

Feb. 7, 1967

V. P. SCOTT

3,302,357

CLIP FOR ROOF DECK SHEETS

Filed July 29, 1964

2 Sheets-Sheet 1

Fig. 1

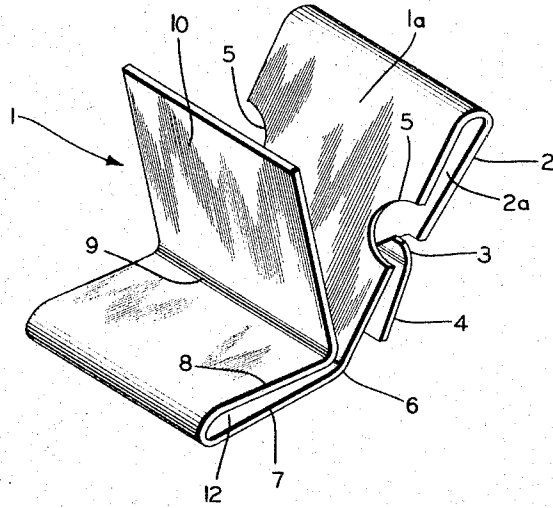


Fig. 2

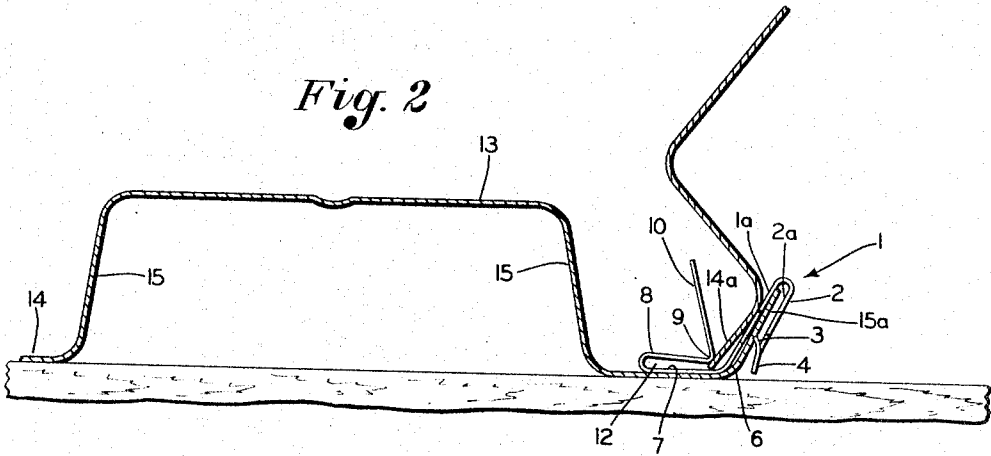
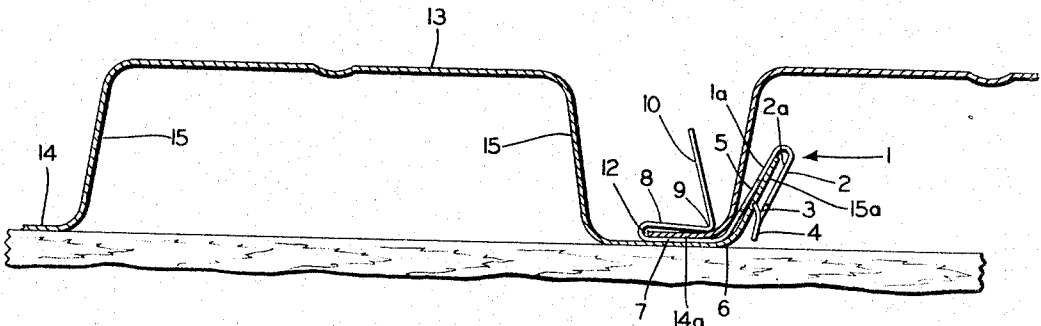


Fig. 3



INVENTOR.

Victor P. Scott

BY

Freese, Bishop, Johns & Schick

ATTORNEYS

1

2

3,302,357

CLIP FOR ROOF DECK SHEETS

Victor P. Scott, Canton, Ohio, assignor to Macomber Incorporated, Canton, Ohio, a corporation of Ohio
 Filed July 29, 1964, Ser. No. 385,854
 6 Claims. (Cl. 52—520)

The invention relates to clips for attaching roof deck sheets together at their adjoining or overlapping edges.

A primary object of the invention is to provide a simple and inexpensive clip formed from a single piece of sheet metal.

Another object is to provide a clip of the character referred to which may be quickly and easily applied to the roof deck sheets without the use of any special tools.

A further object of the invention is to provide an attaching clip of the character referred to having sharp prongs which bite into the surface of the roof deck sheets to which they are applied.

A still further object of the invention is to provide such a clip formed of a strip of sheet metal folded upon itself so as to form two oppositely disposed U-shaped bends to receive adjacent edge portions of two adjoining roof deck sheets.

The above objects together with others which will be apparent from the drawing and following description, or which may be later referred to, may be attained by constructing the improved clip in the manner hereinafter described in detail and illustrated in the accompanying drawing, in which:

FIG. 1 is a perspective view of a clip embodying the invention;

FIG. 2 is a sectional view through adjacent portions of two roof deck sheets, showing the clip attached to the edge portion of one sheet, the edge of the adjacent sheet being shown as it is inserted into the clip;

FIG. 3 is a transverse section through adjacent portions of two roof deck sheets attached together by a clip embodying the invention;

FIG. 4 is a fragmentary plan view of adjoining portions of two roof deck sheets attached together by a clip such as shown in FIGS. 1 to 3;

FIG. 5 is a perspective view of a modified form of the clip; and

FIG. 6 is a view similar to FIG. 3, showing the use of the modified form of clip.

Referring first to the embodiment of the invention illustrated in FIGS. 1 to 4, the improved clip to which the invention pertains is indicated generally at 1. This clip is formed from a single strip of sheet metal, one end of which is bent back upon itself, as indicated at 2, forming with the opposite portion 1a a U-shape portion.

Sharp prongs 3 are stamped out of each side edge of the bent-back portion 2, and the terminal end 4 of said bent-back portion 2 is angled outwardly so as to incline the prongs 3 inward and also form a flared mouth to the groove 2a. The opposite side 1a of the U-shape portion thus formed is cut away at its side edges as at 5 at points opposite the prongs 3.

Just beyond the terminal end 4 of the bent-back portion 2 the strip of sheet steel, of which the clip is formed, is bent as indicated at 6 and then extends angularly as shown at 7, and is then bent up and back upon itself as at 8 to a point adjacent the bend 6. At this point the metal is again bent as at 9, the adjacent terminal end portion of the metal strip extending angularly from the bend 9, as shown at 10.

Thus, the bent-back portion 2 of the clip forms, with the opposite portion 1a, a U-shape portion defining a narrow groove 2a to receive one edge portion of one roof deck sheet, and the bent-back portion 8 forms, with the opposite portion 7, a U-shape portion defining a narrow

groove 12 to receive the adjacent edge portion of an adjoining roof deck sheet.

The roof deck sheets as shown in FIGS. 2, 3 and 4 comprise the alternate, relatively wide, upwardly disposed corrugations 13 and the intervening, downwardly disposed, relatively narrow corrugations 14. The upright side walls 15 are inclined downwardly and slightly outwardly from the substantially flat upper surfaces of the corrugations 13 to the substantially flat lower surfaces of the corrugations 14.

One edge of each deck sheet terminates in the upwardly and outwardly inclined flange 15a and the other edge thereof terminates in the horizontal flange 14a.

In using the clips to attach adjoining edges of roof deck sheets together, after each roof deck sheet has been placed in position upon the joists, or other horizontal supports, as indicated by the roof deck sheet shown at the left in FIG. 2, the U-shape groove 2a of the clip 1 is then engaged over the upturned flange 15a of the roof deck sheet thus in position.

The clip may then be forced or driven down over the edge of the upturned flange 15a to the position shown in FIG. 2, the barbs 3 biting into the flange 14a to hold the clip in position thereon. The flange 14a at the left-hand edge of a similar roof deck sheet may then be inserted into the groove 12 of this clip.

As shown in FIG. 2, the annular terminal flange 10 of the clip will guide the edge of the flange 14a toward the open mouth of the groove 12. This terminal flange 10, together with the portion 1a of the clip, form a V-shape trough at the open edge of the groove 12.

As this roof deck sheet is pressed down to horizontal position the flange 14a thereof will be received entirely within the groove 12 and the adjacent inclined wall 15 thereof will be positioned against the portion 1a of the clip.

Succeeding roof deck sheets may be successively attached in the manner above described. It will be understood, of course, that the clips as shown and described should be applied at intervals of several feet throughout the length of the roof deck sheets.

In FIGS. 5 and 6 is shown a modification of the clip illustrated in FIGS. 1 to 4 and above described. In the modified embodiment, the clip is formed in the same manner as above described and as shown in detail in FIG. 2, and the same reference numerals are applied thereto.

In the addition to the construction illustrated and described in reference to the embodiment of FIGS. 1 to 4, the modified form of clip has sharp barbs 3a stamped from opposite edges of the bent-back portion 8. These barbs 3a are inclined inwardly and downwardly toward the opposite side 7 of the U-shape portion defining the groove 12.

This opposite side 7 of this U-shape portion is cut away at its side edges as at 5a, opposite to the prongs 3a. The clip is attached to the roof deck sheets in the same manner as the clip shown in FIGS. 1 to 4. It will be seen from an inspection of FIG. 6 that not only do the barbs 3 engage the upwardly and outwardly inclined flange 15a of one roof deck sheet, but the barbs 3a will engage the horizontal flange 14a of the adjacent roof deck sheet. Thus, the barbs 3 and 3a of each clip will bite into adjacent edge flanges of adjoining roof deck sheets so that the clip will be permanently attached to the roof deck sheet.

This differs from the construction shown in FIGS. 1 to 4, in which the barbs 3 of each clip engage only the upwardly and outwardly inclined terminal flange 15a of one roof deck sheet so as to permanently attach the clip thereto. The horizontal terminal flange 14a of the next adjacent roof deck sheet is not permanently attached to the clip, but has only a friction fit within the groove 12 of

3

the clip, thus permitting disengagement of the clip from the flange 14a.

In the foregoing description certain terms have been used for brevity, clearness and understanding, but no unnecessary limitations are to be implied therefrom beyond the requirements of the prior art, because such words are used for descriptive purposes herein and are intended to be broadly construed.

Moreover, the embodiments of the improved construction illustrated and described herein are by way of example, and the scope of the present invention is not limited to the exact details of construction.

Having now described the invention or discovery, the construction, the operation and use of preferred embodiments thereof, and the advantageous new and useful results obtained thereby; the new and useful construction, and reasonable mechanical equivalents thereof obvious to those skilled in the art, are set forth in the appended claims.

I claim:

1. A clip for roof deck sheets each having an upwardly and outwardly inclined terminal flange at one edge and a horizontal terminal flange at its opposite edge, said clip comprising a strip of sheet metal having one end bent down and back upon itself to form a narrow U-shape portion, the other end portion of said strip being bent up and back upon itself to form a second narrow U-shape portion, said clip being bent transversely so that said first named U-shape portion defines an upwardly and outwardly inclined groove to receive the upwardly and outwardly inclined terminal flange of one roof deck sheet, and said second U-shape portion defining a horizontally disposed groove to receive the horizontal terminal flange of an adjacent roof deck sheet, and sharp prongs formed on one side of said first named U-shape portion for engaging the surface of the upwardly and outwardly inclined terminal flange of the one roof deck sheet, there being cut-outs in the other side of said first named U-shape portion opposite to said prongs.

2. A clip for roof deck sheets each having an upwardly and outwardly inclined terminal flange at one edge and a horizontal terminal flange at its opposite edge, said clip comprising a strip of sheet metal having one end bent down and back upon itself to form a narrow U-shape portion, the other end portion of said strip being bent up and back upon itself to form a second narrow U-shape portion, the terminal end of said other end portion being bent upward and outward forming an angular guide flange, said clip being bent transversely so that said first named U-shape portion defines an upwardly and outwardly inclined groove to receive the upwardly and outwardly inclined terminal flange of one roof deck sheet, and said second U-shape portion defining a horizontally disposed groove to receive the horizontal terminal flange of an adjacent roof deck sheet, and sharp prongs formed on one side of said first named U-shape portion for engaging the surface of the upwardly and outwardly inclined terminal flange of the one roof deck sheet, there being cut-outs in the other side of said first named U-shape portion opposite to said prongs.

3. A clip for roof deck sheets each having an upwardly and outwardly inclined terminal flange at one edge and a horizontal terminal flange at its opposite edge, said clip comprising a strip of sheet metal having one end bent down and back upon itself to form a narrow U-shape portion, the other end portion of said strip being bent up and back upon itself to form a second narrow U-shape portion, said clip being bent transversely so that said first named U-shape portion defines an upwardly and outwardly inclined groove to receive the upwardly and outwardly inclined terminal flange of one roof deck sheet, and said second U-shape portion defining a horizontally disposed groove to receive the horizontal terminal flange of an adjacent roof deck sheet, and sharp prongs formed on one side of each U-shape portion for engaging the

4

surfaces of the corresponding terminal flanges of the roof deck sheets, there being cut-outs in the other side of each U-shape portion opposite to said prongs.

4. A clip for roof deck sheets each having an upwardly and outwardly inclined terminal flange at one edge and a horizontal terminal flange at its opposite edge, said clip comprising a strip of sheet metal having one end bent down and back upon itself to form a narrow U-shape portion, the other end portion of said strip being bent up and back upon itself to form a second narrow U-shape portion, the terminal end of said other end portion being bent upward and outward forming an angular guide flange, said clip being bent transversely so that said first named U-shape portion defines an upwardly and outwardly inclined groove to receive the upwardly and outwardly inclined terminal flange of one roof deck sheet, and said second U-shape portion defining a horizontally disposed groove to receive the horizontal terminal flange of an adjacent roof deck sheet, and sharp prongs formed on one side of each U-shape portion for engaging the surfaces of the corresponding terminal flanges of the roof deck sheets, there being cut-outs in the other side of each U-shape portion opposite to said prongs.

5. A clip for roof deck sheets each having an upwardly and outwardly inclined terminal flange at one edge and a horizontal terminal flange at its opposite edge, said clip comprising a strip of sheet metal having one end bent down and back upon itself to form a long narrow U-shape portion, the other end portion of said strip being bent up and back upon itself to form a second long narrow U-shape portion, the terminal end of said other end portion being bent upward and outward forming a straight angular guide flange, said clip being bent transversely so that said first named U-shape portion defines an upwardly and outwardly inclined downwardly open groove to receive the upwardly and outwardly inclined terminal flange of one roof deck sheet, and said second U-shape portion defining a horizontally disposed groove to receive the horizontal terminal flange of an adjacent roof sheet, said long narrow U-shape portions extending substantially to said transverse bend in the clip, said straight angular guide flange being substantially as long as said first named U-shape portion and forming therewith a V leading to the entrance to said U-shape portion, and sharp prongs formed on one side of said first named U-shape portion for engaging the surface of the upwardly and outwardly inclined terminal flange of the one roof deck sheet, there being cut-outs in the other side of said first named U-shape portion opposite to said prongs.

6. A clip for roof deck sheets each having an upwardly and outwardly inclined terminal flange at one edge and a horizontal terminal flange at its opposite edge, said clip comprising a strip of sheet metal having one end bent down and back upon itself to form a long narrow U-shape portion, the other end portion of said strip being bent up and back upon itself to form a second long narrow U-shape portion, the terminal end of said other end portion being bent upward and outward forming a straight angular guide flange, said clip being bent transversely so that said first named U-shape portion defines an upwardly and outwardly inclined downwardly open groove to receive the upwardly and outwardly inclined terminal flange of one roof deck sheet, and said second U-shape portion defining a horizontally disposed groove to receive the horizontal terminal flange of an adjacent roof sheet, said long narrow U-shape portions extending substantially to said transverse bend in the clip, said straight angular guide flange being substantially as long as said first named U-shape portion and forming therewith a V-leading to the entrance to said second U-shape portion, and sharp prongs formed on one side of each U-shape portion for engaging the surfaces of the corresponding terminal flanges of the roof

5

deck sheets, there being cut-outs in the other side of each U-shape portion opposite to said prongs.

References Cited by the Examiner

UNITED STATES PATENTS

640,511 1/1900 White ----- 52-520 X
1,221,151 4/1917 Davis ----- 52-521

6

1,826,913 10/1931 White et al. ----- 52-547
2,787,349 4/1957 Kretschmar ----- 52-537 X

FOREIGN PATENTS

5 10,515 5/1895 Great Britain.

RICHARD W. COOKE, Jr., Primary Examiner.