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G. D. OVERHOLTZ

2,073,706

STANDING LAP SEAM ROOFING

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FIG. 1.

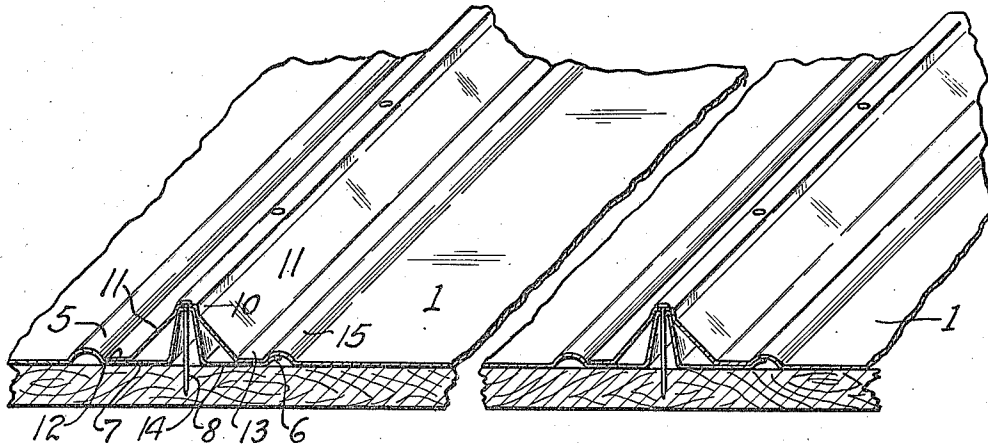


FIG. 2.

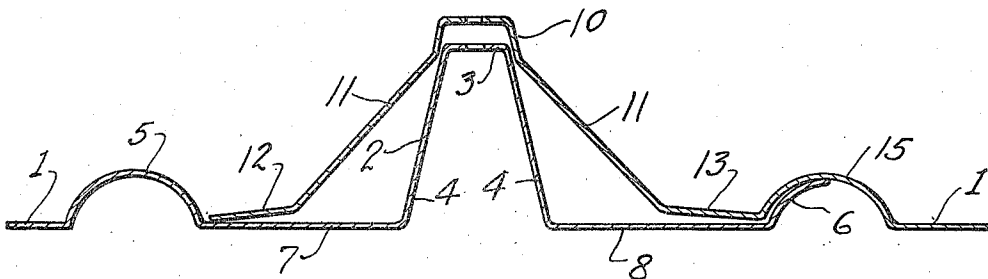
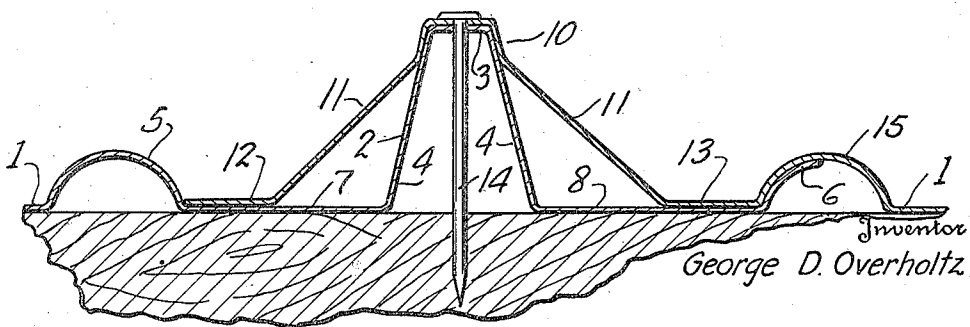


FIG. 3.



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STANDING LAP SEAM ROOFING

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6 Claims. (Cl. 108—18)

This invention relates to sheet metal roofing, and particularly to such roofing employing joints of the standing lap seam type.

The object of the invention is the provision of an improved roofing joint of this character, which is easily applied, and when laid is highly efficient in preventing leakage between the lapping members of the joint.

A further object of the invention is the provision in a roofing joint of this character of means whereby a relative movement of the lapping members of the joint takes place when nailing the members to a roof, and effects an expansion of certain parts of the joint against others and a consequent firm closing of seams to exclude moisture therefrom.

The invention is fully described in the following specification, and one embodiment thereof illustrated in the accompanying drawing, in which—

Figure 1 is a fragmentary perspective view of a roofing embodying and laid in accordance with my invention; Fig. 2 is an enlarged cross-section of the lapping portions of two roofing sheets with such portions in the relationship they assume before nailing, and Fig. 3 is a similar view showing the relationship of the lapped joint portions after nailing.

Referring to the drawing, 1, 1 designate roofing sheets of duplicate form and having side edge portions lapping and cooperating to form joints, as well understood in the art, and in which joints the present invention resides.

Each roofing sheet 1 is formed along and parallel to one side edge, which may be termed its lapped edge, with an upstanding ridge 2 of inverted U or channel form in cross-section with its crown or leg connecting portion 3 preferably but not necessarily substantially flat, and with its legs 4 slightly divergent or inclined to provide a broader space at the bottom than at the top. This latter, however, is not necessary. The sheet at the inner side of the ridge 2, that is, at the side towards the center of the sheet, is formed with a relatively shallow upstanding ridge 5, in the present instance of half circle form in cross-section, such ridge being parallel to and spaced a short distance from the major ridge 2. The free edge of the sheet at the outer side of the ridge 2 terminates in a curved upwardly and outwardly extending flange 6, which is complementary to and adapted to fit into the curved wall channel of an adjacent ridge of a lapping sheet, as hereinafter described, and which ridge is similar to the ridge 5. The legs of the ridge 2 are separated from the

respective ridge 5 and flange 6 by flat sheet portions 7 and 8, respectively.

The opposite or "lapping" side edge portion of each sheet is formed along such edge with an upstanding ridge 10 of inverted channel form with its upper portion fashioned to receive and fit down closely over the upper end portion of a lapped ridge 2 of an adjoining sheet. The legs 11 of the ridge 10 incline outwardly relative to the lapped ridge 2 to near their lower ends, so that the bottom or open side portion of the ridge 10 is considerably wider than the corresponding portion of the ridge 2. The inner and outer legs 11 terminate respectively in outwardly angled foot portions 12 and 13, which are of rather slight inclination relative to a horizontal, so that normally the lower ends of the leg portions 11 are spaced from the respective portions 7 and 8 of an adjoining sheet which they lap when the outer or toe ends of said foot portions are resting on the parts 7 and 8. The ridge 10 is normally of such height relative to the ridge 2 that its crown portion is spaced a short distance above the crown portion of the ridge 2 when the ridge 10 is in said normal lapping position as shown in Fig. 2.

The span of the ridge portions 12, 13, or the length of the space between the outer edges of said portions, is normally slightly less than the space between the adjacent base portions of a ridge 5 and flange 6 of a lapped sheet, so that a slight outward expanding movement of the legs of the ridge 10 is necessary to place the toe ends of the foot portions 12 and 13 into abutting engagement with the registering base portions of the ridge 5 and flange 6. This expanding action and consequent engagement of the outer edge portions of the foot sections 12, 13 with the ridge 5 and flange 6 is effected by a forcing of the crown portion of the ridge 10 down onto the crown portion of the lapped ridge 2 and a consequent shortening of the space between the ends of the leg portions 11 and registering flat portions 7 and 8 of the lapped sheet. When this action takes place, the foot portions 12 and 13 spring down into substantially, or near, parallel relation to the flat portions 7 and 8 of the lapped sheet. The nails 14 by which the roofing sheets are secured to a roofing are driven into the roof boards through the crown portions of the lapped ridge members 2 and 10, and it is the driving home of these nails that draws the ridge 10 down into close engagement with the lapped ridge 2 and effects an outward expansion of the leg portions of the

ridge 10 into binding engagement with the members 5 and 6 of the lapped sheet.

The foot portion 13, which is disposed at the inner side of the ridge 10 with respect to the center of the sheet, terminates in a relatively shallow ridge 15 which parallels the ridge 10 and is of a curved form in cross-section substantially complementary to the curvature of the flange 6 of a lapped sheet edge which is intended to fit up into such ridge, as shown. The ridges 5 and 15 are of substantially the same shape and size to give the roofing a uniform appearance at each side of a joint.

This joint structure also forms air chambers between the adjacent leg portions of the lapped ridge members 2 and 10, and the trough-like portions at each side of the ridge 2 provide for the efficient drainage of any water from the joint which might by any possibility pass between the seams at the lapping edge portions of the ridges.

I wish it understood that my invention is not limited to any specific construction, arrangement or form of the parts, as it is capable of numerous modifications and changes without departing from the spirit of the claims.

Having thus described my invention, what I claim as new, and desire to secure by United States Letters Patent, is:

1. A lapped joint for roofing sheets, comprising a lapped member having an upstanding ridge and shoulder portions spaced from opposite sides thereof, and a lapping member having an upstanding inverted channel form of ridge with yieldable divergent leg portions and receiving said lapped ridge, said lapping ridge having its crown normally spaced above the lapped ridge crown and its legs normally contacting the lapped member in inwardly spaced relation to said respective shoulder portions and expansible outwardly thereagainst by a downward forcing of the crown portion of one ridge toward the other as by nailing therethrough.

2. A lapped joint for roofing sheets, comprising lapping upper and lower members having interengaging upstanding ridge portions of inverted channel form, the lower member having shoulder portions at opposite sides of its said ridge, said upper ridge having yielding spreadable leg portions at the inner sides of said shoulders, the lower ends of which leg portions contact with the lower member and are forced outward thereby into contact with said shouldered portions when the upper ridge is forced home on the lower ridge.

3. A lapped joint for roofing sheets, comprising lapping upper and lower members having interengaging upstanding ridge portions of inverted channel form, the lower member having shoulder portions spaced from and at opposite sides of its said ridge, said upper ridge having yieldable divergent leg portions, the lower ends of which contact with the lower member at the inner sides of said shoulder portions when the outer ridge is disposed over the lower ridge with the crowns

thereof in predetermined spaced relation, said contact causing an outward spreading of said legs into abutting coaction with the respective shoulder portions when the crown portions of the ridges are forced toward each other a predetermined extent.

4. A lapped joint for roofing sheets, comprising lapping upper and lower members having interengaging upstanding ridge portions of inverted channel form, the lower member having upstanding shoulders at opposite sides of its ridge in spaced relation thereto, said upper ridge having spreadable divergent leg portions terminating in outwardly angled feet which normally bear at their outer edge portions against the lower member in inwardly spaced relation to said shoulders when the upper ridge has its crown portion spaced a predetermined distance above the crown portion of the lower ridge, said leg portions being forced outward to cause the feet portion to bear against said shoulder portion when the crown portion of the upper ridge is forced downward a further predetermined extent on the lower ridge.

5. A lapped joint for roofing sheets, comprising lapping upper and lower members having interengaging upstanding ridge portions of inverted channel form, the lower member having an upwardly and outwardly extending shoulder portion at each side of its ridge in spaced relation thereto, said upper member having divergent spreadable leg portions for coaction with the lower member intermediate its ridge and respective shoulders whereby a forcing home of the upper ridge on the lower ridge will cause an outward spreading of the upper ridge legs into abutting relation to said shoulders, said upper member at the inner side of its ridge with respect to the member center having a shallow inverted channel portion which receives the respective shoulder portion of the lower member.

6. A lapped joint for roofing sheets, comprising a lapped member having an upstanding ridge and upstanding shoulder portions spaced from opposite sides of the ridge, and a lapping member having an upstanding inverted channel form of ridge with springable divergent leg portions terminating in outwardly divergent feet normally inclined to the plane of the members and adapted to contact the lower member inwardly from the inner sides of the respective shoulders when the crown portion of the lapping ridge is spaced upwardly a predetermined extent from that of the lower ridge, said feet being flattened toward the lower member and forced outward against the respective shoulders when the lapping ridge is forced a further predetermined extent down over the lapped ridge, as by nailing through said crown portions, said lapping member having at one side of its ridge a minor ridge portion of inverted channel form which receives the respective shoulder portion of the lower member.

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