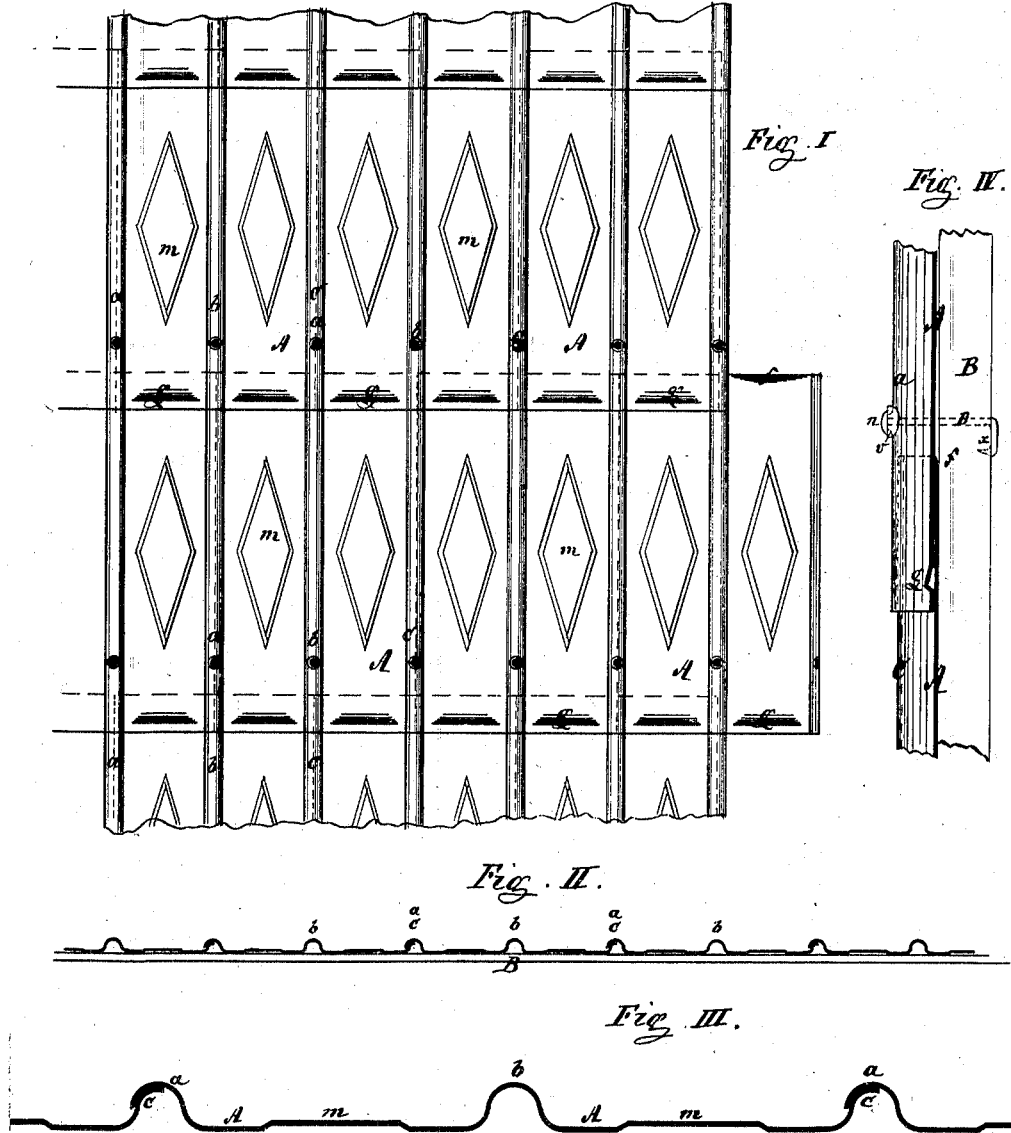


J. HILGERS.
Metallic Roof-Tiles.

No. 208,819.

Patented Oct. 8, 1878.



Witnesses.
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UNITED STATES PATENT OFFICE.

JACOB HILGERS, OF RHEINBROHL, PRUSSIA, GERMANY.

IMPROVEMENT IN METALLIC ROOF-TILES.

Specification forming part of Letters Patent No. **208,819**, dated October 8, 1878; application filed April 10, 1878.

To all whom it may concern:

Be it known that I, JACOB HILGERS, of Rheinbrohl, Prussia, Empire of Germany, have invented a new and useful Improvement in Roof-Tiles, of which the following is a specification:

These tiles are principally intended to be made of galvanized iron; but any other material as well as glass may be employed.

With this improved tile an inclination of twenty degrees of the roof may be successfully covered without any fear that the rain-water might be forced backward into the joints by a severe storm, while the necessary space is provided for the expansion and contraction of the tiles subject to the varying temperature.

The nature of my invention consists in the providing of a recess or indentation near the lower part, to prevent the forcing back of the water and the bending of the upper edge of the tile; further, in the peculiar manner of attaching the tiles to the slats of the roofing.

In the accompanying drawing, Figure I represents part of a roof with the tiles attached. Fig. II is a cross-section of the same. Fig. III shows an enlarged section of the tiles. Fig. IV is a longitudinal section of the tile at the raised part and joints.

Similar letters represent similar parts in all the views.

A represents the tiles, and B the slats, of the roofing. Each tile is made with two raised parts at each side, *a c*, and a raised part, *b*, in the middle. By this arrangement the joints may be broken, whereby never more than three thicknesses will come together at the corners, where the raised part *b* covers, in this case, the end raised parts *a* and *c*, while in nearly all other constructions, where the vertical joints are formed in the raised parts on the side edges, four thicknesses of the tiles will come together. Near the lower edges *e* of the tiles recesses *g* are made at the under side of the same, forming cavities, in which the water may collect in case of heavy wind or storm striking the roof at a very acute angle, driving the water backward between the joints,

and thus prevent the water from passing up to the upper edge *f* of the tile, or to the end of the joint. At the same time this upper edge *f* is bent upward to give greater security against the water being forced above this edge.

The amount of lap necessary to be given at the joints depends very much on the inclination of the roof, and experiments made for that purpose have demonstrated that for very steep roofs the distance from *e* to *f*, or the lap necessary, will be about fifty millimeters, while for roofs with little inclination—say about ten degrees—about one hundred millimeters of lap must be given.

In the spaces between the raised parts *a* and *b* and *b* and *c* of the tiles I make an ornamental raised part, *m*, which improves much the appearance when finished, and at the same time strengthens the tiles.

To allow for the free expansion or contraction of the tiles resulting from the change of temperature, I fasten the tiles to the roof or slats only near their lower ends just above the lap-joint, while any change in its size in the width of the tile is made possible in the raised parts *a* and *c*; where the same join together, as will be seen by reference to Fig. 3.

At present the usual mode of fastening the tiles is by means of wood-screws. This kind of fastening answers very well if done with care, and if the holes are not bored too large for the screw; but any negligence is detrimental, and is almost impossible to detect and to control. This danger from any carelessness of the workman is altogether prevented by my mode of fastening.

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

A tile, A, provided at or near its lower inner side with recesses *g*, and having its upper edge *f* slightly bent upward, as and for the purpose substantially as set forth.

JACOB HILGERS.

Witnesses:

PETER BARTHEL.
LOUIS BASSE.