Dec. 21, 1937. N. P. HARSHBERGER ET AL 2,103,076

SHINGLE

Filed May 1, 1931

Fig. 1.

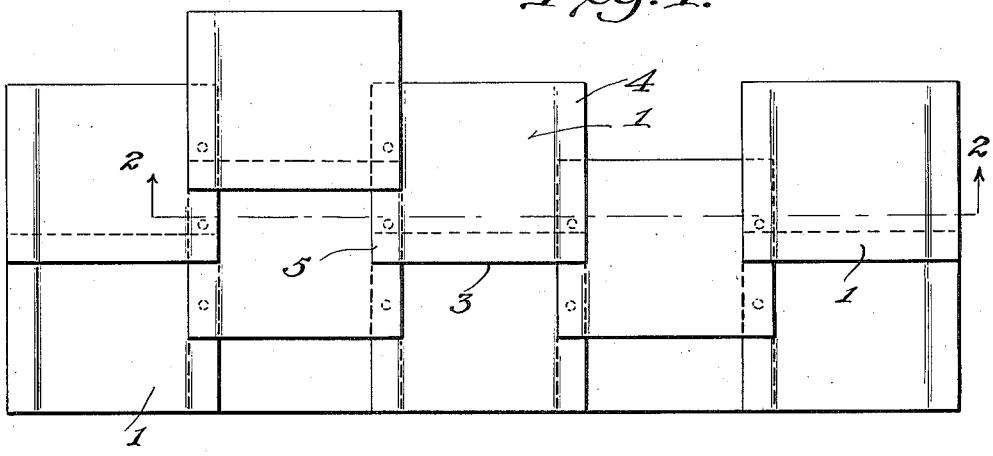


Fig. 2.



Fig. 3.

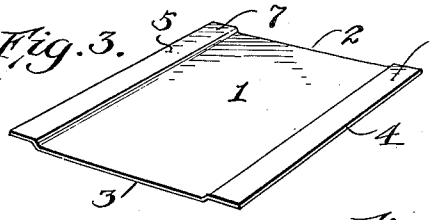


Fig. 7.

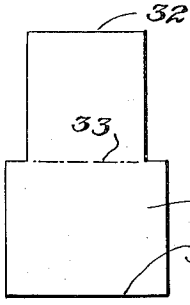


Fig. 8.

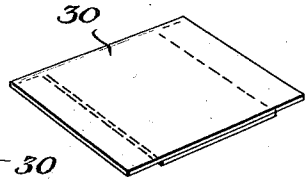


Fig. 4.

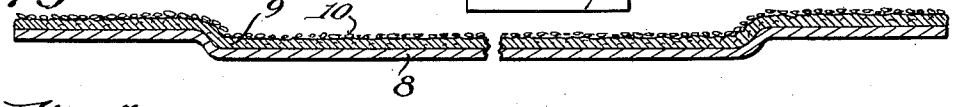


Fig. 5.

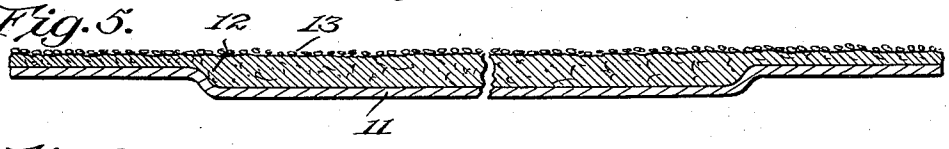
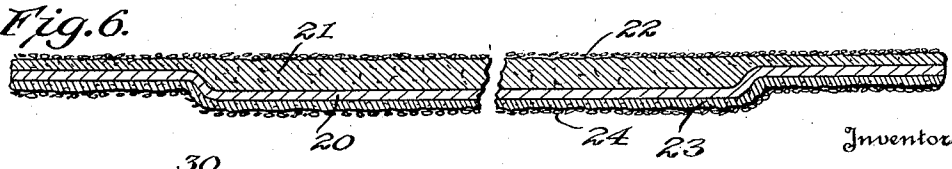


Fig. 6.



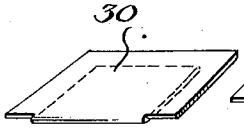


Fig. 9.

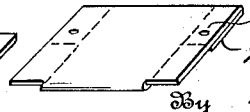


Fig. 10.

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SHINGLE

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Application May 1, 1931, Serial No. 534,324

12 Claims. (Cl. 108—7)

This invention, relating, as indicated, to a shingle, is more particularly directed to a composition shingle composed of the ordinary types of materials such as generally employed in the prepared roofing industry, such as felt saturated with asphalt or tar, coated with asphalt, and surfaced with mineral granules or mineral fibers. It is, of course, to be understood that the shingle may be built up in laminations of various materials, and we do not intend to be limited to those specifically described.

In the prior art there are many disclosures of wide spaced shingles, but in every instance they are composed of materials that when laid in this manner tend to permit openings adjacent to the lapped edges that permit the driving rain to drive up onto the roof boards, causing leaks. Further, in the prior art there is no means for making a dam to provide a weather-tight joint between the wide spacing relation of the shingles. In every instance of the prior art where shingles are laid in wide spaced relation, they are generally supported along their longitudinal edges, which leaves the central portion of the shingle out of contact with its immediately subjacent shingle. In the course of time the shingle sags at the center, which not only presents an ugly appearance but also results in warping the longitudinal edges upwardly, thus permitting the easy entrance of rain and moisture. A further disadvantage of wide spaced shingles as previously constructed is that when they are initially laid, the central unsupported lower edge provides a vent for the roof so that it is easily possible for moisture to enter and eventually rot the roof sheathing.

Other objects of the invention will be apparent from a consideration of the accompanying drawing and the following description thereof.

Of the drawing, Fig. 1 is a plan view of an assembly of our improved shingles; Fig. 2 is a sectional view taken along lines 2—2 of Fig. 1; Fig. 3 is a perspective view of an individual shingle; Fig. 4 is a transverse section of Fig. 3; Fig. 5 is a transverse section of a modification of Fig. 3; Fig. 6 is a transverse section of another modification of the shingle shown in Fig. 3; Fig. 7 is a plan view taken from above, of a still further modification; Fig. 8 is a perspective view of the shingle shown in Fig. 7 when folded; and Figs. 9 and 10 are perspective views of further modifications.

The shingle which we have shown in assembled relation is illustrated in Fig. 3, and comprises a body portion 1 of generally rectangular formation, having transverse edges 2 and 3 and longitudinal edges 4 and 5. It will be noted that the longitudinal edges extend in a plane slightly elevated from that of the body portion 1, and this is brought about by depressing the shingle centrally thereof to produce flanges 6 and 7 out of the plane of the body portion 1. The flanges extend inwardly a distance which can be varied at will, depending upon the amount of overlap desired, and, in this instance, is shown as being equal to the headlap.

In the embodiment shown in section in Fig. 4, the shingle comprises a saturated felt base 8 having a coating 9 thereon upon which granular mineral matter 10 is placed to impart a pleasing appearance as well as to render the shingle weatherproof.

In the embodiment shown in Fig. 5, the felt base 11 which is saturated has a coating 12 thereon, this coating being materially thicker over the central portion than along the flanges, and the shingle in this instance is surfaced just as before with granular mineral matter 13. In this instance the shingle is formed with a central depression, that is, subsequently filled with the coating 12 to provide a smooth upper surface extending in one plane. As a result of such construction a very durable shingle is obtained at a cost below that of a shingle using two separate layers, as the coating is the cheapest lamination in the entire shingle. The double thickness shingle does have certain desirable characteristics however, and these will be described more in detail in connection with the description of Fig. 7.

A further embodiment is shown in Fig. 6, which may be slightly more expensive to manufacture, but provides a shingle having the two most desired characteristics, namely, reversibility and long life. This shingle has a saturated felt base 20 and is coated on its upper side with a filler 21 which in turn is surfaced with mineral matter 22. The lower surface of the saturated felt is also coated with a suitable substance such as asphalt 23, and is in turn surfaced with mineral matter 24. This coating on the reverse, or under side of the shingle may at first glance seem unnecessary, however, in installations where long service is desired it will be found that such reverse coating is a very material aid in the preservation of the saturated felt base, upon which the life of the shingle depends.

In each of the previously described embodiments, the thickened central portion has been obtained by either depressing the central portion or elevating the flange portions, but it is also possi-

ble to produce a shingle having the desired characteristics without the depressing or elevating operations. This may be accomplished by providing a blank **30** as shown in Fig. 7, which has parallel transverse edges **31** and **32**, the edge **32** being shorter than the edge **31**. This shingle is bent along a line **33** and the edge **32** is folded around until it is aligned with the edge **31**, as shown in Fig. 8. In some instances the same result can be obtained by placing a separate central member on the main body member instead of folding, and if this is desired, all that is necessary is the cutting operation involving cutting two shingles of different sizes. In the event that it is desired to produce the shingle of Fig. 8 at less cost, it is possible to merely apply a coating to the back of the shingle and then surface this coating with granules of mineral matter. This last application of coating and mineral matter will, of course, have the dimensions of the smaller half of the blank **30** resulting in a pair of flanges on the finished shingles, which extend the full length of the shingle.

In Fig. 9 a further embodiment of our invention is shown, this shingle differing from that shown in Fig. 8 in that the fold is made at one edge of the shingle and the folded under-portion does not extend to the top. Stated another way the shingle disclosed in this figure has the fold reversed and allowance is made for the head lap, thus producing a smoother and more even roof.

In Fig. 10 the construction illustrated in Fig. 9 is slightly modified and here the under-portion extends upwardly to a position coincident with the upper edge. In addition the upper portion **26** of the folded back may be enlarged from approximately the mid-point of the shingle. The enlargement may be an integral part of the back or may take the form of a separate filler strip as shown in Fig. 10. The position of the nail is indicated at **25**, this being the most desirable location as it is under the over-lapping shingle and also because it engages the thickened portion when applied as shown in Fig. 1.

From the foregoing description it will be apparent that we have provided a shingle free from all of the objections against similar shingles of the prior art. This will be seen to be true when it is noted that our shingles may be laid in wide spaced relation and that not only is there a great saving in material from such spacing, but the form of the shingle enables the roofer to lay them most expeditiously.

An inherent characteristic of the thick central portion is that no sagging will ever occur, regardless of the length of service to which the shingle is put, and in turn this results in maintaining the longitudinal edges flat against the roof.

Further and more important results are that there are no vents through the roof, which prevents the entrance of moisture and consequent rotting of the sheathing. Additionally, the shingle itself will last longer because that part of the shingle most susceptible to the elements is perfectly guarded.

As a further saving in the cost of manufacturing the shingle, separate devices for maintaining the central portion in raised position are dispensed with, so that where two operations were necessary to manufacture the prior shingles, a single operation now suffices.

Another important factor in connection with shingles manufactured according to my invention is that a most pleasing design is produced because of the thick butt which lends massiveness to the assembled roof.

Other modes of applying the principle of our invention may be employed instead of the one explained, change being made as regards the mechanism herein disclosed, provided the means stated by any of the following claims or the equivalent of such stated means be employed.

We therefore particularly point out and distinctly claim as our invention:—

1. A shingle of general rectangular formation having a central supporting layer, a coating upon both sides of said layer and surfacing material upon said coating, the thickness of the coating upon one side of said layer being greater than that of the other side throughout a central longitudinal portion of said shingle, and said coatings being equal in thickness adjacent the longitudinal edges of said shingle.

2. A shingle comprising a supporting layer, a coating layer and a surfacing layer, said supporting layer having a preformed depressed central portion whereby longitudinal flanges are produced, said depressed portion acting to prevent bowing of the longitudinal edges.

3. A shingle comprising a supporting layer, a coating layer and a surfacing layer, said supporting layer having a preformed depressed central portion whereby longitudinal flanges are produced, said coating layer extending over said supporting layer and having its upper face in one plane, said depressed portion acting as a spacing means.

4. A shingle comprising a supporting layer, a coating layer and a surfacing layer, said supporting layer having a preformed depressed central portion whereby longitudinal flanges are produced, having a lesser thickness than the over-all thickness of the shingle, said depressed portion rigidifying the transverse section of the shingle to prevent curling of the exposed edges in assembly.

5. A shingle element adapted for wide spaced assembly, comprising a preformed flexible fibrous base having integral portions thereof in different planes, certain of said portions creating opposite flanges of the shingle for side lapping with adjacent shingles in assembly, and another of said portions of the base between said flanges extending in a plane adjacent to that of the flanges and creating a projection extending along the central part of the shingle between the flanges and adapted to substantially prevent sagging in assembly, said base having a wear resistant surfacing upon its weather side and the shingle inwardly of the flange portions having a thickness greater than the flanges and said base and integral portions consisting of a sheet of substantially uniform thickness prior to forming.

6. A composition shingle element adapted for wide spacing in assembly, said shingle comprising a preformed flexible fibrous base having integral portions thereof in different planes, certain of said portions creating opposite side flanges of the shingle and another of said portions between the side flanges projecting beyond the plane of the flanges at least substantially the thickness of said base flange portions to substantially prevent sagging of the shingle when said other base portion is positioned in the space between shingles of an adjacent course in assembly, said base flange portions and base projecting portion comprising prior to forming an integral sheet of material of substantially uniform thickness and said base having a wear resistant surfacing upon its weather side.

7. A shingle element adapted to be laid wide spaced and in overlapping courses with other similar shingles, said shingle comprising a fibrous base having a folded portion in a plane adjacent thereto, certain portions of the base creating opposite flanges of the shingle for lapping with other shingles in an adjacent course and said folded portion creating a long projection along the central part of the shingle between the flanges and adapted to substantially prevent sagging of the shingle in assembly.

8. A surface covering composed of shingles laid in wide spaced relation in overlapping courses, each shingle comprising a preformed fibrous base having integral portions thereof in different planes with certain of said portions creating opposite flanges of the shingle and with another of said portions of the base between said flanges extending in a plane adjacent to that of the flanges and creating a projection extending along the central part of the shingle between the flanges, said base also having a wear resistant surface upon its weather side and said base and integral portions consisting of a sheet of substantially uniform thickness prior to forming and the shingles of each course being laid in wide spaced relation with their surfaced sides to the weather and such that the flange portions of each shingle are in lapping relation with the flanges of a pair of shingles in an adjacent course, and said projecting portion of the base providing a central reinforcing portion to substantially prevent sagging of the shingle, and having a width substantially equal to the spacing between said pair of shingles in the adjacent course.

9. A shingle of general rectangular formation comprising a body of flexible shingle material providing a central supporting portion and opposite side flanges of the shingle, said body having coating material upon its weather side and the thickness of the coating along the central supporting portion of the body being greater than at the flange providing portions of the body, whereby a shingle is provided having flange portions and a central projecting portion to substantially preventing sagging in assembly.

10. A shingle of general rectangular formation comprising a body of flexible shingle material providing a central supporting portion and opposite side flanges of the shingle, said body having coating material on both its sides and the thickness of the coating material upon the weather side along said central supporting portion provided by the body being greater than at the flange providing portions of the body and greater than that upon the other side of the body, whereby a shingle is provided having flange portions and a central projecting portion to substantially preventing sagging of the shingle in assembly.

11. A shingle of general rectangular formation adapted for wide spacing in assembly, said shingle comprising a preformed flexible base having portions in different planes, certain portions creating opposite side flanges of the shingle and another portion between the side flanges creating a projection extending along the central part of the shingle between the flanges and projecting beyond the plane of the flanges at least substantially the thickness of said base flange portions, said base comprising prior to forming a T-shaped piece of flexible material.

12. A shingle of general rectangular formation comprising a body of flexible shingle material and a thickening layer on its rear side having substantially a T shape and positioned to leave uncovered marginal portions of the body for lapping with adjacent shingles, the stem of said T-shaped layer providing a central projecting portion for spacing other shingles and to prevent sagging of the shingle in assembly, and the side portions of the T adapted to provide nailing fillers in assembly.

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