Nov. 22, 1949 H. G. ADAMS 2,488,887

ROOFING

Filed Oct. 14, 1947 2 Sheets-Sheet 1

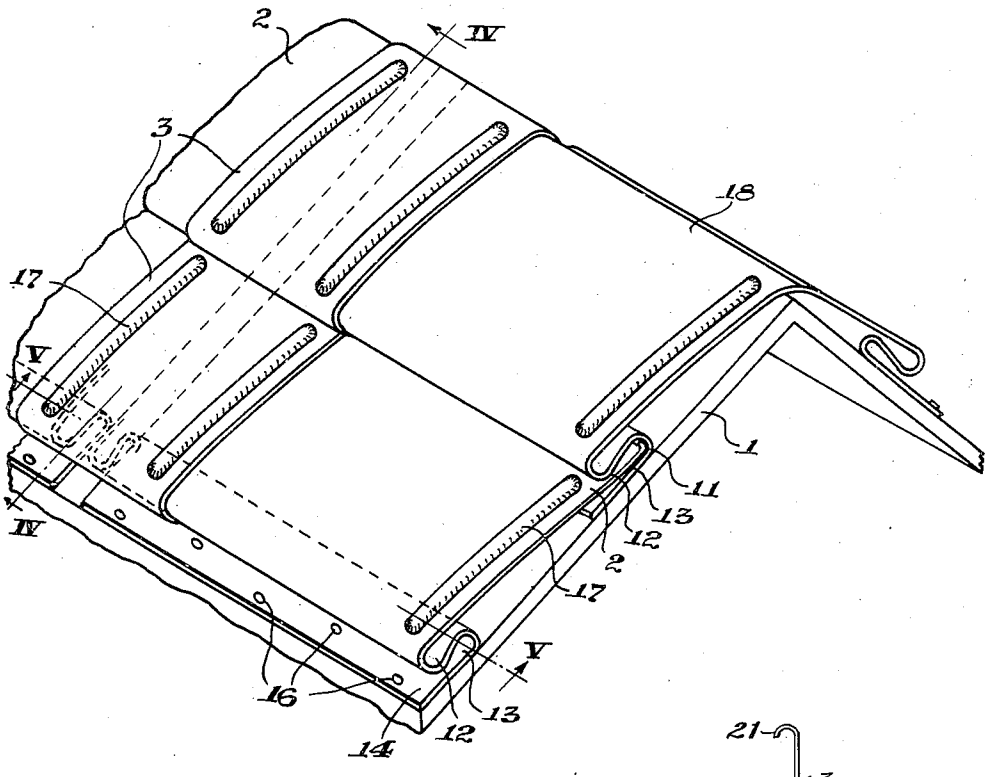


Fig. 1.

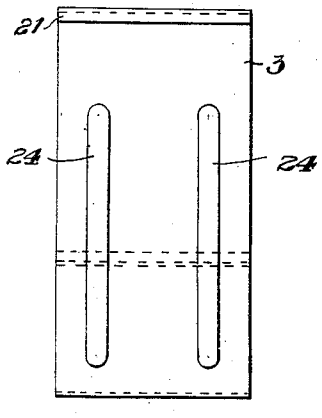


Fig. 2.

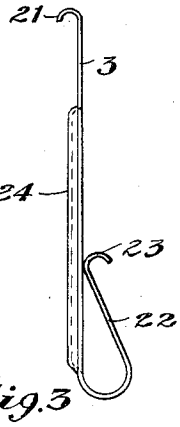


Fig. 3

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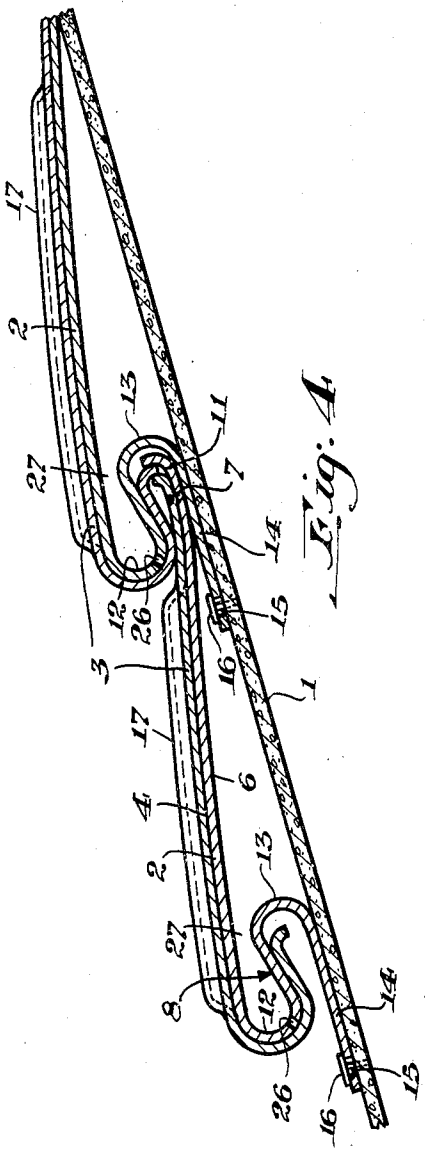


Fig. 4

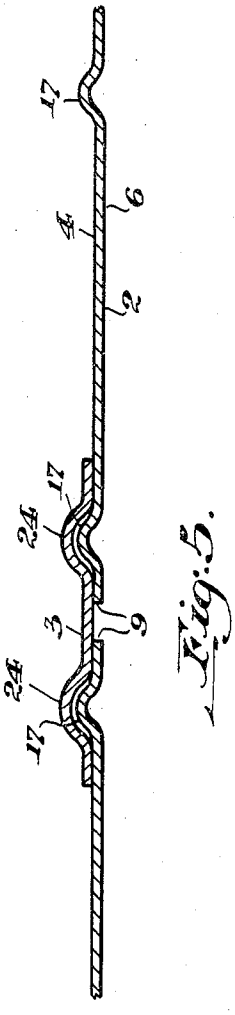


Fig. 5.

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UNITED STATES PATENT OFFICE

2,488,887

ROOFING

Howard G. Adams, Mount Lebanon, Pa.

Application October 14, 1947, Serial No. 779,693

3 Claims. (Cl. 189—86)

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This invention relates to coverings for the roof and sides of a building, and in particular to the protection of such roofs and sides by the use of relatively large metal sheets. While the invention is applicable to both roofing and siding it is illustrated and described in its applicability to roofing.

It is among the objects of this invention to provide a water-tight covering of interlocking metal sheets, which is securely interlocked against longitudinal and lateral slipping; which is unusually light, strong and inexpensively manufactured; which can be quickly and easily secured in place; which permits the escape of any moisture that may form beneath it, and which permits lateral and longitudinal expansion and contraction resulting from thermal changes.

The invention is illustrated in the accompanying drawings, of which Fig. 1 is a perspective view of the roofing, applied to a roof; Figs. 2 and 3 plan and end views, respectively, of a sheet connecting and reinforcing member; and Figs. 4 and 5 longitudinal and transverse vertical sections taken along lines IV—IV and V—V, respectively, of Fig. 1.

Referring to the drawings, a roof 1 is covered by a plurality of rather large elongate metal sheets 2, each of which has upper and lower edges shaped specially to be interconnected with upper and lower edges of other sheets, and also by sheet connecting plates 3 which secure the sheets against lateral movement and serve to reinforce the strength and the interconnections of the metal sheets.

Referring particularly to Fig. 4, each of sheets 2, which preferably are fabricated from light and relatively strong metal, has outer and inner faces 4 and 6, upper and lower horizontal marginal edges 7 and 8 and side edges 9. To form the sheet interconnecting elements, upper edge 7 of each sheet is curved upwardly to form a catch 11 and lower edge 8 is formed into an S-shaped curve by being bent downwardly and inwardly, then upwardly toward inner face 6, and then downwardly and outwardly, the effect of these curvatures being to form upper and lower loops 12 and 13, lower loop 13 being designated the catch-receiving loop. The remaining portion of lower edge 8 lies in the inclined plane of the slope of the roof to form a sheet fastening flap 14, which, as shown in Fig. 4, is provided with a series of openings 15 to receive sheet fastening members or nails 16. At equally spaced distances from each side edge of the sheet are formed a pair of longitudinal strengthening ribs 17, (Fig. 5) these ribs also serving, in a manner to be described, to engage with sheet connecting plates 3.

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A modified form of roof-covering sheets is shown in Fig. 1, these being triangular sheets 18 which, as is apparent, are shaped to fit over the peak or ridge of a roof and render it water-tight. The lower edges of these sheets are looped in the same manner as the lower edges of sheets 2 and are referenced with the same numerals.

In covering a roof, the workman commences at the ridge and works downwardly to the eaves, this procedure in itself being more convenient and safer than the more usual practice of working from the eaves upwardly. The triangular peak sheets first are fitted over the ridge and their sheet fastening flaps nailed in position, and then a sheet 2 is connected to the lower edge of each peak sheet by inserting its upper catch portion 11 into the catch-receiving loop 13 of the triangular sheet, and this sheet 2 is then secured by nailing down its flap. The work continues in the obvious manner until the eaves are reached, a particular advantage of these sheet connections being the ease and speed with which they are made.

In addition to interconnecting the upper and lower edges of the sheets, their side edges also are connected, as mentioned before, by plates 3. These plates, as shown in Figs. 2 and 3, are formed by bending each of their upper horizontal edges vertically upwardly into a hook 21, and bending the lower margin downwardly and back upon itself into a spring loop 22, the end portion of which is bent downwardly into a curved finger 23. Also formed on each plate is a pair of longitudinal strengthening corrugations 24 which are so spaced that, when the plate is operatively positioned they fit over or nest with longitudinal ribs 17 formed on each sheet, and this nesting of the corrugations and ribs secures the sheets against lateral movement. Each of the sheet connecting plates is positioned over the side margins of a pair of laterally adjacent sheets by inserting its upper hook 21 into the catch-receiving loops 13 of the two upwardly adjacent sheets and springing its lower edge loops 22 into the catch-receiving loops of the pair over which the connecting plate lies.

As will be noted in Fig. 1, each pair of laterally adjacent sheets which form the roof covering have their side edges connected by a plate 3 and, in order to provide for triangular peak or ridge sheets 18, specially formed peak connecting plates 26 are provided, which, except for their upper edges, are the same as plates 3.

An advantage of the connecting plates is that

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they secure the interconnection of the upper and lower edges of the sheets. This is illustrated in Fig. 4 where it is seen that, after a pair of sheets 2 has been interconnected by inserting a catch member 11 into a catch-receiving loop 13, connecting plate loop 22 and its curved finger 23 is sprung into loop 13 to bear against the catch. Then, as the laying of the connector plate progresses, a hook member 21 of a next lower plate also is inserted into this loop 13 and, as shown, is held tightly therein in engagement with curved finger 23 of loop 22.

A further advantage of these plates is that the fit of their corrugations 24 over sheet ribs 17 additionally strengthens the sheets and permits the use of lighter materials which, of course, are more easily handled.

One difficulty which has been experienced with the use of relatively large metal roof-covering sheets is that their expansion and contraction due to thermal changes may cause them to buckle and eventually break loose, or to separate and permit moisture to enter. The roofing provided by this invention makes adequate provision for either lateral or longitudinal expansion or contraction. Longitudinal expansion of both the sheets and the plates is permitted due to the fact that the upper ends of both members are not fastened and also because of their loops.

Lateral expansion of the sheets is permitted by the particular manner in which they are arranged on the roof and attached to it. Thus, as seen in Figs. 1 and 5, the sheets are spaced apart laterally a sufficient amount to permit expansion, and the fastening member or nail receiving openings 15 of their flaps 14 are made larger than fastening members 16 so that the sheets can expand beneath the members. Also, plates 3 permit such expansion since, as shown in Fig. 5, plate corrugations 24 are made larger than the sheet ribs 22 over which they fit so that, as the sheet expands, its ribs have sufficient freedom of movement within the corrugations.

When the sheets and plates have been laid and interconnected properly, the roofing is unusually water-tight. The upper and lower edges of adjacent sheets overlap each other and their interconnections effectively expel rain, snow or other moisture. Further, even though the side edges of adjacent sheets are spaced apart to permit expansion, as mentioned above, the connecting plates cover this space and make it water-tight.

However, some moisture will condense beneath the roofing, and it is another feature of the invention that the sheets are provided with means permitting it to escape to the roofing's outer, or top surface. Thus, spaced laterally along the bottoms of the upper loops 12 at the lower edges of the sheets there are outlet openings 26 through which the condensed moisture can escape. Also, loop 12 is formed by bending it back toward, but not to, inner face 6 of the sheet, so that a passageway 27 is provided through which the condensed moisture can flow to the outlet openings.

It will be seen that the invention provides roof-covering sheets and plates which are interconnected so as to form water-tight roofing and which will nevertheless permit any interior condensed moisture to escape. Also, the use of relatively large sheets is permitted since provision is made for their lateral and longitudinal expansion and contraction. In addition, the connecting plates function to permit lateral expansion due to size of their corrugations with respect to the ribs and also due to the fact that the use of such

plates allows the sheets to be spaced laterally a slight distance. Also, as explained, the plates reinforce the sheets and secure the engagement of their upper and lower edges. These and the other advantages which have been explained provide a highly protective, durable and attractive roof-covering and one which can be attached to a roof quite simply and quickly.

According to the provisions of the patent statutes, I have explained the principle of my invention and have illustrated and described what I now consider to represent its best embodiment. However, I desire to have it understood that, within the scope of the appended claims, the invention may be practiced otherwise than as specifically illustrated and described.

I claim:

1. Covering for a building, comprising the combination of a plurality of covering sheets each having formed on its longitudinal ribs adjacent to their edges, and each having its upper margin bent upwardly into a catch and its lower margin formed into a catch-receiving recess for receiving the catch of a downwardly adjacent sheet whereby said upper and lower marginal portions of adjacent sheets are interconnected; and sheet securing and reinforcing plates connecting the side edges of adjacent sheets, each of said plates having formed thereon a pair of spaced longitudinal corrugations and each having its upper margin bent upwardly into a hook-like projection and its lower margin bent downwardly and back upon itself into a loop, said loop being sprung into the catch-receiving recesses of a pair of laterally adjacent sheets and said upper marginal hook being inserted into the catch-receiving recesses of a pair of upwardly adjacent sheets, and said plate corrugations fitting over a rib of each of said laterally adjacent sheets whereby said sheet interconnections are secured and said laterally adjacent sheets connected and reinforced.

2. Covering for a building, comprising the combination of a plurality of laterally spaced covering sheets each having a longitudinal rib adjacent each of its edges, and each having its upper margin bent upwardly into a catch and its lower margin formed into a catch-receiving recess for receiving the catch of a downwardly adjacent sheet whereby said upper and lower marginal portions of adjacent sheets are interconnected; and sheet securing and reinforcing plates connecting the side edges of adjacent sheets, each of said plates having formed thereon a pair of spaced longitudinal corrugations and each having its upper margin bent upwardly into hook-like projections and its lower margin bent downwardly and back upon itself into a loop, the end portions of said lower margin being bent downwardly into a curved finger, said lower marginal loop being sprung into the catch-receiving recesses of a pair of laterally adjacent sheets and said upper marginal hook being inserted into the catch-receiving recesses of a pair of upwardly adjacent sheets, and said plate corrugations loosely fitting over a rib of each of said laterally adjacent sheets whereby said sheet interconnections are secured and said laterally adjacent sheets connected and reinforced.

3. Covering for a building, comprising the combination of a plurality of laterally spaced covering sheets each having a longitudinal rib adjacent each of its edges, and each having its upper margin bent vertically upward to form a catch and its lower horizontal edge looped downwardly and inwardly and then upwardly towards the inside face

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of the sheet, then downwardly and outwardly to form a catch-receiving loop, the remaining portion of the lower edge forming a sheet fastening flap passing under said catch-receiving loop in close proximity to it, said flaps having fastening member receiving openings of larger diameter than said members for permitting expansion of said covering sheets, and said inwardly bent loop being provided with a series of laterally spaced moisture outlet openings, said covering sheets being interconnected by inserting said upper horizontal edges of the sheets into the catch-receiving loops of the upwardly adjacent sheets; and sheet receiving and reinforcing plates connecting together the side edges of adjacent sheets, each of said plates having formed thereon a pair of spaced longitudinal corrugations and each having its upper margin bent upwardly into hook-like projections and its lower margin bent downwardly and back upon itself into a loop, the end portions of said lower margin being bent down-

wardly into a curved finger, said lower marginal loop and finger being sprung into the catch-receiving recesses of a pair of laterally adjacent sheets and said upper marginal hook being inserted into the catch-receiving recesses of a pair of upwardly adjacent sheets, and said plate corrugations loosely fitting over a rib of each of said laterally adjacent sheets whereby said sheet interconnections are secured and said laterally adjacent sheets connected and reinforced.

HOWARD G. ADAMS.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
720,893	Charlebois	Feb. 17, 1903
2,308,766	Martinus	Jan. 19, 1943

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