June 5, 1934. C. E. RAHR 1,961,166

ROOFING ELEMENT AND METHOD OF MAKING SAME

Filed Jan. 2, 1931 2 Sheets-Sheet 1

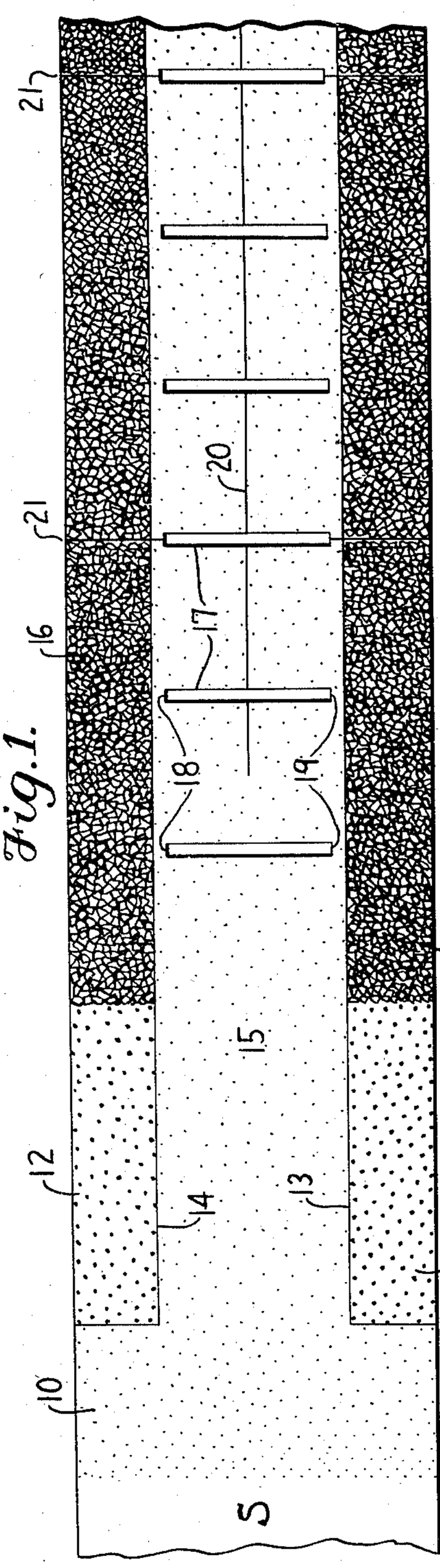

Fig. 1.

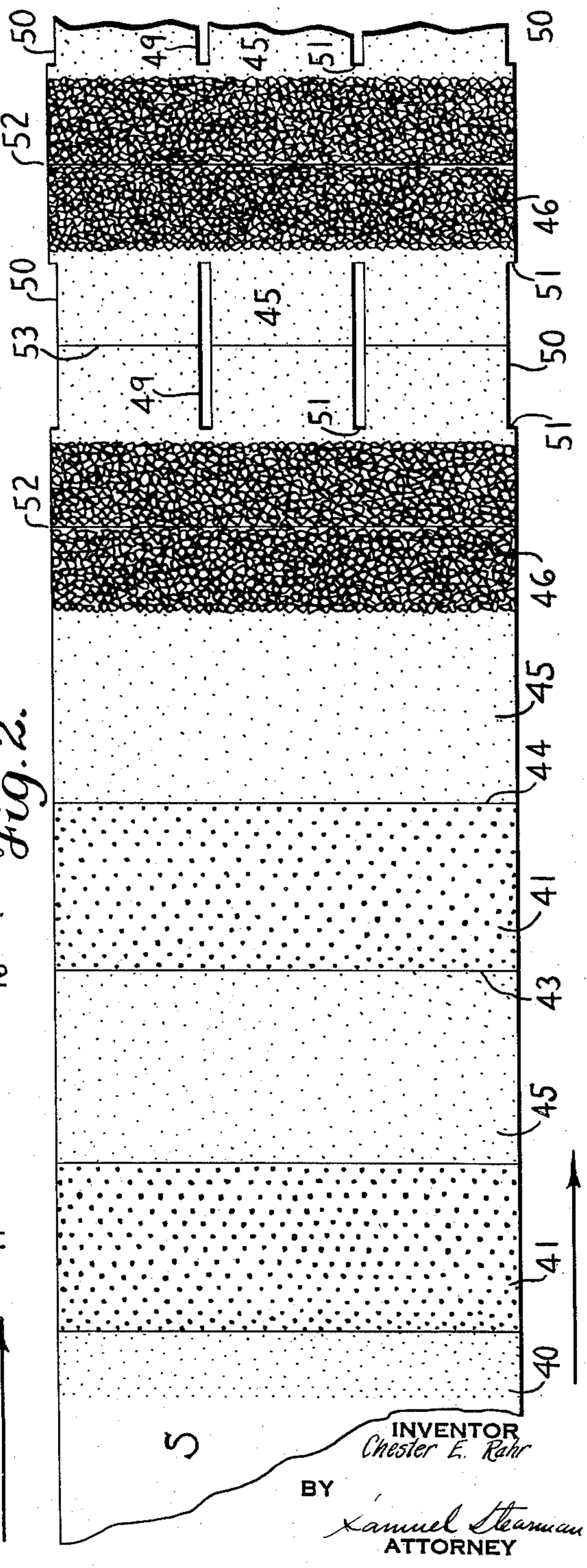

Fig. 2.

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Fig. 3.

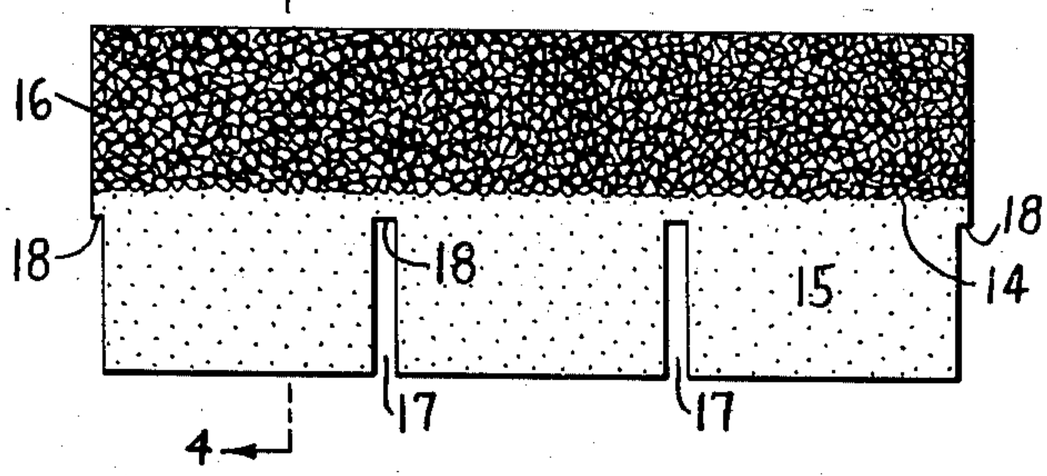

Fig. 5.

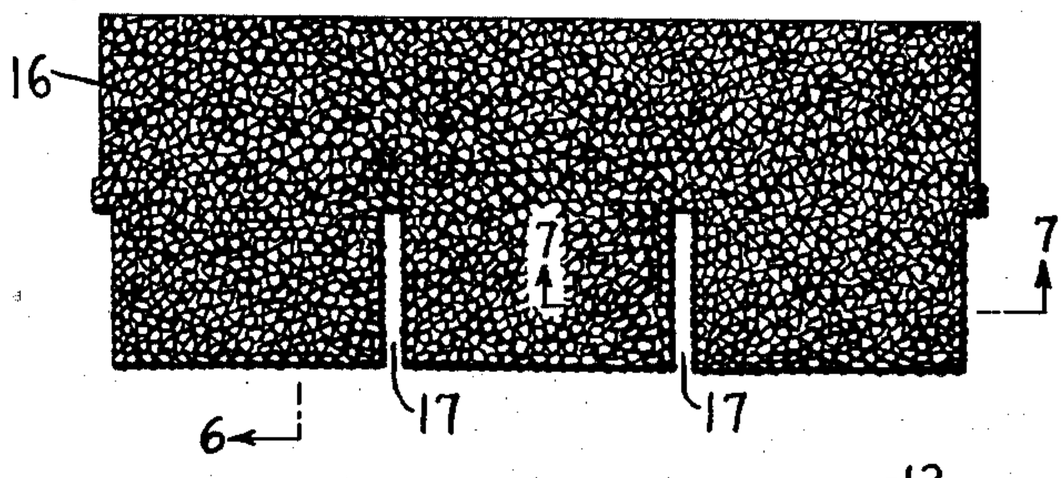

Fig. 4.

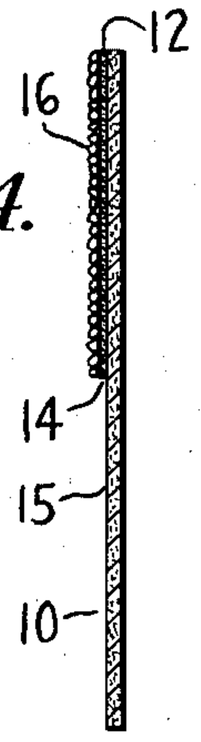

Fig. 6.

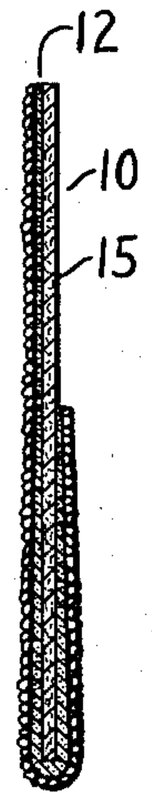

Fig. 7.

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UNITED STATES PATENT OFFICE

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ROOFING ELEMENT AND METHOD OF MAKING SAME

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Application January 2, 1931, Serial No. 506,183

15 Claims. (Cl. 91—68)

The invention relates to composition shingles, so-called, that may be laid in overlapping courses as a protecting medium on a roof or side walls of a building, and to a method of manufacturing the same.

These composition shingles usually comprise a fibrous base, saturated with a waterproofing compound, such as asphalt or other bitumen, and coated on one or both sides with a weatherproof substance, such as blown asphalt, and surfaced with crushed slate, slag or the like.

Composition shingles now on the market frequently exhibit a tendency toward curling and blistering due to uncoated edges that are presented when the shingles are cut from a parent sheet. When the shingles are applied, any such uncoated edges that are presented to the weather allow the fibres in the base to absorb moisture and thereby effect deterioration of the shingles under continued action of the elements.

An object of the present invention is to provide a shingle or shingle strip, having its exposed portions enveloped with a weatherproofing material that has granular material of crushed slate, tile or the like partially imbedded therein.

Another object of the invention is to provide shingles having a coating layer of waterproofing material, in which surfacing material of crushed slate, tile or the like may be partially embedded, the said coating layer extending over the entire top face, over the bottom face of the butt and over all of the exposed edges including the butt and side edges.

A further object of this invention is to provide an improved efficient and expeditious method of producing the shingles or shingle strips as above described.

Briefly stated the shingle or shingle strip is of variable thickness construction, with the butt end of greater thickness than the upper end. A coating layer of asphalt or other weatherproof material having a surfacing layer of crushed mineral grit partially embedded therein, completely envelopes the exposed portions including all the exposed edges and covers also the top face of the unexposed portion of the shingle or shingle strip. In practising the invention for the production of shingle strips, a saturated web of fibrous felt is coated and surfaced along predetermined areas of the web, and tab-defining slots or recesses are cut in the uncoated portion of the web to form the projections or tabs of the shingle strip, whereupon the strips are severed from the web and then subjected to an operation for coating and surfacing the portions of the strip to be exposed to the weather, whereby to encase said portions including all of the edges thereof in a continuous protective coating, which preferably is of tapering cross-section.

Referring to the accompanying drawings:

Figure 1 represents a plan view of a sheet of roofing base during the course of its manufacture into shingle strips.

Figure 2 illustrates application of bands of coating material transversely of the sheet instead of longitudinally thereof.

Figure 3 represents a shingle strip as it appears when cut from the sheet.

Figure 4 represents a cross-sectional view taken on line 4—4 of Figure 3.

Figure 5 represents a plan view of a finished shingle strip embodying my invention.

Figure 6 is a cross-sectional view taken on line 6—6 of Figure 5.

Figure 7 is a cross-sectional view taken on line 7—7 of Figure 5.

Although individual shingles as well as shingle strips of any configuration are within the purview of this invention, I will describe it as applied to the ordinary square butt shingle strip which comprises a body that has at one end a plurality of tabs or projections spaced from each other by means of narrow slots or recesses.

Referring to Figure 1, a sheet S of fibrous felt or other equivalent roofing base material is saturated in any desired manner to the proper extent with asphalt to produce a water resistant sheet indicated by the numeral 10. A coating layer of high melting point blown asphalt is then applied to the top of the saturated sheet in the form of spaced bands 11 and 12 of desired thickness and of predetermined width, preferably slightly less than the width of the unexposed portion of the strip to be formed. The bands 11 and 12 have inner boundaries 13 and 14 respectively, that define an intermediate uncoated area or stripe 15. The bands 11 and 12 are now surfaced with crushed slate, slag or the like 16 which is caused to become partially embedded therein by suitable press rolls.

A series of spaced transverse rectangular slots 17 are cut out of the uncoated portion 15 of the web, with the ends 18 and 19 of the slots preferably terminating a slight distance inwardly from the boundaries 13 and 14 of the bands 11 and 12. The sheet is then slit along a center line 20 that extends longitudinally of the sheet and cut transversely along lines 21 to produce square butt shingle strips.

If desired, the strips may be cut crosswise of

the sheet or web as shown in Figure 2 by first saturating the sheet in the usual manner to produce an asphalt saturated sheet 40. Coating layers of blown asphalt are applied to the top face of the saturated web, in the form of equi-spaced stripes or bands 41 of predetermined thickness and width, the stripes having boundaries 43 and 44 that define intermediate uncoated stripes 45. A surfacing material such as crushed slate 46, is partially embedded in the coating layers 41. A plurality of longitudinally extending rectangular slots 49 and half-slots 50 are formed in the uncoated stripes 45, with the ends 51 of the slots preferably terminating a slight distance inwardly from the boundaries 43 and 44 of the bands 41. The sheet is then cut transversely along the lines 52 and 53 passing preferably centrally through the coated and surfaced areas 41 and intervening uncoated areas 45 to produce the strips. If desired, a skin coating of blown asphalt may be applied to the underface of the sheet.

The shingle strips produced by following either of the aforedescribed methods is illustrated in Figure 3. The upper portion of the top face of the strip has a coating layer of asphalt, with a layer 16 of surfacing material partially embedded therein.

According to the invention the uncoated portion of the top face, that portion of the bottom face extending from the butt edge to a distance slightly above the tops of the cut-outs, and all of the exposed edges of the strip are then coated with a layer of blown asphalt. This may be accomplished by dipping the shingles into a bath of molten asphalt to a depth such that the molten asphalt covers the aforesaid uncoated portions of the shingle and merges with the lower boundary of the coating layer 12. The strip is removed from the bath and preferably held in vertical position for a sufficient time to permit the fluid coating material to drain downwardly toward the butt edge thereof and form a layer of tapering cross-section. The coating layer is then surfaced with granular surfacing material such as crushed slate, tile or the like in any suitable manner. The coating and surfacing operations for converting the strip as shown in Figures 3 and 4 to the article as shown in Figures 5 and 6 may be performed by any other method desired and by the use of any appropriate machines or instrumentalities.

I claim as my invention:

1. A shingle element comprising a base of fibrous material having a continuous layer of coating material of uniform thickness on the upper part of the top face and a continuous layer of coating material of tapering cross-section adhering directly to the fibrous base on the lower portion of the element so as to cover the butt and side edges thereof and merging on the upper face of the element with the first named layer.

2. A shingle element comprising a base of fibrous material having a continuous layer of coating material of uniform thickness on the upper part of the top face and a continuous layer of coating material of tapering cross-section enveloping the exposed portion of the strip and adhering directly to the fibrous base on said exposed portion and covering the butt and side edges thereof and merging on the upper face of the shingle element with the first named layer.

3. The method of making shingle elements which consists in applying to a sheet of saturated fibrous material a weatherproof coating in the form of a band whereby to leave an uncoated portion of the sheet immediately adjacent said band, cutting the sheet whereby to form shingle elements having the upper portion of the top face thereof coated and the lower portion of the top face uncoated, coating the lower portion of the top face and the edges with a weatherproof material and surfacing said last named coating.

4. The method of making shingle elements which consists in applying to a saturated web, a weatherproofing material in the form of a plurality of bands defining an intermediate uncoated area, cutting the sheet to form shingle elements having said weatherproofing material on the upper unexposed portions thereof, the lower portions to be exposed when laid being uncoated, coating the face and edges of the elements to be exposed when laid with a weatherproof material and applying surfacing material over the last-named weatherproof material.

5. The method of making shingle elements which consists in applying to a saturated web a weatherproof material in the form of a plurality of longitudinally extending bands defining an intermediate uncoated area, cutting the sheet to form shingle elements having said weatherproof material on the upper portion thereof, the lower portion to be exposed when laid being uncoated, coating the face and edges of the elements to be exposed when laid with a weatherproofing material and surfacing the last-named weatherproofing material.

6. The method of making shingle elements which consists in applying to a saturated sheet, weatherproof material to form alternate transverse bands of coated and uncoated areas, cutting the sheet to form shingle elements with the weatherproof material on the upper portions thereof, the lower portions of the elements to be exposed when laid being uncoated, coating the exposed face and edges of the elements with a weatherproof material and surfacing said last named weatherproof material.

7. The method of making shingle strips which consists in applying to a sheet of saturated fibrous material a weatherproof coating in the form of a band whereby to leave uncoated a portion of said sheet immediately adjacent said band, forming tab defining slots in said uncoated area, cutting the sheet to form shingle strips having the upper portion of the top face thereof coated and the portions thereof to be exposed when laid uncoated, coating the exposed face and edges of the strips with a weatherproof material and surfacing said last-named weatherproof material.

8. The method of making shingle strips which consists in applying to a saturated web a weatherproof material in the form of a longitudinally extending band of weatherproof material leaving an uncoated area adjacent said band, forming transverse slots in said uncoated area, cutting the sheet to form shingle strips having the upper portion coated with said weatherproof material and the lower portion to be exposed when laid uncoated, coating the exposed face and edges of the strips with a weatherproof material and surfacing said last-mentioned weatherproof material.

9. The method of making shingle strips which consists in applying to a saturated web a weatherproof material in the form of spaced transverse bands separated by intervening uncoated areas, forming longitudinally extending slots in said uncoated areas, cutting the sheet into shingle strips having the upper portion coated with the

weatherproof material and the lower portion to be exposed when laid uncoated, coating the exposed face and edges of the strips with a weatherproof material and surfacing said last-named weatherproof material.

10. The method of making shingle elements which consists in applying to a sheet of saturated fibrous material, a weatherproof coating in the form of a band, whereby to leave an uncoated portion of the sheet immediately adjacent said band, cutting the sheet into shingle elements having the upper portion coated and the portion to be exposed uncoated, coating the top face and side edges of the exposed portion with a coating of weatherproof material of greatest thickness at the butt end of the shingle elements and surfacing the last named coating.

11. The method of making shingle elements which consists in applying to a sheet of saturated fibrous material, a weatherproof coating in the form of a band, whereby to leave uncoated a portion of the sheet immediately adjacent said band, cutting the sheet into shingle elements having one portion coated and another portion uncoated, coating said last named portion with a weatherproof material of tapering cross section and surfacing said last named coating.

12. An intermediate step product or article of manufacture consisting of a precut shingle element comprising a base of felted fibrous material saturated with water resistant material and having a layer of waterproof coating material on the upper part of that face which is to be exposed when the unit is laid, said layer terminating on a line substantially midway between the upper and lower edges of the blank and having a layer of mineral surfacing material affixed thereto, said element constituting a blank for subsequent treatment to provide the lower part of said base and the butt and side edges thereof with a single continuous layer of weatherproof coating material.

13. A precut building strip comprising a base of felted fibrous material saturated with water resistant material, cut-out portions in the lower half of the base defining shingle simulating tabs, a layer of waterproof coating material on the upper half of the face of the strip which is to be exposed when the strip is laid, said coating layer terminating substantially along a line joining the upper extremities of said cut-out portions, and a layer of mineral surfacing material affixed to said layer of coating, said strip constituting a blank for subsequent treatment to provide the lower part of said base and the butt and side edges thereof with a single continuous layer of weatherproof coating material.

14. The steps in a method of making building strips, comprising applying a band of weatherproof coating to that portion of a sheet of saturated flexible fibrous material which forms the unexposed part of the strip when laid in place leaving the remaining portions thereof uncoated, surfacing the band with finely divided solid material and severing strips from the sheet.

15. The steps in a method of producing building strips, comprising applying bands of weatherproof coating to a sheet of saturated fibrous material, leaving the remaining portions thereof uncoated, surfacing the bands with finely divided solid material, cutting slots in the uncoated portions of said sheet and severing the sheet into strips.

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