April 9, 1940. E. C. MATTHEWS 2,196,420

SHINGLE

Filed July 20, 1938

Fig. 1

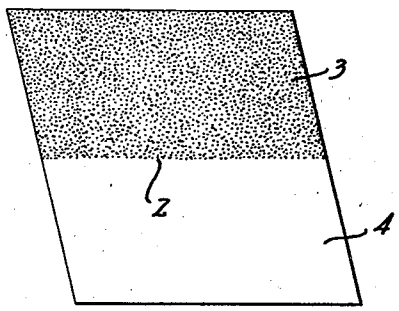
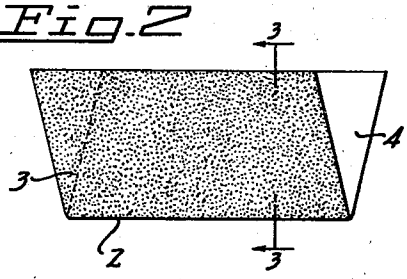


Fig. 2



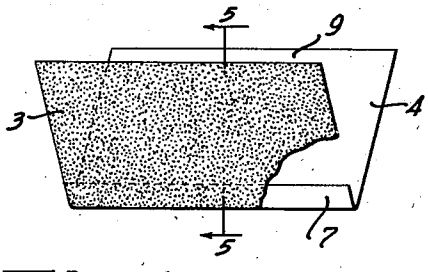


Fig. 4

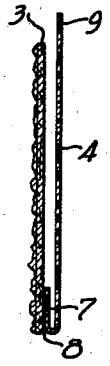


Fig. 5

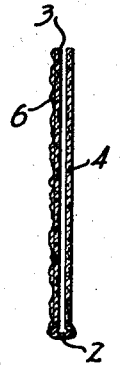


Fig. 3

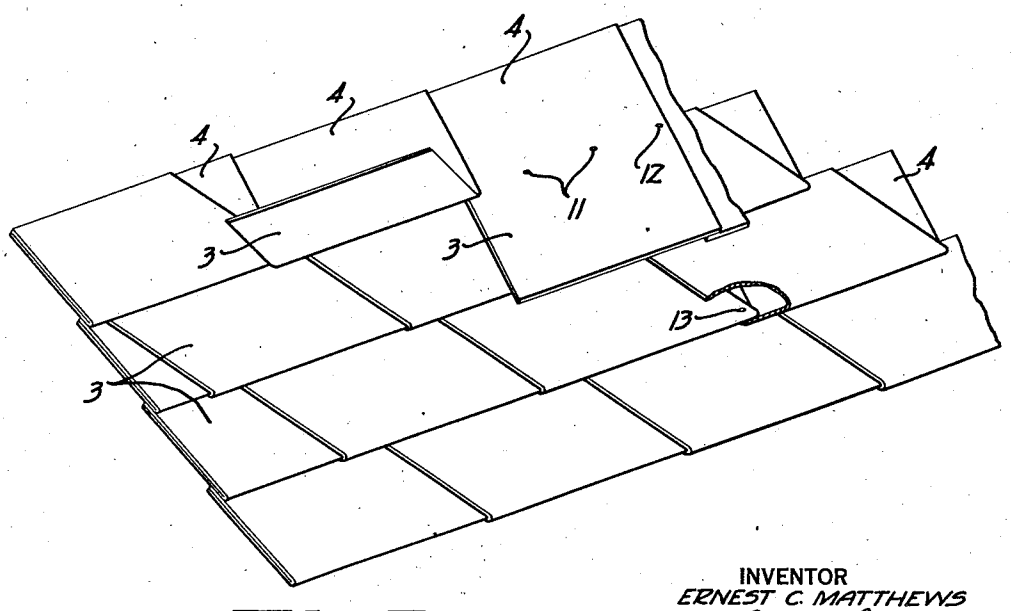


Fig. 6

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SHINGLE

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Application July 20, 1938, Serial No. 220,295

4 Claims. (Cl. 108—7)

My invention relates to composition shingles of the class generally known as prepared shingles, such as the felt base shingles saturated with a bituminous compound.

It is among the objects of my invention to provide a shingle having a flap underlying an edge to provide fastening means for securing an exposed edge of the shingle to the roof.

Another object is to provide a shingle having an underlying fastening flap which also provides a protective base sheet.

Another object is to provide a shingle having a heavy butt to improve the shadow effect on the roof.

A further object of my invention is to provide an improved method of laying shingles.

The invention possesses other objects and features of advantage, some of which, with the foregoing, will be set forth in the following description of my invention. It is to be understood that I do not limit myself to this disclosure of species of my invention, as I may adopt variant embodiments thereof within the scope of the claims.

Referring to the drawing:

Figure 1 is a plan view of a blank from which my shingle is folded; and

Figure 2 is a similar view showing the folded shingle.

Figure 3 is a sectional view of the shingle, taken in a plane indicated by line 3—3 of Figure 2.

Figure 4 is a plan view of a modified shingle; and

Figure 5 is a sectional view of the same, taken in a plane indicated by line 5—5 of Figure 4.

Figure 6 is a perspective view of a roof laid with my improved shingles, and illustrating the method of laying the same.

Composition shingles are flexible and their lower or tab portions are likely to be lifted by the wind, thereby allowing rain to be driven up under the shingles. Numerous methods of interlocking these shingles at the base have been developed for holding them down; but interlocking shingles are complicated and difficult to lay and the fastenings provided thereby are not positive or secure. With my improved shingles the lower edges are positively nailed down by a very simple method.

Another problem with composition shingles is the difficulty of obtaining a watertight roof with the shingles alone, and the usual procedure is to lay down a base layer of roofing paper before the shingles are applied. In my improved shingle a protective base sheet is provided on the shingle itself, thereby making it unnecessary to apply roofing paper.

A further objection to the ordinary composition shingle is that the inherent thinness of the shingle makes the roof look flat and uninteresting. My shingle has a heavy butt and the shadow effects of the shingle are accentuated to give weight and character to the roof.

In terms of broad inclusion, the shingle of my invention comprises an upper sheet having a flap underlying an exposed edge to provide fastening means for the shingle. The lower edge of the shingle is thus positively anchored down by nails driven through the fastening flap. My method of laying the shingle comprises placing it on the roof with the upper sheet folded back to expose the fastening flap; driving a nail through the flap to fasten down the exposed edge; and then folding the upper sheet over the nailed flap. The fold between the upper sheet and flap is preferably blunt, as by folding along a relatively wide score line, to give thickness to the butt for increasing the shadow effect. The fastening flap also preferably underlies the major portion of the shingle to provide a base sheet for double protection.

In greater detail, and referring to Figures 1 to 3 of the drawing, my shingle is formed from a one-piece blank of composition roofing material, such as a felt base material saturated and/or coated with a bituminous compound. As shown in Figure 1, the blank is preferably rhombic-shaped and is divided transversely along a fold line 2 into an upper or surface sheet 3 and a fastening flap 4. A protective coating 6 of suitable material, such as mineral granules, is preferably provided on the portion 3 of the blank which forms the upper sheet of the shingle. This mineral surfacing terminates at fold line 2 so that fastening flap 4 is left clear.

In the final shingle, as shown in Figures 2 and 3, fastening flap 4 is folded back under upper sheet 3 and underlies the lower edge of the shingle to provide a flap through which nails may be driven to fasten the exposed edge. When my shingles are laid on a roof the exposed edges are thus positively nailed down, to insure watertightness along the lower edges of the courses.

Since the blank is flexible it may readily be folded. If desired however the blank may be scored along the fold line to facilitate bending. Fold line 2 thus forms a hinge connection between the fastening flap and upper sheet, so that the upper sheet may be folded out flat to

expose the underlying flap when the shingles are nailed down.

Instead of folding sharply about fold line 2, the folding is preferably rounded to form a blunt edge and provide a heavy butt shingle. The provision of a relatively wide score along this line of fold as shown in Figure 3 increases the bluntness of the edge and therefore serves the double function of making the blank easier to fold and increasing the heaviness of the butt. A roof laid with my shingles has marked shadow effects and has the appearance of weight and stability that ordinary composition shingled roofs do not have.

Flap 4 preferably underlies the major portion of the upper sheet, so that the flap also forms a protective base sheet for the shingle. In other words, the underlying flap performs the double function of fastening down the exposed edge and providing a protective layer under the shingle. This base sheet on my shingle makes it unnecessary to lay down a sub-layer of roofing paper which is usually done in laying composition shingles.

The rhombic shape of the blank provides a surface sheet having a sloping end edge to shed water when the shingles are laid. End edges of flap 4 slope oppositely to those of the upper sheet when the flap is folded back, and one end of the flap projects out from under the upper sheet, as shown in Figure 2. This offsets the joints of the base sheet from those of the surface sheet, and also provides a water shedding edge for the base sheet.

Figures 4 and 5 show a modified shingle in which the flap 4 is formed separately from upper sheet 3 and is fastened to it by a strip 7 foldably connected along the lower edge of the flap. Any suitable means, such as an adhesive 8, may be employed for uniting strip 7 to the upper sheet. With bituminous treated roofing felts the bitumen of the sheet material may simply be softened and the parts pressed together to effect the seal.

The principal advantage of this two-part construction is that fastening flap 4 may be made of lighter weight material than the upper sheet. The top sheet should be fairly heavy, say about a 30 pound felt, and in the one-piece construction of Figure 1 this means that flap 4 is also that heavy. With the two-piece construction the fastening flap may be made lighter, say about a 15 pound felt. Another advantage of the two-piece construction is that the lap joint along the lower edge of the shingle tends to further increase the thickness of the shingle butt, thus further improving the shadow effect of the shingles on a roof.

Another variation shown in Figures 4 and 5 is the widening of flap 4 to provide an extension 9 above the upper edge of the surface sheet. This provides a greater lap and affords additional protection.

Figure 6 shows the preferred method of laying the shingles on a roof. The shingles are laid in overlapping courses, with the fastening flaps of the shingles in one course overlapping the shingles in the next lower course. Also, an end of each shingle in a course is interposed between the fastening flap and surface sheet of an adjacent shingle in the same course. The shingles are secured by nails 11 penetrating the fastening flaps and the underlying portions of the shingles in the lower course. End nail 12 also penetrates the fastening flap of the adjacent shingle in the same course.

The method of laying the shingles comprises first folding back the upper sheets to expose the fastening flaps, and then laying the opened shingles in a course with the folds in alignment and with the fastening flap of each shingle overlapping the flap of an adjacent shingle. The nails are then driven, and the surface sheets folded up to overlie the nailed flaps. This positions the shingles with an end of each caught in the fold of an adjacent shingle. Another course of shingles is then laid with the fastening flaps overlapping the shingles of the underlying course, so that when the nails are driven they also penetrate the surface sheets and flaps of the shingles in the underlying course. The surface sheets of the second course are then folded up and the third course laid.

It will be noted that after the surface sheets are folded up they have one end exposed and overlapping the surface sheet of an adjacent shingle in the same course. The exposed left hand edge of the shingle slopes outwardly from the bottom, due to the rhombic shape; and this sloping edge sheds water. The exposed edges of shingles in adjacent courses are preferably staggered, as shown in Figure 6.

Instead of driving nail 12 through the fastening flap alone, this nail may be driven through the corner of the surface sheet after the latter is folded up. This may be done because the nail is covered up by the overlapping part of the adjacent surface sheet. By driving the end nail through the surface sheet the latter receives the benefit of additional fastening means, and the nail also serves to hold the upfolded surface sheet until the next course is applied. This modified nailing is shown at 13 in Figure 6.

The principal feature of my improved shingle is that the underlying fastening flap provides means for securely nailing down the exposed edges of the shingles, thereby insuring weather tightness along the lower edges of the courses. Composition shingles not so fastened are subjected to being lifted by wind, and rain is driven up under the shingles. Numerous methods of interlocking shingles at the base have been developed for holding them down, but these shingles are more complicated, less securely fastened, and less easily applied than my shingle. The labor cost of laying my shingles is one-third to one-half less than that of laying ordinary composition shingles.

Another important feature of my shingle is that fastening flap 4 underlies the surface sheet to provide a shingle of double thickness. And it is to be noted that the lapping joints at the ends of the flaps are offset from the joints at the ends of the surface sheets due to the reversely sloping edges. Furthermore, the joints of the flaps are also lapped in water shedding relationship.

Another advantage of fastening along the lower edges of the shingles is that a large amount of shingle area may be safely exposed to the weather. This means greater roof coverage with fewer shingles, and represents a material saving in cost. For example, shingles of my invention having 18x36 inch surface sheets may be laid with 2¼ inch lap at top and ends, leaving a net coverage of about 531½ square inches for each shingle. Thus, twenty-eight of my shingles will cover 14,383 square inches of roof area, which is more than one square (14,440 square inches).

While I have shown the shingles laid in straight courses, it is understood that the shingles may be laid in other ways to give different appearances

on the roof. For example, the shingles in the same course may be staggered to provide a thatch effect. It is also understood that the shingle may be rectangular, square, or of any other suitable shape. The rhombic shape is preferred however because of its superior water shedding properties.

I claim:

1. A shingle comprising a rhombic-shaped blank folded along a medial line to provide an upper sheet and an underlying flap having end edges angularly disposed to the end edges of the upper sheet.

2. A shingle comprising an upper sheet, a flap hingeably connected along the lower edge of the sheet and underlying the latter, said sheet and flap being rhombic-shaped and arranged with an end edge of the sheet angularly disposed to an adjacent end edge of the flap.

3. In a roof comprising a plurality of shingles each having an upper sheet with a sloping side edge and a fastening flap underlying its lower edge, a course of said shingles laid with the sloping side edge of an upper sheet of each shingle overlapping an upper sheet of an adjacent shingle, the underlapping portions of the upper sheet of each shingle in said course being interposed between the upper sheet and fastening flap of an adjacent shingle.

4. In a roof comprising shingles having an upper sheet and an underlying flap, the upper sheet having a side edge sloping in one direction and the flap having an opposite edge sloping in the other direction, a course of said shingles laid with the sloping edge of an upper sheet of each shingle overlapping an upper sheet of an adjacent shingle to form a water shedding joint, and with the sloping edge of a flap of each shingle overlapping a flap of an adjacent shingle to form a water shedding joint.

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