(No Model.) 2 Sheets—Sheet 1.

B. F. CALDWELL.

SHEET METAL SHINGLE.

No. 366,925. Patented July 19, 1887.

Fig. 1.

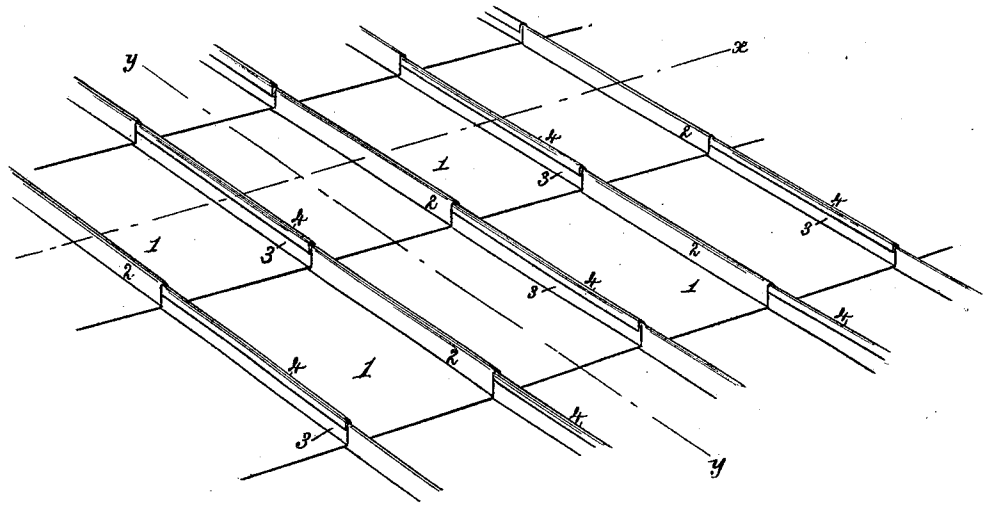


Fig. 2.

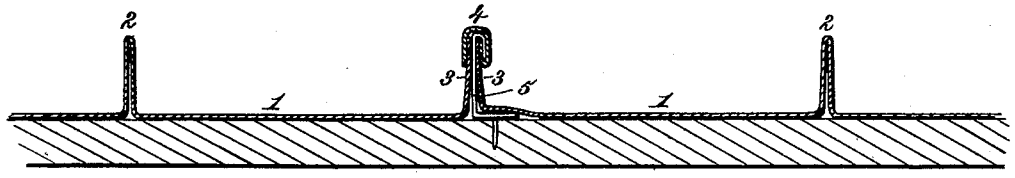
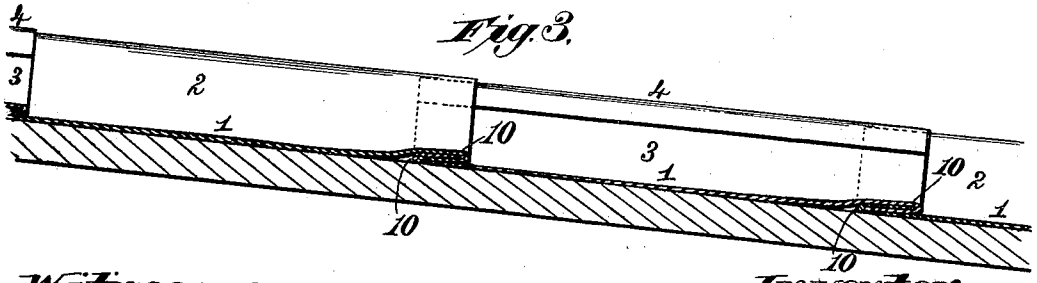


Fig. 3.



Witnesses.
Robert Gault.
J. A. Rutherford

Inventor:
Benjamin F. Caldwell,
By James L. Norris.
Atty.

(No Model.) 2 Sheets—Sheet 2.

B. F. CALDWELL.

SHEET METAL SHINGLE.

No. 366,925. Patented July 19, 1887.

Fig 4.

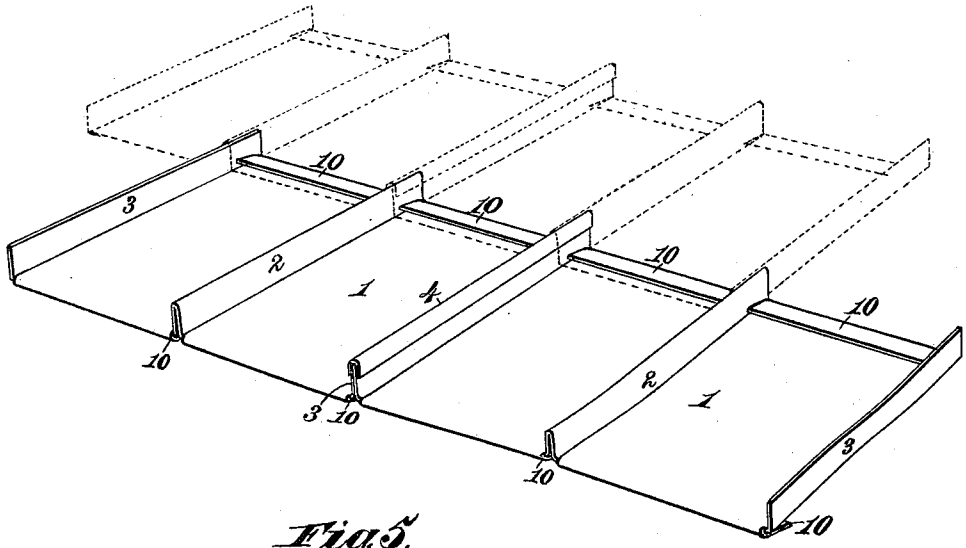


Fig 5.

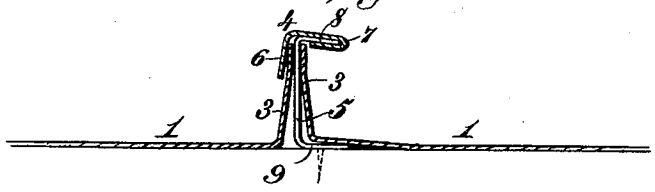


Fig 6.

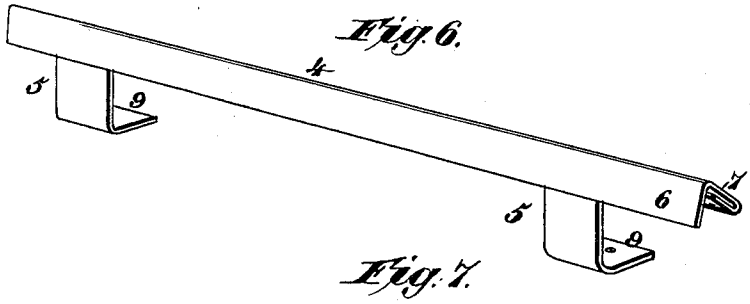
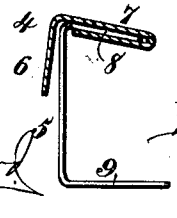


Fig 7.



Witnesses.
Robt Everett.
J. A. Rutherford

Inventor.
Benjamin F. Caldwell.
By James L. Norris
Atty.

UNITED STATES PATENT OFFICE.

BENJAMIN F. CALDWELL, OF WHEELING, WEST VIRGINIA.

SHEET-METAL SHINGLE.

SPECIFICATION forming part of Letters Patent No. 366,925, dated July 19, 1887.

Application filed December 11, 1886. Serial No. 221,314. (No model.)

To all whom it may concern:

Be it known that I, BENJAMIN F. CALDWELL, a citizen of the United States, residing at Wheeling, in the county of Ohio and State of West Virginia, have invented new and useful Improvements in Sheet-Metal Shingles, of which the following is a specification.

This invention relates to sheet-metal coverings for the roofs and outsides of buildings, and has for its objects to provide a novel construction of sheet-metal shingles which can be laid alternately to break joints and be secured by caps and anchors, so that I avoid perforating the metal shingles for the passage of the attaching-nails, and to provide novel sheet-metal shingles adapted as a siding on the outside of a building, as a protection against fire, or as roofing-shingles which can be laid from right to left, or conversely.

The objects of my invention I accomplish in the manner and by the construction and combination of devices hereinafter described and claimed, reference being made to the accompanying drawings, in which—

Figure 1 is a perspective view showing several of the plates or shingles and caps constructed and applied according to my invention; Fig. 2, a sectional view taken on the line *x x*, Fig. 1, on a larger scale. Fig. 3, a sectional view taken on the line *y y*, Fig. 1, on a larger scale; Fig. 4, a perspective view on a small scale, showing two shingles constructed according to my invention and united by a cap and anchor, two shingles in another row being shown by dotted lines; Fig. 5, a view similar to Fig. 2, showing the cap and anchor in place, the cap not being folded into place; Fig. 6, a perspective view of a cap having two anchors; and Fig. 7, an enlarged transverse sectional view of Fig. 6.

In order to enable those skilled in the art to make and use my invention, I will now describe the same in detail, referring to the drawings, where the numeral 1 indicates a shingle composed of a rectangular sheet of metal of such dimensions as to admit of its being conveniently handled. I ordinarily construct the shingle twenty by twenty-four inches. This plate is centrally crimped up from end to end to form a hollow standing seam, 2, which is located exactly midway the side edges of the plate, which are bent up at right angles to the body of the plate to form at each side a standing flange, 3. It is essential for the purposes of my invention that the flanges 3 be at right angles, or substantially so, to the body of the plate; that the flanges and the central hollow seam be of the same height, or substantially so; that the flanges and hollow seam be parallel to each other, and that the flanges and seam extend continuously from end to end of the plate and be of corresponding length. The manner of arranging the sheet-metal shingles on a roof or side of a building will be hereinafter explained, and for securing the shingles without perforating them in any way I employ caps 4 and anchors 5. The cap is angular in cross-section to form two flanges, 6 7, at right angles to each other, the longitudinal edge of the flange 7 being turned inward beneath and parallel to such flange to constitute a groove or guideway. The anchors 5 are each bent at one end into angular form to provide an arm, 8, which loosely rests in the groove or guideway. Thus the anchor can be adjusted along the cap to avoid spaces or joints between the laths or planks of a roof or side of a building. In applying the shingles a row is first laid, the flanges 3 lying adjacent to each other. The anchor is between such adjacent flanges 3, and the flanges 6 and 7 of the cap are pressed upon the sides of the two adjacent flanges to clamp them together and form the joint, the anchor by its flanged foot 9 having previously been nailed or otherwise secured to the laths or planks of the roof or side of the building. The next row of shingles is then laid so that the flanges 3 break joints—that is, the hollow standing seam 2 of each shingle in the succeeding row embraces and overlies the ends of the caps 4 and flanges 3 of the row first laid, and the flanges 3 of such succeeding row rest against the opposite sides of the hollow standing seams 2 of the row first laid. The caps 4 used to unite the flanges 3 of this succeeding row of shingles are thus made to embrace and overlie the ends of the hollow standing seams of the row of shingles first laid. The succeeding rows are laid in like manner to break joints and the caps and anchors secure all in place without perforating any part of the shingles, while the nail-heads which attach the anchors are all concealed.

The end of each shingle between the side

flanges 3 and stationary seam 2 is provided with flanges 10, which project inward toward each other at opposite sides of the sheet-metal plate. The flanges are disconnected for the distance between the vertical walls comprising the hollow standing seam, so that there are two disconnected flanges 10 at each end of the shingle. These flanges of the shingles are interlocked with each other during the process of laying the shingles, thereby locking the ends of the latter together and providing a perfect and closed joint at these points. The caps and anchors herein shown and described are like those disclosed by my Letters Patent No. 318,352, dated May 19, 1885, for uniting sheet-metal roofing-plates; but while I prefer such caps and anchors, I do not confine myself to such specific construction.

I am aware that sheet-metal shingles are not broadly new with me, and that such shingles have been formed with side curved beads or rims and central channels formed by beads, so that the shingles can be laid to break joints.

I am also aware that roofing-plates have been provided with curved side flanges and end locking-flanges 1. Such features, therefore, I do not broadly claim.

Having thus described my invention, what I claim is—

1. The shingles herein described, each composed of a rectangular sheet of metal formed with a central hollow standing seam with its vertical walls parallel and extending continuously from end to end of the sheet, and the latter having its sides bent at right angles to the body of the sheet forming flanges which are parallel to and of the same height and length as the central hollow seam, substantially as set forth.

2. The shingles herein described, each composed of a sheet of metal formed with side flanges at right angles to the body of the sheet, and a standing hollow seam extending from end to end of the sheet midway between the side flanges, said sheet having at each end two locking-flanges disconnected for the distance between the walls of the central hollow seam and extending from opposite sides of the plates, said side flanges and seam being parallel and of equal height and length, substantially as herein described.

3. The combination of shingles, each composed of a sheet of metal formed from end to end with a central hollow seam and with side flanges at right angles to the sheet, which are parallel to and of equal height and length, with caps and anchors for securing the shingles, said shingles being adapted to be laid to break joints, and the caps of some overlying the central hollow seams of others and the hollow seams of some overlying the caps of others, substantially in the manner described.

4. The combination of shingles, each composed of a sheet of metal formed with side flanges at right angles to the body of the sheet, a standing hollow seam midway between the side flanges, and two locking-flanges at each end disconnected between the walls of the hollow standing seam, with caps and anchors for securing the shingles, said shingles being adapted to interlock at their ends and to be laid to break joints, and the caps of some overlying the hollow seams of others and the hollow seams of some overlying the caps of others, substantially in the manner described.

In testimony whereof I affix my signature in presence of two witnessss.

BENJAMIN F. CALDWELL.

Witnesses:
W. F. PETERSON,
HARDY HENRY.