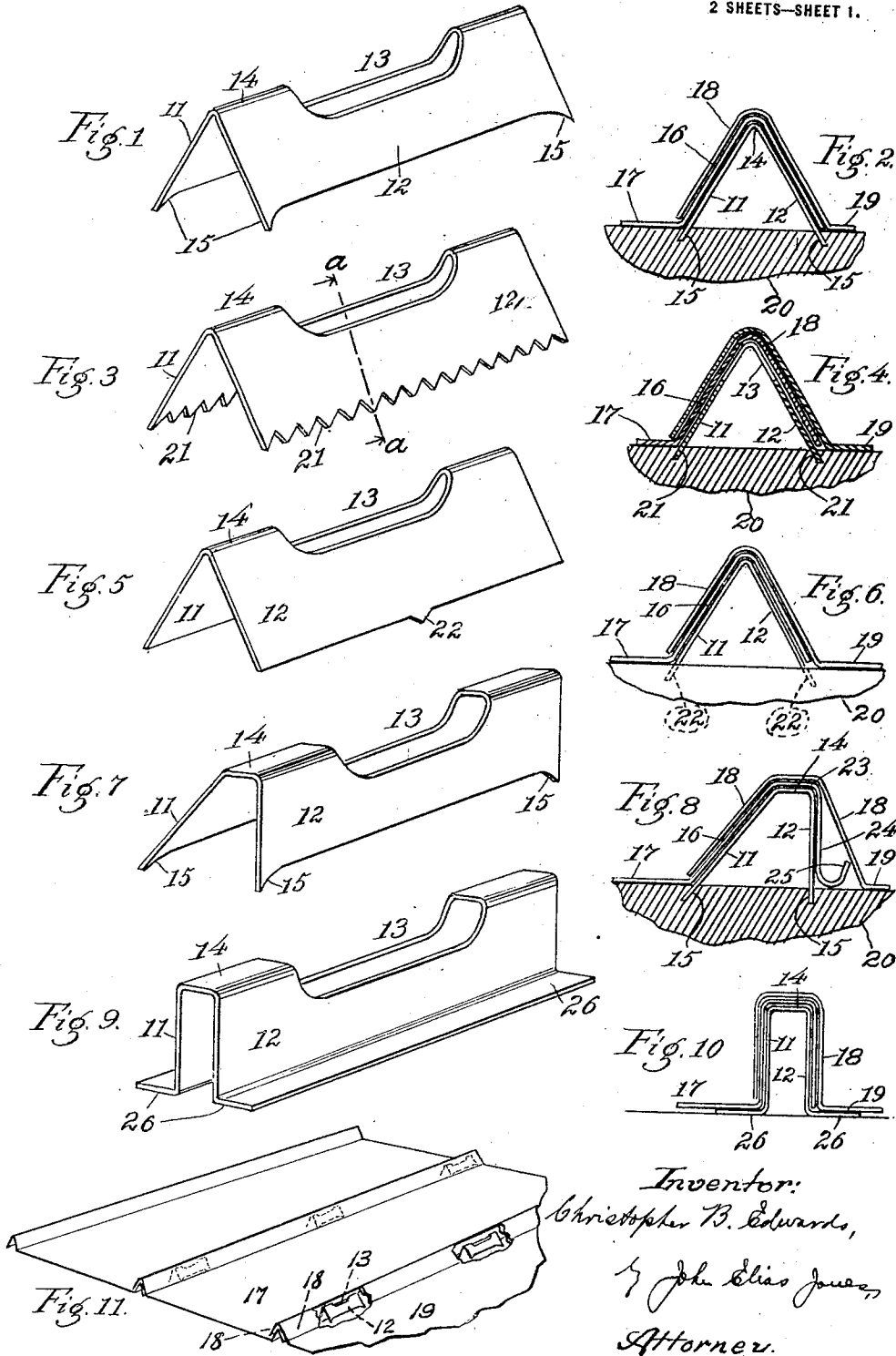


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CLEAT FOR SHEET METAL ROOFING.
APPLICATION FILED FEB. 19, 1919.

1,376,751.

Patented May 3, 1921.
2 SHEETS—SHEET 1.



Inventor:
Christopher B. Edwards,
by John Elias Jones,
Attorney.

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FIG. 12.

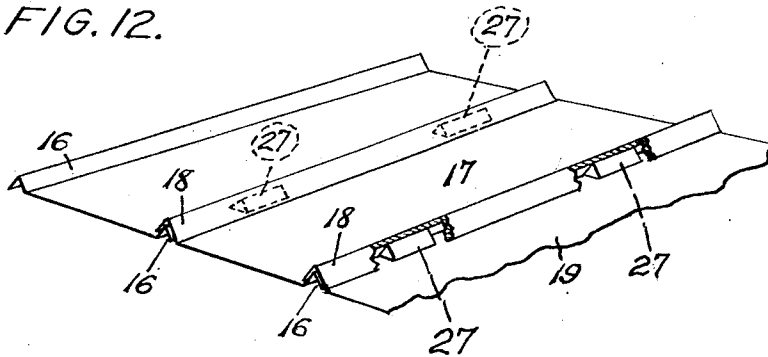
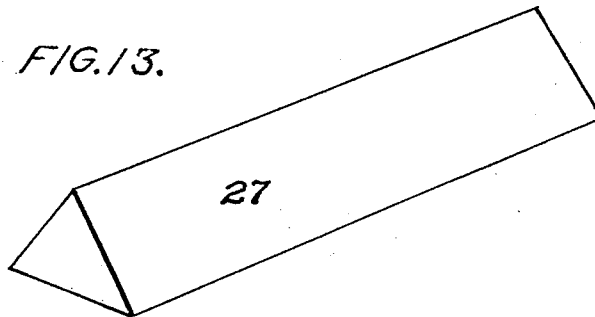


FIG. 13.



Inventor:
Christopher B. Edwards,
by John Elias Jones,
his attorney.

UNITED STATES PATENT OFFICE.

CHRISTOPHER B. EDWARDS, OF COVINGTON, KENTUCKY; SADIE B. EDWARDS, EXECUTRIX OF SAID CHRISTOPHER B. EDWARDS, DECEASED, ASSIGNOR TO MOESCHL-EDWARDS CORRUGATING COMPANY, OF COVINGTON, KENTUCKY, A CORPORATION OF KENTUCKY.

CLEAT FOR SHEET-METAL ROOFING.

1,376,751.

Specification of Letters Patent.

Patented May 3, 1921.

Application filed February 19, 1919. Serial No. 277,961.

To all whom it may concern:

Be it known that I, CHRISTOPHER B. EDWARDS, a citizen of the United States of America, and a resident of Covington, in the county of Kenton and State of Kentucky, have invented a certain new and useful Improvement in Cleats for Sheet-Metal Roofing, of which the following is a specification.

This invention relates to cleats or supports used under the crimps made along the contiguous edges of sheet-metal roofing to re-inforce the crimps and, more especially, at the time of driving the fastening-nails in making a joint or seam, and it consists, primarily, of one or more fragmentary lengths of material, variably shorter than the seam and shaped with either sloping or perpendicular sides that ordinarily conform to the cross-section of the crimps of the seam, and preferably having elongated openings in their apexes for facilitating the passage of the nails therethrough to the sheathing beneath and without the necessity of penetrating the cleat at all, said cleat thus forming practically nothing more or less than a horse or support of that kind for the lapped crimps of the seam to firmly rest upon when the nail is being driven through them and avoiding any crushing or undue mutilation of the seam, all as hereinafter fully described and then clearly pointed out in the claims that follow.

It will be observed that in most all forms of roofing produced from large sheets having crimped seams it has been the custom to use a wooden filler or support beneath the seam for sufficient rigidity in driving the fastening-nails into the sheathing. Without such filler, that has been commonly known as a cleat, the seam would obviously be crushed or otherwise bent or bulged out of shape on driving the nail through the double thickness of metal in the seam. Besides, the growing scarcity of lumber and the extremely high cost of these wooden cleats, as well as the very unsatisfactory results of that kind of nailing structure have all contributed toward the conception and use by

me of an article of manufacture far more substantial, serviceable and economical, and, also, of much easier and cheaper production. To such ends, therefore, my invention herein is intended to replace the long wooden fillers or cleats that have been made the full length of the seams, and to provide a more substantial, positive and solid base so that the nails can be driven home in a direct manner without passing through the material of my new support, and at the same time drawing the seams or joints perfectly tight against looseness or rattle. The long wooden strips or cleats heretofore used are not conducive to tight joints being drawn at all, mostly due to the irregularity of the filler in being made of soft and imperfect wood.

The use of the short cleats herein, duly spaced apart, very materially reduces waste where nails are not to be driven, and scrap can be very profitably utilized in making them. Dies employed in their manufacture will be shorter and thus much less expensive. Still further, not so large a bed-plate or press is required in their manufacture, a smaller frame and a consequent lighter weight of machine only being necessary.

Still further, the short cleats herein can be more easily packed and handled in any size boxes, kegs, or the like, and carried in the nail or work bags or in the pockets of the roofer for the greatest convenience in applying on the customary sloping roofs, where long wooden cleats are inconvenient to carry and to handle when putting in place, and otherwise more or less in the way. Such long wooden cleats cannot be freely or carelessly mixed and indiscriminately gathered in their extended or large unwieldy form, like the short cleats herein when handling them in the course of manufacture, packing and use.

To fully comprehend the invention herein attention is called to the description of the accompanying sheets of drawings, in which—

Figure 1 is a perspective view of the preferred form of short metal cleat embodying my invention herein;

Fig. 2, a transverse section of a seam showing one end of the cleat of Fig. 1, anchored in a section of the sheathing;

Fig. 3, a view similar to Fig. 1, but showing the lower edges of the slanting sides continuously serrated for extreme anchoring-contact with the sheathing;

Fig. 4, a view similar to Fig. 2, excepting that a transverse section of the cleat seen in Fig. 3 is shown, the same being taken on the dotted-line *a, a*, across the nail slot;

Fig. 5, a view similar to Figs. 1 and 3, but showing a single anchoring-projection at the central portion of each of the two lower edges of the slanting sides of the cleat;

Fig. 6, a transverse section similar to Figs. 2 and 4, but referring to the form of cleat seen in Fig. 5 with the centrally-down-turned points or anchors shown in dotted-lines in the sheathing;

Fig. 7, a perspective view showing a short cleat made in accordance with my invention herein, but of a modified form to include a slanting side-member and a perpendicular side-member, both being provided with pointed, anchoring lower corners;

Fig. 8, a transverse section of a roofing seam of the form adapted for use in connection with the form of cleat seen in Fig. 7, the cleat being shown in end elevation and with its lower anchoring-corners engaging the sheathing the same as in Fig. 2;

Fig. 9, a perspective view of another modified form of cleat embodying my invention herein, but showing both side-members perpendicular and provided with lateral bases or foot-members along their lower edges;

Fig. 10, a transverse section of the peculiar angular form of seam to which the cleat seen in Fig. 9 is particularly adapted;

Fig. 11, a perspective miniature view of a few metal roofing sheets, showing their seam or joint formations and the manner of applying my improved short cleats in a series within the seam, at intervals apart between the opposite ends of the seam and as intended under the scope of my invention herein;

Fig. 12, a perspective view similar to Fig. 11, but showing a modified form of short, minimum-size cleats; and Fig. 13, a perspective view of one of the short, minimum-size, solid cleats seen in Fig. 12, but made full-size.

In the several views, 11 and 12 indicate the opposite side-members of the sheet-metal cleat herein.

The preferred form of cleat is best shown in Fig. 1, it being adapted for most common or general use in connection with the ordinary inverted V-shape crimps of the sheet-metal roofing that is in general use. The two side-members 11 and 12 in this form

are made slanting to conform to the slanting side-members of the seam crimps, and an elongated opening or slot 13 is provided in the apex 14, the greater part of the length of the cleat, and deep enough to make an opening sufficiently wide to allow the free and unobstructed passage of the fastening-nail whether it be driven through the apex of the double-thickness of metal in the lapped crimps of the seam or joint, or through the slanting side-members of the seam crimps just below their apexes, as it frequently happens that the point of the nail is driven through the sides instead of the top or apex of the seam. It is not ordinarily intended that the nail shall pass through the metal itself of the cleat and thus the nail has an easier, uninterrupted passage into the sheathing through the slot 13 after once penetrating the double-thickness of metal in the two lapped crimps of the joint, which is important in the work of laying a roof and not possible with the long wooden cleats in general use. Besides, the point of the nail, in penetrating the lapped crimps, causes the metal to spread out or bur ahead of it, which bur, in the use of the wooden cleat, encounters some resistance by the presence of the latter and a harder blow of the hammer is thus required to continue the nail onward into the substance of the cleat, which it must first penetrate before entrance into the sheathing below, while, on the other hand, in using my open-apexed sheet-metal cleat, the said bur encounters no resistance in the slot 13 nor in my cleat at all and the passageway for the advancing nail is wide open to the sheathing and thereby requires much less force in driving the nail home.

It will be obvious that the long and wide slot in each cleat used permits considerable elasticity in the lapped crimps at the respective nailing points, and thus a better setting of the nail in the sheathing below is assured.

A commodious air-space is provided in the seam when my sheet-metal cleat is used, and a dry sheathing below is more likely to follow than when the full length wooden cleat is used that fills the space within the joint and holds moisture and results in split cleats afterward when drying out while in use.

Anchoring-points 15 are provided at the four lower corners of the sloping side-members 11 and 12 of the cleat, as shown in Figs. 1 and 2. These points are, of course, somewhat sharp to adapt them to more readily sink into the wooden substance of the sheathing and thereby prevent the said side-members flattening or spreading out when the lapped crimps are laid on the series of my short cleats that are set at suitable nailing-intervals apart in seam alinement on the

sheathing and the heavy blows of the hammer used in driving the nails through the seams into tight setting and fastening position. The said points 15 also prevent the slipping or sliding of the series of short cleats down the slanting sheathing and, also, away from the said alinement when they are set in place ready for laying the seam thereon.

10 The cleat herein is preferably a short one, about four inches in length, and the slot 13 about two inches. It is very easily made, as a consequence of such small dimensions, out of scrap or other sheet-metal, the punching and bending thereof being very simple and very cheaply done. It is light and strong, and very easily handled in every way, and placed at intervals apart on the sheathing beneath the lapped crimps of the seam, and in numbers to correspond with the length and position of the seam.

16 is the lower or lapped crimp of the sheet 17, and 18 the upper or lapping crimp of the contiguous sheet 19, whereby a joint or seam is provided in forming or laying a roof on the customary sheathing 20, all as best shown in Figs. 2, 4, 6 and 8, these views duly showing the manner of applying the various forms of cleat in the seam or joint.

30 In Fig. 3, I show the same form of cleat as in Fig. 1, but with a continuous set of anchoring teeth or points 21 along the lower edges of the several side-members 11 and 12, for greater holding power or resistance against the flattening or spreading of the cleat.

In Fig. 5, I show the same form of cleat as in Fig. 1, but with a single central anchoring-point 22 provided in the several side-members, instead of at the lower corners, which are, of course, of lesser spreading or flattening resistance, but within the scope of my invention herein.

In Fig. 7, I show a short sheet-metal cleat with a slanting side-member 11 and a perpendicular, companion or opposite side-member 12, the anchoring lower corner projections 15 being also present in this form, the same as in Fig. 1. The apex 14 of the cleat in this form, however, is somewhat broadly flattened to correspond to the flattened apexes 23 of the pair of joint crimps seen in Fig. 8, such flattened apexes being provided to facilitate the positioning and driving of the nails through the lapped crimps of the joint. The perpendicular side-member 12 of this form enables the use, too, of a lapped or under crimp that has a perpendicular side-member 24 with an upturned flange or gutter formation 25, as seen in said Fig. 8.

60 In Fig. 9, I show a sheet-metal cleat embodying my invention herein and having a flattened apex, perpendicular side-members and lateral, horizontal flanges or feet 26 ex-

tending from the lower edges of both said side-members and adapted for use in a joint that corresponds in detail formation, as seen in Fig. 10.

In Fig. 11, I show just how the roofing is laid, with my short sheet-metal cleats at intervals apart beneath the lapped crimps of the seam or joint of the contiguous sheets 17 and 19.

It is obvious that the scope of my invention herein will easily extend to include a solid short wooden cleat or a solid metal cleat 27 that is adapted to be laid at intervals apart along the sheathing beneath the lapped crimps of the roofing seams, as shown in Figs. 12 and 13 but such a structure would not compare favorably at all with the cleat of Fig. 1 in the many advantages spoken of herein in connection with said device of Fig. 1, and the modified forms that follow, but they would and do come within said scope of my invention wherein the cleats used are of shorter or lesser length than that of the seam or joint in which they are used.

Cleats can, of course, under my invention, be made longer than the four inches stated and to contain more than one long and broad slot or longitudinal orifice therein for the free and uninterrupted passage of the fastening-nails, but the said greater length would not be as cheap nor as convenient to make and handle as the said curtailed, shorter form.

I claim:—

1. In crimped sheet-metal roofing, a plurality of nether supporting-cleats for each lapped seam of contiguous sheets, comprising a series of spaced minute or abridged strips of inverted-V-shape material each of a decidedly lesser length than that of said seam and adapted to lie directly within said seam and thereby firmly backing and supporting it in driving fastening-nails therethrough free from crushing or lateral-spreading thereof.

2. In crimped sheet-metal roofing, a curtailed nether supporting-cleat adapted to be used in spaced multiple or series directly beneath the several lapped crimps of each joint or seam thereof and comprising a minute or curtailed strip of metal of inverted-V-shape that is materially shorter than the seam and has an elongated nail-pass opening therein between its opposite ends whereby it is adapted to firmly back and support the seam at its several nailing-points free from crushing or lateral-spreading thereof when driving the fastening-nail into the sheathing beneath.

3. In crimped sheet-metal roofing, a curtailed nether supporting-cleat adapted to be used in spaced multiple or series directly beneath the several lapped crimps of each seam or joint thereof and comprising a mi-

nute or abridged strip of metal of inverted-V-shape cross-section that is materially shorter than the seam and has an elongated nail-pass opening or orifice between its opposite ends, and anchoring projections or feet provided on its opposite lower edges whereby it is adapted to be placed in firm position beneath the said lapped crimps of a seam for supporting the latter at the selected nailing-point therein free from crushing or lateral-spreading thereof when driving the fastening-nail therethrough into the sheathing beneath. 10

CHRISTOPHER B. EDWARDS,