G. F. ULLMANN.

Metallic Roofs.

No. 153,864. Patented Aug. 4, 1874.

Fig. 1.

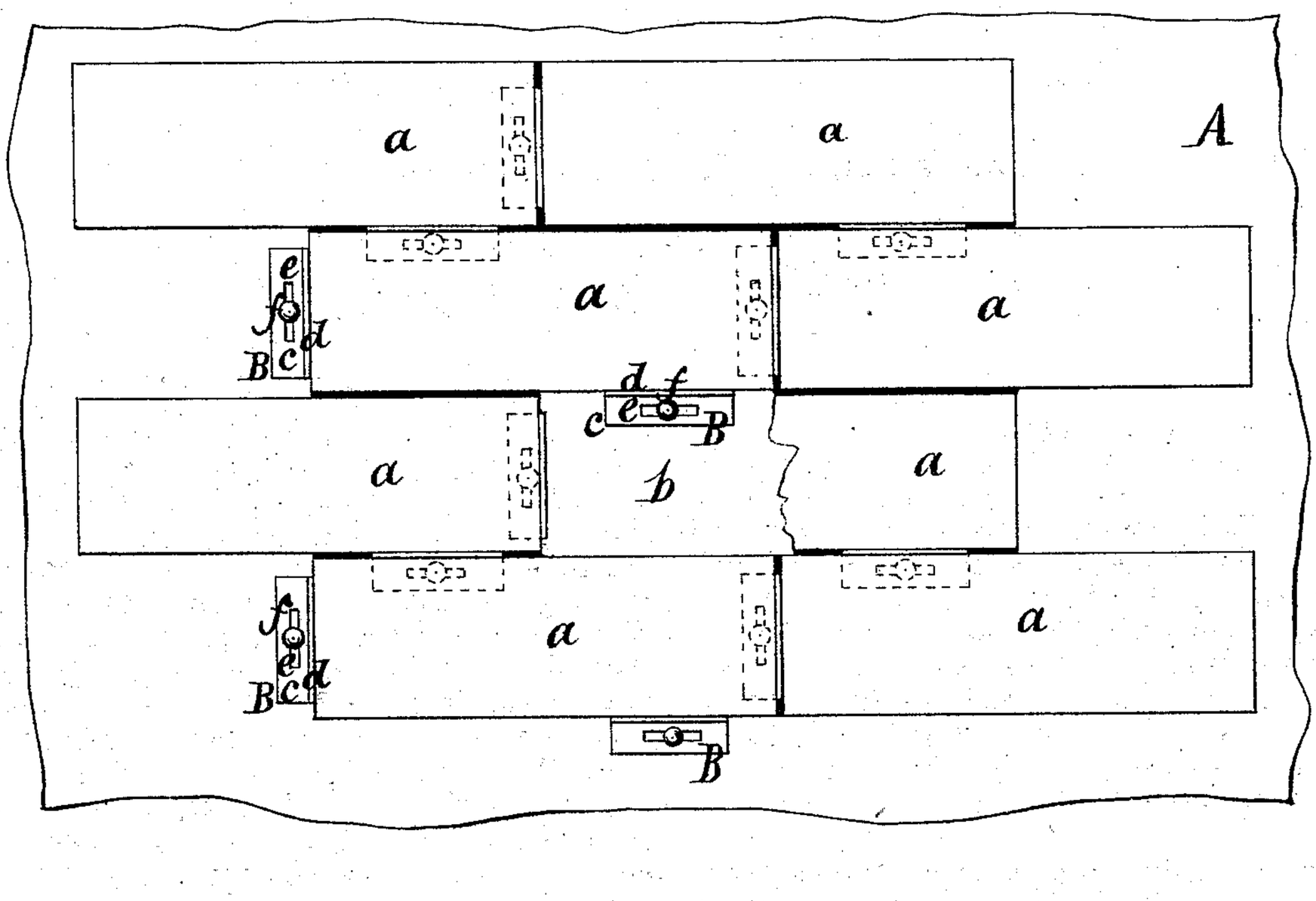


Fig. 2.

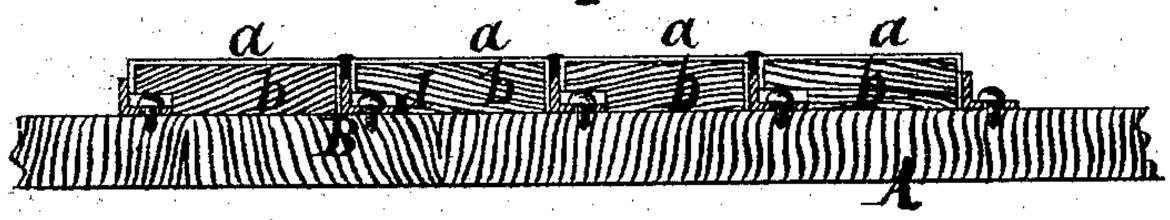


Fig. 2*.

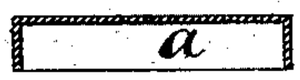
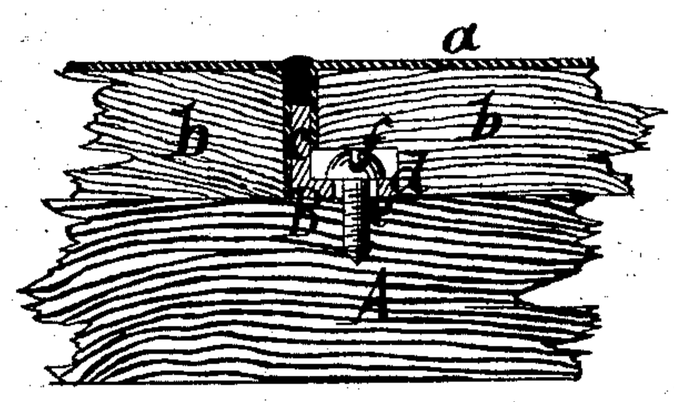


Fig. 3.



Witnesses.

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UNITED STATES PATENT OFFICE.

GEORGE F. ULLMANN, OF BROOKLYN, NEW YORK.

IMPROVEMENT IN METALLIC ROOFS.

Specification forming part of Letters Patent No. **153,864**, dated August 4, 1874; application filed July 3, 1874.

To all whom it may concern:

Be it known that I, GEORGE F. ULLMANN, of Brooklyn, in the county of Kings and State of New York, have invented a certain new and useful Improvement in Fastening Sheet Metal on Boards for Roofing and other Purposes, of which the following is a specification:

This invention is illustrated in the accompanying drawing, in which Figure 1 represents a plan or top view. Fig. 2 is a vertical section of the same. Fig. 3 is a similar section on a larger scale than the previous figures.

Similar letters indicate corresponding parts.

This invention consists in the combination of angular-slotted retaining-pieces with metal sheets, the edges of which are turned over backing-pieces of wood, and with the wooden surface to which said metal sheets are to be attached, in such a manner that the upright flanges of the slotted retaining-pieces can be readily soldered between the adjoining edges of the metal sheets, while the horizontal flanges of said retaining-pieces are secured to the surface of the boards to which the sheet-metal is to be attached, and thereby the supporting-boards are left free to expand or contract without disturbing the seams of the sheet-metal covering.

In the drawing, the letter A designates a layer of boards—such, for instance, as the covering of a roof, or any other layer of boards which is to be covered with sheet metal. The metal sheets *a*, which are to be used for covering said layer of boards, are struck up to form shallow trays, a detached view of one of which is shown in Fig. 2*, and into these trays I fit boards *b*, equal in thickness to the height of the flanges or rims of the trays. For the purpose of fastening the sheets *a*, together with their backing-board *b*, down upon the layer A, I use retaining-pieces B, made of strips of sheet metal, which are bent at right angles, so that each will form an upright flange, *c*, and a horizontal flange, *d*, Fig. 3. The horizontal flanges *d* of the angular retaining-pieces are provided with slots *e*, Fig. 1, and screws *f*, which pass through these slots, serve to fasten the retaining-pieces down upon the layer A. The retaining-pieces C are distributed over the layer A in such position that their upright flanges *c* will extend up between the joints of the adjacent trays or sheets *a*, and after these trays have been adjusted in the proper positions they are connected to each other and to the upright flanges of the retaining-pieces by solder. The screws *f*, which pass through the slots of the retaining-pieces, are not drawn up perfectly tight, so that said retaining-pieces can move under the screws in the direction of the length of the slots *e*, and consequently the layer A is free to expand or to contract without producing any injurious effect on the seams of the covering-sheets *a*.

This invention is applicable to roofs and also to other devices where it is desirable to secure a lining of sheet metal to a supporting-layer of boards.

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

The combination of slotted retaining-pieces B with metal sheets *a*, backing-board *b*, and a supporting-layer, A, substantially in the manner herein shown and described.

In testimony that I claim the foregoing I have hereunto set my hand.

GEORGE F. ULLMANN. [L. S.]

Witnesses:
W. HAUFF,
E. F. KASTENHUBER.