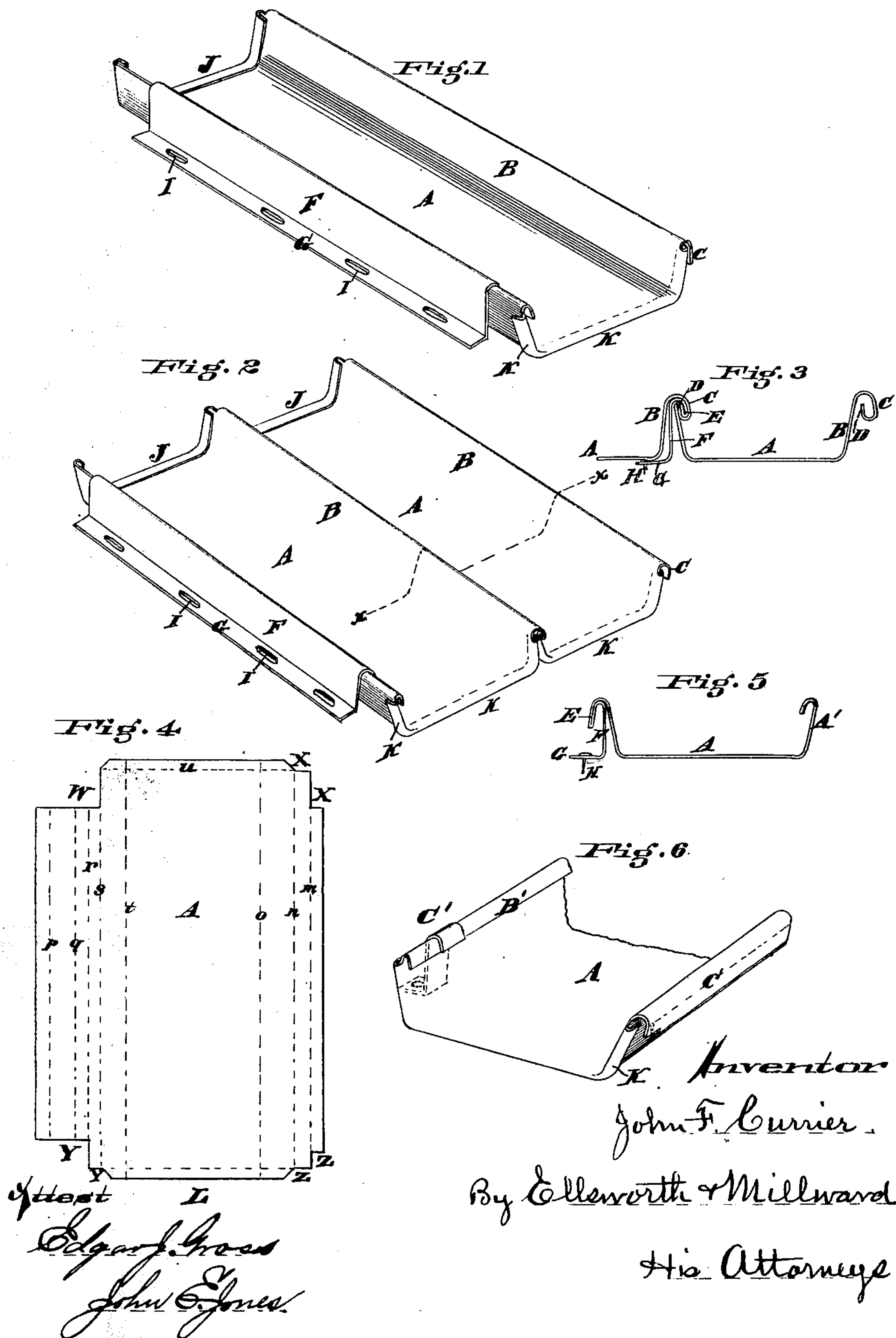


J. F. CURRIER.
Metallic Roofing-Plates.

No. 214,027.

Patented April 8, 1879.



UNITED STATES PATENT OFFICE.

JOHN F. CURRIER, OF CINCINNATI, OHIO.

IMPROVEMENT IN METALLIC ROOFING-PLATES.

Specification forming part of Letters Patent No. **214,027**, dated April 8, 1879; application filed July 22, 1878.

To all whom it may concern:

Be it known that I, JOHN F. CURRIER, of Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Sheet-Metal Roofing; and I do hereby declare the following to be a full, clear, and exact description of the same, which will enable others skilled in the art to which my invention relates to make and use it, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a perspective view of a sheet-metal roofing-plate constructed in accordance with my invention. Fig. 2 is a perspective view, showing two plates joined together. Fig. 3 is a transverse section in the line *x x*, Fig. 2. Fig. 4 is a plan view of the sheet-metal blank as prepared for bending into a plate. Fig. 5 is a transverse section of a plate, showing a modified form, and Fig. 6 is a perspective view of a further modification, showing the anchors detachable from the plate.

Similar letters refers to similar parts.

My invention has for its object to improve the construction of sheet-metal roofing, whereby the plates of which it is composed are more easily and expeditiously joined together, and their joints more completely protected, than those in general use, while the cost of its manufacture and the work of applying it to a roof are very materially lessened, because skilled labor is not required in either case.

To this end the invention consists, first, in constructing the plates, anchor, anchor-hook, and covering-cap in one piece, so that the plates can be readily fitted together by simply slipping the cap of one upon the anchor-hook or edge of the adjoining plate.

It also consists in constructing the plates so formed with end flanges, turned up at the upper end and turned down at the lower end, for the purpose of forming close end joints for adjoining plates, the anchor-hooks being shortened somewhat to admit of the flanges engaging with each other when the roofing is applied.

It also consists in laying off and cutting the sheets of metal preparatory to their being bent into the proper form for roofing-plates, where-

by all superfluous metal is removed, that would otherwise tend to make the joints clumsy and irregular in appearance.

In the accompanying drawings, A is the body of a sheet-metal roofing-plate, made of the usual or any required size. As shown in Figs. 1, 2, and 3, one side edge of the plate is bent or curved upward at right angles to the body, as shown at B, and is then bent outward and downward, as shown at C, from which part it is further bent inward and upward, so that its edge shall form a tongue, D, between the outer part, C, and the first vertical wall, B. This forms the cap which fits over the anchor-hook of the next adjoining plate. The anchor-hook is constructed by first bending under the opposite side of the plate at some distance from the edge, so as to form two thicknesses of metal, which together are bent upward, inward, and downward over the body of the plate to form an overhanging hook, as shown at E. The metal which is on the outside of the hook forms a vertical wall, F, and at a point in a plane, or nearly so, with the under surface of the plate is bent outward to form the anchor G, which rests upon the roof, and through which nails H are driven to secure the plates in position.

The nail-holes I in the anchor are made oblong, or in the form of slots, so that the anchor can slide on the nails to permit the movement of the plates under contraction and expansion.

To apply and join the plates thus constructed, the anchor of one is first nailed to the rafters or roof-boards of a building. The cap of the next plate is then slipped over the anchor-hook of the first, as shown in Figs. 2 and 3, so that its tongue D shall lie within the hook. This forms a secure and water-tight joint, requiring no farther manipulation, as it is complete when the cap is applied to the hook.

It will be observed, by reference to Fig. 2, that the body of one plate lies over the nails which hold the anchors of the adjoining plate to the roof, and that therefore such nails cannot work out to loosen the plates, but are always held securely in the wood.

The plates are further formed with end hooks or flanges, one, J, at the top, bent over so as to lie above the body A, and one, K, bent

under at the lower end so as to lie under the body, as shown.

These hooks are for the purpose of uniting the ends of two adjoining plates, the lower and under flange of the upper plate catching into the upper flange of the plate next below it. By this means secure end joints are formed, which readily shed the water, because the plates overlap each other as they ascend the roof, with joints that lie under the edge of each. In order to fit the end flanges of the plates together, and to prevent the accumulation of too much metal at the several joints, the ends or corners of the anchor-hook and the covering-cap are cut away, as shown in Figs. 1 and 2. This allows the end flanges to pass by each other, so that one may slip under the other.

When the plates are applied to a roof the spaces which are formed by thus cutting away the metal are covered by adjoining plates, thereby "breaking joints" and making a roof of uniform appearance.

L, Fig. 4, represents one of the sheet metal blanks from which the roofing-plates are formed, the course of the bends and folds being shown by dotted lines.

The sheet of metal is first laid off along one side by the parallel longitudinal lines *m n o*, the part between the edge and line *m* being in practice about one-fourth of an inch wide, and when the plate is bent along the line *m* forms the tongue D of the covering-cap. The part next adjoining is about three-eighths of an inch wide, and when the blank is bent along the line *n* forms the outer part, C, of the cap.

The part between the lines *n o* is about five-eighths of an inch wide, and when the bend is made along the line *o* forms the vertical wall B of the cap. The opposite side is then laid off by the parallel longitudinal lines *p q r s t*, the several spaces thereby formed beginning at the outer edge, being in practice about one-fourth, one-half, one-fourth, one-fourth, and three-fourths of an inch wide, respectively. This side of the blank is first bent along the lines *q r s* to form the anchor-hook E, thence along the line *p* to form the anchor G and its vertical wall F, and is finally bent along the line *t* to form the upward interior wall leading to the hook.

I do not confine myself to the dimensions of the parts above recited, nor to the specified order of bending the metal, as it is evident

they may be varied, as necessity or choice requires.

The ends of the blanks are laid off by the lines *u u*, along which the blank is bent to form the end hooks J K. The space bounded by the lines *o t u u* forms the body of the plate when the parts are bent into shape.

After the blank is laid off, and before it is bent, the corners are cut out, as shown at W and X X at the top, and at Y Y and Z Z at the bottom, for the purposes hereinbefore stated.

The anchor-hook and anchor shown in Fig. 5 are constructed the same as those shown in Figs. 1, 2, 3, with the difference that the hook is turned outward over the anchor instead of inward over the plate. This construction adapts it for both an anchor-hook and covering-cap. In the latter capacity it fits over the edge of the adjoining plate, which is simply turned up, as shown at A', Fig. 5.

In the modification represented by Fig. 6, the covering-cap is formed the same as that shown in Figs. 1, 2, and 3; but the anchor-hook upon the opposite side is formed by a single flange, B', over which the separate anchors C' are caught, as will be readily understood.

Having thus described my invention, what I claim is—

1. The sheet-metal roofing-plates having the body, covering-cap, and anchor-hook all formed in one piece, substantially as described, for the purpose specified.
2. The sheet-metal roofing-plates having the body, covering-cap, anchor, and anchor-hook all formed in one piece, substantially as described, for the purpose specified.
3. The sheet-metal roofing-plates having the body, covering-cap, anchor-hook, and end hooks J K all formed in one piece, substantially as described, for the purpose specified.
4. The blank L, laid off and cut in the manner described, to fold in the side lines *m n o p q r s t* and the end lines *u u*, substantially as described, for the purpose specified.

In testimony of which invention I hereunto set my hand.

JOHN F. CURRIER.

Witnesses:

JOHN E. JONES,
E. A. ELLSWORTH.