M. A. SHEPARD.

SHEET-METAL ROOF.

No. 186,021. Patented Jan. 9, 1877.

FIG. 1.

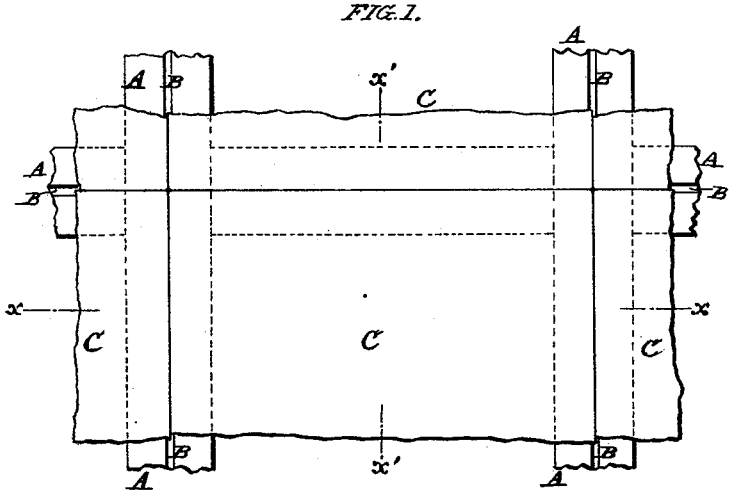


FIG. 2.

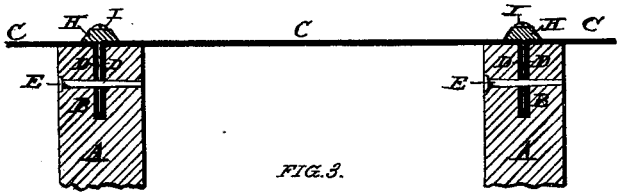
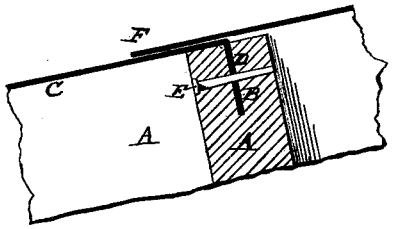


FIG. 3.



ATTEST:

Sam'l Knight.

Robert Burns.

INVENTOR:

Morrill A. Shepard

UNITED STATES PATENT OFFICE.

MORRILL A. SHEPARD, OF LEBANON, ILLINOIS.

IMPROVEMENT IN SHEET-METAL ROOFS.

Specification forming part of Letters Patent No. **186,021**, dated January 9, 1877; application filed May 26, 1876.

To all whom it may concern:

Be it known that I, MORRILL A. SHEPARD, of the city of Lebanon, county of St. Clair, and State of Illinois, have invented an Improved Method of Joining and Fastening Sheet Metal to Wood, by which the edges of the metal sheets are firmly secured to the wood, and by the use of liquid paint in the grooves into which the edges of the sheet metal enter, or by calking, the union of the wood and metal will be such as to exclude water and air, except what may penetrate the pores of the wood.

The following is a specification in connection with the accompanying drawing, forming part of the same, in which—

Figure 1 is a top plan. Fig. 2 is a section at line *x x*. Fig. 3 is a section at line *x' x'*.

The object of this improved arrangement is to overcome the great difficulty which exists in fastening sheet metal to wood, when done by nailing at right angles with the face of the metal plates, the result being that the nails are liable to work out by the action of the elements or by pressure, and hence fail to answer a good purpose. Whereas in my improved method the edges D D, Fig. 2 and 3, of the sheet metal C C, Fig. 2, are turned down at about right angles to the face of the plate C. The edges of the same enter closely into the groove B, Figs. 1 and 2, in the wood A A, Figs. 1 and 2, and are then nailed, as at E E E, Figs. 2 and 3, parallel with the face of the sheet metal, making it impossible for the action of the elements or strain to draw or loosen the nails. Besides, the edges of the sheet metal are in the wood; hence cannot be rent or broken at the edges, as is often the case when fastened in the ordinary way.

This improvement is especially adapted for strength, durability, and completeness, for the manufacture of vessels, tanks, refrigerators, and for building purposes, such as roofs, ceilings, sidings, doors, and shutters.

In case where there may be need for extra caution to be used, the groove B may be cut a little wider than necessary for the reception of the edges of the sheet metal, so as to admit of calking, with proper material, between the plates, or wood and plates, in the groove. By this plan the most thorough work can be accomplished to protect from leakage; and to secure this calking from coming out, or to hide the joints or seams, a cleat, H, Fig. 2, can be used, which may be fastened by nails or screws to the wood. Said nails or screws must be long enough to go between the plates, beyond the depth of the groove B, into the wood A sufficient to hold said cleats.

In roofing, the lower edge of the sheet metal C may lap over the groove B, as shown in Fig. 3, and thereby entirely cover the groove B; and, also, when the transverse sections of wood A A, Fig. 1, in line *x x*, are not required in connection with rafters or beams, the ends of the metal plates C C may be connected by the ordinary hook-shaped connections.

In case where it is desired to fasten the sheet metal to wooden beams for ceiling or lining, where it would be difficult to nail said edges D D in line with the plates C C, narrow strips can be used with the grooves B cut into them, and the sheets of metal then being inserted into said strips they can then be nailed to the beams through the groove B, by which means the strips will be united to the main beams or joists.

I claim as my invention—

The wooden pieces A, grooved as at B, in combination with the sheet-metal plates C C, having flanges D D inserted into said grooves, substantially as specified.

MORRILL A. SHEPARD.

Witnesses:
D. R. LASEY,
J. H. ECKERT.