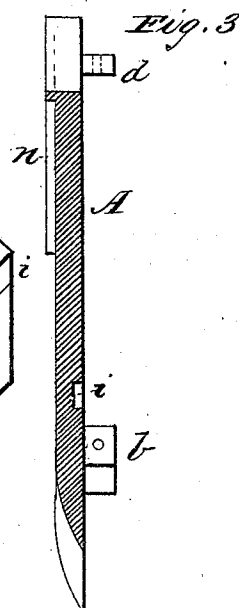
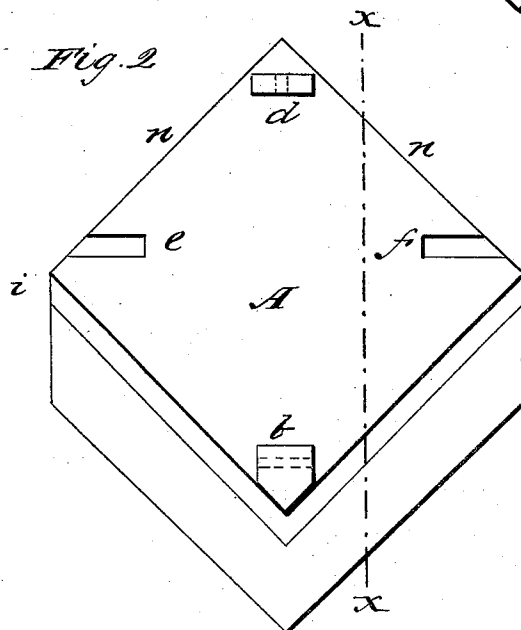
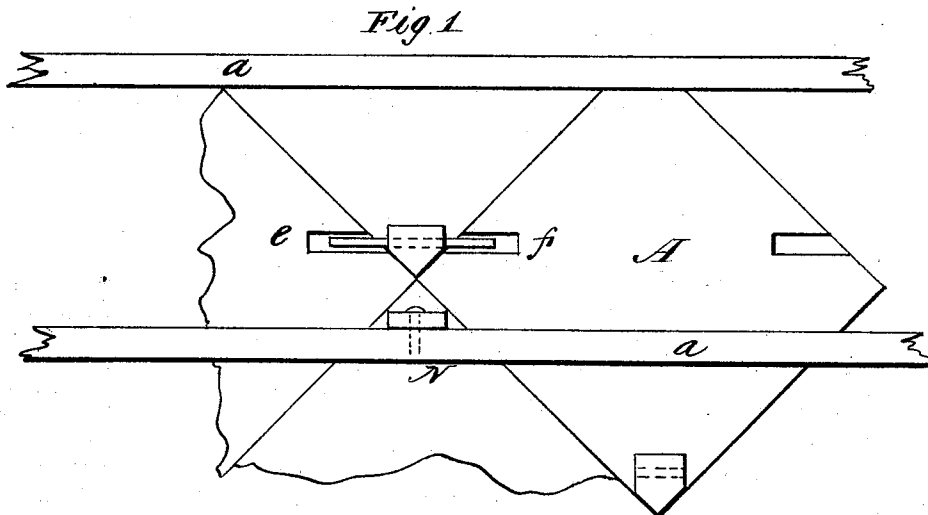


**J. F. GRAESSLE.**  
**Roofing-Tiles.**

No. 149,469.

Patented April 7, 1874.



*Witnesses.*  
*R. B. Davidson*  
*A. G. Curtis*

*Inventor.*  
*John F. Graessle*  
*Per H. P. K. Peck atty.*

# UNITED STATES PATENT OFFICE.

JOHN F. GRÄSSLE, OF HAMILTON, OHIO.

## IMPROVEMENT IN ROOFING-TILES.

Specification forming part of Letters Patent No. **149,469**, dated April 7, 1874; application filed September 15, 1873.

*To all whom it may concern:*

Be it known that I, JOHN F. GRÄSSLE, of Hamilton, in the county of Butler and State of Ohio, have invented a new and useful Improvement in Tile for Roofing; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings and to the letters of reference marked thereon.

Figure 1 represents the under side of a roof constructed with my improved tile. Fig. 2 represents the under side of a single tile. Fig. 3 represents a section of the same, taken at line *x y* of Fig. 2.

My invention relates to the construction and the manner of securing the tile firmly when laid in a roof.

The tile *A* is of uniform thickness, having the grooves *i i* and two ledges or ribs, *n n*. These correspond in form to make a close joint when laid in the roof. The frame of the roof upon which my new tile will be used is made with longitudinal lath *a a*, secured to rafters at a proper distance apart, which spacing will correspond with the size of the tile to be used. Two lugs, *b d*, and two grooves, *e f*, are formed upon the under side of each tile, as represented in Fig. 2, so that each tile can be secured in the roof at all four of its corners. The lugs *b d* have holes through them to receive a key or nail, as represented in dotted lines, and the nail or key which is inserted through lug *d* is driven into the edge of the slat or lath, as seen at *N*, and the key inserted through lug *b* occupies the grooves *e f* of the adjacent tiles which had been previously laid in the roof, and this key fastens the three tiles together,

and each one of them is secured to the lath *a*, as above specified.

The V-shaped lug *b*, which projects at the angle formed by the grooves *i i*, serves as a stop, and determines the position the tile will occupy when its grooves *i i* are placed so as to fit upon the correspondingly-formed ledges or ribs *n n*, projecting above the upper surface of the tile.

The grooves *e f* may be made with an inclined surface, so that the inserting of the key or nail which passes through lug *b* will act as a wedge to clamp the tiles firmly together.

In order to mold the tiles of suitable clay the grooves and lugs will be made beveling, so that they will be freely discharged from the dies or molds in which they are formed.

It will be seen that all four of the corners of each tile will be fastened in the roof by using two keys or nails for each. The roof thus fastened will necessarily be perfectly secured against leakage, and be firmly secured to the frame of lath or slats, which will be nailed in the usual manner to rafters.

It is apparent that a metal roof may be constructed by the use of my invention.

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

The tiles *A*, provided with ledges *n n*, grooves *i i*, and lugs *b d*, and connected together and to the roof-frame, substantially as described.

Witness my hand this 8th day of September, A. D. 1873.

Witnesses: JOHN F. GRÄSSLE.

H. P. K. PECK,  
J. F. GRÄSSEL, Jr.