F. WATERS.
Roofing-Tile.

No. 219,044. Patented Aug. 26, 1879.

Fig1.

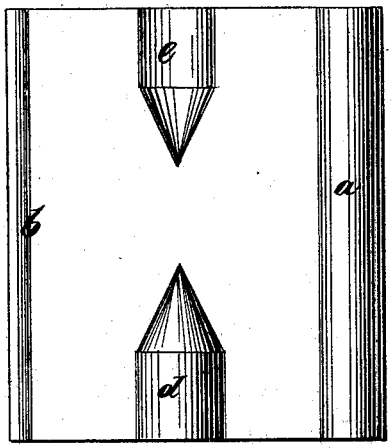


Fig3.

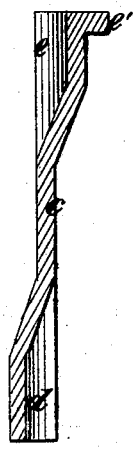


Fig2.

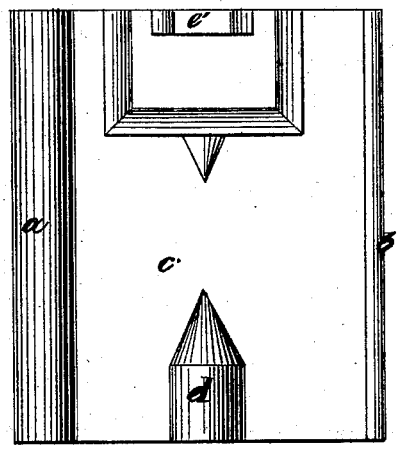


Fig4.

Fig5.

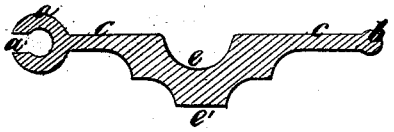
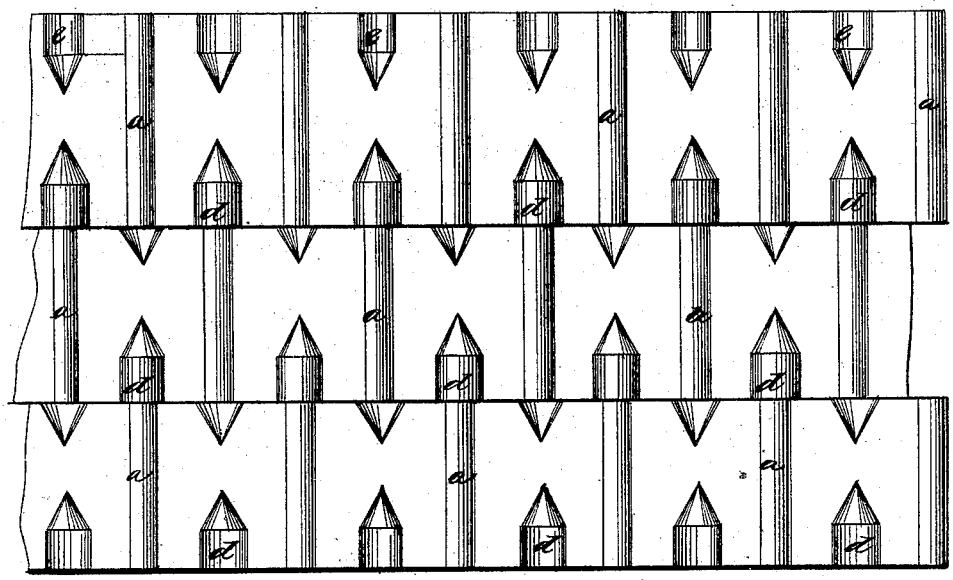


Fig6.



Witnesses:
Chandler Hall
E. P. Jessup.

Inventor:
Frank Waters
by his Attorney
Edwin H. Brown

N. PETERS, PHOTO-LITHOGRAPHER, WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

FRANK WATERS, OF CAMBRIDGE, COUNTY OF CAMBRIDGE, ENGLAND.

IMPROVEMENT IN ROOFING-TILES.

Specification forming part of Letters Patent No. **219,044**, dated August 26, 1879; application filed November 15, 1878; patented in England, September 18, 1876.

To all whom it may concern:

Be it known that I, FRANK WATERS, of Cambridge, in the county of Cambridge, England, have invented certain new and useful Improvements in Roofing-Tiles, and in the method of uniting or keying the same together, of which the following is a specification.

This invention is that for which British Letters Patent No. 2,334 were filed by me June 3, 1876.

The object of this invention is so to improve the roll and fillet roofing-tile as to reduce the height of such roll and fillet above the plain surface of the tile, and thus to give the tile a neater and lighter appearance; also, to more securely unite together or interlock such tiles when being laid, which object I attain by the following means.

In order that the said invention may be more fully understood and be more readily performed, I will explain the same with the aid of the accompanying drawings, which form part of this specification, reference being made thereto by the numerals and letters marked thereon, and which reference applies to each figure of the said drawings where the same index numerals and letters appear.

Figure 1 is a plan view of the upper side of the said improved tile. Fig. 2 is a plan view of the under side of such tile. Fig. 3 is a longitudinal section through the center of the said tile. Fig. 4 is a sectional elevation of the lower or front end of the said tile, and shows the method of keying such tiles together. Fig. 5 is an elevation of the upper or back end of the said tile. Fig. 6 shows a number of the said tiles as they appear when laid on a roof.

Instead of forming the roll *a* and fillet *b* entirely upon or above the upper face, *c*, of the tile, such roll *a* and fillet *b* are made partly projecting above and partly below the said upper face, *c*, (see Figs. 3, 4, and 5,) which makes the upward projections of the tiles when laid much less than those heretofore used.

The rolls *a* and fillets *b* may be of any suitable or convenient form in cross-section; but by preference I make the fillet *b* cylindrical, or thereabout, and smaller than usual.

By preference, also, the roll *a* is made cylindrical and hollow, with a groove, *a'*, formed through the outer part thereof to receive therein the flat or plain part of the adjoining tile, as shown in Fig. 4.

The hood *d* and cavity *e*, formed at or near the center part of the ends of the tile for receiving the roll *a*, have only about one-half the projection hitherto given to such kinds of tile.

The present improvements render these tiles much lighter as well as neater in appearance than any other roll and fillet tile heretofore used.

In laying the said tiles on a roof I slide the fillet *b* of one tile in the hollow of the cylindrical roll *a* of the adjoining tile, (see Fig. 4,) and lay them side by side, and so on with the other tiles along the length of the roof. A row of these tiles so interlocked and truly laid form practically one long tile, and cannot be displaced by any ordinary winds or storms. The next row of such tiles is laid in the same way, the end of each roll *a* of this second row of tiles being placed in the cavities *e*, formed in the upper parts of the tiles below, and the hoods *d* of the said second row of tiles overlapping the upper parts of the rolls *a* of the said tiles below, and so on until the entire side of a roof is covered.

I preferably make the tiles for the outside up and down rows upon the side edges of the roof without the fillet *b*, and the bottom row of tiles, or the eaves, are made without the hood *d*, and are provided with a flange underneath their lower ends of about the same thickness as the plain portion of the tile, or flush with the lower part of the roll *a*.

These tiles may be made of clay or other suitable plastic material. They may also be cast, and be of glass, slag, metal, and like materials, and be either plain or ornamental, as desired.

Having thus fully described the nature of the said invention and the method of performing the same, without restricting myself to the precise dimensions or details, or to the forms or shapes of the rolls and fillets now illustrated, which admit of considerable variation without departing from the principles and main characteristics of the said invention, I claim as new and desire to secure by Letters Patent of the United States of America—

1. A roofing-tile provided with an internally-cylindrical roll and an externally-cylindrical fillet for engaging with adjacent tiles, formed partly above and partly below the plain surface or portion thereof, substantially as specified.

2. A roofing-tile provided upon its side with a roll for engagement with an adjacent tile, and provided with a hood and cavity for receiving within it the roll of a similar tile arranged in an adjacent row, the said cavity being below the upper surface of said tile, substantially as specified.

FRANK WATERS.

Witnesses:
CHAS. TURNER,
5 *Park Terrace, Cambridge, Solicitor.*
HARVEY DAY,
35 *Bateman St., Cambridge, Solicitor's Clerk.*