(No Model.)

G. A. TURNBULL.

METALLIC ROOFING.

No. 417,757. Patented Dec. 24, 1889.

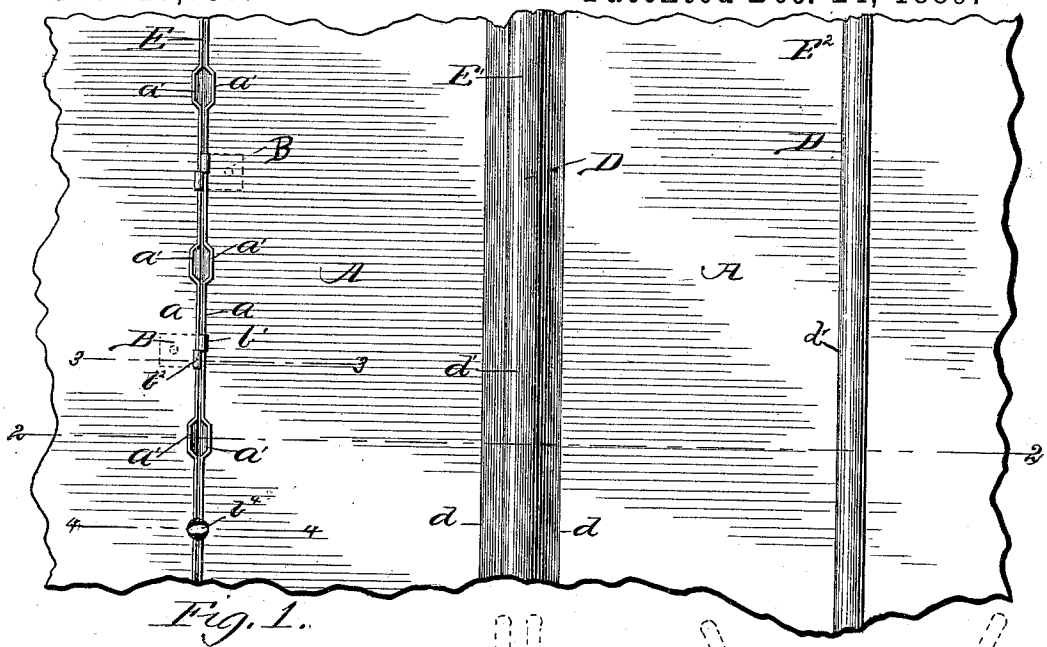


Fig. 1.

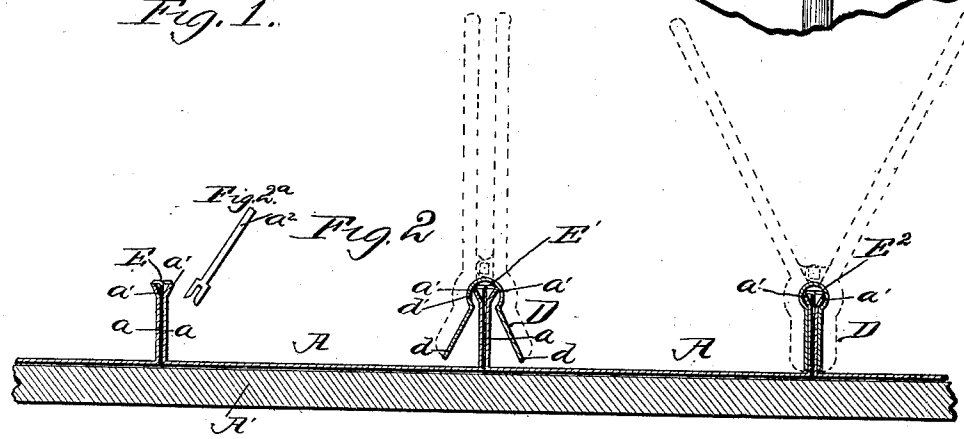


Fig. 2a. Fig. 2.

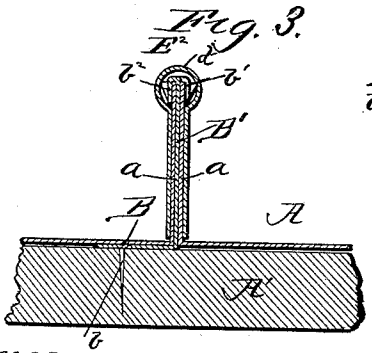


Fig. 3.

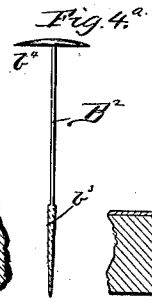


Fig. 4a.

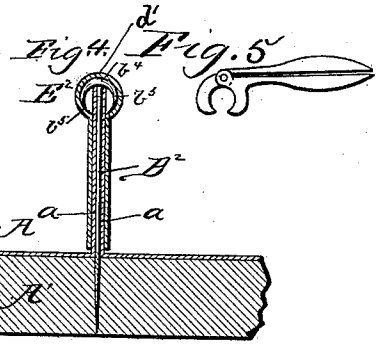


Fig. 4. Fig. 5.

Witnesses
Richard B. Twiss.
Chas. A. Warren

Inventor
George A. Turnbull
By
William O. Robinson Atty.

N. PETERS. Photo-Lithographer. Washington, D. C.

UNITED STATES PATENT OFFICE.

GEORGE A. TURNBULL, OF CHICAGO, ILLINOIS.

METALLIC ROOFING.

SPECIFICATION forming part of Letters Patent No. 417,757, dated December 24, 1889.

Application filed April 29, 1889. Serial No. 309,079. (No model.)

To all whom it may concern:

Be it known that I, GEORGE A. TURNBULL, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Sheet-Metal Roofing, of which the following is a specification.

My invention relates to improvements in sheet-metal roofing; and the object thereof is to provide an improved joint between the plates and a cap for covering the same, making the joint wind and water proof, which joint and cap are of such construction as to be easily applied by unskilled labor. I have attained this object by constructing the joint and cap as illustrated in the accompanying drawings, in which—

Figure 1 is a fragment of a plan view of the roof, showing the manner of the application of the metal plates to the roof-boards. Fig. 2 is a sectional view, on line 2 2 of Fig. 1, showing also a tool in dotted lines for clamping the cap down over the joint. Fig. 3 is a fragment of an enlarged section on line 3 3 of Fig. 1, showing a method of securing the plates to roof-boards by means of a plate. Fig. 4 is an enlarged section on line 4 4 of Fig. 1, showing a modification of the manner of securing plates to roof-boards. Fig. 4^a is a detail showing in side elevation a nail used in securing the plate to the roof-boards in the manner represented in Fig. 4. Fig. 5 shows a side view of the pliers used to bend the head of the nail, as shown in Fig. 4, over the joint between the plates.

In the drawings, A designates the sheet-metal plates, and A′ the roof-boards. The plates are bent up at the side edges, as shown at a, in the ordinary manner to form the joint between the plates. At intervals along the turned-up edges there are formed bends at a' by means of a tool a^2, having a slit adapted to fit over the plate in such manner that the bend a' can be thereby formed in the edge. The plates may be secured to the roof-boards by means of a small piece of plate metal B, having a nail-hole whereby it may be secured to the roof-boards by a nail b, and having an upturned portion B, provided with a slit in the top, so that one portion b' can be bent down over the upturned edge a of the roof-plate on one side of the joint and another portion b^2 can be turned down on the other side, as shown in Figs. 1 and 3; but I prefer to secure the plates to the roof-boards by means of nails B^2, provided with an enlarged point end b^3 and a thin broad head b^4, adapted to be driven down between the plates at the joint into the roof-boards until the head impinges upon the upper edge of the upturned portions a, to hold the plates down. After being so driven in the head b^4 can be bent down over the edges of the said plates, as shown at b^5, Fig. 4, by means of pliers, as shown in Fig. 5. The nail, when thus applied, affords a better fastening of the plates to the roof-boards and can be applied more readily than the plates B B′.

D designates the cap for the joint between the plates. This cap consists of a narrow strip of sheet metal bent in the form shown by suitable machinery, preferably in lengths of two feet and upward. The lower part or edges are opened, as shown at d, and along the center there is a bead d', which is in the form of a tube open at one side sufficiently to pass over the bends a'. In using the nail the head may be bent down over the edge of the upturned parts, so that the same, when the cap is applied, fits closely and adapts itself and fills up the circle of the slot or groove in the cap, so as to hold the cap on. The cap is applied over the joint and then bent or clamped so as to close the slot or opening of the cap in the bead below the bend a' or bent-down nail-head, and thereby fasten the cap on so as to prevent its being lifted off. The joint at E shows the same in condition to receive the cap. The joint at E′ shows the cap applied on the joint before the slot is closed, and the joint at E^2 shows the same finished. For the purpose of bending the cap down over the joint, I provide a clamping-tool having jaws adapted to fit over the cap in the normal form and having a pair of handles for closing the jaws, whereby the cap may be clamped down over the joint. An edge view of such tool is shown in dotted lines in Fig. 2, the same being shown at the joint E′ as it appears when first applied to the cap previous to the operation of bending the cap down on the joint, and at E^2 in the position shown after said operation is completed. The clamp operates on the cylindrical bead of the

cap and closes the opening or slot thereof down upon the bent-up parts *a* of the plates immediately below the outward bends *a'* or the nail-head, so that the latter serves to prevent the cap from being lifted off the joint, as before described.

Having thus described my invention, what I desire to secure by Letters Patent is—

As an improvement in sheet-metal roofing, the combination, with the roof-plates A, provided with upturned edges *a*, for forming the joints for connecting said plates, of a joint-cap D, consisting of a narrow strip of sheet metal provided with a bead or slitted tube *d*, adapted to be compressed upon an enlargement formed, substantially as shown and described, at the upper part of said upturned edges, as and for the purpose specified.

GEORGE A. TURNBULL.

Witnesses:
RICHARD B. TWISS,
CHAS. A. WARREN.