

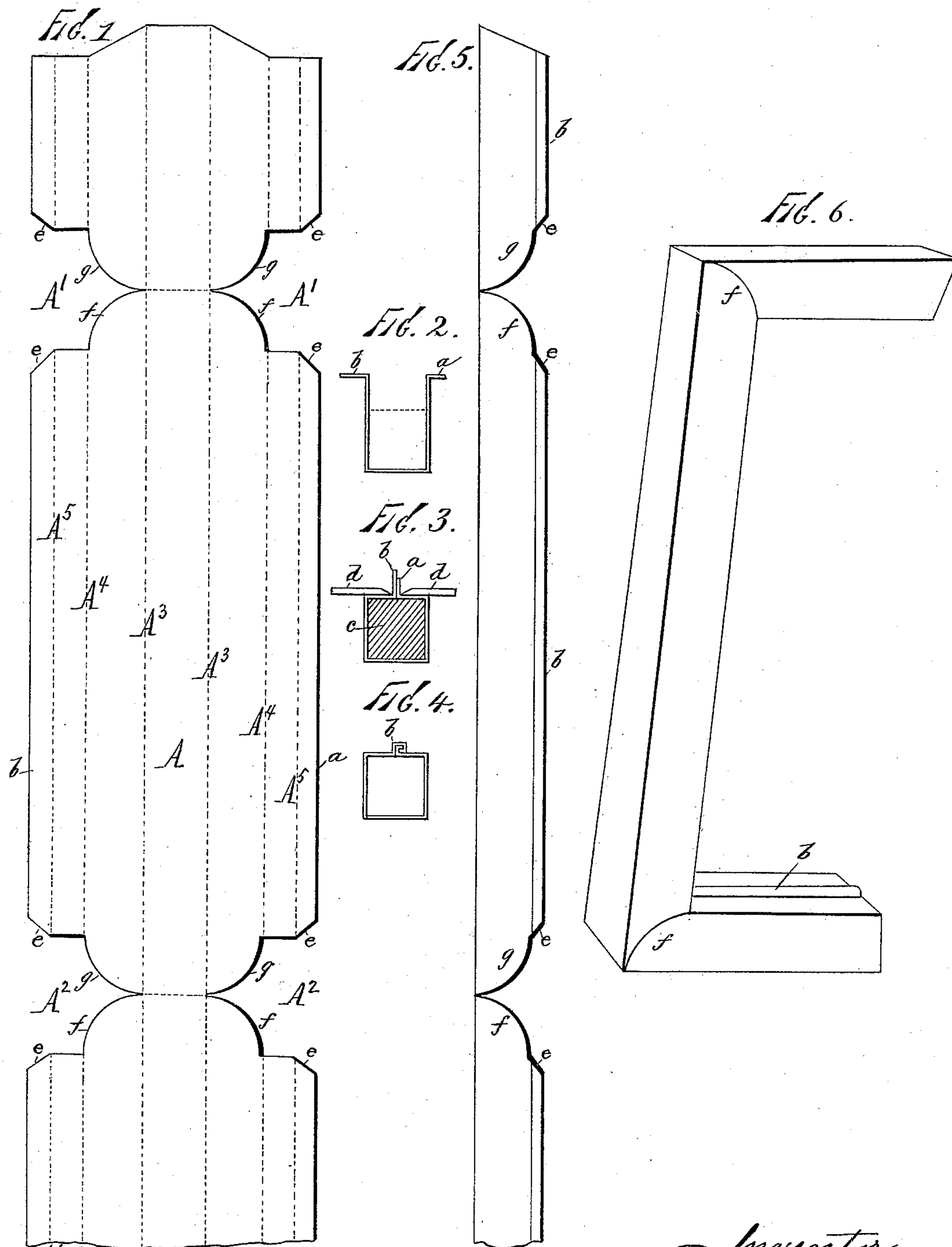
(No Model.)

L. F. BETTS.

METHOD OF MAKING METALLIC TUBES.

No. 390,554.

Patented Oct. 2, 1888.



Witnesses:
John Buckler,
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UNITED STATES PATENT OFFICE.

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

METHOD OF MAKING METALLIC TUBES.

SPECIFICATION forming part of Letters Patent No. 390,554, dated October 2, 1888.

Application filed February 17, 1888 Serial No. 264,392. (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 the Method of Making 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 sheet-metal tubes 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 the manufacture of these that my present invention has especial relation.

The object of my invention is to produce 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 certain new and useful methods or processes of manufacture, 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 is made. Fig. 2 is a cross-section showing the sides and marginal flanges bent and ready to receive a mandrel. Fig. 3 is 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.

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 cut or trim or stamp this, as shown in Fig. 1, to form the blank A, having side notches, A' A², and which is afterward bent along the dotted lines A³ A⁴ A⁵, suitable machinery or implements being employed for the purpose. 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 a lock. A mandrel is then inserted, as at *c*, Fig. 3, and those parts above the dotted lines 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 or branches 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 in the notches A' A² of the blank, Fig. 1, are cut away, as at *e e*, which leaves the seam when finished with inclined ends, as in Fig. 5, which 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 are made to lap over the outside of the portions *g g*. 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 outer faces or backs of the tube are flat, and their bearings on the flat-topped oil-pot are broad, so that they may be firmly connected therewith, rendering the structure rigid and secure, while very little solder is required for this purpose.

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
5 back common to both sections, and the edges and the side and inner walls of the two sections are contiguous to each other and are secured together.

I do not wish to claim in this application
10 the tube itself, as it 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
15 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—

The herein-described method of making angular elbow-tubes of sheet metal, which consists in cutting or notching the single blank at different points on both sides, bending the side portions of the blank inwardly and uniting the longitudinal edges thereof, bending the flat back A at right angles at each pair of cuts or
20 notches, and securing the contiguous cut or notched portions together, substantially as set forth.

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

LEWIS F. BETTS.

Witnesses:

W. J. MORGAN,
JOHN BUCKLER.