Nov. 29, 1938. W. S. MILES 2,138,663

SHINGLE AND ASSEMBLY OF THE SAME

Filed Sept. 19, 1935

Fig. 1.

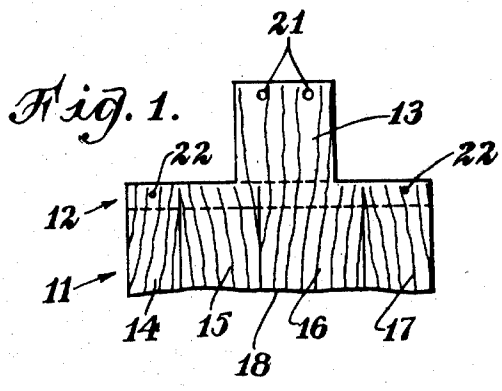


Fig. 2.

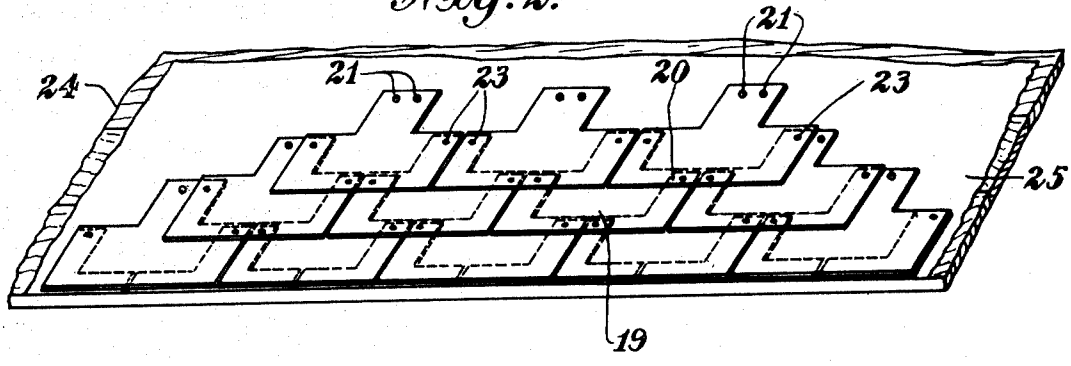
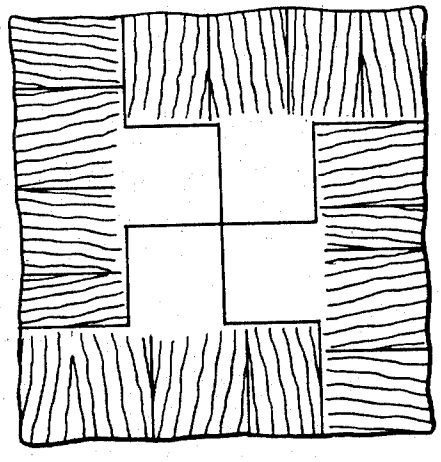


Fig. 3.



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SHINGLE AND ASSEMBLY OF THE SAME

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1 Claim. (Cl. 108—8)

This invention relates to shingles and to an assembly thereof.

There is extensive use of composition shingles in roofing and siding assemblies. Such shingles of especially desirable properties comprise a rigid asbestos-cement composition. The invention will be particularly illustrated, therefore, in connection with shingles of such a composition.

In an assembly of such rigid shingles in roofing or siding, the butts are exposed to the weather. The heads of the shingles in a given course extend upwardly from the butts and, ordinarily, under portions at least of two overlying courses of the shingles and under and beyond the exposed parts of the vertical joints between the shingles in the immediately overlying course. In such underlapping by heads as wide as the butts, there is a large wastage of unnecessary material at positions remote from the joints that are underlapped.

The present invention comprises the novel features hereinafter described and, especially, means for minimizing the amount of material resuired in the head or underlapped portions of the shingles, means for facilitating drainage in a narrow underlapping portion, in direction generally parallel to the side edge thereof, forming shingles with narrow extensions from the heads and positioning of the said extensions so that there is minimum wastage of material when a plurality of shingles, say, four having such extensions are cut from a blank in the form of a sheet, the provision of an edge of the shingle and graining of the shingle, whereby it is made to simulate a plurality of individual shingles, and/or the provision of oversize holes in the narrow extensions registering each with a smaller hole in the head of a shingle in an overlying course, adapting the extensions to be adjusted in two directions.

A prefered embodiment of the invention is illustrated in the drawing and will be described in connection therewith.

Fig. 1 shows a plan view of an improved shingle of the present invention.

Fig. 2 shows a diagrammatic perspective of a roofing assembly including the improved shingles.

Fig. 3 shows a plan view of the positions of cutting of a square sheet into four of the finished shingles.

There are shown shingles having butts 11, constituting the exposed portions of the shingles in a finished roofing assembly, heads 12, and extensions 13, the dotted and outside lines of Fig. 1 serving to mark the boundaries of the several parts of the shingles.

It will be noted that the butts and heads are wide and of equal or substantially the same widths and are in alinement at their side edges, whereas the extensions are relatively very narrow. Typical dimensions are butts 5 inches high, as measured in a direction parallel to the slope of the assembly, by 17 inches wide, heads two inches high by 17 inches wide, and extensions 5 by 5 inches.

As will appear from the assembly illustrated in Fig. 2, the head of a shingle is overlapped (completely covered) by the butt of the immediately overlying course. The narrow extensions underlie the vertical joints between abutting edges of adjacent shingles in the immediately overlying course and extend for a short distance, suitably 2 inches, under the butt of a shingle of the second overlying course.

The shingles are suitably provided on their upper surfaces with irregularities including elongated elevations and intervening depressions constituting graining.

Thus, a unit equal in width to an assembly of a plurality of shingles may be grained, as in the areas 14, 15, 16 and 17. These several areas are separated by grooves along zones extending transversely with respect to the longest dimension (width) of the shingle, the graining being nonconforming at the said zones, whereby the several areas of the butts are caused to resemble each an individual shingle unit.

Such a grained unit may be provided with an uneven lower edge 18, as, for instance, one that is slightly wavy and, suitably, causing the said areas severally to have a concave, convex, or approximately straight lower edge. This irregularity contributes to the simulation of an assembly of a plurality of individual shingle elements.

In the extension 13, as illustrated in Fig. 1, the elongated elevations extend generally in the direction of the length of the said extension, facilitate drainage in the direction of the slope of the assembly, and minimize the flowing thereover of draining water of rain or the like that may obtain access to the upper surface of the extension, as through one of the vertical joints illustrated in Fig. 2.

When the height (length) of the extension and of the butt are the same, as in the example given, there is a minimum wastage of material, inasmuch as the head lap, shown at 19 in Fig. 2, may be just as wide as the lap 20 of the upper end of the extension under the butt of the second overlying course.

In the unit illustrated, the two sides of an ex-

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tension are offset 5 and 7 inches, respectively, from the nearest side of the shingle.

In making the improved shingle units of preferred composition, there is formed an aqueous suspension of asbestos fibres and Portland cement, the proportion of asbestos by weight being approximately equal, for example, to that of the Portland cement or slightly less. The suspension is formed into a felt, as by the machine and method described in U. S. Patent Reissue 12,594 issued to Hatschek on January 15, 1907.

When the felt has been made of the desired thickness, it is removed from the Hatschek (cardboard) machine, is straightened into a sheet of generally plane surface, and is subjected to graining, if graining is to be used, and cutting to the desired size and shape. This shape resembles somewhat an inverted T, as illustrated.

It will be understood that the sheet material after being straightened is wet and plastic, that is, readily deformable. Over this sheet there is laid a die-plate provided with the negative pattern of the surface configuration desired in the finished shingles and, suitably, also with ridges adapted to extend substantially or completely through the sheet material at positions that are to constitute the boundaries of the finished shingles. The arrangement of the graining and the positions of cutting may be as illustrated in Fig. 3.

Suitably, there is formed a stack of alternating sheets of plastic material, die-plates, and rigid plane separator plates disposed on the sides of the sheets that are to constitute the backs of the finished shingles and the stack is compressed in a hydraulic press. The type of equipment used is conventional, with the exception of the arrangement of graining or cutting ridges which may be such as to give the result shown in Fig. 3, for instance. The equipment is, therefore, not illustrated.

The compression may be made at a final pressure of about 6000 pounds or so to the square inch, to give densification and thorough consolidation of the solid ingredients of the sheet material, express excess of water therefrom, and provide the desired surface markings. After the compression is completed, the press is opened and the impressed sheets are allowed to stand until the cement therein is hardened. It is convenient to remove the sheets in green condition from the stack and then form the sheets into a new stack with rigid separator plates at intervals, to maintain the shape of the sheets during the hardening period.

By having the centers of the extensions 13 and of the heads 12 offset laterally by one-half the height of the said head portions, that is, one-half of two inches in the shingle of specific dimensions given, it is possible to cut the sheet as shown in Fig. 3 without wastage of any material at the center of the sheet.

Thus, it will be seen from the figure that the outer portion of the sheet that is cut forms the butts and heads of a plurality of shingles and the central portion the extensions, the extensions meeting cornerwise to take all the area of the central part of the sheet.

The shingles are provided with holes that are adapted to register in two adjacent courses of the finished roofing assembly and to receive a driven fastening element such as a nail 23 passing through the registering holes and into the supporting substructure 24. Thus, the extension may be provided with two holes 21 near the upper edge, one of each side of the middle of the extension, and the head may be provided at each of its upper side corner portions with a hole 22 adapted to register with a hole 21 in the extension of a similarly apertured shingle of a lower course in a roofing assembly. The hole in the extension, which registers with the hole 22 of the head portion of the shingle of the immediately overlying course, may be oversize, that is, the hole 21 may be larger than the hole 22. When a nail is inserted through hole 22 in the head of one course and the larger hole 21 in the extension of the immediately lower course and then driven firmly into the substructure, the lower course retains adjustability in two directions, namely, laterally and in the direction of the slope of the assembly.

It will be noted that the upper edge of the narrow extension of a given shingle registers or is alined with the upper edge of the head portion of full width of an overlying course. Since the holes 21 and 22 in the adjacent courses register, as stated, the holes 21 and 22 are spaced equally from the upper edges of the narrow extension and head, respectively. This feature is particularly useful when the lower edge of the unit is uneven, as illustrated, for instance, in Fig. 1. In such a case the alinement of the two said straight edges permits alinement of the courses of shingles without dependence upon the irregular lower edge of the shingles.

Suitably, sheathing paper 25 is disposed between the shingles and the wood sheathing constituting the portions of the substructure on which the shingles are assembled and to which they are secured.

For some purposes, the graining of the narrow extensions of the shingles may be omitted, as indicated in Fig. 3.

The term "shingle" as used herein includes a siding unit. Likewise, "roofing" includes "siding".

It will be understood that the details given are for the purpose of illustration, not restriction, and particularly that an element or feature described may be omitted if its function in the finished article is not desired. It is intended, therefore, that variations within the spirit of the invention are to be included in the scope of the appended claim.

What I claim is:

A shingle comprising a butt, a head substantially as wide as the butt, and a narrow extension from the head, the said extension being of height equal to the butt as assembled on a building and the center of the said extension being offset laterally with respect to the center of the head by one-half the height of the head.

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