June 6, 1939. E. E. VENRICK 2,161,440

SHINGLE

Filed Feb. 21, 1936 2 Sheets-Sheet 1

Fig. 1.

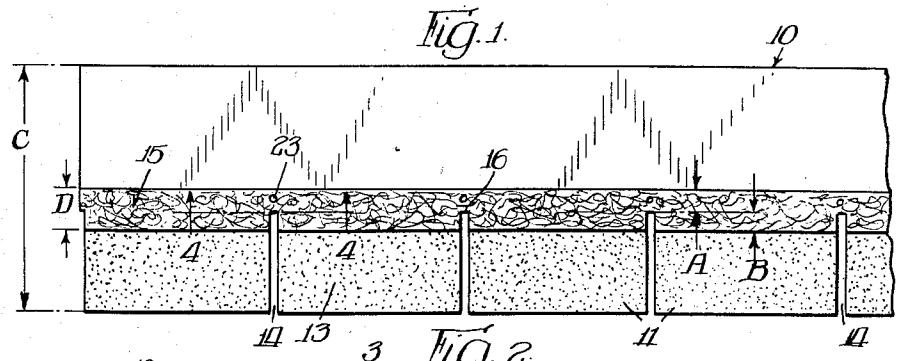


Fig. 2

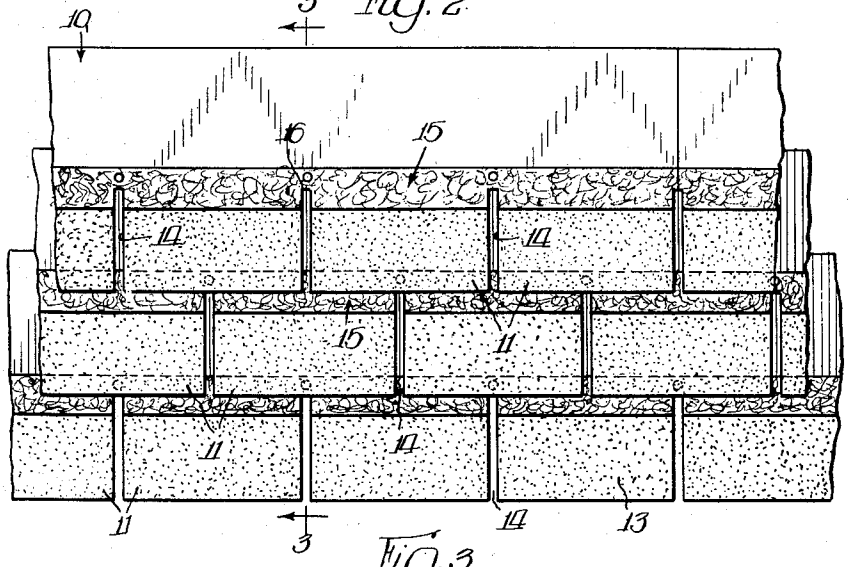


Fig. 3

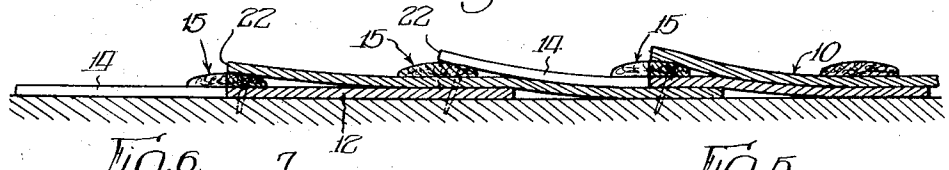


Fig. 6

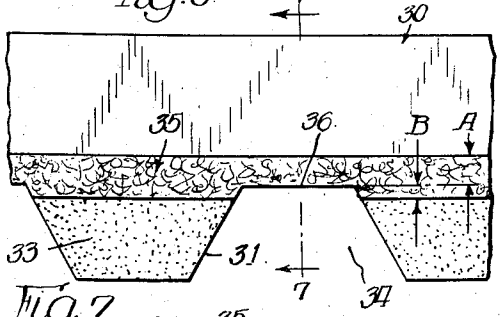


Fig. 7

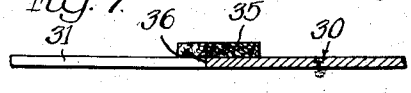
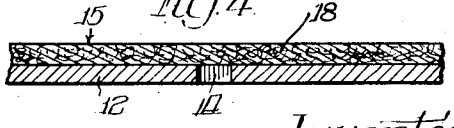


Fig. 5.



Fig. 4



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Fig. 8

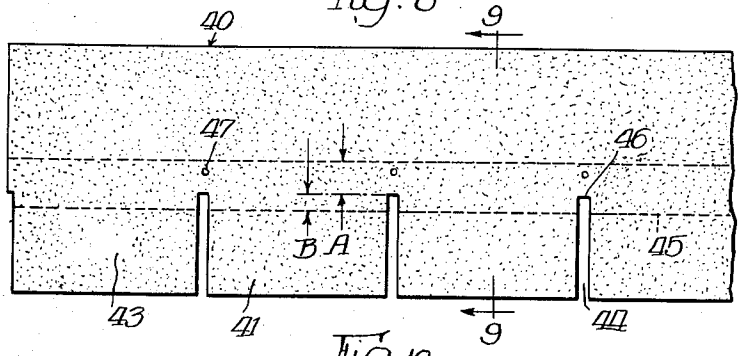


Fig. 9.

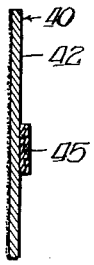


Fig. 10

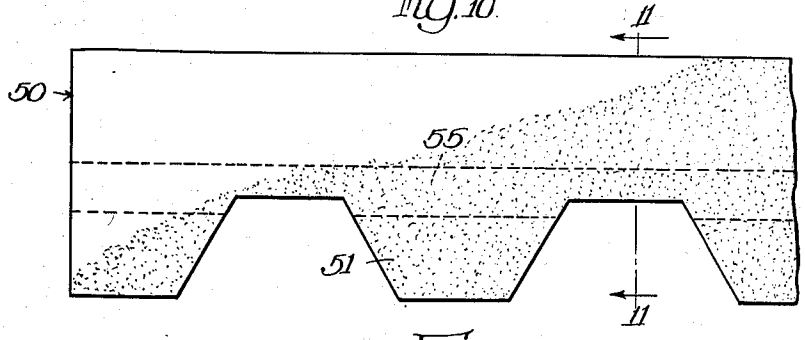


Fig. 11.

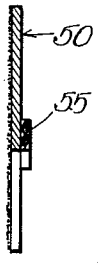


Fig. 12

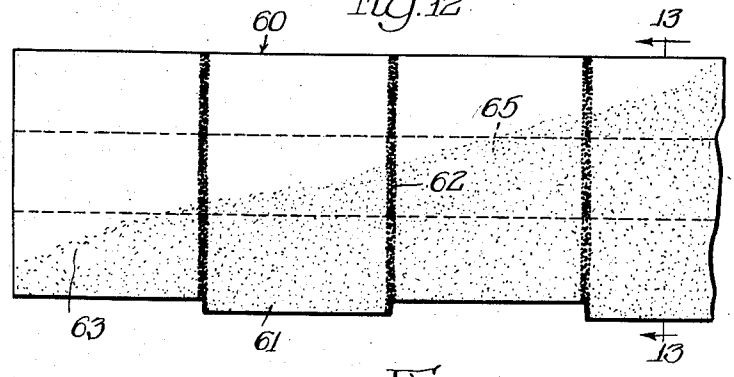


Fig. 13.

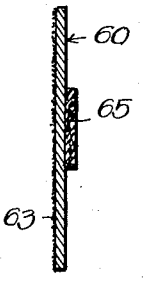
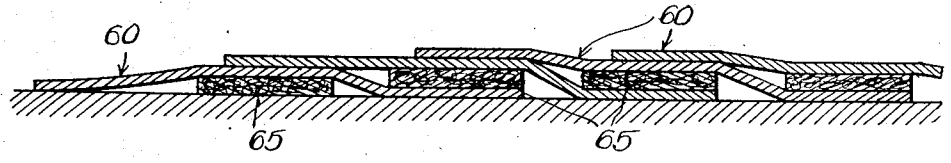


Fig. 14



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UNITED STATES PATENT OFFICE

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SHINGLE

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Application February 21, 1936, Serial No. 65,043

5 Claims. (Cl. 108—7)

The invention relates to improvements in shingles for roofing buildings, homes and the like, and particularly to an improved fabricated shingle strip consisting of a base of fibrous material to which asphalt or similar plastic material is applied and which is surfaced with comminuted or granular material.

The type of shingles above described is well known and their durability and performance in withstanding the ravages of the weather has been satisfactory. However, the shingles are of uniform thickness and therefore lie flat on the roof and give an ordinary flat and unsubstantial appearance to the roof as a whole. Another objection to felt base shingles in general is that water and moisture will seap under the shingles when in overlapped relation on the roof, and also that the butt ends are readily lifted up by the wind, permitting rain and moisture to be blown under the shingles, causing rapid deterioration of the same.

An object of the invention is to provide a roofing shingle of the type described which will improve the appearance of a roof composed of said shingles by giving the same depth and character, and which will extend the life of the roof by preventing the seepage of rain and moisture under the shingle.

A more specific object of the invention is to provide a shingle having a raised median portion extending longitudinally thereof for supporting the butt end of the overlapping shingle of the next horizontal course. The effect of the improved shingle is to give a semblance of thickness to the butt ends of the shingles comprising a roof, resulting in a better shadow line, and the roof as a whole has a heavy substantial appearance and other desirable characteristics which are not secured by the ordinary felt base shingles.

Another object is to provide a felt base shingle having a reinforcing strip strengthening the upper ends of the openings between tabs to reduce the tendency of the shingle to tear at the upper ends of said openings and which strip will further provide a reinforced area for nailing the shingle to the roof.

Another object is to provide a felt base shingle that will improve the appearance of a roof composed of the shingles and which will also prevent water and moisture from seeping or working its way up between the shingles when in overlapping relation.

With these and various other objects in view, the invention may consist of certain novel features of construction and operation as will be more fully described and particularly pointed out in the specification, drawings and claims appended hereto.

In the drawings which illustrate an embodiment of the invention and wherein like reference characters are used to designate like parts—

Figure 1 is a top plan view showing a strip shingle embodying the invention;

Figure 2 is a fragmentary top plan view showing the manner of laying the present shingles in overlapping relation on a roof;

Figure 3 is a sectional view taken substantially along line 3—3 of Figure 2;

Figure 4 is a fragmentary longitudinal sectional view taken along line 4—4 of Figure 1 and showing the relative thickness of the raised fibrous strip;

Figure 5 is a sectional view similar to Figure 4 but showing a raised strip composed of alternate layers of granules and asphalt;

Figure 6 is a top plan view of a different type of felt base shingle embodying the invention;

Figure 7 is a transverse sectional view on line 7—7 of Figure 6, showing a raised median strip substantially rectangular in cross section;

Figure 8 is a top plan view of a square tab shingle embodying a modification of the invention;

Figure 9 is a transverse sectional view substantially along line 9—9 of Figure 8;

Figure 10 is a top plan view of a hexagonal tab shingle embodying a modification of the invention;

Figure 11 is a transverse sectional view substantially along line 11—11 of Figure 10;

Figure 12 is a top plan view of still another type of shingle embodying a modification of the invention;

Figure 13 is a transverse sectional view taken substantially along line 13—13 of Figure 12; and

Figure 14 is a sectional view showing the manner of laying the shingles of Figure 12 in overlapping relation on a roof.

Referring to the drawings, the roofing unit selected for illustration in Figures 1 and 2 comprises a shingle strip 10 having square tabs 11. The shingle consists of a felt base 12 which may be formed from rag, asbestos or the like, that has been saturated and coated with asphalt and surfaced with mineral granules 13 such as crushed slate, tile or natural stone. The material leaves the roofing machine in a continuous length, having been saturated and surfaced by said machine, as above described, and notched at intervals forming the openings 14. The material is then

severed longitudinally and is cut into the length desired for the strip shingles.

Shingles of the type above described are of uniform thickness throughout and when laid on a roof gives an ordinary flat and unsubstantial appearance although the shingle itself is very satisfactory in durability and performance in withstanding the ravages of the weather. As an improvement to felt base shingles in general, to overcome the objection to the flat appearance of the roof composed of said shingles, the invention provides a raised median strip **15**, Figure 1, which extends longitudinally of the shingle in the vicinity of the upper ends **16** of the openings **14**. More particularly the raised strip **15** protrudes from the upper surface and is located with respect to a line connecting the upper end of the opening so that about one-half of the width of the strip is on one side of said line and one-half on the other side. Thus, referring to Figure 1, it will be seen that the distance A is substantially equal to B. The upper ends **16** of the openings are effectively strengthened and reinforced so as to prevent tearing of the shingle at these points. The tabs **11** of the shingle are also strengthened and given added rigidity by reason of the fact that the raised strip **15** extends across the upper section of the tab. In a shingle where the width C is approximately twelve inches the width of the strip, or D, may vary from one and one-half inches to six inches.

The strip **15** may be applied to the shingle during manufacture and before the upper surface is coated with the granules **13**, but it is preferable to apply the strip **15** to the shingle after manufacture and thus said strip will be suitably cemented to the granule surfacing **13**. Also the raised portion may comprise a layer of fibrous material **18**, Figure 4, that has been impregnated with a water-proof solution such as asphalt or other plastic compound and the surface of said layer may be left plain or covered with granules, depending on the character of roof desired. For certain installations it may be desirable to form the raised strip **15** of metal which would have the effect of weighting the shingle and giving maximum strength and rigidity thereto along a longitudinal median line. Said raised strip may be formed entirely of crushed rock or roof coatings or may consist of alternate layers of crushed rock, slate or granules and asphalt. A shingle having a raised median portion of alternate layers of granules **20** and asphalt **21** is shown in Figure 5, which further differs from the structure of Figure 4 in that the raised portion is substantially twice the thickness of the base of the shingle, whereas, in Figure 4 the raised fibrous portion is about one and one-half times the thickness of the base. These proportions are to be considered as illustrative only as the thickness of the median strip may vary, depending on the size of the shingle and the duty to be performed by the same.

The improved shingle of the invention is laid in the usual manner as will be evident from an inspection of Figure 3, wherein the shingles of an upper horizontal course overlap the shingles of a lower horizontal course to expose the tabs of said last mentioned shingles. The tabs of the shingles are in all cases coated with mineral granules to provide a grit surfacing which protects said exposed portion from erosion, giving long life to the resulting roof. The butt edges of the overlapping shingles are aligned with the upper ends **16** of the openings between tabs of the underlying shingles and accordingly the butt edges of the tabs are supported by the raised strip **15** of the underlying shingles. As more particularly shown in Figure 3, the ends **22** of the tabs coincide with the longitudinal center line of the strip **15**. As each horizontal course is laid in overlapping relation with an underlying course the shingles are nailed in a plurality of places and preferably immediately above the upper ends **16** of the openings.

In Figure 1 the shingle is shown as provided with nail openings **23** which may be preformed in those cases where the raised portion **15** is composed of a relatively hard material, which would render it difficult to drive the roofing nail through the same. The effect of the raised portion is to give greater nailing strength to the shingle. Therefore, the shingle will not readily tear at the nail holes and it is also difficult to tear the shingle at the upper end of the openings between tabs, all by reason of the strength and rigidity resulting from the added thickness of the raised strip.

The tabs **11** of the present shingle are not so easily lifted by the wind to permit the entrance of moisture between shingles as the tabs have increased rigidity due to the raised portion **15**. Thus the shingles of the invention are better able to withstand storms, windy weather and other adverse climatic conditions and therefore have a longer life. Neither will moisture seep or work its way up between shingles since the raised portion **15** acts as a barrier.

In the modification of Figures 6 and 7, which show a strip shingle **30** having hexagonal tabs **31** and coated with granules **33** the raised strip **35** is provided with a substantially flat upper surface, whereas, with the preferred modification said raised strip has an arcuate or slightly rounded surface. It will be appreciated that the raised median strip may also taper in both directions from a maximum thickness substantially coinciding with a line connecting the upper ends of the openings between tabs. The invention contemplates all cross-sectional shapes and likewise the raised portion **35** may be formed of felt, metal, or alternate layers of granules or asphalt as described. Also in this modification the raised strip is positioned so that the distance A is about two-thirds the width of the strip and the distance B is about one-third.

The appearance of the resulting roof is materially altered by the raised portion since in all cases a better shadow line is produced which gives the semblance of thickness to the butt edges of the shingle comprising the roof. The effect on the roof as a whole is to give the same a substantial appearance and which will be characterized by individuality and distinctiveness.

In the modifications shown in Figures 8, 10 and 12 the raised median strip is located on the undersurface of the shingle. Figure 8 shows a shingle strip **40** of the square tab type, said tabs being indicated by numeral **41**. The shingle consists of a felt base **42** formed from rag, asbestos or the like, impregnated with a water-proofing solution and which is coated with a grit surfacing on the upper side thereof by the granules **43**. The openings between tabs are indicated by numeral **44** and the raised median strip by numeral **45**. Said strip may be an integral part of the shingle or, as described with respect to Figures 1 to 7 inclusive, said strip may be formed of felt, or metal, or may consist of alternate layers of asphalt and granules, or layers of roofing tape

suitably bonded together. Likewise the strip **45** is located centrally of the shingle and extends longitudinally thereof, being disposed with respect to the upper ends **46** of the openings between tabs so as to reinforce this section of the shingle and at the same time strengthen the tabs. This added rigidity given to the tabs makes them lie flat and resists the action of the wind tending to lift them up.

The shingle **50** of Figure 10 is the hexagonal tab type having tabs **51**. In other respects this shingle is the same as that described in Figure 8, having the raised median strip **55** on the undersurface thereof and extending longitudinally of the shingle for the purposes described.

The strip shingle **60** of Figure 12 has tab defining portions **61** which in conjunction with the colored lines **62**, running transversely of the shingle strip, simulate individual shingles. The granules **63** are applied to the upper surface of the same and the lines **62** may be painted or the material comprising said lines may consist of granules of a darker color. Also with respect to this shingle, the raised median strip **65** is applied to the undersurface thereof and as previously described said strip extends longitudinally of the shingle and accordingly reinforces and strengthens the same. The strip **65** is considerably wider than the strips applied to the shingles of Figures 8 and 10 and the disclosure has been varied in this manner in order to indicate that the particular width of the strips is not definite but may vary from approximately one and one-half inches to a maximum of around six inches. Also the thickness of the median strips **45**, **55** and **65** will vary, depending on the size of the shingle and the duty to be performed by the same. In all instances said strip should have a thickness to give the required rigidity to the shingle. The strips **45**, **55** and **65** will be disposed substantially centrally of the transverse dimension of the shingle and with respect to the upper end of the openings between tabs so that the shingle will effectively resist tearing inwardly from the openings. The distance A may approximate two-thirds of the width of the strip and the distance B one-third.

The shingles are laid in the usual manner with the horizontal courses in overlapping relation with an underlying course as shown in Figure 14. The shingles are nailed preferably about one inch above the upper ends of the tab defining openings and where the raised median strip is composed of a hard durable material the nail openings may be preformed as indicated by numeral **47**, Figure 8.

The invention is not to be limited to or by details of construction of the particular embodiment thereof illustrated by the drawings, as various other forms of the device will of course be apparent to those skilled in the art without departing from the spirit of the invention or the scope of the claims.

What is claimed is:

1. A roofing shingle adapted to be laid in courses in overlapping relation, said shingle having cut-out portions on the exposed butt end forming a plurality of tabs, a grit surfacing of mineral granules on the upper face of the tabs, and a raised longitudinal strip disposed centrally of the width of the shingle and extending the length thereof, said strip being adhesively secured to the shingle along its entire length and having a thickness to materially increase the thickness of the shingle along said strip, the central disposition of said strip having the effect of increasing the strength and rigidity of the shingle along the longitudinal central section thereof and which includes the upper portion of said tabs.

2. A roofing shingle adapted to be laid in courses in overlapping relation, said shingle having cut-out portions on the exposed butt end thereof to form a plurality of tabs, a grit surfacing formed by mineral granules on the upper face of said tabs, and a strip composed of fibrous material extending the length of the shingle, said strip being cemented to the shingle along its entire length and being disposed centrally of the width of the shingle which thereby locates the strip approximately centrally with respect to the upper end of the cut-outs, whereby said strip increases the rigidity of the longitudinal central section of the shingle and also the upper portion of the tabs, and whereby said shingle is reinforced and strengthened against tearing at the upper end of the cut-outs forming the tabs.

3. A roofing shingle comprising a fibrous base impregnated with a water-proofing solution and adapted to be laid in courses in overlapping relation, said shingle having cut-out portions on the exposed butt end thereof forming a plurality of tabs, a grit surfacing on the upper face of said tabs, and a strip composed of fibrous material similar to the base of the shingle extending the length of the shingle, said strip being cemented to the shingle along its entire length and being located centrally of the width of the shingle so that said cut-out portions forming the tabs include a part of said fibrous strip, whereby said shingle has increased rigidity along its longitudinal central section including the upper portion of said tabs, and whereby said fibrous strip also reinforces and strengthens the shingle against tearing at the upper ends of the openings forming the tabs.

4. A roofing element comprising a strip of saturated fibrous material having slots extending upwardly from the bottom edge thereof forming tabs, a raised longitudinal strip disposed centrally of the width of the said element and extending the length of the latter, the second strip being cemented to the first strip along the entire length of the latter and including the upper portions of the tabs and having a thickness sufficient to materially increase the thickness of the element along the second strip, and a coating of granular material covering the lower portion of the said element and the exposed portion of the second strip.

5. A roofing shingle comprising a fibrous base impregnated with a water-proofing solution and adapted to be laid in courses in overlapping relation, said shingle having slots extending upwardly from the bottom edge thereof forming tabs, a grit-surfacing on the upper exposed face of said tabs, and a coating of adhesive and granular material forming a reinforcing strip extending the length of the shingle and being located approximately centrally of the width of the shingle, said strip having a thickness which increases the thickness of the shingle along said strip, and the central disposition of said strip increasing the strength and rigidity of the shingle along the longitudinal central section thereof and which includes the upper portion of said tabs.

EMMETT E. VENRICK.