(No Model.)

L. F. BETTS.

METALLIC TUBE.

No. 390,553. Patented Oct. 2, 1888.

FIG. 1

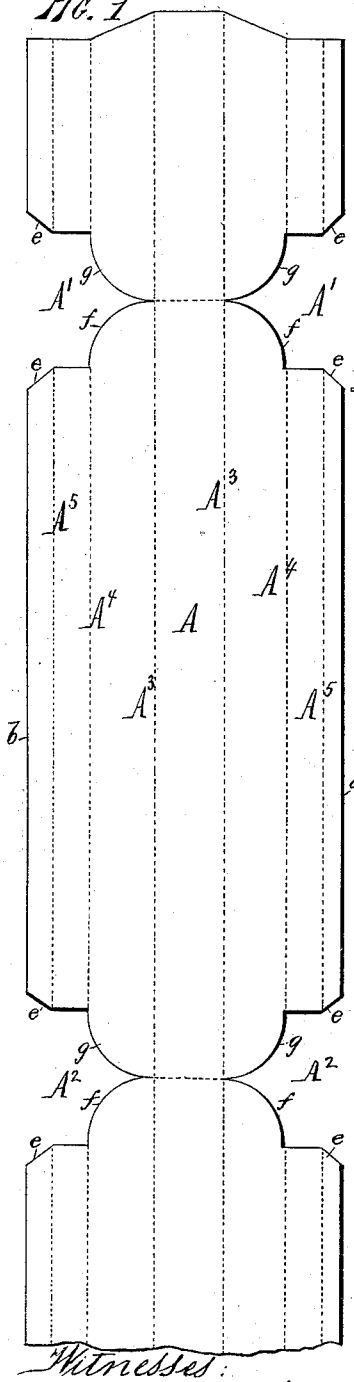


FIG. 2.

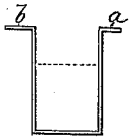


FIG. 3.

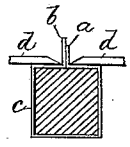


FIG. 4.

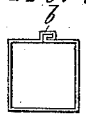


FIG. 5.

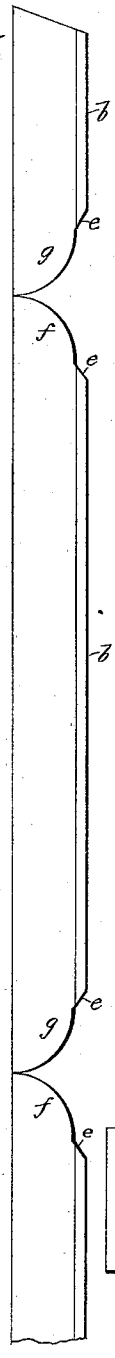


FIG. 6.

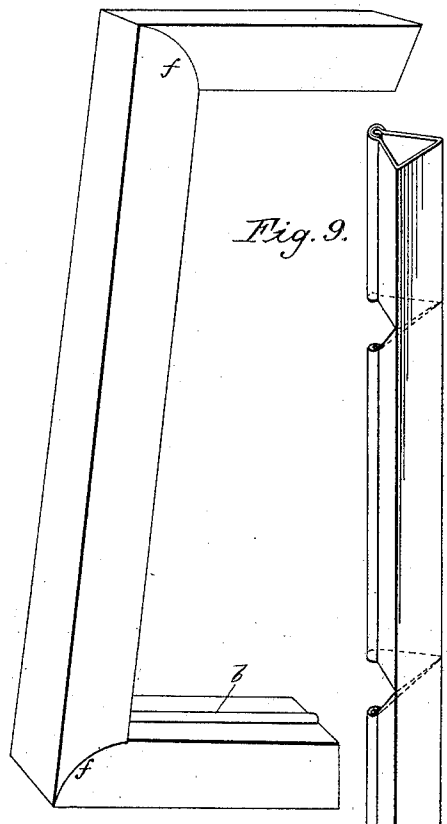


Fig. 9.

FIG 7.

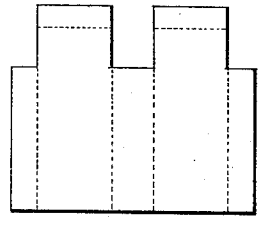
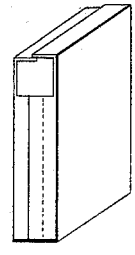


FIG. 8.



Witnesses:
John Buckler,
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By Wm. H. Osgood,
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UNITED STATES PATENT OFFICE.

LEWIS F. BETTS, OF NEW YORK, N. Y.

METALLIC TUBE.

SPECIFICATION forming part of Letters Patent No. 390,553, dated October 2, 1888.

Application filed February 17, 1888. Serial No. 264,391. (No model.)

To all whom it may concern:

Be it known that I, LEWIS F. BETTS, of New York city, county of New York, and State of New York, have invented certain new and useful Improvements in Metallic Tubes, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

My invention relates to that class of metallic tubes of sheet metal which are used in lanterns or illuminating devices, wherein air for the support of combustion is conducted down to the under side of the burner-cone from a point or points in the region of the outlet for products of combustion, which class is now commonly known as "tubular lanterns," "tubular lamps," &c. The tubes through which the air is conducted are known as "side tubes" or "air-tubes," and it is to these tubes that my present invention has especial relation.

The object of my invention is to provide a simple, strong, and durable side tube or air-tube for tubular lanterns which may be easily and cheaply made with economy of material, requiring very little solder to close the joints, presenting flat faces and a smooth exterior easily applicable in the lamp or lantern structure, and possessing other advantages over the ordinary round or cylindrical forms of tubes for like purposes.

To accomplish all of this my present improvements involve new and useful peculiarities of construction, as will be herein first fully described, and then pointed out in the claim.

In the accompanying drawings, forming part of this specification, Figure 1 is a plan view showing the general form of the blank from which each angular tube may be made; Fig. 2, a cross-section showing the sides and marginal flanges bent and ready to receive a mandrel; Fig. 3, a similar view showing the mandrel in place and the flanges pinched together, and Fig. 4 a cross-section showing the flanges turned one upon the other and locked. Fig. 5 is a side view of the tube before the branches are bent and soldered in place, and Fig. 6 a perspective view of one of the tubes formed as in previous figures and ready for application in the lantern or lamp structure. Fig. 7 is a plan of a blank from which an angular central air-pipe may be formed; and Fig. 8, a perspective view of such an air-pipe suitable for use with the angular side tubes, but not necessary. Fig. 9 is a perspective view of my improved tube made triangular in cross-section.

In all these figures like letters of reference, wherever they occur, indicate corresponding parts.

My improved tube is constructed in the following manner: I take a strip of tin or other suitable sheet metal of proper length and width and notch the sides thereof, as shown in Fig. 1, to form the blank A, having notches $A' A^2$, and which is afterward bent along the dotted lines $A^3 A^4 A^5$. At one stage the parts assume the form shown in Fig. 2, the two flanges *a* and *b* being of unequal widths, so that one may double over the other to form the lock. A mandrel is then inserted, as at *c*, Fig. 3, and those parts above the dotted line in Fig. 2 are brought to the position shown in Fig. 3, the two flanges touching each other and pinched firmly together by any suitable tools, as at *d d*, after which the flanges are beaded or locked or bent, as shown in Fig. 4, and the mandrel is withdrawn. The tube thus made is then of the form shown in Fig. 5, the end portions ready to be bent at suitable angles with the middle or main part, so as to take the form indicated in Fig. 6.

That the seam or joint may not interfere with the proper bending and locating of the parts, the corners of the notches $A' A^2$, Fig. 1, are cut away, as at *e e*, which leaves the seam, when finished, with inclined ends, as in Fig. 5, which ends may abut against each other after the parts are bent to final position.

Air for the support of combustion travels downwardly in the tubes, and that the currents may not be interfered with the rounded portions *f f* of the notches $A' A^2$ are made to lap over the outside of the portions *g g* of the notches. No soldering whatever is required for the seam.

The ends of the tube, being bent to final location, require only to be soldered at the angles, which soldering may be easily and quickly done, the joints being flat. The tube thus made is ready for application to the lantern or lamp.

The back or outer face of the tube is flat,

and its bearing on the flat-topped oil-pot is broad, so that the tube may be firmly connected therewith, rendering the structure rigid and secure and requiring very little solder.

The exterior of the tube is one continuous or unbroken piece from end to end, so that the angles or elbows are amply strong. The two sections at the angle are thus united by a flat back common to both sections, and the edges of the side and inner walls of the two sections are contiguous to each other and are secured together.

The central air-pipe to which the upper branch of the tube is secured may be round, as usual, or, if preferred, it may be angular, as indicated in Fig. 8.

If preferred, my improved tube may be made triangular in cross-section, as represented in Fig. 9, in which the tube is represented in the form which it assumes preparatory to bending the branches at an angle to the intermediate main portion of the tube.

I do not wish to claim in this application the method of forming this tube, as this method is claimed in another application for patent filed of even date herewith; nor do I wish to claim in this application the combination of this tube with other parts of the lantern structure, as this combination is claimed in an application for patent filed by me February 12, 1887, Serial No. 227,370.

I claim as new herein and desire to secure by Letters Patent—

An angular elbow-tube composed of tube-sections formed in one piece, having a flat back common to its sections and bent to an angle at the junction of two sections, the contiguous edges of the side walls of two adjacent sections being secured together and the longitudinal edges of the blank being united on the inner side of the tube, substantially as set forth.

In testimony that I claim the foregoing I have hereunto set my hand in the presence of two witnesses.

LEWIS F. BETTS.

Witnesses:
W. J. MORGAN,
JOHN BUCKLER.