

June 8, 1954

W. E. RODERMUND
ROOF SURFACING

2,680,415

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2 Sheets-Sheet 1

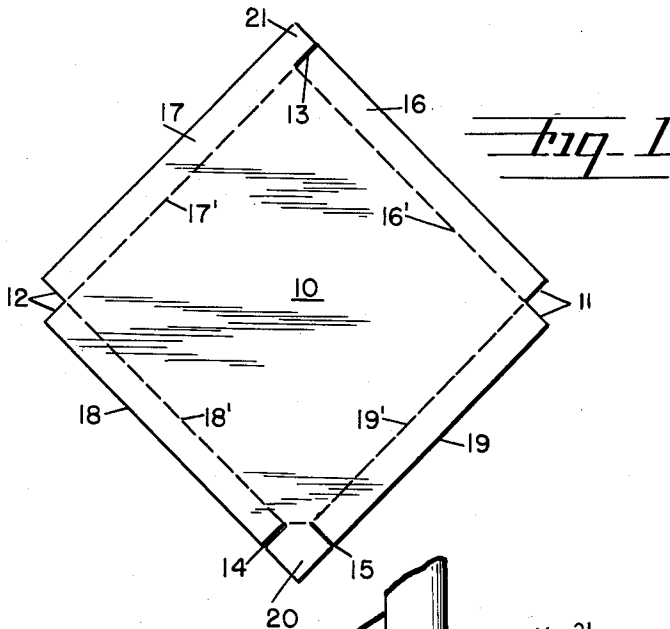


Fig. 1

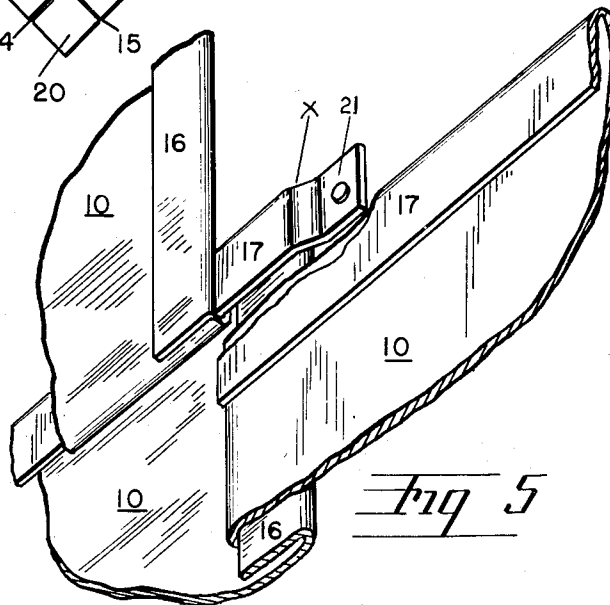


Fig. 5

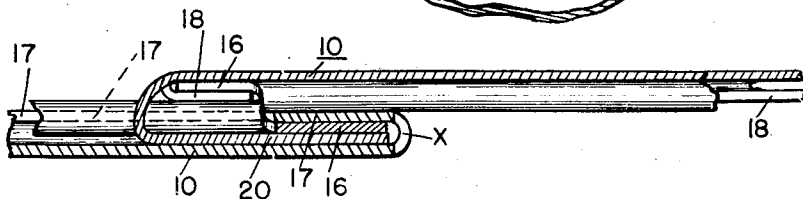


Fig. 6

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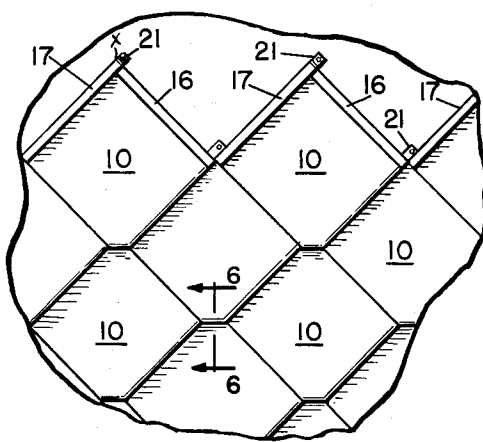


Fig 4

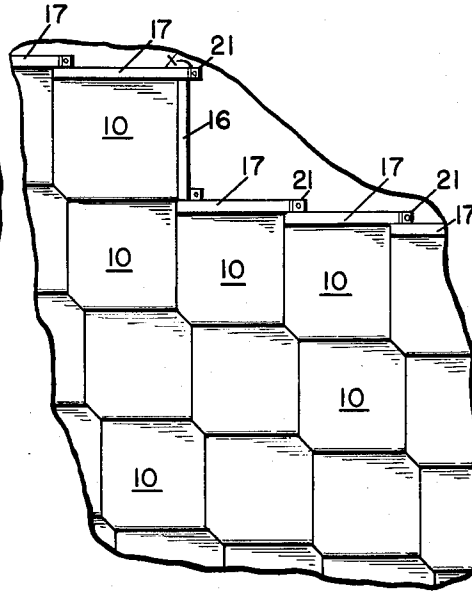


Fig 7

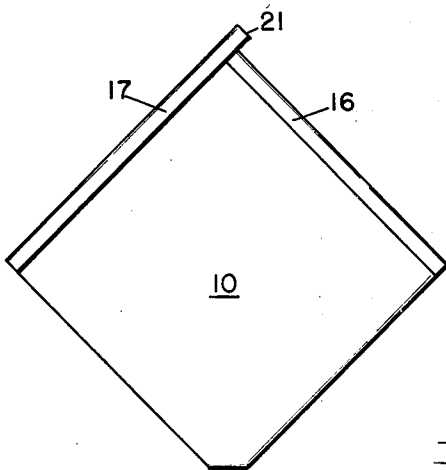


Fig 2

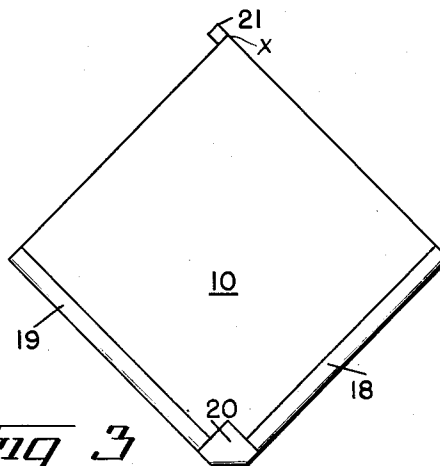


Fig 3

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ROOF SURFACING

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This invention relates in general to outer surfacings for roofs and the like, and, more specifically, to a metal surfacing comprised of a plurality of separate and identical members or plates, often loosely referred to as metal "shingles".

In surfacing of the type with which this invention is concerned, the individual members are not "shingles" in the strict sense of the term inasmuch as overlapping is required at all four sides or edges of the individual members.

Such roof surfacings, composed of identical members secured to each other respectively by interlocking edge flanges, and made of tin, copper, aluminum, or other material, are old and well known in the art. It is necessary not only to have all of the members or "shingles" secured in place but also to have their overlapping or interlocking edges so arranged that water will run off from such a surfacing without leaking through to the under side.

Since the joints between the members are not soldered, as would be required if the surfacing extended in a substantially horizontal plane, and since these joints are formed only by overlapping edges of the interlocking edge flanges, surfacings of this type are employed only on roofs having a slope sufficient to cause all water normally to run downwardly off from the roof instead of standing or collecting at any point. However, in spite of the roof slope there are circumstances under which the surface water does not immediately take its downward course, as, for example, during a heavy rain and wind storm in which the force of the wind will blow the rainwater first upwardly, or when a jet of water from a hose is turned upwardly on a roof, or when melting snow may retard the downward flow of water on the roof. It is a common fault of metal "shingle" roofs of this type that water will leak through the metal surfacing under the exceptional conditions mentioned above and the leaking takes place generally at the upper corners of the upper portions of the members.

The object of the present invention is to provide an improved metal roof surfacing of the general type above indicated in which the possibility of any leaking occurring through the joints, and particularly through the upper corners, will be practically eliminated.

Another object of the invention is to provide an improved metal roof surfacing in which the means by which each member is secured to the roof will cooperate in maintaining a tight joint at the point where the leak would otherwise be apt to occur under the adverse conditions mentioned.

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An additional object of the invention is to provide an improved metal roof surfacing composed of individual members which can be fabricated easily and with a minimum waste of material, and which can be properly laid and secured in place without any special or extra amount of labor.

These objects and incidental advantages I attain by making my improved metal surfacing of individual members cut and preformed and fitted together and secured in place as hereinafter briefly described. In the following description reference is made to the accompanying drawings, in which

Fig. 1 is a plan of the stamped-out blank from which the individual member is made, the broken lines indicating the lines on which the edge portions are folded to complete the preforming of the individual member;

Fig. 2 is a top plan view of the completed member;

Fig. 3 is a corresponding view of the opposite face or under side of the member;

Fig. 4 is a plan view of a portion of a roof surfacing formed in accordance with my invention;

Fig. 5 is a fragmentary perspective view of a portion of the same roof drawn to a larger scale;

Fig. 6 is an enlarged section taken on line 6—6 of Fig. 4; and

Fig. 7 is a plan view illustrating my roof surfacing in which the individual members are arranged with their edges horizontal and vertical for the purpose of giving a slightly modified appearance to the finished surface.

Referring first to Fig. 1, the blank from which the individual member or "shingle" of my improved roof surfacing is made consists of a four-sided piece of sheet metal in the shape of a parallelogram, and preferably in the shape of a rectangle or square. Identical sections are cut out from the two opposite corners 11 and 12. A slit 13 is cut in the intermediate or upper corner to the same depth as the cut out portions 11 and 12, the slit 13 being parallel to one edge as shown. A pair of slits 14 and 15 of the same depth are cut near the remaining corner, but each of these slits is spaced at a further distance from the corner so that the inner ends of these slits 14 and 15 will be spaced from each other.

The edge portions of the cut blank are then folded over on the fold lines or creases indicated by the broken lines in Fig. 1. Thus the side edge portion 16 is folded on the line 16' so as to produce a flange overlying the top or outer face of the main body of the member 10. Then the side edge portion 17 is folded similarly on the

line 17' forming a flange to overlie the outer face of the member 10 and this flange 17 extends over the top end of the flange 16. The other two side edge portions 18 and 19 are folded on the lines 18' and 19' respectively but are folded in the opposite direction so that these edge portions or flanges will overlie the under side of the member 10. The remaining corner tab 20 is folded on the line 20' so that it too will overlie the under side of the member 10. When the folding over of these side portions or flanges is completed, the top or outer side of the completed member will appear as illustrated in Fig. 2 while the under side of the completed member will be as illustrated in Fig. 3.

The folding of the two edge flanges 16 and 17, to overlie the top or outer face of the member 10 (Figs. 1 and 2), will result in a tab or tongue 21 extending beyond the corner of the completed member at the end of the flange 17, with the flange 17 overlying the flange 16 at the corner as previously mentioned. This particular construction and arrangement of the parts at this upper corner of the completed member is a novel and important feature of my invention, the advantage of which feature will be explained presently.

With the individual members or "shingles" of my roof surfacing each formed as described, and with all the individual members being of the same size and shape, the members are arranged, fitted together and secured in place as illustrated in Figs. 4, 5 and 6. As each member is set in place its tongue 21 is nailed tightly to the roof. This holds the overlapped ends of the flanges 17 and 18 firmly down over the upper corner of the face of the member. The turn-under flange 19 of each member is inserted under the top flange 17 of the adjacent lower member to the right. The turned-under flange 18 of each member is inserted similarly under the outer flange 16 of the adjacent lower member to the left. The turned-under bottom corner tab 20 of each member is inserted under the flanges of the three lower members where they converge.

Obviously the only places where water could leak through roof surfacings of this general type are at the corners of the individual members. In my surfacing due to the arrangement of the overlapped and interlocking flanges and the positioning of the members with respect to each other, the only place where water could leak through the surfacing would be at the point *x* (Figs. 4 and 5), or the upper corner of each member. However, both the flanges 16 and 17 extend to this point on each member and the tongue 21, which is nailed firmly to the roof, holds these flanges pressed down tightly. Furthermore the tab 20 of the next upper member extends under both of these flanges to the point *x*. Thus if any water is to reach the point *x* it must travel up under a tab 20 for the entire distance across the tab to the tip of the tab and it must do this also in spite of the fact that the tab is held tightly pressed against the surface over which the water must pass upwardly.

It will be evident that this could not occur unless water were allowed to collect in a pool on the roof to such extent that some water could penetrate through to the corner *x*. However, even in such extreme case, due to the fact that the overlapping flanges are held down so tightly at the corner *x*, only an occasional drop of water, if any, would eventually leak through the corner. Furthermore no strain on the roof or individual

members could cause the overlapping flanges to open up at the corner *x* unless the nail by which the tongue 21 is nailed down tightly to the roof would be pulled loose. Thus my roof surfacing when made and secured in the manner indicated will remain substantially leak-proof under practically all possible conditions as long as the roof lasts.

In none of the roofings of this same general type, formed by individual metal members or "shingles," heretofore developed, to the best of my knowledge, would water be required to travel upwardly as great a distance and under a flange pressed down as tightly at the corners as in my improved roof surfacing in order to leak through the surface.

In Figs. 4 and 5 I have shown my roof surfacing formed with the individual members set with their flanged edges arranged at angles of approximately 45° with the horizontal lines of the rows. It is also possible to form my roof surfacing with the members arranged with their edges respectively parallel and perpendicular to the horizontal lines of the rows. Such an arrangement is shown in Fig. 7. This arrangement gives a slightly different overall appearance to the roof and may be desired for the resulting architectural effect in some cases.

In either arrangement of the members of my roof surfacing, however, the special features of my invention will function in the manner described so as to reduce to a minimum any possibility of a leak through at the point *x*, and this point *x* is of course the only possible point where a leak could occur under any circumstances whatsoever.

I claim:

1. In a roof surfacing of the character described, a plurality of identical members joined together by interlocking flanges along their adjacent edges, each of said members being in the shape of a parallelogram and having outwardly overturned locking flanges on two adjacent sides, said flanges extending to the three corner portions of the member at the ends of said flanges, one of said flanges overlying the other flange at the common intermediate corner, the end of said overlying flange continued beyond the edge of the member at said intermediate corner to form an extending tongue for securing the member to the roof, whereby said tongue when secured will also act to hold the overlapping ends of said flanges down over said intermediate corner portion of the member, underturned locking flanges on the two other sides of the member, the adjacent ends of said underturned flanges terminating a short distance from the common intermediate corner of the member between said underturned flanges, and an underturned corner tab extending over said latter mentioned adjacent ends of said underturned flanges on the underside of the member, said members arranged in said surfacing with the securing tongue of each member at the top of the member and secured directly to the roof and with the underturned corner tab at the bottom of each member, said members secured together by having each underturned flange of each member inserted in an outwardly overturned flange of an adjacent member with the underturned corner tab of each member inserted under the overlapping outwardly overturned flanges of a lower member at the corner where the tongue of the lower member is secured to the roof, whereby the corner tab of

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each member will be held down tightly to the roof by the securing tongue of a lower member.

2. A metal roof surfacing of the character described comprising a plurality of identical members joined together by interlocking flanges along their adjacent edges, each of said members consisting of a piece of sheet metal in the shape of a parallelogram and having outwardly overturned locking flanges on two adjacent sides, said flanges extending entirely over the three corner portions of the member at the ends of said flanges, one of said flanges overlying the other flange at the common intermediate corner, the end of said overlying flange continued beyond the edge of the member at said intermediate corner to form an extending tongue for securing the member to the roof, whereby said tongue when secured will also act to hold the overlapping ends of said flanges down over said intermediate corner portion of the member, under-
 20 turned locking flanges on the two other sides of the member, one end of each underturned flange extending over the under face of the corner of the member covered by the end of the adjacent overturned flange, the other ends of said under-
 25 turned flanges terminating a short distance from the common intermediate corner of the member between said underturned flanges, and an underturned corner tab extending over said latter mentioned other ends of said underturned flanges on the underside of the member and

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across said latter mentioned intermediate corner of the member, said members arranged in said surfacing with the securing tongue of each member at the top of the member and secured directly
 5 to the roof and with the underturned corner tab at the bottom of each member, said members secured together by having each underturned flange of each member inserted in an outwardly overturned flange of an adjacent member with
 10 the underturned corner tab of each member inserted under the overlapping outwardly overturned flanges of a lower member at the corner where the tongue of the lower member is secured to the roof, whereby the corner tab of each member
 15 will be held down tightly to the roof by the securing tongue of a lower member.

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