

W. M. Phelps.

Eaves Trough.

N^o 36,855.

Patented Nov. 4, 1862.

Fig. 1.

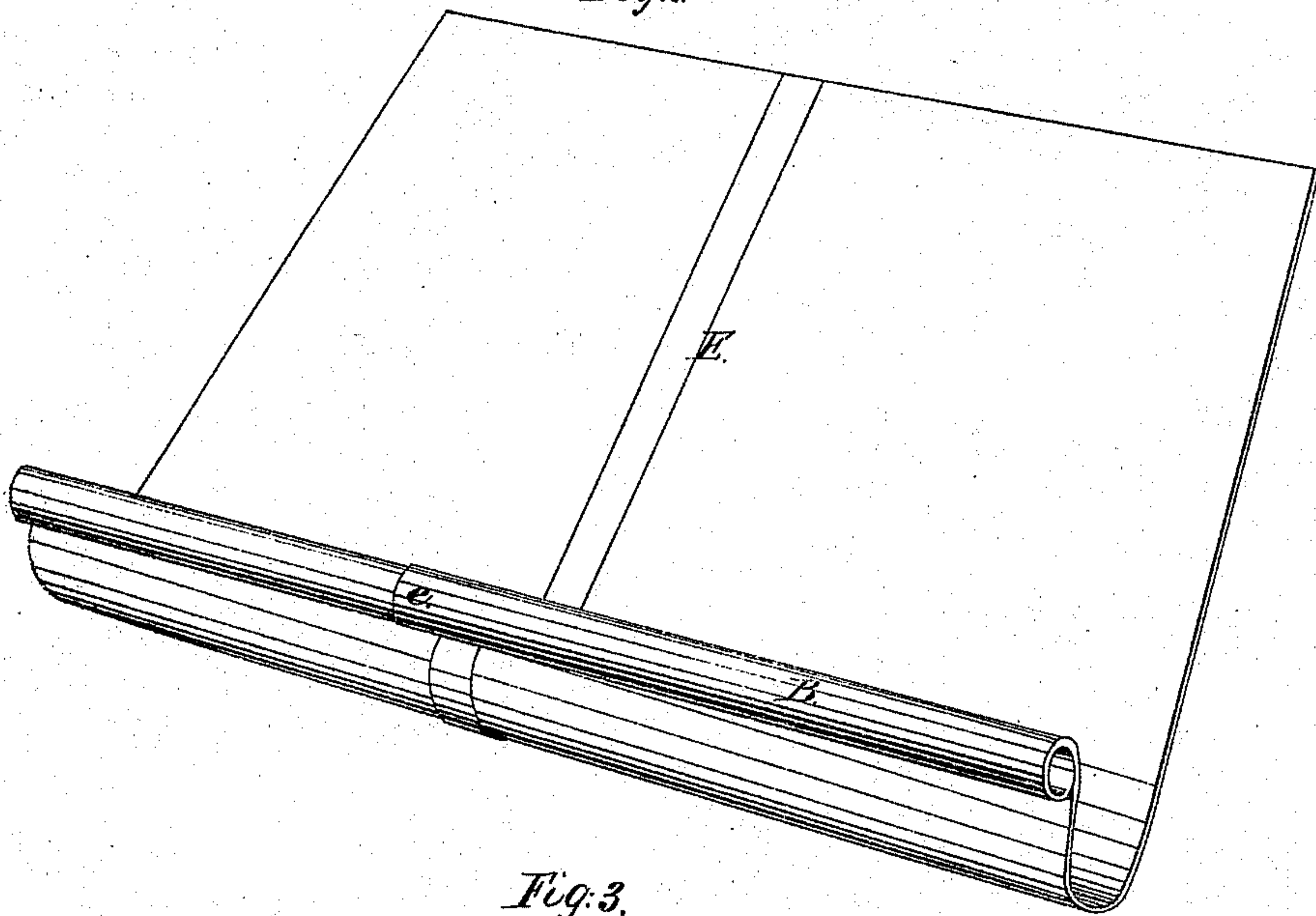
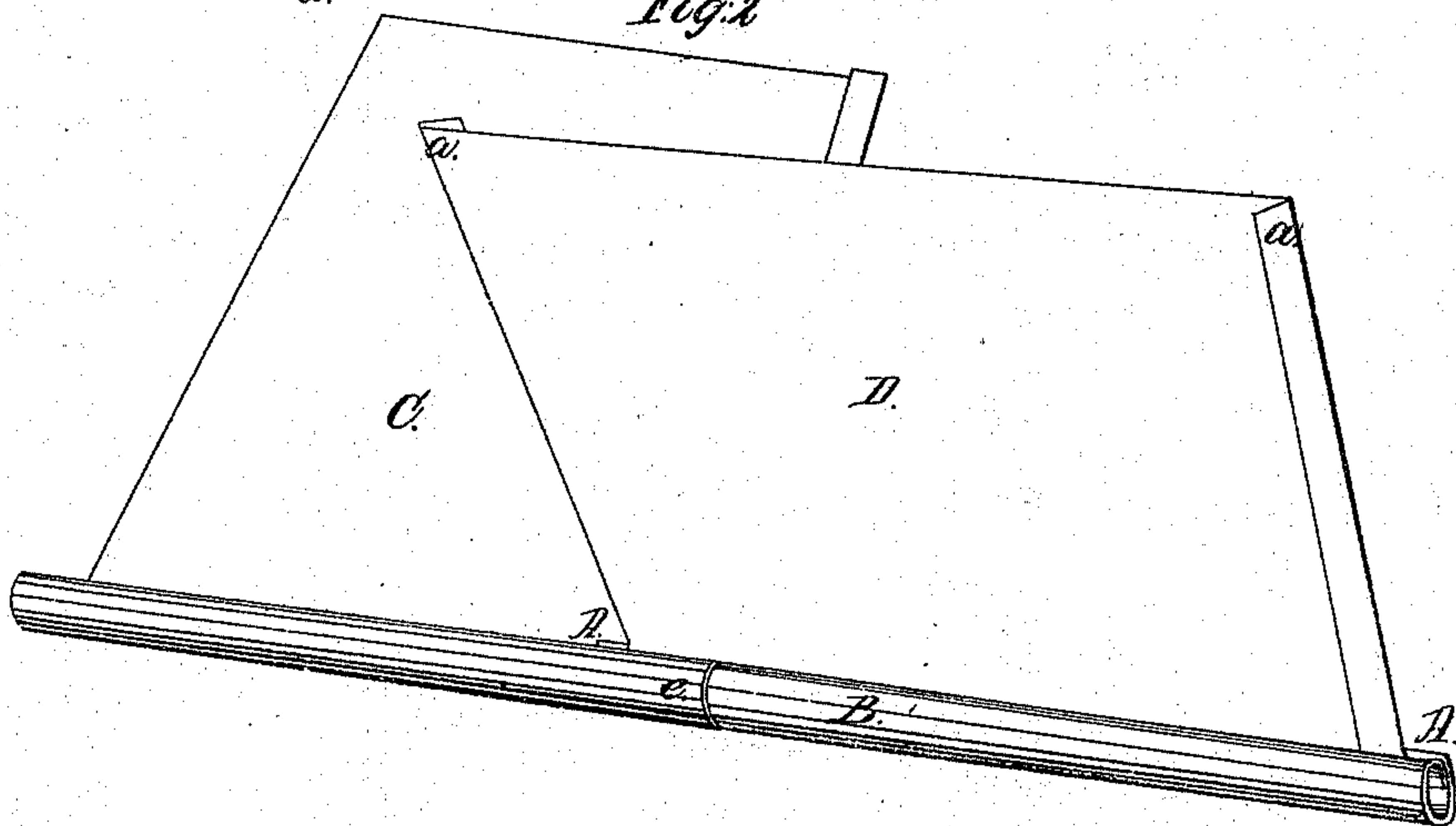


Fig. 3.



Fig. 2.



Witnesses.

UNITED STATES PATENT OFFICE.

WILLIAM M. PHELPS, OF MARSHALL, MICHIGAN.

IMPROVEMENT IN CONNECTING SHEET METAL FOR EAVES-TROUGHS.

Specification forming part of Letters Patent No. 36,855, dated November 4, 1862; antedated June 13, 1862.

To all whom it may concern:

Be it known that I, WILLIAM M. PHELPS, of the city of Marshall, county of Calhoun, and State of Michigan, have invented a new and Improved Mode of Constructing Eaves-Troughs of Sheet Tin or other Metal; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1 is a perspective view of a section of trough in a finished state; Fig. 2, a perspective view exhibiting the mode of connecting the sheets. Fig. 3 is an end view showing the manner of preparing the sheets before shaping.

The same letters indicate corresponding parts in all of the drawings.

This invention refers to such open metal troughs or gutters as are attached to the roofs of buildings, either above or below the eaves, for collecting and carrying away rain-water from the same; and it consists of a mode of connecting the metal sheets together before bending them to form the gutter by locking, lapping, and soldering their edges, whereby many important advantages are obtained; and the better to enable others skilled in the art to make use of my invention I will now proceed to describe it.

The proper number and size of sheets of tin to form any given length or proportion of trough having been selected, a slight notch is made in two opposite sides of each sheet (see A A) at a distance from one end to leave sufficient surface to form the "bead" B, for the purpose of stiffening the edge, and which is common to all troughs with concave bottoms. The sheets are now taken to the "folding-machine," and by it the two notched edges of each sheet are folded back, as seen at *a a*, excepting at that portion reserved to form the bead, which is left flat, and now projects over the folded edges, as at *b b*. The sheets are now ready for turning the beads, which is done in the ordinary way, by placing the edge of the sheet in a narrow slit or groove made in a round rod of the proper size, which is hung in bearings and turned by a crank until the bead is formed, when the rod is drawn out and the sheet liberated. The sheets, with their edges folded and beads turned, are now placed in a proper position side by side on a long flat bench, and are connected together sheet by

sheet in the following manner: The operator holding a sheet at or about a right angle to the adjacent one, as may be seen at Fig. 2, is enabled very readily to slide one bead within the other telescopically, as at *c*, (C representing the sheet lying on the bench, and D that to be connected with it,) until the folded edges overlap, when the sheet D is turned down and drawn back until the folds lock into each other, when they are hammered down tight. The hammering, however, is not done until all the sheets are so connected, and care must be taken that the bead (which in this position projects below the upper side of the bench) is kept in close contact with the edge of the said bench along its whole length, in order that the bead forming the edge of the gutter may be perfectly straight and true. The seams, after being well hammered in the position just described, are now soldered in the usual way by drawing the "iron" from the raw edge along the lock-seam E toward the bead, and around its lap-seam *c*, when the whole is ready for turning the gutter, which completes the operation. The gutter is turned by a round wooden roller of proper diameter and of any convenient length, which, commencing at one end, the operator places on the upper side of the sheet close to and parallel with the bead, and, grasping the bead and roller with both hands, he bends the connected sheet upward by degrees, gradually shifting the roller along until the whole assumes a proper and even degree of curvature.

Should the trough to be made be of such a length that it would be inconvenient to construct it one length, it is then made in convenient lengths and finished, as previously described, with the exception of bending the gutter, and the sheets, transported in that state to the building, locked, lapped, and soldered together and fastened to the roof, when the gutter is bent by a hand-roller, as heretofore described.

The difference between my mode of constructing such troughs and that in common use is, that mine consists in connecting the separate sheets together before the gutter is bent, either in one continuous length, or in sections, to be afterward put together on the roof, and in so connecting them by a compound lock-and-lap joint that it is utterly impossible for the expansion and consequent "buckling" of the

metal occasioned by change of temperature to start the joint; whereas, the common plan is to bend each sheet separately and connect them together in a box by soldered lap-joints, which are extremely liable to break, and are not as stiff, or reliable, or so easily made. I do not desire, however, to confine myself to making a continuous lock-seam, for it may be found in practice that only a portion of the said seam need be so locked to derive the full advantage from its use.

What I claim as my invention, and desire to secure by Letters Patent, is—

The mode of uniting the separate sheets of metal of which eaves-troughs are composed by the use of the locked seam E, in combination with the lapped seam e, of a stiffening-bead, B, substantially as and for the purposes specified.

WILLIAM M. PHELPS.

Witnesses:

E. H. LAWRENCE,
S. J. BURPEE.