S. T. G. MORSELL.

Metallic Roofing.

No. 165,113. Patented June 29, 1875.

FIG. 1.

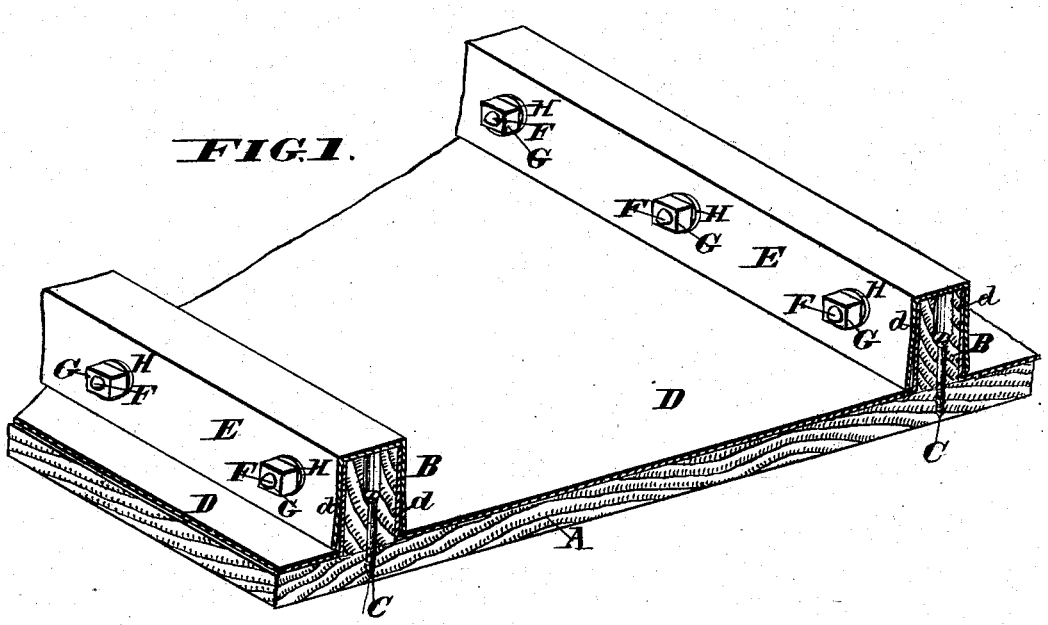
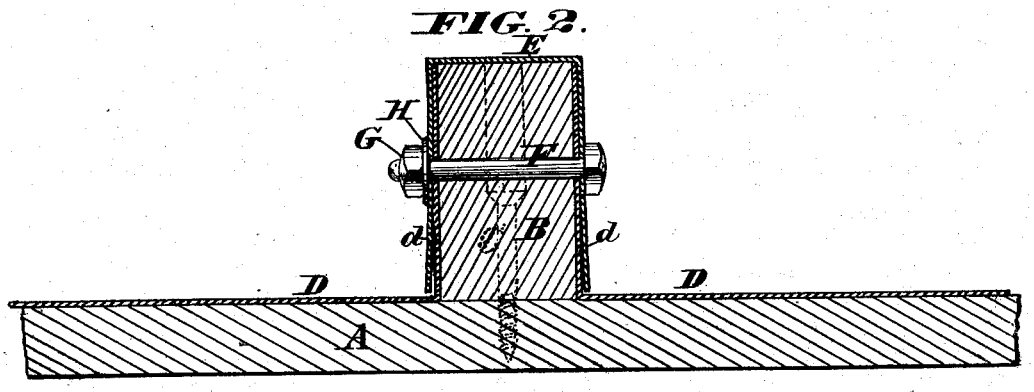


FIG. 2.



WITNESSES

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UNITED STATES PATENT OFFICE.

SAMUEL T. G. MORSELL, OF WASHINGTON, DISTRICT OF COLUMBIA.

IMPROVEMENT IN METALLIC ROOFINGS.

Specification forming part of Letters Patent No. **165,113**, dated June 29, 1875; application filed June 18, 1875.

To all whom it may concern:

Be it known that I, SAMUEL T. G. MORSELL, of the city and county of Washington, in the District of Columbia, have invented certain new and useful Improvements in Sheet-Metal Roofing, of which the following is a specification:

The sheet-metal covering of the roof is prepared in long strips with upturned edges lying against ribs which project upward from the sheathing, and covered by caps of sheet metal, the whole being secured by screw-bolts passing completely through the caps, ribs, and upturned edges in the roof-sheets, as hereinafter described.

The angles of the roof-sheets are left free to permit expansion and contraction with changes of temperature in a direction parallel with the ridge of the roof. The through-bolts afford absolutely fixed points of attachment, and are sufficiently near together to distribute the strain of expansion or contraction, so as to render it harmless while they hold the sheet metal immovably at those points.

In the accompanying drawings, Figure 1 is a perspective view of a fragment of a roof illustrating the invention. Fig. 2 is a longitudinal section of the same.

A represents a part of the wooden sheathing of a roof. B B are ribs of wood, secured thereto by screws C, or other suitable means. The ribs B run transversely of the roof, or in the direction of its slant. D D represent strips of sheet metal with upturned edges *d* lying flat against the vertical sides of the ribs B. E E are caps of sheet metal bent to fit over the ribs B and upturned edges *d* of the roof-plates. F are screw-bolts, passed completely through the vertical sides of the caps E, the upturned edges *d* of the roof-sheets, and the rib B, as represented in Fig. 2. The said bolts are secured by nuts G bearing on washers H, in customary manner.

It has before been attempted to secure metallic-roofing sheets by nailing their upturned edges and the caps which cover the same to ribs on the sheathing; but this mode of fixing has proved inadequate to sustain the severe and constantly-recurring strains to which the sheets are subjected by reasons of changes in temperature; and hence it is found that such roofs become insecure after a brief period.

By my mode of securing the parts together at short intervals by means of through-bolts, giving an absolutely unyielding and immovable fastening, the strains are so distributed throughout the length of the roof-sheets from the ridge to the eave that no injury can occur.

The screws C, being entirely concealed and covered by the sheet-metal caps E, afford no opening for leakage, the only external apertures being occupied by the through-bolts F, and the edges of the sheet metal upon the apertures being tightly clamped by the bolt-heads and nuts, it is impossible for leakage to occur at these points.

The invention is alike applicable to roofs constructed with iron frames without sheathing.

The following is claimed as new:

The combination of the sheathing A, vertical ribs B, roof-sheets D, vertically-upturned edges *d*, the sheet-metal caps E, and through-bolts F, all as herein described, for the purposes set forth.

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