

# C. Howard, Tile Roofing,

N<sup>o</sup> 111,938.

Patented Feb. 21, 1871

Fig. 1.

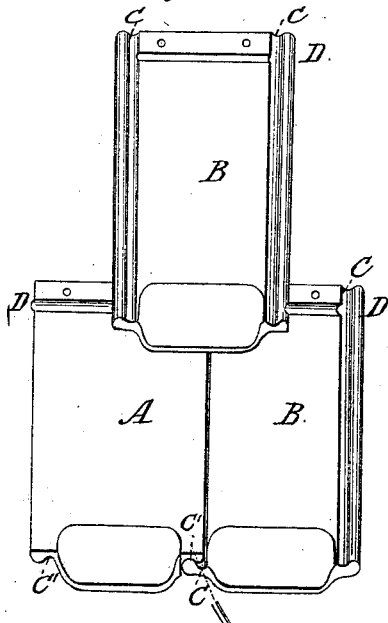


Fig. 2.

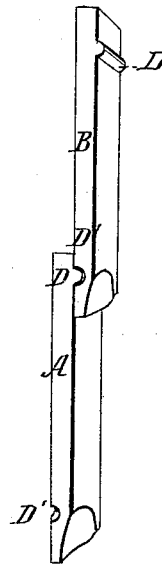
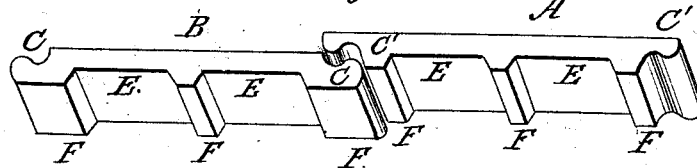


Fig. 3.



Witnesses.

William Pettingell.  
John Koehler.

Inventor.

Charles Howard.

# United States Patent Office.

CHARLES HOWARD, OF WARREN, OHIO.

Letters Patent No. 111,938, dated February 21, 1871.

## IMPROVEMENT IN ROOFING-TILES.

The Schedule referred to in these Letters Patent and making part of the same.

I, CHARLES HOWARD, of Warren, in the county of Trumbull and State of Ohio, have invented certain Improvements in Roofing-Tiles, of which the following is a specification.

The first part of my invention relates to the use of the bar D placed across the end of the tile on its upper surface and near the upper end, said bar D fitting into the groove D' formed in the under surface and across the tile which is placed in the course above, said groove and bar preventing the water passing above the tile and causing a leak.

The second part of my invention relates to the combination of the groove D' and bar D on the tiles with the groove C, which is formed longitudinally near the edge of the tile B, said groove C receiving a round tongue, C', formed on the under side and on the edge of the tile A, making water-breaks, and preventing the water from passing over the edge or top of the tile and causing a leak; also, the parts marked E, which are sunk into the under-side surface of the tile, saving material and allowing ventilation for the roof-boards, the ribs F forming a bearing for the tile on the roof-boards. Fig. III in the drawing shows their position.

Figure I in the drawing shows the position of the tile on the roof and the relative situation of the bars and grooves.

Figure II, a longitudinal section of the tiles, showing the horizontal bars and grooves.

Figure III shows a cross-section of the tiles, and shows the relative position of the longitudinal grooves and tongue; also, the sunk portion E in the under side of the tiles, and the ribs F.

At B is shown a roofing-tile, having on its upper surface, and near the end which is placed uppermost on the roof, a horizontal bar, letter D, which fits into a horizontal groove, letter D', formed into the under-side surface of the tiles, and shown in Figs. I and II. The object of this bar and groove is to prevent the

water from passing over the upper end of the tile and forming a leak.

On both edges of the tiles B are longitudinal grooves, C, formed in the upper surface of the tiles, said grooves receiving a longitudinal bar or tongue, C', formed on the under-side edge of the tiles A, which, by fitting into each other, form a water-break and prevent the water from passing over the edge of the tiles. The position of the grooves C and tongues C' are shown in Fig. III.

In Fig. III is also shown the sunk portions in the under side of the tiles, said sunk portions economizing material, make the tiles lighter, and allowing of ventilation.

The ribs F form a bearing for the tiles on the roof.

The novelty in my improvement consists in the horizontal bar D on the upper surface of the tile, and the groove D' formed in the under side of the tiles; also, the combination of the above-mentioned grooves and ribs with the side longitudinal grooves C formed in the upper edges of the tiles B, and the longitudinal tongues or bars C' formed in the under-side edge of the tiles A; also, the sunk portions E on the under-side edge of the tiles and ribs F.

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

The tile A, provided with the cross-bars D, grooves D', sunken portions E, and ribs F F F, in combination with the tile B, provided with the cross-bars D, grooves D', and longitudinal grooves C, and tongues C', when said parts are constructed and arranged with relation to each other, as and for the purpose as here-in set forth.

CHARLES HOWARD.

Witnesses:

WILLIAM PETTINGELL,  
JOHN KOEHLER.