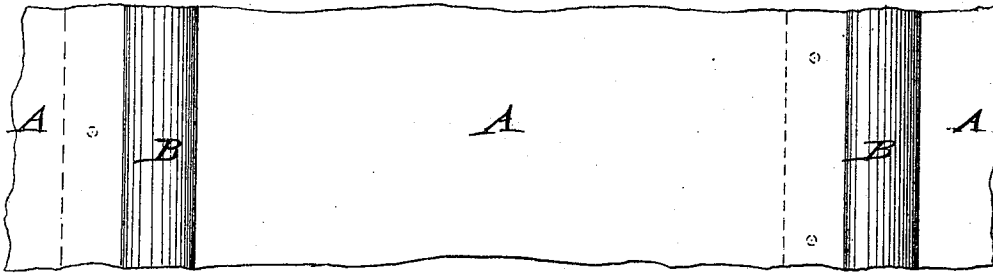


C. A. SMITH.  
SHEET METAL ROOF.

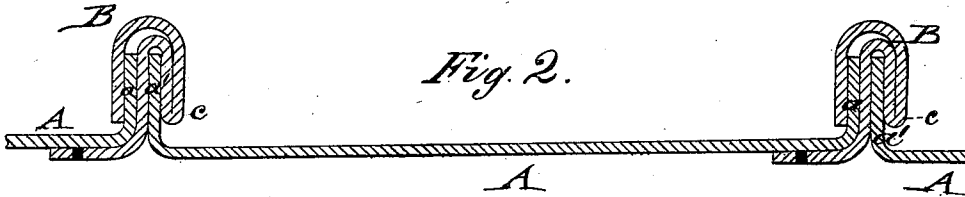
No. 177,168.

Patented May 9, 1876.

*Fig. 1.*



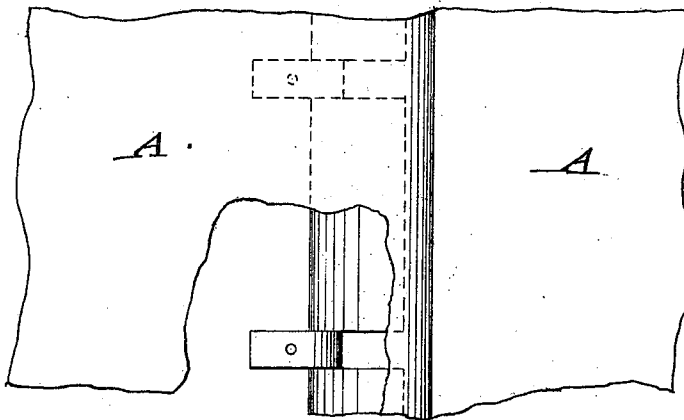
*Fig. 2.*



*Fig. 3.*



*Fig. 4.*



WITNESSES:

*H. Rydquist*  
*John Goethals*

INVENTOR:

*C. A. Smith*

BY

*Munn*

ATTORNEYS.

# UNITED STATES PATENT OFFICE.

CHARLES A. SMITH, OF HANOVERTON, OHIO, ASSIGNOR TO HIMSELF,  
NATHAN A. HALDERMAN, AND CHARLES CHANDLER, OF SAME  
PLACE.

## IMPROVEMENT IN SHEET-METAL ROOFS.

Specification forming part of Letters Patent No. **177,168**, dated May 9, 1876; application filed  
March 13, 1876.

*To all whom it may concern:*

Be it known that I, CHARLES A. SMITH, of Hanoverton, in the county of Columbiana and State of Ohio, have invented a new and Improved Sheet-Metal Roof, of which the following is a specification:

In the accompanying drawing, Figure 1 represents a top view; Fig. 2, a vertical transverse section of my improved sheet-metal roof; and Figs. 3 and 4, a section and top view of the lateral lap-joints of adjoining sheets.

Similar letters of reference indicate corresponding parts.

My invention relates to an improved sheet-metal roof, that may be laid in a perfectly weather-proof manner, without the use of nails, screws, or rivets passing through the roof-plates. It may be put on the supporting-laths in quick manner, and be easily repaired, as the seams or joints can be opened without injury to the sheets.

The invention consists in the combination of the sheets by lap-joints with interlocking anchor-caps, which are placed intermediately, and folded to extend over the adjoining flanges of the sheets, in the manner shown.

In the drawing, A represents the sheets of which the roof is constructed. The sheets A are connected by longitudinal lock-joints, which are formed by turning up the edges of the sheets or plates at right angles to the body of the same, and locking the flanges or laps *a* together by a combined anchor and cap, B, (see Fig. 2,) which extends from the under side of one sheet, intermediately between the flanges or laps *a a'*, to the top of the flange of the adjoining sheet; running then down along the same, and being then bent back to overlap the flange-covering part,

and extended finally over the top of the flanges, along the flange of the first plate, to bind the flanges together.

The lower anchoring part of the cap B may be nailed to the laths or supports of the roofs at as many points as required, the overlapping and locking cap-piece binding the seam of the sheets, in perfectly water and rust proof manner, without any other fastening devices.

The lateral joints of the sheets are formed by interlocking lap-joints, as shown in Figs. 3 and 4, with suitable anchoring edge-strips.

As the locking-caps B may be readily bent up, to admit of the detaching of the sheet without difficulty, leaking sheets may be taken off and the roof repaired in an easier manner than in other sheet-metal roofs.

As there are no nails or rivets through the sheets, they admit of full expansion and contraction, with the changes of temperature, without tearing out or bending up.

The roof presents a smooth surface for painting, and a neat appearance when finished.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

In combination with the vertically-flanged metallic sheets A, the continuous anchor-cap B, flanged and pierced for attachment to the roof, passing between the vertical roof-plate flanges *a a'*, bent over the latter on the side opposite to the attachment flange, recurved at *c*, and finally bent over the flange *a*, thus forming a weather-proof joint for sheet-metal roofs, substantially as specified.

CHARLES A. SMITH.

Witnesses:

A. V. JOHNSON,  
MARION MILBOURN.