Aug. 17, 1948. J. H. GOODWIN 2,447,065

ROOFING CONSTRUCTION

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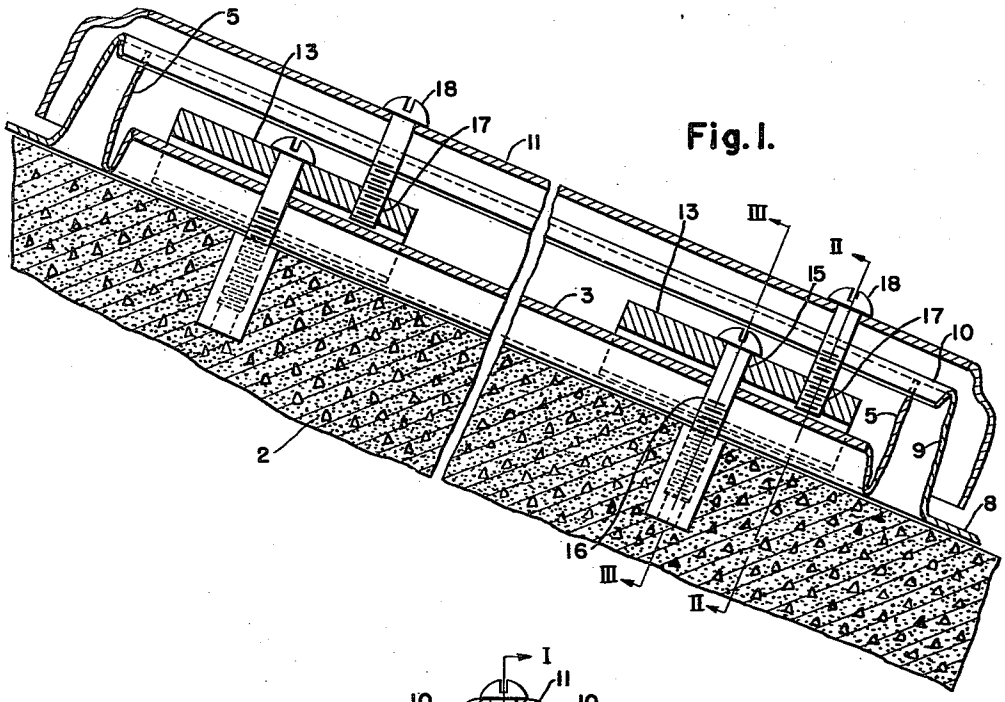

Fig. 1.

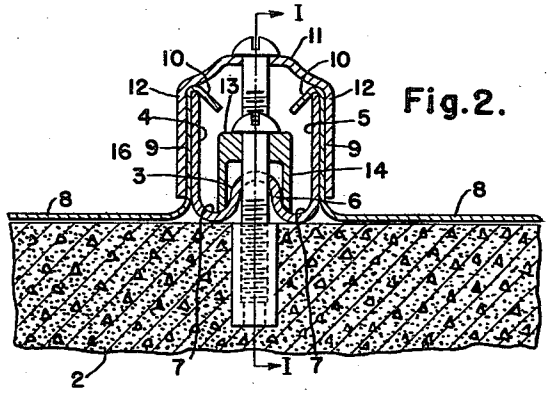

Fig. 2.

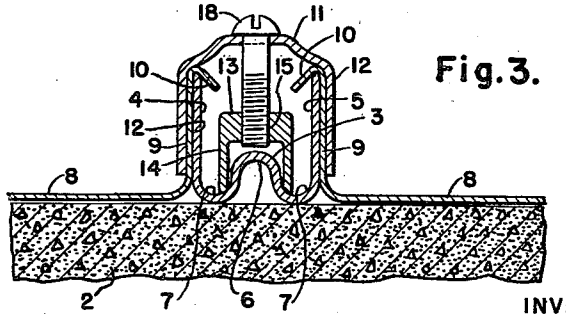

Fig. 3.

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ROOFING CONSTRUCTION

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This invention is for an improvement in roofing and relates particularly to a batten type of roofing in which the roofing sheets at their edges have a water-tight engagement with a batten.

The invention is for an improvement in roofing of the general type disclosed in my prior Patent No. 2,055,127, granted September 22, 1936. In my said patent there is disclosed a batten type of roofing in which the edges of the roofing sheets are bent up along the sides of a batten which extends down the slope of the roof, and there is a cap strip which serves to clamp the edges of the sheets to the batten. The batten in this case is an extruded metal batten which is relatively expensive to make, and expensive to use. The principal object of the present invention is to provide a roof construction of this type in which the batten may be formed of relatively light gauge sheet metal, and which, while being entirely water-proof and satisfactory, will be much less expensive than the construction shown in my prior patent.

My invention may be more fully understood by reference to the accompanying drawing in which:

Fig. 1 is a longitudinal vertical section through the batten portion of a roof constructed in accordance with my invention;

Fig. 2 is a transverse vertical section in the plane of line II—II of Fig. 1; and

Fig. 3 is a transverse vertical section in the plane of line III—III of Fig. 1.

In the drawings, 2 designates a roof or roof support which may be concrete, structural metal, wood, or any other material commonly used for the roof structure of a building. Mounted on the roof are a plurality of battens 3, only one of which is shown in the drawings, all others being of similar construction. These battens extend up and down the slope of the roof. They are formed with two side flanges 4 and 5, and with a central ridge portion 6, the battens being otherwise of generally U-shaped form. At each side of the ridge 6 there is a gutter 7. This batten may be formed of relatively light gauge sheet metal, preferably aluminum, either by rolling or by bending, but if desired, it can be extruded.

The roofing sheets are designated 8. They have their edges turned upwardly to provide vertical flanges 9, which flanges contact with the side flanges 4 and 5 of the batten. The upturned flanges each have an inwardly-turned lip 10 extending therealong, these lips hooking over and overhanging the top of the flanges 4 and 5 as clearly shown in the drawing.

There is a cap strip or cover strip 11 having

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downwardly-extending flanges 12 that fits snugly over the battens and the upturned edges of the sheets.

The present invention is concerned principally with the problem of securing the battens to the roof, and the cap strip to the battens so as to be water-tight and at the same time be entirely strong and secure. For this purpose, inverted U-shaped channel members or saddle strips of short length are placed at intervals along the ridge 6, these saddles being designated 13 and being provided with downwardly-extending flanges 14 that embrace the sides of the ridge 6. These saddles have a relatively thick top web, while the downwardly-extending flanges are relatively thin. Each saddle member is provided with a central hole 15 which registers with a corresponding hole in the ridge 6 of the batten. An anchoring screw or bolt 16 passes through the hole 15 in the saddle and through the hole in the ridge and is screwed or otherwise secured in the roof support 2, the type of screw or bolt depending upon whether the roof is cement, or wood, or steel. On the down-hole side of each saddle, there is a tapped hole 17. A bolt 18 passing through a hole in the cap strip is screwed into the hole 17 in the saddle. Thus the screws 18 serve to secure the cap strips to the batten while the screws 16 serve to anchor the saddle elements down and hold the battens in place at the same time.

Because the web of the saddle elements is relatively thick, the screws 18 have adequate metal into which to be screwed. At the same time the screw 16 pulling down on the saddle element causes the saddle element to press down on the batten, distributing the pressure along the batten, so as to prevent any deformation of the batten, and so as to distribute its holding effect over a relatively large area of the batten, whereas if the screws 16 passed only through the ridge 6, the heads of the screws might easily tear through the ridge in high winds or in other conditions putting a strain on the roof.

The battens are formed with the holes for the bolts 16 in the ribs at regular intervals. The cap strips 11 are also formed with the holes for the bolts 18 at regular intervals. The holes 15 and 17 in the saddle member are always formed in the same relative positions.

In assembling the roof, the battens are first secured to the roof by the screws or bolts 16. The field sheets 8 are then put down. Usually the flanges 9 will have been formed in advance, and the lips 10 will also usually have been formed in advance. When the screws 16 are put in, of course

the saddle elements or anchoring blocks 13 are first put into position so that each screw or bolt 16 passes through one of these blocks. After the field sheets have been put in place, the cap strip 11 is fitted into position and the holes previously formed in it for the accommodation of the bolts 18 will be directly over the holes 17, so that the roofer then merely inserts the bolts 18 using a screw driver to tighten them down.

Thus while my invention enables battens of relatively light section to be used, the anchoring blocks or saddle members 13 assure of the battens being securely mounted on the roof and protected against localized strains tending to lift the battens, and the saddle elements provide a strong anchorage for the cap or cover strips 11. The saddle or cover elements will ordinarily be located at substantial intervals so that the amount of metal needed to provide these elements is relatively small as compared to the total area of the roof or as compared to the total length of the battens. They can be much more economically used than extruded battens as disclosed in my said prior patent having an integral central ridge sufficiently heavy to provide for anchoring the battens and securing the covering strips.

The construction is thoroughly water-tight because if any wind-driven rain or melted snow should be driven up the vertical surfaces of the flanges 9 of the roofing sheets, it will drop off the downwardly-turned lips 10 into the gutter 7 and drain out longitudinally at the lower end of the batten. Should any water leak in under the heads of the screws 18 and run down these screws, it will be only a minute quantity, and since the screws are on the down-hill side of the screws 16, it cannot leak in around the screws 16, and it will go to one side or the other of the ridge 6 before it reaches the next saddle element, this ridge being slightly convex on its surface. While the drawings illustrate the screws or bolts 15 as fitting in the holes in the ridge, it is desirable in most cases to elongate these holes slightly to take care of endwise expansion and contraction.

While I have shown and described one particular form of my invention, it will be understood that this is the present preferred form, and that various changes and modifications may be made within the contemplation of my invention.

I claim:

1. In a roof construction, a batten extending down the slope of the roof, said batten being of generally U-shaped form with a longitudinally extending ridge at the base of the U, roofing sheets having flanges extending up the sides of the batten and overhanging the top edges thereof, a cap strip over the batten embracing the flanges of the roofing sheets, a securing block on the ridge of the batten having a fastener passing therethrough and through the ridge in the bottom of the batten for anchoring the batten in place, and a bolt passing through the cap strip and screwed into said block.

2. The roof structure defined in claim 1, wherein the block is a saddle-like member having flanges depending therefrom which embrace the sides of the ridge and hold the block from turning.

3. The roof construction defined in claim 1, wherein the screws which hold the cap strip to the block are on the downhill side of the fasteners which pass through the block and enter the roof structure.

4. The roof construction defined in claim 3, wherein the top of the ridge structure is convex in a transverse direction.

5. A roof construction comprising a support, a batten on the support, said batten being of generally U-shaped form with side flanges and having a central ridge extending longitudinally thereof along the bottom and providing a gutter at each side of the ridge, roofing sheets along each side of the batten having their edges folded up against the flanges of the batten and having their top edges extending inwardly to overhang the flanges of the batten, a cap strip over the batten having flanges which overlap the sides of the batten and the flanges of the roofing sheets, saddle elements on the ridge at the bottom of the batten at intervals therealong, anchoring fasteners passing through each of the saddle elements and passing through the ridge and entering the support for securing the batten at intervals to the support, and a screw threaded into each saddle and passing through the cap strip for holding the cap strip down, said last named screw being longitudinally offset from the first named fastener.

JOHN H. GOODWIN.