

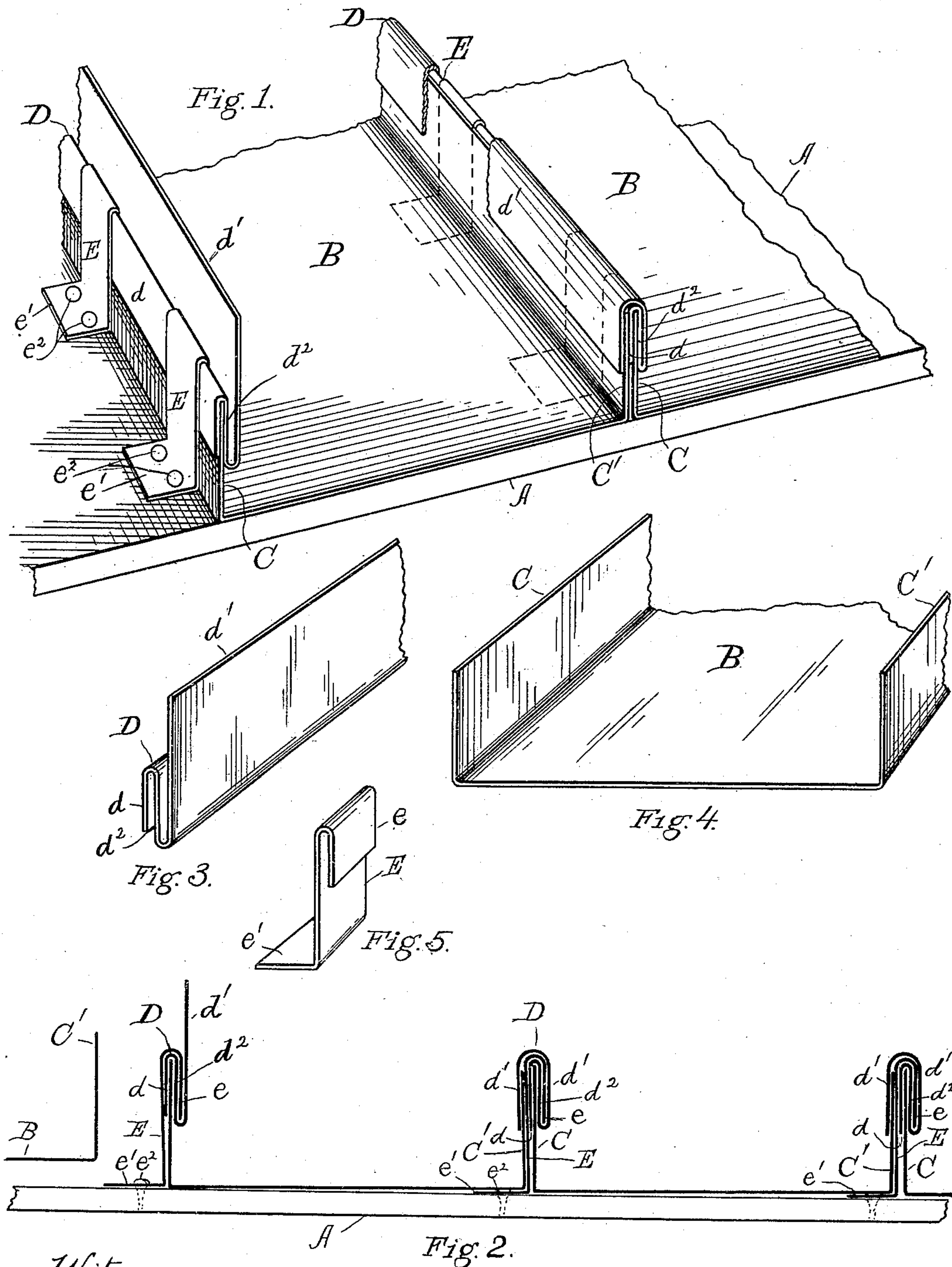
(No Model.)

F. E. SAGENDORPH.

SHEET METAL ROOF.

No. 378,725.

Patented Feb. 28, 1888.



Witnesses:  
J. B. Halpenny.  
David Strong.

Inventor:  
Frank E. Sagendorph.  
By Gridley & Fletcher  
his Atty.



# UNITED STATES PATENT OFFICE.

FRANK E. SAGENDORPH, OF CHICAGO, ILLINOIS, ASSIGNOR OF ONE-HALF  
TO E. STARR LLOYD, OF SAME PLACE.

## SHEET-METAL ROOF.

SPECIFICATION forming part of Letters Patent No. 378,725, dated February 28, 1888.

Application filed November 21, 1887. Serial No. 255,750. (No model.)

*To all whom it may concern:*

Be it known that I, FRANK E. SAGENDORPH, of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful  
5 Improvements in Sheet-Metal Roofs, of which the following is a description, reference being had to the accompanying drawings, forming a part of this specification, in which like letters of reference indicate like parts in the different figures.

As sheet-metal roofs having "standing seams" have been heretofore constructed the "roll-cap" has been secured to the upturned flanges of the seam, either by means of a cleat bent over and around upon the outside of the cap or by means of rivets passing through the standing seams and cap, or the cap has been fastened to the seams by means of a series of indentations formed in the latter upon com-  
15 pressing it. The objections, as found in practice, to these constructions are that the cleats, when exposed, offer resistance to the flow of the water upon roofs laid in long and steep courses, while they also tend to collect dust and sediment, which retains moisture and creates rust. A further objection is that when rivets are employed to secure the cap in place the expansion and contraction of the metal bends the flange of the seam and causes it to  
20 break at the rivet, and thus cause leakage. Moreover, under the constructions named it is difficult to maintain the cap in place without either riveting or placing the cleat upon the outside.

The object of my invention is to overcome these objections and to so construct the cap and attach it to the common standing seam as that it may be firmly and securely retained in place by the cleat, while the latter is unex-  
35 posed, thus securely fastening the sheets to the roof and the cap to the seams, while the outside of the latter is rendered smooth and entirely free from any impediment which may obstruct the flow of the water, collect moist-  
40 ure, or prevent the free expansion and contraction of the seam.

To this end my invention consists in the construction, arrangement, and combination of elements hereinafter described, claimed,  
50 and shown in the drawings, in which—

Figure 1 is a perspective view of a portion of my improved roof, showing one finished seam partially broken away and another partially completed. Fig. 2 is an end view showing two finished seams and one unfinished. 55 Fig. 3 is a perspective view of the cap in its normal condition. Fig. 4 is a perspective view of a portion of one of the sheets having the upturned flanges, and Fig. 5 is a perspective view in detail of a metal cleat. 60

Referring to the drawings, A represents the wood portion of the roof, to which the metal sheets are attached; and B, the metal sheets which form the outer covering of the roof, and which are provided with the usual vertical 65 flanges, C C', which help to form the standing seams.

D represents a cap, which is made of the full length of the sheet, and which is provided with flanges  $d d'$ , arranged in parallel planes, 70 the latter of which is about twice the width of the former.

Upon placing the sheet B in position, the cap D is fitted over one of the flanges, as C, of the sheet, said flange C being inserted between the flange  $d$  and the central portion or body,  $d''$ , of the cap, as clearly shown at the left in Figs. 1 and 2. The usual cleats or fastenings, E, having flanges  $e e'$ , are placed in position over the cap D, as clearly shown at the left in 75 said Figs. 1 and 2, when the flanges  $e'$  are nailed to the roof by means of nails  $e''$ . This secures the cap D firmly in place upon the flange C. The next sheet B is then placed in position, with its flange C' against the cleats 85 E, when the flange  $d'$  is bent over and downwardly upon the flange C' and compressed, thus making a complete seam and securing both sheets in position, while the cleats E are covered and protected and the cap prevented 90 from becoming displaced.

Having thus described my invention, I claim—

1. The combination, in a sheet-metal roof, of sheets having upturned flanges upon their 95 respective sides, a cap having flanges, one wide and one narrow, bent in opposite directions, and having the latter placed over one of the flanges of said sheet, a series of cleats overlapping the narrow flange of the cap thus 100

placed and rigidly secured to the roof, and in turn covered, together with the upturned flange of the adjacent sheet, by the overlapping of the wide flange of said cap, substantially as shown and described.

5 2. In a standing seam for sheet-metal roofs, the combination of the flanges C C', the cap D, and cleat E, the flange d' of the cap D be-

ing bent over and upon and so as to cover said flanges C C' and cleats E and lock said flanges together, substantially as shown and described. 10

FRANK E. SAGENDORPH.

Witnesses:

D. H. FLETCHER,  
J. B. HALPENNY.