(No Model.)

L. C. SIMS.

EAVES TROUGH.

No. 419,568. Patented Jan. 14, 1890.

Fig. 1.

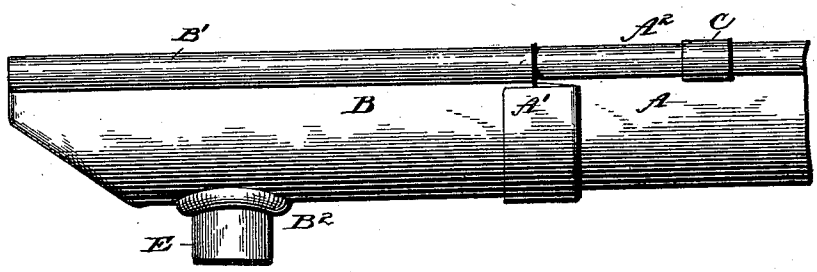


Fig. 2.

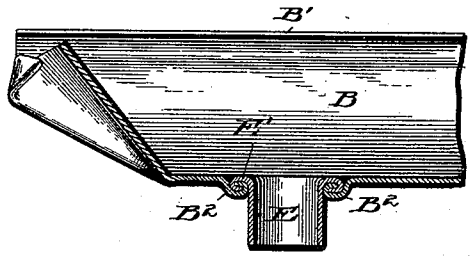


Fig. 3.

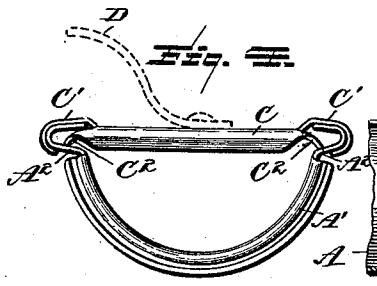


Fig. 4.

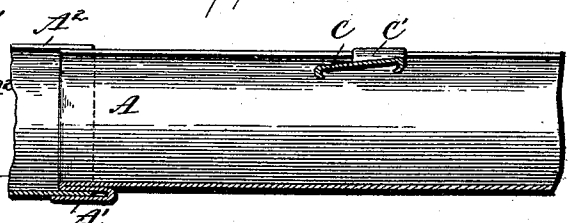


Fig. 5.

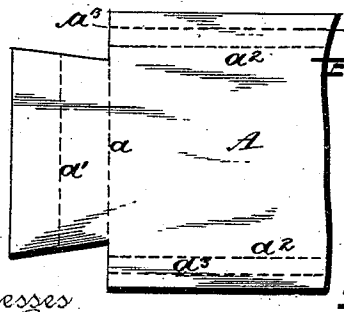


Fig. 6.

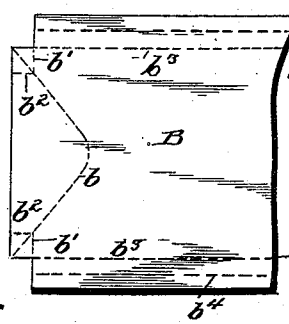
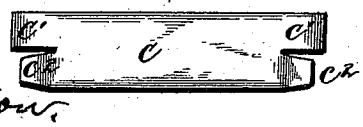


Fig. 7.



Witnesses

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UNITED STATES PATENT OFFICE.

LEWIS C. SIMS, OF MARTINSBURG, OHIO, ASSIGNOR OF ONE-HALF TO PHILIP A. MILLARD, OF SAME PLACE.

EAVES-TROUGH.

SPECIFICATION forming part of Letters Patent No. 419,568, dated January 14, 1890.

Application filed June 12, 1889. Serial No. 313,977. (No model.)

To all whom it may concern:

Be it known that I, LEWIS C. SIMS, a citizen of the United States, residing at Martinsburg, in the county of Knox, State of Ohio, have invented certain new and useful Improvements in Eaves-Troughs, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention has relation to an improvement in eaves-troughs, the main objects of the invention being to provide an eaves-trough with an improved slip-joint; to close the end of the down-spout length in a novel manner; to provide a cross-brace which will rigidly embrace the sides of the trough and which, in connection with suitable fastening devices, will secure the eaves-trough firmly to the roof of a building, and to connect the drain-pipe to the eaves-trough, all without the use of solder.

Other objects of the invention will appear in the following description, and the advantages thereof will be particularly pointed out in the claims.

Referring to the drawings, Figure 1 is a side elevation of a down-spout length of the eaves-trough and portions of an intermediate length of the same and of a drain-pipe, all constructed in accordance with my invention. Fig. 2 is a longitudinal vertical section of the down-spout length and of the drain-pipe, showing the manner of closing the end of the eaves-trough and of connecting the drain-pipe to the same. Fig. 3 is a longitudinal vertical section of portions of the two intermediate lengths of the eaves-trough, showing the slip-joint and the cross-brace, the latter in cross-section. Fig. 4 is an end elevation of an intermediate length of the eaves-trough, looking against the slip-joint, and of the cross-brace, showing one manner of attaching the trough to the roof of a building. Fig. 5 is a view of the blank of which the intermediate sections of the trough are made. Fig. 6 is a view of the blank of which the down-spout section of the trough is made. Fig. 7 is a plan of the cross-brace.

Like letters of reference indicate like parts in all the figures of the drawings.

A is an intermediate length of an eaves-trough constructed in accordance with my invention. A blank of sheet metal—such as iron, steel, tin, &c.—is folded under upon the line a of Fig. 5 and again folded back upon the line a', so as to form the slip-joint A′, Figs. 1, 3, and 4. The sheet-metal blank is then folded outward upon the lines a^2 and inward upon the lines a^3 to form the substantially U or V shaped guides or grooves A^2. The projecting part of the blank is preferably of the form shown, although its outline may be varied, if desired.

B is the down-spout length of the eaves-trough, and it is constructed from the blank shown in Fig. 6. The end of the blank is bent diagonally upward and inward upon the line b until the line b^2 on each side of the blank coincides with the line b' on the same side. The pointed double-ply portions thus formed are turned over, as shown in Fig. 2, to form a water-tight joint without using solder. The sheet-metal blank is then folded outward upon the lines b^3 and inward upon the lines b^4 to form the flanged guide or groove B′, corresponding to and slightly larger than the flanged guide A^2, in order to embrace said guide.

The cross-brace C is made of a piece of sheet metal, having the guides C′ to embrace the guides A^2 or B′, and the shoulders C^2 adapted to press against the edges of the flanged guides A^2 or B′ and hold the eaves-trough in a rigid position. One end of any suitable fastening device D may be fastened to the center of the cross-brace and the other end may be attached to the roof of the building to support the trough. It will be seen that as many cross-braces may be used as are necessary to insure stability of the eaves-trough.

The drain-pipe E is seamed at its upper end at E′. A hole cut in the down-spout length B of the eaves-trough is flared out and then seamed at B^2. The union of these two seams forms a strong, durable, and water-tight joint much better than one formed by soldering.

The length of a section of this eaves-trough is from eight to ten feet, being made longer or shorter, as desired.

In a trough constructed in this manner all the water runs away from the slip-joint, thus preventing any undue rusting at this point, and the trough as a whole is suspended with a suitable inclination to facilitate the flow of water therein.

The V or U shape of the edge-guides is considered important, forming a better construction than circular guides, inasmuch as they are more easily formed, can be more readily united, and in use are less liable to become loose or broken.

What I claim is—

1. An eaves-trough made in sections, having flanged U or V shaped guides, one end of each section having a slip-joint, the flanged guides of one section being adapted to fit into the flanged guides of the next and the plain end of the second into the slip-joint of the first, substantially as described.

2. A down-spout length of an eaves-trough, having an end bent diagonally upward, as shown, and having the pointed double-ply portion turned over to form a solderless water-tight joint, substantially as described.

3. In an eaves-trough, a cross-brace having arms adapted to embrace the flanged guides of the trough and arms adapted to be embraced by the said flanged guides and to have their ends brace against the edges of the guides, substantially as shown and described.

4. In an eaves-trough, a section provided with an opening having flared shoulders combined with a drain-pipe having flared upper end seated in the depression of the section, and the section and pipe united by a solderless seam, substantially as described.

5. The combination, in an eaves-trough made in sections, having flanged U or V shaped guides, one end of each section having a slip-joint, the flanged guides of one section being adapted to fit into the flanged guides of the next and the plain end of the second into the slip-joint of the first, of cross-braces, substantially as described, and a down-spout length having an end wall formed from the body of the trough and an opening with flared shoulders, and a drain-pipe seamed into said shoulders, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

LEWIS C. SIMS.

Witnesses:
W. S. DAVIS,
CHAS. MURRAY.