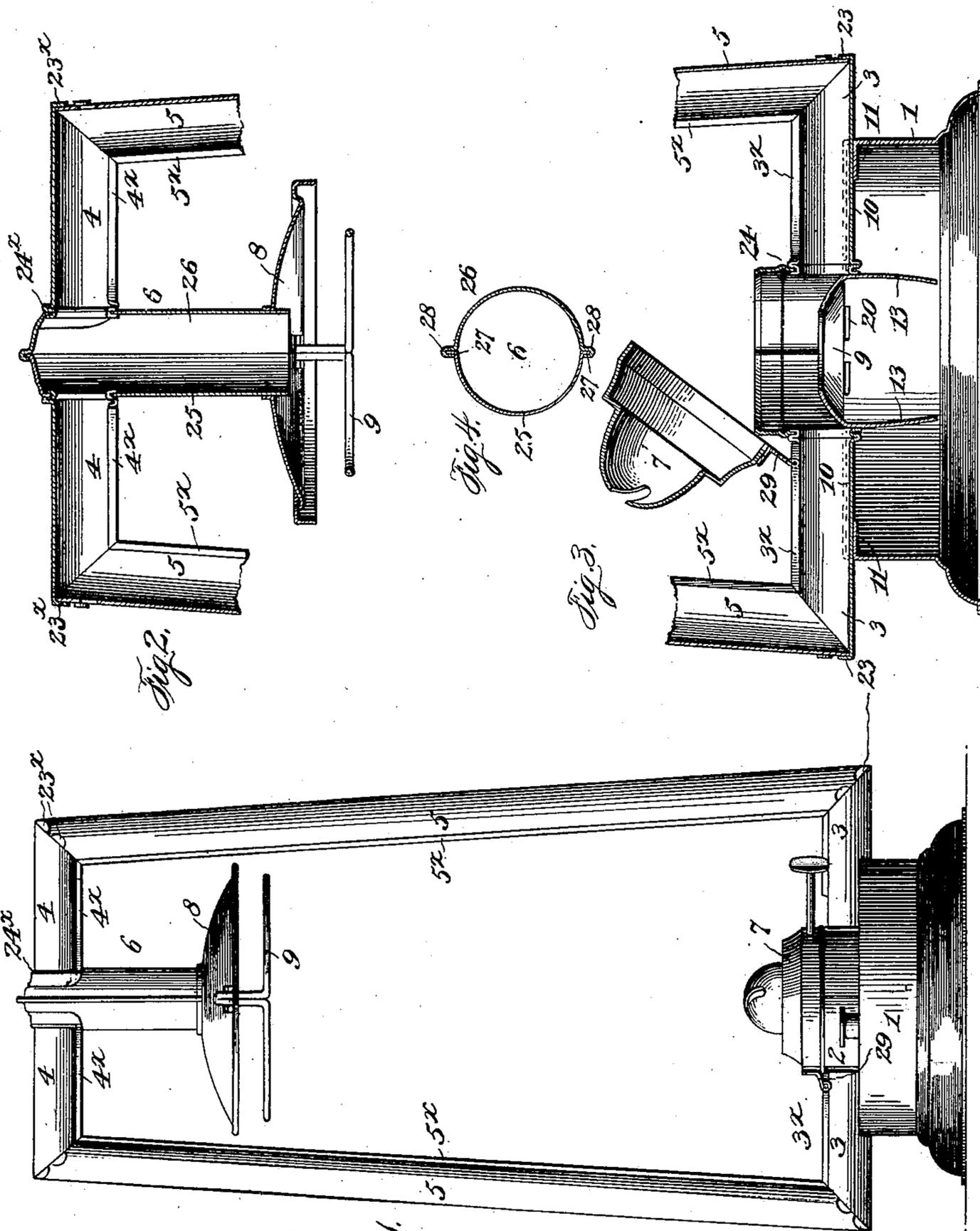


F. M. STEVENS.  
TUBULAR LANTERN.

APPLICATION FILED MAY 28, 1902.

NO MODEL.

2 SHEETS—SHEET 1.



Witnesses:  
C. O. Ober,  
Ada L. Briggs.

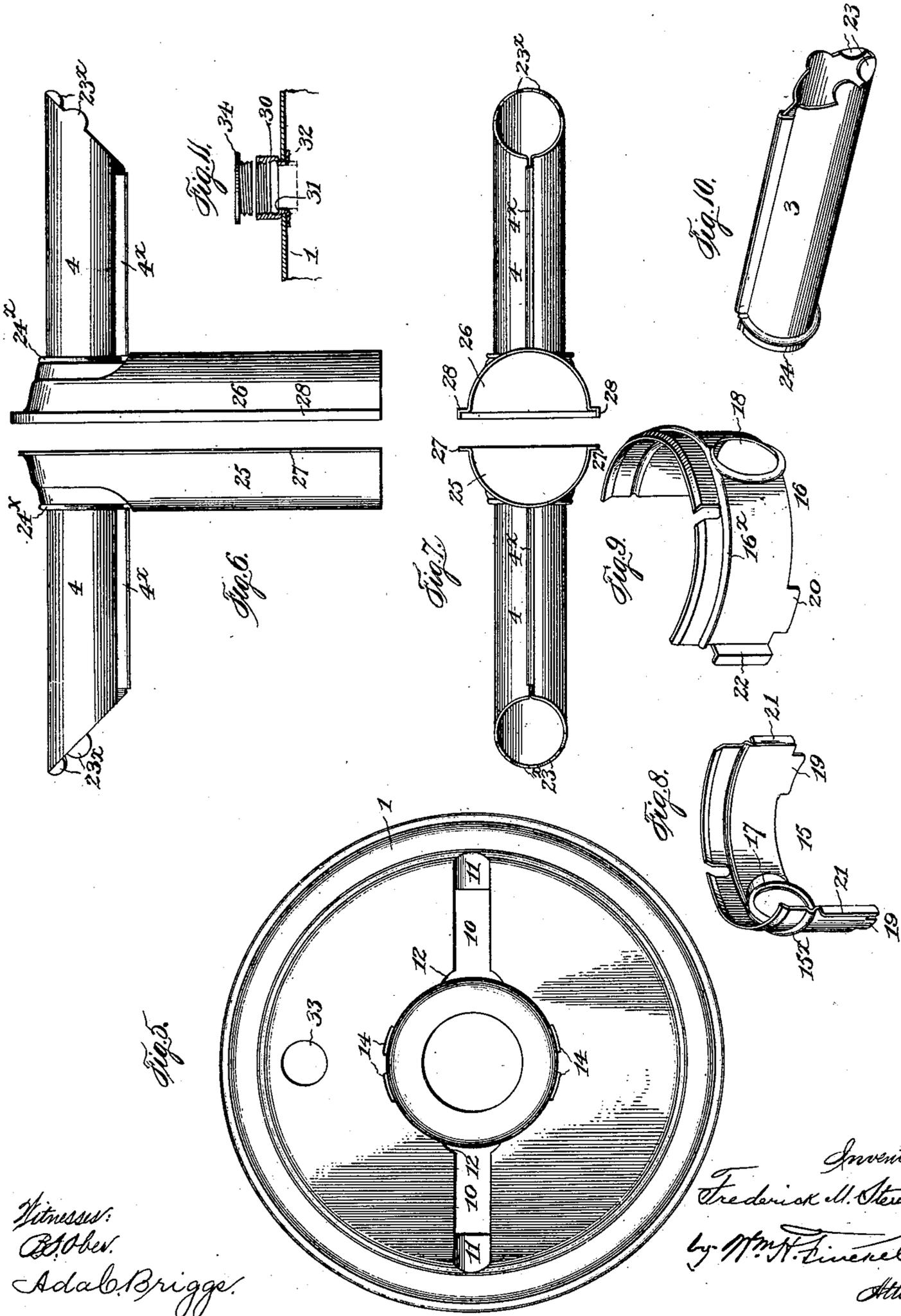
Fig. 1.

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2 SHEETS—SHEET 2.



Witness:  
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Inventor:  
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# UNITED STATES PATENT OFFICE.

FREDERICK M. STEVENS, OF WATERBURY, CONNECTICUT, ASSIGNOR TO THE MATTHEWS & WILLARD MANUFACTURING COMPANY, OF WATERBURY, CONNECTICUT, A CORPORATION OF CONNECTICUT.

## TUBULAR LANTERN.

SPECIFICATION forming part of Letters Patent No. 730,981, dated June 16, 1903.

Application filed May 28, 1902. Serial No. 109,342. (No model.)

*To all whom it may concern:*

Be it known that I, FREDERICK M. STEVENS, a citizen of the United States, residing at Waterbury, in the county of New Haven and State of Connecticut, have invented a certain new and useful Improvement in Tubular Lanterns, of which the following is a full, clear, and exact description.

This invention relates to tubular lanterns; and the object of the invention is to simplify and cheapen the construction of the frames for such lanterns and to produce a frame which is practically solderless.

The invention consists in a frame for tubular lanterns comprising a font, an air-chamber, upper and lower horizontal air-tubes and connecting side tubes, a central vertical air-tube, a burner-cone, and a filling-collar, all constructed substantially as I will proceed now more particularly to set forth and finally claim.

In the accompanying drawings, illustrating my invention, in the several figures of which like parts are similarly designated, Figure 1 is a front elevation, the remaining views being on a larger scale. Fig. 2 is a vertical longitudinal section of the upper portion of the frame. Fig. 3 is a vertical longitudinal section of the lower portion of the font and frame, the burner-cone being raised. Fig. 4 is a horizontal cross-section of the central vertical air-tube. Fig. 5 is a top plan view of the base or font. Fig. 6 is a detail in elevation, showing the central vertical tube and attached upper horizontal tubes, the sections of the central vertical tube being separated. Fig. 7 is a bottom plan view of the parts shown in Fig. 6. Figs. 8 and 9 are detail perspective views of the sections of the air-chamber. Fig. 10 is a detail perspective view of one of the lower horizontal tubes detached. Fig. 11 is a detail view in vertical section, showing the manner of attaching the filling-collar to the oil font or pot.

1 is the font. 2 is the air-chamber. 3 3 are the lower horizontal air-tubes; 4 4, the upper horizontal tubes; 5 5, the connecting side tubes, and 6 the central vertical air-tube. 7 is the burner-cone, and 8 the dome, with the usual globe-holding ring 9.

The top of the font 1 is cut away at 10 (see Figs. 3 and 5) to receive the lower horizontal air-tubes 3, leaving portions 11 at the outer edge of the font, which are depressed to form supports for the tubes 3, and at the opposite ends these cut-away portions are slightly extended laterally, as at 12, Fig. 5, to form openings for the joints or seams between the tubes 3 and the air-chamber 2. The metal thus cut out at 10 may be bent down and extended within the body of the font, as shown at 13, Fig. 3, or it may be entirely detached from the font. So, also, the portions 11 of the metal of the top may be omitted and the cut-away portions extend to the outer edges or wall of the font, although it is preferable to let these portions remain in order to strengthen the side walls at this point and support the tubes. When the portions 13 of the metal are bent down inside the font, as shown in Fig. 3, they serve as a guard or protector for the wick. Slits or openings 14 are also formed in the top of the font to secure the air-chamber, as will presently appear.

The air-chamber 2 is made separate from the font and preferably is constructed of two substantially semicircular sections 15 and 16, (see particularly Figs. 8 and 9,) which are respectively provided with beaded openings 17 and 18 and downwardly-projecting lugs 19 and 20 at their lower edges and end flanges 21 and 22, the flanges 22 being of a length sufficient to be bent over the flanges 21 to form seamed joints between the sections of the air-chamber in assembling the parts. These sections are also provided with circumferential beads 15<sup>x</sup> and 16<sup>x</sup> to form a stop or support for the burner-cone.

The lower horizontal tubes 3, upper horizontal tubes 4, and the side tubes 5 are all constructed of round tubing having a single longitudinal overlap-seam, as 3<sup>x</sup>, 4<sup>x</sup>, and 5<sup>x</sup>, and all of said seams are arranged inwardly when the tubes are assembled, and these several tubes are united by diagonal joints, and in the preferred construction the horizontal tubes 3 and 4 are provided at their meeting edges or diagonal joints with projecting lips 23 and 23<sup>x</sup>, respectively, to overlap the meeting edges of the side tubes 5 and to be sol-

dered thereto in assembling the parts of the frame. These tubes 3 and 4 at their opposite ends are beaded and flanged, as at 24 and 24<sup>x</sup>, respectively, to cooperate with the beaded openings 17 and 18 of the air-chamber and similar beaded openings in the central vertical air-tube 6 for positioning and uniting these parts.

The central vertical tube 6 is constructed of two substantially semicircular sections 25 and 26, having closed-in upper ends, (see particularly Figs. 2 and 6,) the longitudinal edges and the closed-in upper ends thereof being provided with laterally-projecting flanges 27 and 28, respectively. The flanges 28 of the section 26 are sufficiently wider than the flanges 27 of the section 25 to enable them to be bent over the flanges 27 to form a seamed joint between the sections when the parts are assembled. These sections are also provided adjacent their upper closed-in ends with openings to receive the beaded and flanged ends 24<sup>x</sup> of the upper horizontal tubes 4.

The dome 8 is mounted to slide upon the central vertical tube in the usual manner, and to this end the opening in the dome is provided with notches to fit the seamed joints of said tube, the seamed joints in this instance being arranged transversely of the horizontal and side tubes of the frame instead of in line with or parallel to the said tubes.

The burner-cone 7 is provided with a hinge member 29 and is adapted to be secured to the frame by a pin or pintle engaging said hinge member and the seamed joint of one or the other of the tubes 3. (See Figs. 1 and 3.) By this construction it will be observed that the burner-cone is permanently attached to the frame, and danger of its becoming lost or misplaced when moved is avoided.

In Fig. 11 I have shown the filling-collar for the oil-font attached to the font without soldering, and in the preferred form the collar 30 is provided at its lower edge with an annular shoulder 31 and depending flange 32, the said flange adapted to enter the opening 33 in the top of the font, as shown in dotted lines, and to be closed in upon the under side of the top of the font, as shown in full lines. The collar 30 is provided with a threaded portion above its shoulder and depending flange to receive the closing-cap. 34 is the usual closing-cap for said filling-collar. The shoulder 31 serves also as a support for the end of the nozzle of the filling-can in filling the font and prevents the nozzle from entering too far into the filling-collar and becoming stuck therein, a difficulty found in that construction where a straight collar is secured in the font by soldering. Furthermore, by this manner of fastening in the collar the necessity of and the time expended in soldering is avoided and the collar secured to the font much more economically and quickly. Of course it is obvious that this filling-cap may be used in other devices than lamp-fonts, and I wish to be understood as not limiting my inven-

tion to its use in lamp-fonts, although I have herein so claimed this feature of my invention.

The lower horizontal tubes 3 are connected with the sections 15 and 16 of the air-chamber by inserting the flanged ends 24 thereof in the openings 17 and 18 of said sections and bending down the flanges 24 upon the inside of said openings (see Fig. 3) in any suitable manner to thereby form a seamed joint between said parts. The sections 15 and 16 of the air-chamber are then brought together and united by bending the flange 22 of the section 16 upon the flange 21 of the section 15, thereby forming a seamed joint between these parts. The projections 19 and 20 of the sections 15 and 16 are passed into the openings 14 in the top of the base or font, protruding within the base or font, and are bent up against the under side of the top of the font and preferably soldered thereto. The tubes 3 fit snugly within the cut-away portions of the top of the font and are supported in position by the edges of the cut-away portions and the depressed portions or supports 11 at the outer edge of the font. The seamed joints between the tubes 3 and the air-chamber fit snugly in the extensions 12 of the cut-away portions. The air-tubes 3 are preferably soldered to the font at their juncture with the cut-away portions, and by the construction herein described this soldering may easily be done upon the inside of the font, the parts being united before the bottom of the font is put in place, or the soldering may be done upon the outside of the font or both inside and outside, the solder serving to fill or close the joint between the parts, and thereby produce a neat finish. It is also preferable that the juncture between the air-chamber and the font be soldered in order to make a neat finish and also to make a practically fluid-tight joint between these parts. The upper horizontal tubes 4 are secured to the sections 25 and 26 of the central vertical tube 6 by inserting their beaded and flanged ends 24<sup>x</sup> in the openings in said sections and bending down the flanges upon the inside of said sections in any suitable manner to form a seamed joint between said tubes and sections and without soldering. The said sections 25 and 26 are united along their longitudinal edges and closed-in ends by bending the flange 28 of section 26 upon the flange 27 of section 25, thereby forming a seamed joint between said sections transversely of the tubes 3, 4, and 5 of the frame, and the sections are thus firmly united to form the tube without the use of solder. The side tubes 5 are secured to the upper and lower horizontal tubes by bringing their ends together to form the diagonal or elbow joint, and the lips of the upper and lower horizontal tubes are bent down upon the side tubes 5 and the joints soldered. The frame as thus constructed and united is much more economically and expeditiously manufactured than has hereto-

fore been possible, and a frame is produced which has the appearance of being a practically solderless structure, and by the use of the seamed joints the parts are less liable to become dismembered or disconnected by being overheated, as would be the case were the parts united by soldered joints.

What I claim is—

1. In a tubular lantern, the combination with a tubular frame, of an oil-font having its top cut away to form seats for said frame whereby the font and frame may be united by soldering upon the inside of the font, substantially as described.

2. In a tubular lantern, the combination with a tubular frame having lower horizontal tubes, of an oil-font having portions of its top cut away and portions near its outer edge depressed to form seats for said lower horizontal tubes whereby the frame and font may be united by soldering upon the inside of the font, substantially as described.

3. In a tubular lantern, the combination with a tubular frame having lower horizontal tubes, of an oil-font having portions of its top cut away to form seats for said lower horizontal tubes, the said cut-away portions being bent downwardly within the font to form a guard or protector for the wick, substantially as described.

4. In a tubular lantern, the combination with the oil-font provided with slits or openings in its top, of an air-chamber constructed of sections united by seamed joints and provided with lugs passed through said slits or openings and secured to the under side of the top of the font, substantially as described.

5. In a tubular lantern, the combination with the oil-font provided with slits or openings in its top, and a tubular frame having lower horizontal tubes, of an air-chamber constructed of sections united by seamed joints arranged transversely of the said tubes, openings in said sections adapted to receive the ends of the lower horizontal tubes, and lugs on said sections passed through the slits or openings in the top of the font and secured to the under side thereof, substantially as described.

6. In a tubular lantern, the combination with the oil-font provided with slits or openings in its top, and a tubular frame having lower horizontal tubes, the said lower horizontal tubes being provided with beaded and flanged inner ends, of an air-chamber con-

structed of sections united by seamed joints transversely of said tubes, beaded openings in said sections adapted to receive the flanged ends of said lower horizontal tubes to form seamed joints between said parts, and lugs on said air-chamber sections passed through the slits or openings in the top of the font and secured to the under side thereof, substantially as described.

7. In a tubular lantern, having upper horizontal air-tubes, the central vertical air-tube constructed of two sections, each provided with an integral closed-in upper end, said sections united throughout by overlapped flanges forming a single seamed joint arranged transverse to said horizontal tubes, and each section provided with an opening to receive the adjacent horizontal tube, substantially as described.

8. In a tubular lantern, the combination with the upper horizontal tubes having beaded and flanged inner ends, of a central vertical tube constructed of sections united by seamed joints arranged transversely of said horizontal tubes and provided with openings in its side walls to receive the flanged ends of the said horizontal tubes to thereby form seamed joints between said parts, substantially as described.

9. In a lantern, the combination with the oil-font having an opening in its top, of a filling-collar having a shouldered and flanged end fitted in said opening and having its flanged end closed in upon the under side of the top of the font, and provided with a screw-threaded portion above its shouldered and flanged end, substantially as described.

10. In a lantern, the combination with the oil-font having an opening in its top, of a filling-collar having a shouldered and flanged end fitted in said opening and having its flanged end closed in upon the under side of the top of the font and forming a shoulder upon the inside of said filling-collar at the juncture of said parts and a screw-threaded portion on said collar above its shouldered and flanged end, substantially as and for the purpose described.

In testimony whereof I have hereunto set my hand this 27th day of May, A. D. 1902.

FREDERICK M. STEVENS.

Witnesses:

GEORGE W. WATSON,  
PHILIP S. MARSHEAD.