

(No Model.)

J. WHITE.
ROOFING.

2 Sheets—Sheet 1.

No. 511,385.

Patented Dec. 26, 1893.

Fig. 1.

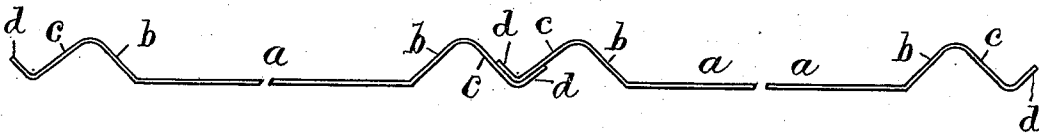


Fig. 2.

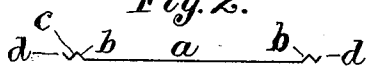


Fig. 4.

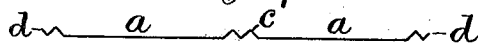


Fig. 3.

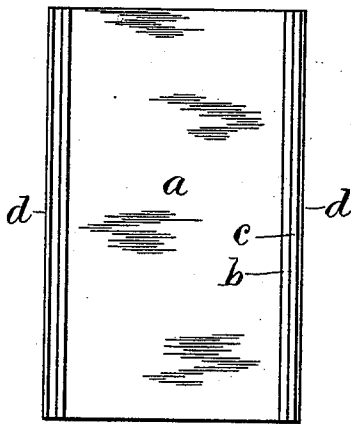


Fig. 5.

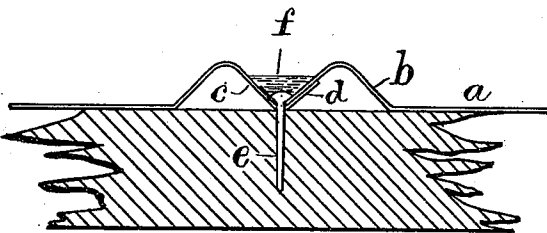
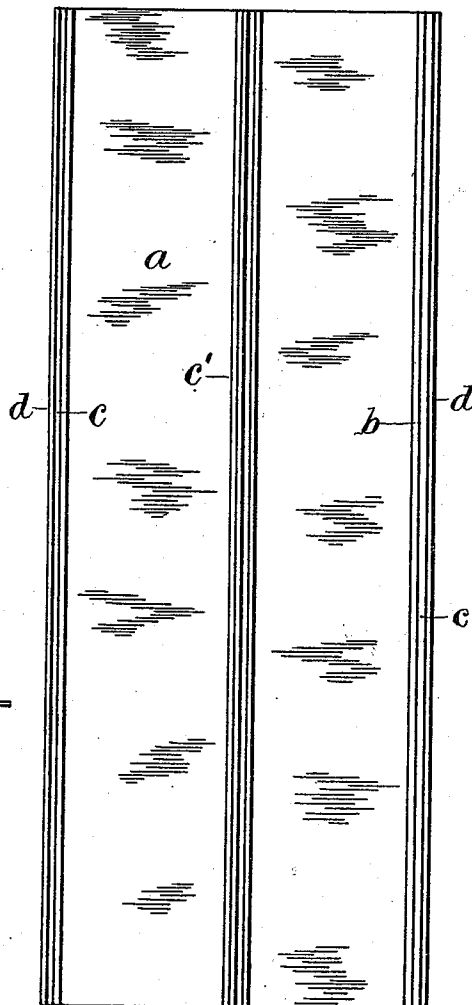


Fig. 6.

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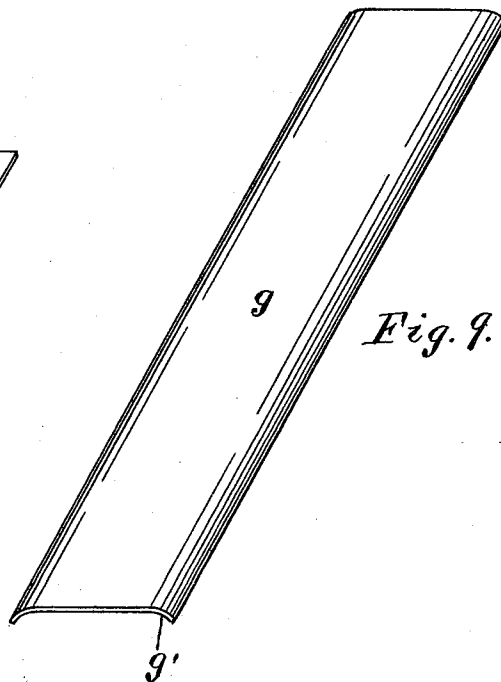
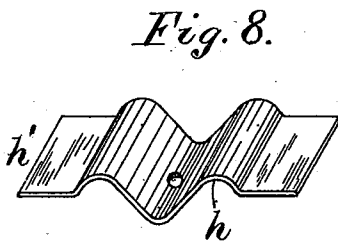
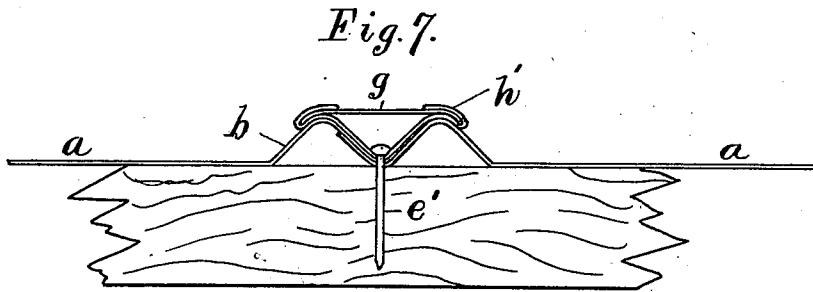
(No Model.)

2 Sheets—Sheet 2.

J. WHITE.
ROOFING.

No. 511,385.

Patented Dec. 26, 1893.



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UNITED STATES PATENT OFFICE.

JAMES WHITE, OF BROOKLYN, NEW YORK.

ROOFING.

SPECIFICATION forming part of Letters Patent No. 511,385, dated December 26, 1893.

Application filed March 26, 1892. Renewed May 29, 1893. Serial No. 475,981. (No model.)

To all whom it may concern:

Be it known that I, JAMES WHITE, a citizen of the United States, residing at Brooklyn, Kings county, New York, have invented certain new and useful Improvements in Roofing, fully described and represented in the following specification and the accompanying drawings, forming a part of the same.

This invention consists, primarily, in the combination with two roofing sheets having each a hollow longitudinal rib with upturned marginal flange formed along its edges, the said sheets being applied together with the marginal flange of each lapped upon the longitudinal rib of the other, and a water-repellent covering applied over the joint in the gutter formed between the longitudinal ribs upon the said sheets; it also consists in certain additional features. Each marginal flange being of less height than the adjacent ribs, whereby the upper edge of the two overlapped sheets is made to terminate in the gutter formed between the longitudinal ribs, the seam between the sheets furnishes a joint which is readily sealed or otherwise protected from the weather. This space or gutter formed between the ribs is sufficiently open to admit of first nailing or soldering the lapped flanges; after which a filling of composition or cement may be applied to the gutter in cases where solder is used, or the joint may be protected from the weather by a cap secured over the tops of the ribs.

In the annexed drawings, Figure 1 is an end view of two sheets with the middle of each sheet broken for want of space. Fig. 2 is an end view, and Fig. 3 a plan of a small roofing sheet. Fig. 4 is an end view, and Fig. 5 a plan of a roofing sheet with intermediate rib; and Fig. 6 is a section of the roofing boards with the joint between two sheets protected by a cement filling. Fig. 7 shows the cap with a cleat held in place by a nail. Fig. 8 is a perspective view, of the cleat, and Fig. 9 a perspective view of the cap.

a is the body of the roofing sheet, *b* the inner side of the rib, and *c* the outer side, and *d* the marginal flange. The sides of the rib are shown in the drawings at an angle of about forty-five degrees with the sheet, and the flanges upon two sheets are shown interlocked at the middle of Fig. 1, forming a

gutter of about ninety degrees between the two adjacent ribs. The gutter is thus sufficiently open to apply solder with a soldering iron to the edge of the exposed flange; and when the joint is to be formed by soldering, the flange may be made quite narrow, so that the soldering iron may be drawn along the bottom of the gutter to close the joint. Where the joint is to be formed by cement, as shown in Fig. 6, the flanges would be made sufficiently wide to admit a nail *e* through the same, over the head of which nail a composition or cement *f* would be applied, to cover the heads of the nails and the edge of the exposed flange. Asphaltum cement or a cement of white lead, sand, and linseed oil may be used for such purpose.

In Figs. 2 and 3 the roofing sheets are shown small, as when made of sheet tin, with the ribs and flanges formed at its opposite edges.

In Figs. 4 and 5, a larger sheet is shown, such as is now sold in the market two feet wide and ten feet long, in which case the sheet is not only furnished with the ribs and flanges at the margin, but with an imitation of the ribs (lettered *c'*) along the center; which is useful not only to compensate for a portion of the expansion in the sheets when laid upon the roof, but serves to break up the monotony of a large flat surface. It is common at the present time to join sheets of tin together and roll up the strips to be bent and flanged upon the roof when laid, and the ribs and flanges required in my invention are readily formed upon such long strips, upon the roof, by means of suitable hand rolls. As the projection from the roof is much less with my joint than with the ordinary double lock standing seam, and as the sides of the rib are sloped toward one another much more than when the standing seam is used, it will be readily seen that the amount of sheet metal consumed in the joints is very much less than that required to form a standing seam joint with double lock. The sheets laid with my joints are nearly two inches wider upon the roof than the same sheets laid with an ordinary standing seam having double lock joint, owing to the small amount of lap required to interlock the flanges *d*; and my invention thus secures a very elastic joint with the consumption of less material,

and can also be applied to the roof with more rapidity; as the joint can be nailed and cemented very rapidly, or the solder applied in the bottom of the gutter with great facility as the ribs guide the soldering iron along the flange *d* without any attention upon the part of the workman.

I am aware that corrugated sheets have been used for roofing, and that the edges of such sheets are interchangeable, and adapted to interlock in a manner analogous to mine; but my construction differs greatly from a sheet wholly corrugated in two respects; first, that I secure the same advantages in laying the sheet, without the great loss of metal required to corrugate the sheet over its entire surface; and, secondly, I secure the interchangeability of the edges and a cheap lock joint without overlapping the edges to the same extent that is required with corrugated iron.

The precise angle of the sides of the rib in relation to the sheet is not material, although the sheet covers a larger area if the rib is opened widely as shown in the drawings; but it is essential that the gutter formed between the adjacent ribs should be wide enough to introduce the nails *e* or a soldering iron. The nails may, if preferred, be inserted through a single flange and the flange of the adjacent sheet laid over the heads of the nails and then covered with cement.

It is obvious that all the advantages of my invention in respect to the elasticity of the joint, the facility for laying, and the area covered upon the roof, may be secured without making the flanges *d* of the same projection, and I do not therefore limit myself to precisely similar flanges at the margins of the opposite ribs.

Where a cement joint is used, and the under flange only is nailed to the roof, it is obviously preferable to make the inside flange longer than the outside flange, as it would form a water-seal independent of the cement. Such a difference in the lengths of the respective flanges *d* is shown in Fig. 6. The transverse joints between the roofing sheets may be made by lapping and nailing upon the roof where the roof is steep, or by any other suitable means where the roof is nearly

flat; but such device forms no part of my present invention, as my invention is designed especially for use with long strips of metal formed by uniting sheets transversely in the workshop before they are applied to the roof. In such case, the marginal ribs and flanges may be rapidly formed by means of rolls upon the roof at an entirely nominal expense.

In many cases the use of solder or cement may be avoided by securing a longitudinal strip or cap *g* over the two ribs with its edges bent downward sufficiently to throw the water entirely out of the trough.

A cleat is shown in Fig. 8 with its middle portion *h* bent to fit in the trough and to be secured therein by a nail *e'* as shown in Fig. 7, with ends *h'* adapted to bend over the edges of the cap as shown in the same figure.

Having thus set forth the nature of my invention, what I claim herein is—

1. The combination, with two roofing sheets having each a hollow longitudinal rib with upturned marginal flange formed along its edges, the said sheets being applied together with the marginal flange of each lapped upon the longitudinal rib of the other, and a water-repellent covering applied over the joint within the gutter formed between the longitudinal ribs upon the said sheets, substantially as shown and described.

2. The combination, with roofing sheets having flanges upon their edges adapted to overlap upon one another, of cleats secured across the joint of such flanges, and nailed thereto, and a longitudinal cap held over the joint by the bent ends of the cleats, as and for the purpose set forth.

3. The combination, with roofing sheets having flanges upon their edges formed with V-shaped channels as set forth, of cleats secured across the channels, and a longitudinal cap held over the channels by the bent ends of the cleats, as and for the purpose set forth.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

JAMES WHITE.

Witnesses:

THOMAS S. CRANE,
JOSEPH M. STOUGHTON.